Ulrike Thorwartl

Judgmental analysis of literature on stock exchange mergers and alliances in Europe

Thesis

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Judgmental Analysis of Literature on Stock Exchange Mergers and Alliances in Europe

To my parents

I would like to thank Univ. Prof. Dr. Gerhard Fink and Univ. Prof. Dr. Wolfgang Obenaus, my supervisors, for all their input to the thesis. I also owe my thanks to the OeNB Jubiläumsfonds and Doz. Dr. Peter Haiss and Mag. Stefan Marin from whom I received data on stock exchanges and financial markets (the data was taken from the "Finance-Growth-Nexus-Project" sponsored by the OeNB Jubiläumsfonds No. 8868).
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<tr>
<td>A</td>
<td>author</td>
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<tr>
<td>AIM</td>
<td>Alternative Investment Market</td>
</tr>
<tr>
<td>AMEX</td>
<td>American Exchange</td>
</tr>
<tr>
<td>ATS</td>
<td>Alternative Trading System</td>
</tr>
<tr>
<td>BIS</td>
<td>Bank of International Settlements</td>
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<td>CCP</td>
<td>central counterparty</td>
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<td>CESI</td>
<td>Central European Stock Exchange Index</td>
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<tr>
<td>CSD</td>
<td>central securities depository</td>
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<tr>
<td>EASDAQ</td>
<td>European Association of Securities Dealers</td>
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<tr>
<td>ECN</td>
<td>Electronic Communications Network</td>
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<tr>
<td>ECSC</td>
<td>European Coal and Steel Community</td>
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<td>ed</td>
<td>editor/edition</td>
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<tr>
<td>EEA</td>
<td>European Economic Area</td>
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<tr>
<td>EEC</td>
<td>European Economic Community</td>
</tr>
<tr>
<td>EGKS</td>
<td>Europäische Gemeinschaft für Kohle und Stahl</td>
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<tr>
<td>EI</td>
<td>European Integration</td>
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<tr>
<td>EMU</td>
<td>Economic and Monetary Union</td>
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<tr>
<td>ESC</td>
<td>European Securities Committee</td>
</tr>
<tr>
<td>ESRC</td>
<td>European Securities Regulators Committee</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>EURATOM</td>
<td>European Atomic Energy Community</td>
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<tr>
<td>EUREX</td>
<td>European Derivatives Exchange</td>
</tr>
<tr>
<td>EWG</td>
<td>Europäische Wirtschaftsgemeinschaft</td>
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<tr>
<td>FESCO</td>
<td>Forum of European Securities Commissions</td>
</tr>
<tr>
<td>FESE</td>
<td>Federation of European Securities Exchanges</td>
</tr>
<tr>
<td>FIVB</td>
<td>Federation International des Bourses de Valeurs</td>
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<tr>
<td>FSAP</td>
<td>Financial Services Action Plan</td>
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<tr>
<td>FTSE</td>
<td>Financial Times Stock Exchange</td>
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<td>G10</td>
<td>Group of Ten</td>
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<td>GEM</td>
<td>Global Equity Market</td>
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<td>GM</td>
<td>General Motors</td>
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<tr>
<td>HLSSC</td>
<td>High Level Securities Supervisory Committee</td>
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<td>IASC</td>
<td>International Accounting Standards Committee</td>
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<tr>
<td>IBM</td>
<td>International Business Machines</td>
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<tr>
<td>ICSD</td>
<td>International Central Securities Depository</td>
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<tr>
<td>IOSCO</td>
<td>International Organisation of Securities Commissions</td>
</tr>
<tr>
<td>ISD</td>
<td>Investment Services Directive</td>
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<tr>
<td>iuK</td>
<td>Informations- und Kommunikationstechnik</td>
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<tr>
<td>iX</td>
<td>International Exchange</td>
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<tr>
<td>KMU</td>
<td>kleine und mittlere Unternehmen</td>
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<tr>
<td>ltd.</td>
<td>limited</td>
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<tr>
<td>Med</td>
<td>Mediterranean</td>
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n.a. not available
n.d. no date
n.p. no place
n.pag. no page
n.publ. no publisher
NASDAQ National Association of Securities Dealers
Automated Quotation System
NYSE New York Stock Exchange
OECD Organisation for Economic Cooperation and Development
plc. public limited company
R&D Research and Development
SE AQ Stock Exchange Automated Quotations system
SEM Stock Exchange Monitor
SME Small and Medium-Sized Enterprises
SRO self-regulatory organisation
STM second-tier market
STP straight through processing
SWX Swiss Exchange
UCITS Undertakings for Collective Investment in Transferable Securities
UK United Kingdom
US United States
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ABSTRACT

The aim of this thesis is to compile a glossary of technical term relevant to stock exchange mergers and alliances. Since technical communication can only be described meaningfully in the context of technical information, technical knowledge, and terminology, judgmental analysis will be applied to the literature on stock exchange mergers and alliances to identify management theories that are able to explain stock exchange mergers and alliances. One aim is to find out which general theories on mergers and alliances have a high explanatory value for stock exchange cooperation. In the first part of the thesis, the stock exchange world is examined. First a general overview of the theory of corporate growth is given, next the changes in the environment of stock exchanges are examined. In the analytical part, fourteen general management theories are applied to stock exchange cooperation. The criteria used to identify the explanatory value of the different theories are the critical success factors of stock exchanges identified in the first part of the thesis. A point system is introduced in order to make the results of the analysis of the different theories more comparable. The final part of the paper consists of an English-German glossary containing the relevant technical terms of stock exchange mergers and alliances.
1 INTRODUCTION

1.1 Introduction to the topic

The history of mergers and alliances dates back a long time. The first merger wave was observed after the Civil War in the US. Cornelius Vanderbilt made a takeover attempt of the Erie Railroad by his company Basic Industries Vanderbilt and transportation in 1866 and in this way triggered the first merger wave. Since then several periods with increased merger activity followed until in the 1990s the first stock exchanges also started to ride the merger wave. The reason is that stock exchanges nowadays have to cope with a radically and rapidly changing environment. They have lost their former local and regional monopoly position through global capital market liberalisation, new regulation, and European integration. The advent of the Internet has accelerated communication around the globe. Technicalisation of and the disintermediation in financial markets, the consolidation of institutional investors, and the development of Alternative Trading Systems (ATSs), which are trading platforms for financial instruments on the Internet, have led to fundamental changes in the stock exchange world. Competition among stock exchanges and alternative trading venues has become global, as investors as well as issuers can choose the stock exchange offering the most favourable conditions for investments and offerings. As a result, even minor cost-disadvantages can become a life-threatening weakness for an exchange. Moreover, stock exchanges in Europe are struggling with a loss of business compared to their US counterparts. This is evidenced by the fact that the outflow of portfolio investments from the euro area was about three times as high as that from the US between 1999 and 2001. Outflows of portfolio investments from the US are defined as the purchase of foreign equity or debt securities outside the US by US market participants. On the other hand, portfolio investment outflows from the euro area are purchases of foreign securities outside the euro area by market participants from the euro area. As outflows from the euro area are substantially higher than those from the US, US stock exchanges win over business from their European competitors. The difference in 1999 was 214.9 bn dollars, in 2000 186
bn dollars, in 2001 91.5 bn dollars and in 2002 it increased again to 176.5 bn dollars. Absolute figures have decreased steadily from 2000 on in both areas, in 2002 even turning positive in the US (IMF 2004: 177). Another reason for the weakness of European exchanges compared to the NYSE is the huge current account deficit in the US, which leads to an increase in capital imports by the US, which are financed to a considerable extent via stock exchanges. The current account deficit of the US amounted to 5.06 percent of GDP in the first quarter of 2004 and experts expect it to increase even further in future, with major factors being a surging dollar and high oil prices. In contrast, the current account deficit in the euro area is expected to be only around one percent in 2004. That hints at a much larger demand for financing in the US than in Europe (Shapiro 2004, OECD 2004).

At the same time, credit markets are also a potential source of danger, as commercial banks compete directly with investment banks to satisfy the financing needs of businesses. This is particularly eminent in Europe, where equity culture is less developed than in the US, something that becomes obvious when one looks at ratio of the market capitalisation to GDP of the EU, which is significantly lower than in the US. In 2003, stock market capitalisation to GDP ration amounted to 116 percent in the US, compared to 67 percent in the EU-15, and only 54 percent in the euro area) (Fink, Haiss and Kirchner 2005). In order to be better armed for the battle for survival, stock exchanges have begun to team up. The rate of stock exchange mergers and alliances has reached unprecedented heights in the past couple of years. This thesis will examine this very trend.

1.2 Objectives of the thesis and research question

The aim of this thesis is to compile an English-German glossary containing the technical terms relevant to stock exchange mergers and alliances. For this purpose, judgemental analysis will be applied to the literature on stock exchange mergers and alliances. One aim is to find out which general theories on mergers and alliances have a high explanatory value for stock exchange cooperation.
The focus will be on European stock exchanges, as firstly, this is a manageable geographic area and secondly, European integration and Monetary Union are expected to have considerable impact on the consolidation process among European stock exchanges. Although mergers and alliances between derivative exchanges are much more common, the thesis will focus on stock exchanges. The justification for concentrating on stock exchanges is that a derivative can only be as liquid as its underlying (Olsen & Associates 2000). Therefore, it seems reasonable to deal with trade in underlyings.

Although there are manifold management theories of mergers and alliances and a wide-range of literature dealing with mergers and alliances in the stock exchange world, up until now no attempt has been made to examine these theories in view of stock exchange mergers and alliances. Furthermore, no one has yet made the effort to take a more detailed look at the technical terms used in this context. Resulting from this research gap the main research question to be answered is

"Which technical terms are important in the context of stock exchange mergers and alliances?"

In order to be able to answer this question, the relevant literature on stock exchange mergers and alliances in Europe will be analysed, as technical communication can only be described meaningfully in the context of technical information, technical knowledge, and terminology. Therefore technical communication is interdisciplinary and polycentric (Budin 1996: 3). On the other hand, terminology helps to improve the organisation of technical knowledge. That is also the reason why the compilation of the glossary would not be possible without the preceding analysis of literature on stock exchange mergers and alliances. For this reason the second research question to be asked is

"Which fundamental management theories can be identified as applicable to stock exchange mergers and alliances on the basis of the relevant literature?"
The reason why this question is interesting is that stock exchange mergers and alliances in many cases face a lot of scepticism and resistance, and many of them have failed in the past. This, apart from other factors, is due to the fact that each country considers its stock exchange to be a national symbol of pride, the independence of which is hard to give up for many. In this respect stock exchanges can be compared to airlines:

"Both have traditionally been symbols of national identity to which every western economy has felt it has had a natural right. And yet both will be under threat in a Europe without borders" (Moore 1990: 53).

In order to analyse the applicability of general theoretical paradigms explaining mergers and alliances to stock exchanges it will be determined whether the basic assumptions and main conditions of these theories hold true for the particular case of a stock exchange or if there are conflicts with the criteria for success of stock exchanges as well as other main factors (such as European integration and the emergence of Alternative Trading Systems). One section will contain prospects for the future development of the stock exchange world: Is the vision of a global stock exchange realistic? Finally, a glossary will be compiled on the basis of the elaborations on stock exchange mergers and alliances. It will define the relevant technical terms in English and German and highlight contrastive aspects. The technical language used in this context is particularly interesting with regard to changes in the stock exchange environment, since some of the new developments show different concepts in English and German.
1.3 Structure

Figure 1: Structure of the thesis.

1. Introduction

2. Methods and methodology

Part I: The stock exchange world
3. Theory of corporate growth
4. The changes in the stock exchange world

Part II: Analysis
5. Judgmental analysis of the explanatory value of 14 selected theories of mergers and alliances to stock exchanges
6. A central trading platform for the global stock market

Part III: Glossary

Discussion and Conclusion

Source: A.
1.4 Definition of important terms

In this section I have decided to define key terms of my thesis which do not have one single unique definition across different contexts in order to clarify which meaning will be used in this thesis. Since their usage and meanings can be inconsistent across different authors, I have decided that they need separate elaboration up-front. Many other concepts which are less diverse in usage will be explained in context and for more definitions of technical terms please also refer to the glossary. Below, however, the two most troubling technical terms in this thesis will examined in more detail, since it is of critical importance for further reading to define their boundaries.

1.4.1 Mergers

In literature, mergers are defined in many different ways. Generally speaking, some authors use this term in a very narrow sense, whereas others subsume a lot of different modes of cooperation under it. The first definition given here is very narrow, describing the term merger in its strictest sense.

"A true merger takes place when two corporations combine so thoroughly that neither of the participants survives legally. What emerges is an entirely new entity, with a new name, structure, line of products and services, culture, and so on" (Arsenault 1998: 84).

In the narrower sense, the term merger indicates that two or more firms are unified in a new one, whereas acquisition denotes the purchase of a majority of shares of one company by another. In most cases, however, a wider concept of mergers is used, comprising other forms of cooperation as well.

"The word can also apply to the situation … where two organizations come together and one is absorbed into the other, a process sometimes called consolidation and … sometimes called acquisition. One corporation legally disappears and the other remains, clearly made larger" (Arsenault 1998: 84).
If this second concept is followed, the differentiation between mergers and acquisitions is lost. However, as the focus with most intercompany cooperations is not on the legal but rather on the financial aspect, the two terms are used interchangeably (Bressmer, Moser and Sertl 1989: 5 and Hagemann 1996: 53-54). A third term that comes into play in this context is takeover. Although a takeover is the same as an acquisition, it is frequently referred to as a hostile acquisition.

"As is true of many terms in the field of business combinations, 'merger' and 'acquisition' – the amalgamation of two legally separate corporations – can be used interchangeably. The acquired company often considers the alliance a 'merger', while the acquiring company considers it an 'acquisition', or perhaps a 'takeover' if the transaction is hostile" (Gaughan 2000: n.p.).

The term merger sometimes even refers to a much wider range of activities in connection with the buying and selling of a company, such as classical mergers, acquisitions, management buy-outs or management buy-ins, minority equity purchases, divestitures, spin-offs, and joint ventures. Additionally, some authors use the term for other forms of cooperation, such as strategic alliances or networks (Frank 1993: 6-7, Bressmer, Moser and Sertl 1989: 35-36 and Gosche 1991: 11). For the purpose of this thesis merger will refer to all those forms of intercompany relationships which involve the exchange of equity between two or more firms in a way that the financial independence of the partners is lost, i.e. mergers in their narrow sense, acquisitions, and hostile takeovers.

1.4.2 Alliances
In a very general meaning alliances are "association(s) to further the common interests of the members" (Merriam-Webster's Collegiate Dictionary). The terms alliance and strategic alliance are interchangeable, and both will be used throughout this thesis. One characteristic feature of strategic alliances most researchers agree upon is their linkage to a company's long-term strategic plan. As the goal is to improve a company's competitive position, a strategic alliance can be defined as a close, long-term, mutually beneficial agreement between two or more parties with the intent to improve the competitive position of each partner.
The strategic objectives of the alliance are achieved by combining complementary strengths as well as sharing resources, knowledge, and capabilities. Frequently, the partners will be actual or potential competitors (Spekman et al. 1998: 748, Schaper-Rinkel 1997: 26 and Devlin and Bleackley 1988: 18).

Alliances can take many different forms, ranging from joint ventures, which involve the creation of a new entity in which the partners have a share of equity, to forms with no separate legal entity involved, such as long-term purchasing agreements, co-marketing and licensing agreements, R&D collaboration teams, or consortia (Gulati and Singh 1998: 781, Child and Faulkner 1998: 5-7 and Bucklin and Sengupta 1993). In order to further distinguish an alliance from other forms of corporate cooperation, certain criteria are needed:

- The companies which form the alliance remain independent.
- An alliance generates or fosters competitive advantages.
- The benefits of the alliance as well as control over the performance of the agreed upon goals are shared among the partners. For this reason, the strategic goals of the alliance must be compatible with and directly related to those of the individual partners. This is probably the most characteristic feature of a strategic alliance.
- The core competencies of the partners are taken into account and combined with the aim of creating synergies. The partners are expected to contribute continuously in one or more key strategic fields, e.g., research and development, technology, products, etc., with each partner having access to the resources of the other partners. Alliances generally represent an opportunity for organisational learning.

Now that the key terms of the thesis have been clarified, the next part will deal with the methodology and research methods of this thesis.
2 RESEARCH METHODS AND METHODOLOGY

The research strategy of this dissertation is twofold: deductive multi-paradigm research (applying fourteen different theories) using judgmental analysis is combined with terminological research identifying the main concepts in this research field. This research approach is in conformity with the concept of critical rationalism, which postulates that insight does not necessarily have to be gained through empiricism, but also through intellectual effort (Schülein and Reitze 2002: 54). Critical rationalists, such as Popper, rely on deduction rather than induction and stress that empiricism and intellectual effort are equally important.

Multi-paradigm research is a means of fostering greater insight and creativity by applying different paradigms to analyse phenomena (Gioia and Pitre 1990). Multi-paradigm research "is most appropriate for studying multifaceted phenomena characterized by expansive and contested research domains (i.e., with numerous, often conflicting theories)" (Lewis and Grimes 1999: 678). This is certainly the case if one looks at the large number of different theories on interfirm cooperation. Fourteen different theories (for more details see Section 5) will be used here to examine the theoretical background of stock exchange mergers and alliances. According to Gioia and Pitre (1990: 584), the view derived from the application of a single research paradigm is too narrow to reflect multifaceted organisational reality.

In accordance with the research strategy, the thesis will be built on judgmental analysis of technical literature. Literature will be used not only as a secondary source (in the majority of cases literature reviews are mainly used to provide an overview of the state of the art or to identify gaps in the body of knowledge), but as the main basis for theory analysis. First, the environment and critical success factors of stock exchanges are analysed on the basis of existing relevant technical literature. In a second step, the theories relevant to stock exchange mergers and alliances are derived through deduction, i.e. the application of laws of logic to derive new insights for a particular case from an already
existing general principle, using judgmental analysis (Schülein and Reitze 2002: 227). "Deduction moves from the general to the specific. It moves from (1) a pattern that might be logically or theoretically expected to (2) observations that test whether the expected pattern actually occurs" (Babbie 2001: 35) by applying a theory or general law to a particular case. Judgmental analysis is one method of deduction.

Deductive research is concerned with practical issues and is in line with Popper's view, who introduced the concept of falsifiability and stated that science progresses through trial and error. Falsifiability acknowledges that theories are fallible. Theories can be tested and falsified, but never logically verified. The main purpose of theory-testing is not to show whether a theory is true or false but, in the ideal case, that a theory is better than its predecessor. In this way falsifiability tries to achieve scientific progress rather than arrive at absolute truth (Chalmers 2001: 71-71).

The main method applied in this thesis, judgmental analysis "is based on a logical analysis conducted by interested people" (Jamieson and Chapelle 2004: 180). The strategy of judgmental analysis is to define and operationalise variables (which are in this case the success factors of stock exchanges plus the influence of Alternative Trading Systems and European integration) to determine if there is a link between the theories and the variables (Jamieson and Chapelle 2004: 180). Judgment derives from the interpretation of objective data. Judgment is "a cognitive or intellectual process in which a person draws a conclusion, or an inference, about something…on the basis of data" (Hoffman and Franke 1986). According to Evans (1987: 32), judgmental analysis is conducted in three stages:
1. Formation of theories and assumption on which analysis is based.
2. Generation of hypothesis and predictions.
3. Search for evidence.
All three steps will be performed in this thesis. The theories on which the analysis is based are fourteen general management theories of mergers and alliances. The hypothesis is that these management theories are highly relevant for stock
exchange mergers and alliances. Finally, the interpretation of the literature and the judgmental evaluation of different theories with regard to the critical success factors of stock exchanges as well as important developments in their environment will result in an assessment of the explanatory value of the different theories.

Bunn and Wright (1991: 503) present a best-practice guide for judgmental analysis:

- The analysis has to be coherent and defensible. An audit trail should explain verbally the reasoning behind the judgment process. This will be done by verbally justifying the evaluation of each success and environmental factor.
- Judgment should rather be an aggregation than individual. The usual reason put forward for group judgments is that outcome is improved, as by taking into account a wider range of outcomes judgment may be revised and optimised (Lock 1987: 110). This point will be neglected in this thesis, as the main goal is the compilation of a glossary of relevant technical terms of stock exchange mergers and alliances based on the analysis rather than absolute validation of the analysis results.
- Judgment should be derived through decomposition rather than via a holistic approach. Decomposition will take place by firstly analysing each of the fourteen management theories separately, and secondly, by individually looking at each critical success factor and environmental factor.
- Judgment should not be influenced by reward structures associated with the judgmental analysis. As the researcher is not involved in the stock exchange business and as there is no "desirable result", no reward structure is to be expected.

Several researchers (e.g. Armstrong 1985, Makridakis 1988) argue against the general use of judgmental analysis, except in special circumstances, such as major environmental or organisational change. This is certainly the case for stock exchange mergers and alliances, if one looks at all the major recent changes (for an extensive description please see Section 4) in the environment of stock
exchanges. On the other hand, empirical studies (e.g. by Edmundson et al. 1988 or Larence et al. 1985) show that a well-structured judgmental process can be as reliable as statistical analysis and in some cases even outperform it.

One frequently used method to improve the validity of judgmental analysis is expert interviews where participants follow iterative processes to arrive at an ordering of or choosing from a finite number of decision alternatives which are explicitly described in terms of their alternatives (Frandel and Spronk 1985: 2 and Da Silva, Davies and Naude 2002: 245). The experts involved should conduct analyses in their area of expertise and if the process has some formal structure (such as decomposition), judgmental analysis tends to yield very reliable results (Bunn and Wright 1991: 505). For the reasons stated above, expert interviews will not be used in the course of this research.

One potential source of mistakes and biases is the mental processes involved in deducing conclusions (Evans 1987: 33). As high level cognitive processes have a substantial element of automaticity, judgments, including expert judgments, are likely to show subtle biases which people are unaware of. If people are aware of the basis upon which their judgments are made and realistically appraise the accuracy with which they can make such judgments, the likelihood of a valid judgment is much greater. This is not the case, however, with a large part of judges. People usually construct theories to account for what they have done but do not have any direct access to their own mental processes. Therefore, the opportunity to reduce error by self-criticism is limited (Evans 1987: 41-42).

Moreover, Tversky and Kahneman (1981) point out the problem of "framing", which describes how a problem is presented. Even minor changes in framing can strongly influence the outcomes of judgmental analysis. In addition, the fact that the outcome of judgemental analysis in economics and business administration is usually tested against real world events rather than laboratory simulations makes it more difficult to obtain objective and clear-cut evidence.
Confirmation of an analysis does not necessarily verify a judgment, as also many other facts might change which might influence the result (Evans 987: 44).

In this thesis, the theories which are applicable to stock exchange mergers and alliances will be derived through judgmental analysis: Firstly, the general management theories of mergers and alliances will be analysed in view of the critical success factors as well as environmental factors. If we assume these criteria to be relevant to stock exchanges and if a theory on mergers and alliances supports them, then the theory will also be applicable to stock exchange cooperations, i.e. it will be assumed relevant (Chalmers 2001: 36). Möller (1985: 8) states that the different criteria on the basis of which judgmental analysis takes places are usually not equally important. Therefore the criteria can be assigned weights which reflect their relative importance for analysis (Möller 1985: 8). This will be done in this analysis, the justification will be given in the introduction to the analysis system at the introduction to Section 5.

The next section of this thesis will deal with the theory of corporate growth. It attempts to explain why companies seek to grow in the first place. The main body of part one will contain an overview of the changes in the stock exchange world and the critical success factors of stock exchanges, which will then form the basis for analysis in Part II.
PART I: THE STOCK EXCHANGE WORLD

3 CORPORATE GROWTH

Just like corporations in general, stock exchanges enter into mergers and alliances in order to grow. Growth at a certain level is necessary in order to survive and to adapt to changes in environment. On the one hand, the access to resources has to be maintained and improved to strengthen the company's competitive position. On the other hand, the company must seek to use its competitive advantages as efficiently as possible. In both cases, growth requires access to complimentary resources (Taylor and Cosenza 1997 and Schaper-Rinkl 1997: 65). These resources are used to discourage competitors from investing in the company's main fields of business. What companies must seek to achieve is to serve customers by creating differentiated goods and services tailored to the customers' needs by employing different types of resources (Canals 2000: 2). According to Zook, Allen and Smith (2000), a successful growth strategy is characterised by two features:

- A strong competitive position in the company's core business.
- A sensible investment programme that reinvests in the company's core businesses.

Companies that grow at an above-average rate over several years are characterised by the ability to handle the life cycle of their core businesses and continuously develop new businesses for the future. That means that the pipeline needs to be organised in a way that activities with a declining growth potential are smoothly replaced by others which show a high potential for growth (Rall 2002: 10).

When a company has not grown for many years this may be a signal of a lack of either innovative power or connection to the needs of current or prospective customers. Corporate growth can, however, also be financially unhealthy. The main reason is often unreflected diversification or increasing sales or market share at any cost through measures such as price wars, indiscriminate promotions, or unreasonable marketing expenses aiming at an increase in short-term revenues. For this reason, growing revenues are not automatically equivalent
to successful growth, as only a small percentage of companies manage to really create shareholder value in the long run (Zook, Allen and Smith 2000 and Canals 2000: 2-3).

### 3.1 Forms of growth

Generally, one can distinguish between two forms of growth, internal and external growth. The figure below systematises the different strategies:

![Alternative ways of corporate growth](image)


The decision between internal and external growth has to be continuously adapted to the growth strategy and stage of the enterprise. The two possibilities do not exclude each other and there are many successful examples of combined strategies (Rall 2002: 16). Internal growth results from the isolated sourcing of different resources which are then combined to form a new factor combination. The characteristic feature is that these new combinations are combined independently by the firm itself (Kogler 1992: 13 and Hätscher 1992: 84). If the necessary resources for growth already exist outside the company and if they have
been combined already by other companies in a way which leads to the desired factor combination, external growth will be most likely. External growth is defined as growth through cooperation between companies which allows them to gain access to complementary resources necessary for growth. (Witte 1980: 120) The decision to take a certain growth path is made on the basis of the cost associated with the possible paths, i.e. the cost of access to the complementary resources necessary for growth. Of course the cost must always be compared with the expected profit resulting from the growth strategy. In order for a growth strategy to be profitable, the present value of the cost of growth must be lower than the present value of the additional profit expected from the expansion (Schaper-Rinkl 1997: 56 and Porter 1987b: 34-35).

3.1.1 Internal growth

Internal growth, or internal expansion as it is also sometimes called, can be achieved by companies in three different ways:

- By creating new products internally.
- By adapting or upgrading existing products.
- By expanding into new markets (Duberman 1990: 24).

Nowadays more and more firms are returning to internal growth strategies. The reason is that external growth did not turn out to be as successful as expected. Instead of spending a lot of money on a merger, companies develop several new products internally. Internal growth can be encouraged through the establishment of a research and development department. The main advantage of internal growth is that it "is less risky and yields higher return on invested capital than acquisitions" (Gertz 1995: 47). Furthermore, internal growth is much less complicated in terms of organisational questions, since no integration process has to take place and organisational culture and informal networks remain unchanged (Rall 2002: 17). Mergers frequently result in cultural clashes, particularly during implementation, which may lead to unsatisfactory performance in this period. On the other hand, there are also considerable costs associated with internal growth. The main cost will result from the recruitment of new personnel, the sourcing of
production facilities, and marketing (such as the introduction of brand names) (Harrison 1987: 80-81, Schaper-Rinkl 1997: 56 and Vermeulen and Barkema 2001). Moreover, the resources and abilities to fully exploit attractive growth possibilities need to be built up systematically, which is usually a lengthy process (Rall 2002: 18). Finally, another potential danger of internal growth is the risk of failure of innovations. One prerequisite for successful innovations is innovative spirit within the organisation as well as a close link between R&D and corporate strategy. Since the process of innovation usually requires the involvement of different corporate units, process-oriented and interdisciplinary organisational structures are of major importance. Even if all these prerequisites are met, innovations might still fail, however. Innovations bring about changes, which are often not welcomed by members or stakeholders of the organisation (Thomaschewski 2002: 184).

3.1.2 External growth

External growth is characterised by the extensive and, in many cases, systematic deployment of so-called external resources – assets over which the firm has no direct ownership. External growth is a typical pattern of growth for young companies. Its characteristic feature is that these companies are mainly driven by available opportunities for growth rather than by the resources the company itself controls (Stevenson and Gumpert 1985 and Jarillo 1989: 135). The advantages of external growth are that it is unlimited (except for the ability to absorb and integrate new enterprises), permits firms to increase their market power, to avoid market entry barriers, to enter new markets more quickly, and to gain access to new knowledge and resources (Vermeulen and Barkema 2001: 457 and Rall 2002: 18).

The main costs associated with external growth are licence fees (in the case of licensing agreements), the cost of usage of the firm's equipment by the partner, or the cost of setting up a joint venture. In the case of external growth through a merger, the purchase price for the acquired firm represents the cost. (Schaper-Rinkl 1997: 65-67) The higher cost compared to internal expansion –
takeover premiums average 20 to 40 percent and also the cost of integrating an acquired firm must not be neglected – is the major disadvantage of external growth. Also the time and attention of the top managers required by mergers during which they are diverted from day-to-day business as well as the fact that a series of problems might evolve, particularly during implementation, has to be taken into account. Another limitation is the scarce supply of suitable partners – high-quality companies which are active in the same or a related product line. In contrast to external growth, internal growth strategies bear the advantage of usually contributing to progressing simplicity, but at the same time "acquisitions, in contrast, revitalize a firm and enhance its ability to react adequately to changing circumstances" (Vermeulen and Barkema 2001: 458). It is assumed that companies prefer internal to external growth. They usually first exploit all possibilities of internal growth and only turn to an external growth strategy when there are insurmountable barriers to internal growth (Schaper-Rinkl 1997: 59-60, Eckbo and Langohr 1989 and Hitt, Hoskisson, Johnson and Moesel 1996).

3.1.2.1 Mergers

Mergers are the result of a certain business strategy of a company. Generally, one can distinguish between three broad categories of business strategy through which external growth is pursued:

1. Portfolio strategy

The goal of this strategy is to achieve a reasonable balance and stability within the firm by combining a set of interrelated businesses. The portfolio strategy may refer solely to the financial basis or also take into account technological, market know-how, or product-market niche relationships.

2. Business family strategy

The strategy at this level is to develop related new business activities by combining business activities based on a common technology or know-how. This allows the firm to exploit synergies in technology, product markets, or distribution. It might also result in new businesses set up by combining existing units.
3. Business element strategy

At this level the firm focuses on its main competitor or competitors. The challenge is to formulate a product/market strategy that is competitive in regard to winning a particular customer (Lorange, Kotlarchuk and Singh 1987: 4).

Mergers themselves are usually classified on the basis of the direction of the merger, denoting the way the partners are related to each other. Most commonly, one distinguishes between horizontal, vertical, concentric, and conglomerate mergers. **Horizontal mergers** refer to cases when the partner firms are active in the same market segment. As a result, a horizontal merger leads to economies of scale in production and distribution, and frequently to an increase in market share or an extension of the companies' product line. In a **vertical merger**, two or more firms of preceding or succeeding stages in the production chain are combined, the firms having a customer-supplier relationship. This type of merger is usually undertaken when the market for the intermediate product is imperfect. Depending on whether the acquired firm is in a preceding or succeeding stage one speaks of a forward vertical merger or a backward vertical merger respectively. **Concentric mergers** are formed for the know-how potentials of the companies concerned. The result is an extension of product lines, market participations, or technologies. The main focus is on technology or research and development activities. Finally, all those cases where there are no obvious connections between the buyer and seller firm are subsumed under the term **conglomerate or diversification merger**. The reason for these mergers is in most cases a diversification or portfolio strategy and they are intended to enhance the firm's overall stability (Hermsen 1994: 35-36 and Lorange, Kotlarchuk and Singh 1987: 5-6).
3.1.2.2 Alliances

In accordance with the definition of alliances given above, alliances comprise a strategic element and are built on the basis of major strategic challenges or opportunities of the cooperating companies. Alliances usually serve one or more of the following three purposes:

- **Co-option**: Potential competitors are neutralised by integrating them in an alliance and the combination of complementary goods and services leads to economies or the development of new businesses.
- **Co-specialisation**: Synergies are created through the combination of previously separate resources, such as skills or knowledge.
- **Learning and internalisation**: Alliances help companies to develop new skills by learning from a partner and internalising these skills (Doz and Hamel 1998: 5).

There are two managerial dimensions a firm seeking to enter into an alliance must consider, cooperation and competition or, more generally, cooperation and conflict. It is management's task to optimise along these two dimensions. The two elements of cooperation are

- adding value to an activity, i.e., the cooperative activity generates more value than going alone and
- learning from the partner and in this way enhancing the company's strategic competencies, which should strengthen the company's competitive position.

The competitive challenges of an alliance comprise

- maintaining strategic flexibility so that the firm does not become totally reliant on an interfirm link and management must not be restricted in its strategic options and
- protection of core competencies, i.e. the firm must protect itself against the partner firm appropriating its core competencies or strategic advantages.

The individual optimisation strategy of each firm eventually depends on the strategic goals of the partner firms.
The advantage of alliances over mergers is their flexibility. Alliances are particularly useful when entering new geographic regions or new businesses. When expanding the company's core business, alliances and mergers are equally suitable. In a merger companies in many cases acquire more of a company than they actually need. However, if only part of a business is acquired, the value of a business unit may be diminished as it is disconnected from its supporting competencies. Moreover, the value of a merger is often difficult to estimate in advance due to uncertainties in market conditions or new developments (Doz and Hamel 1998: 3 and Bleeke and Ernst 1993: 19).

3.2 Driving forces behind external growth

When talking about the driving factors behind corporate growth, many authors distinguish between internal drivers and external drivers. *External drivers* are also described as "changes in the company's environment". These changes require the adaptation of the company to the new conditions (Levitt 1983: 92-95). In literature, the following external drivers are mentioned as reasons for the external growth boom in recent years:

- **Globalisation**, which means similar developments around the world. This trend is reinforced by a high degree of trade liberalisation together with the foundation and development of economic and monetary unions, which harmonise the transfer of goods and capital. On the other hand, technical progress leads to steadily decreasing transport and communication cost (Meffert 1989: 448-454).
- **Hand in hand with globalisation goes "the globalization of needs"**, as Ohmae (1993: 37) calls it. This includes the assimilation of consumer needs and preferences, which is expressed by the fact that such things as the life-style, the information received, or the kind of products preferred are similar for most consumers around the world. Everybody wants the best available products at the lowest price. In a figurative meaning the result is that everyone wants to
"live and shop in California" (Levitt 1983: 92-95). Capitalising on this fact, companies can market the same standardised products all over the world.

- Products today rely on many different technologies. As a result, most companies are unable to remain competitive in all these different technologies and have to seek cooperation (Ohmae 1993: 36-41 and Child and Faulkner 1998: 71).
- Shorter product life cycles, fast technological change and quick changes in trends in demand require high investments. The enormous competitive pressure to develop new cutting-edge technology leads to skyrocketing R&D costs. Due to the fact that the time between the development of a new product and its obsolescence is getting ever shorter, time has become a crucial competitive factor. Consequently, many companies generate more than half of their turnover with products which are younger than five years. Due to the shortening of the whole life cycle, companies also feel the pressure to market their products more quickly. High development costs have to be covered through a high sales volume in the marketing phase as quickly as possible. For this reason quick market penetration and the introduction in a broad spectrum of markets have become key factors, which makes corporate cooperation more and more important (Rumelt 1987: 137-141).

The second category of driving factors is internal drivers, also referred to as synergistic potential. Synergistic potential is derived if a combination of single enterprises or parts of enterprises results in a higher profit in the long run than their isolated existence. Synergistic potential can be utilised by bundling or exchanging resources or abilities of the combined companies, in this way decreasing costs or increasing profits. Synergistic potential is a necessary prerequisite for a successful merger or alliance (Salter and Weinhold 1994: 117) In general, one can distinguish between the following types of synergistic potential:
Volume advantages, which are derived through the bundling of similar resources and which can again be split up into economies of scale, learning curve effects and coinsurance effects.

- Economies of scale are cost advantages which lead to a reduction in cost per unit resulting from a higher number of units produced. Larger companies therefore usually have cost advantages compared to smaller competitors, which is a major motivation for cooperation, leading to higher production volumes.

- Learning curve effects refer to the fact that certain activities are being performed more efficiently over time due to individual or organisational learning.

- Coinsurance effects result from the fact that increased volume decreases the margin of fluctuation of streams of revenue from high-risk activities. For this reason coinsurance effects are especially important in technology intensive or extractive industries where risks are particularly high. Coinsurance effects are a major motive for alliances, as through a network of alliances the risk can be spread much more broadly than through a merger (Gullander 1976: 104-105).

Economies of scope: If existing resources or abilities (such as management know-how, customer relations) can be used for new activities, economies of scope may be derived. In other words, the cost of performing different activities concertedly is lower than their isolated performance (Panzar and Willig 1981: 269-271). Again there are different types of economies of scope:

- A more efficient use of assets through a better utilisation of tangible or intangible assets. An example would be the use of a brand, which is very costly to build up, for more than one product.

- A better utilisation of external relations can be achieved when existing relations to customers, suppliers, or governmental agencies are used for new products or new geographical markets. For example, new products could be offered to existing customers.

- Economies of scope can also be realised by utilising knowledge more effectively. One example is R&D knowledge, as R&D activities
frequently lead to a generation of knowledge which can be used for several products and markets. The same applies to knowledge about foreign markets. The most remarkable economies of scope can be achieved if the company possesses unique knowledge in the form of critical abilities or core competencies which can also be used in new operating areas, in this way generating sustainable competitive advantage in the new fields as well.

- Monopoly advantages

Explaining the formation of mergers and alliances on the basis of monopoly advantages mainly rests on two pillars: market power and price effects. By cooperating with competitors, market competition is reduced and market power increased. In this way the price can be raised to a level that is above the equilibrium price under perfect competition so that monopoly rents can be generated (Thomaschewski 2004: 34).

In most cases external stimuli are responsible for the formation of intercompany cooperation. An internal resource imbalance occurs which needs to be evened out to maintain the company's competitive advantage. If two firms with complementary resources and imbalances meet, a merger or an alliance will result (Child and Faulkner 1998: 69 and Nelson 1995). In recent years the phenomenon of external growth has become more and more common. According to Spekman (1998: 749), the reason is that external growth is frequently desired to understand and cope with uncertainty.

After this general introduction to the theory of corporate growth, the next section will give an overview of the major changes in the stock exchange world that led to the emergence of the phenomenon of stock exchange mergers and alliances.
4 CHANGES IN THE STOCK EXCHANGE WORLD

4.1 The former monopoly position of stock exchanges

Until a few decades ago stock exchanges held a quasi-natural monopoly position. Their monopoly was based on geographical limitations, as the physical presence of all financial intermediaries was necessary for trading, information and decision-making were concentrated at a central location. "Without telephones, telegraphs, or teletypes, face-to-face bargaining was essential in effecting securities sales" (Arnold et. al 1999: 1085). The need for face-to-face contact between buyers and sellers of securities led to the creation of regional exchanges, which were the result of financing needs in regions with growing industries. Their original function was to provide a market and liquidity for relatively small regional companies. At the time of foundation of these exchanges, a single, central trading floor would not have been accessible to all market participants and before the computer and telecommunications revolutions it was cheaper to trade stocks on regional exchanges (Gerke and Rapp 1994: 15, Arnold et. al 1999: 1086, Von Rosen 1992: xvii and Brennan 1993).

It was only in the 20th century that the importance of regional exchanges began to shrink due to reduced communication costs. At the beginning of this century, about one hundred local stock exchanges could be found in the US. In the 1920s and 1930s the amalgamation of stock exchanges went along with the development of telecommunications and in the 1940s legislative changes led to additional pressure. As a result merged stock exchanges typically increased their trading volumes whereas local exchanges constantly lost liquidity to the pan-continental New York Stock Exchange (Malkamäki and Topi 1999: 18).

In Europe the overall number of stock exchanges has increased, however, in the past few decades. This was due to the special conditions in Former Communist Countries, such as Slovenia, Poland, Hungary, the Czech Republic, Russia, etc., which urgently needed well-functioning capital markets to guide their
privatisation programs after the fall of Communism. This increased the fragmentation of the capital market in Europe, leading to a situation with 35 stock exchanges and 23 futures and options exchanges in 1996 (Benos and Crouhy 1996: 38). In the meantime, this number has risen further to 39 stock exchanges. The number of stock exchanges in Western Europe has decreased however, in particular due to consolidation of regional stock exchanges within countries. The number of derivatives markets fell to only 7, because of consolidation and mergers with national stock exchanges (FESE 2004). These figures show that the regional monopoly position of stock exchanges was quite imminent in Europe, whereas in the US stock exchanges started to compete with each other much earlier. One reason for this fact is that

"nationalism is a powerful factor having a distinctive impact at least on political decision. National stock exchanges, in particular, are seen as symbols of national identity, thereby providing strong support for the existence of national infrastructure. National marketplaces and other market infrastructure can also be regarded as an issue of national industrial policy" (Malkamäki and Topi 1999: 17).

Nationalism helped small national stock exchanges in Europe to survive much longer than small regional ones in the US, as each country is interested in maintaining at least one national exchange. On the other hand, European integration and liberalisation of financial markets within the EU are forces that are working against nationalism. The fact that many attempts of stock exchange consolidation have failed in the past shows, however, that centrifugal forces are still relatively strong.

4.2 The new environment of stock exchanges

As we have seen, exchanges were once cushioned from competition by geographical limitations and also regulatory barriers. But both technology and the deregulation of national markets are battering ancient monopolies as networked computers provide far-flung investors with a wide range of investment opportunities in different markets. Generally, one can say that globalisation is driving the trend towards internationalisation of investment. English has become
the official language in finance and although the harmonisation of international accounting standards is still lagging behind, certain conventions and in particular disclosure standards are becoming internationally standardised and widely recognised. This leads to increasing cross-border investment and the emergence of a handful of international financial centres (Gaa et al. 2001: 46). According to Havens, Shteyman and Saber (2000: 3), no previous evolution in financial market has been so rapid. Change towards the structures we observe today started in the 1980s, when the role of traditional intermediaries was significantly reduced by the introduction of automation on exchange floors. In order to retain their customer base, exchanges must cut cost and compete with others today. Competition among markets led to an increase in volumes and a reduction in brokers' commission fees. Furthermore, cross-listing became common for large companies (although the number has declined by more than fifty percent from 4700 in 1997 to 2300 in 2002 which is explained by a general decline in the ability of stock exchanges to attract new listings), particularly multinationals, and the advance of telecommunications and technology added to the mobility of capital ("The market goes to market", Benos and Crouhy 1996: 37, and Ramos 2003).
The figure below gives an overview of the drivers of change which characterise the new environment of stock exchanges:

Figure 3: Drivers of changes in international financial markets.

Globalisation refers to the fact that capital flows are becoming more and more international due to deregulation, which describes the liberalisation of national markets. This process is also referred to as capital account liberalisation.
The first step in this direction was the OECD Code of Liberalisation of Capital Movements, which deals with the liberalisation of all capital flows and which is, apart from regional agreements such as within the EMU, "still the single multilateral legal instrument that requires its adherents to open up their capital markets and refrain from discriminating against foreign investors" (Schuijer 2002). Although it is legally binding, it is not enforceable and there are no sanctions in the case of non-compliance. Nevertheless, there is considerable progress to be reported. The Code, which was established in the 1960s, originally covered only transfers related to foreign direct investment, trade credits, and certain longer-term securities. It took until the 1990s until short-term capital movements of speculative nature were also included, which substantially increased the importance of the Code. Today, the main provisions of the code are:

- Rollback: The progressive liberalisation of cross-border capital flows.
- Reservations: A country is allowed to lodge reservation against obligations it feels it cannot meet immediately.
- Ratchet: It is impossible to reimpose restrictions which have already been lifted, except in a few exceptional cases.
- Non-discrimination: The obligation not to discriminate among OECD members.
- Notification: The OECD must be notified of any restrictions on cross-border capital flows.
- Examination: The OECD examines restrictions and by exerting peer pressure aims to limit them to a minimum (Schuijer 2002).

In the meantime, most members have realised the benefits of liberalisation, such as access to a global pool of savings, fiercer competition among financial institutions, which improves their efficiency, more options of portfolio diversification and risk-reduction, as well as the worldwide dissemination of proper disclosure and corporate governance standards (Schuijer 2002). Without capital account liberalisation, the globalisation and amalgamation of financial markets would not have been possible. Increasing securitisation means that debt is increasingly backed by securities, meaning that securities exchanges are gaining importance. The three factors just mentioned (globalisation, deregulation and
securitisation) led to a consolidation of institutional investors as well as technicalisation and disintermediation. Consolidation of institutional investors results in the fact that investment capital is more and more concentrated in the hands of only a few institutional investors which have significantly increased their bargaining power. Furthermore, new regulations favour insurance companies over banks through tax incentives in connection with private pension funds. This has become a major issue since state pension systems have come more and more under pressure. This fact might trigger mergers between banks and insurance companies. By technicalisation and disintermediation we understand the steady progress of investment methods and strategies through automation (the use of modern computer technologies), which in turn leads to the middle-man (broker) frequently being cut out of the investment process (Gerke and Rapp 1994: 5 and Amati 2001: 5). New regulations in the EU enforce disintermediation, such as Basel II, which puts stock exchanges at an advantage compared to banks. In the US, disintermediation has been supported for many decades by several banking acts, with the most well-known being the Glass-Steagall Act of 1933. Until 1999, the 1933 Glass-Stegall act restricted commercial banks from providing investment banking services in the United States. This changed when the Gramm-Leach-Bliley Act came into force in 1999, permitting mergers between banks, insurance companies, and stock brokerage companies (Griffin and Pustay 1996: 183 and "The Gramm-Leach Bliley Act").

In the next section the two most important developments will be described in more detail: technicalisation and disintermediation on the one hand and concentration of institutional investors on the other, with both factors also being linked together. The third factor, namely the emergence of Alternative Trading Systems (ATSs), is rather an outcome of the first two developments than something to be seen separately. However, as it is a main driver of the changes in the stock exchange world it will be looked at separately.
4.2.1 Technicalisation and disintermediation

Rapid technological progress is a very powerful force for driving change in the stock market. Together with the removal of restrictions on movements of capital and multinational harmonisation of securities laws, automation has considerably contributed to the globalisation of financial markets. New trading mechanisms have already and will transform traditional exchanges even further into highly automated, global, and floorless cyber markets ("Internet securities"). One of the most important drivers of change was the advent of the Internet. Due to its development stock exchanges in the United States, in Europe and Asia have to meet the challenge of a revolution in securities trading. Firstly, it facilitates information exchange, dissemination, and evaluation (e.g. of analysts' reports). The major advantage of the Internet is the high speed with which information is processed and can be disseminated to market participants around the world. Secondly, it also permits interaction among economic agents. The Internet is also increasingly used to exchange financial instruments, create markets, route orders to the market or match or execute trades. Electronic trading systems are powerful, sophisticated, match buyers and sellers who do not have to be physically present, and therefore "allow agents to make trades via computer, without the 'open outcry' or pit auction system" (Scarlata 1992). In this way much greater trading volumes can be handled and processes can be adapted to customers' wishes. For this reason, more and more online accounts are being opened. Furthermore agents get direct access to more financial markets, which makes the cost of electronic trading by far lower than on traditional exchanges. This is due to the fact that the Internet does not only permit trade without the services of intermediaries such as brokers or dealers, but also investment decisions to be made by an automated portfolio management system. All of this can be done across borders and different jurisdictions, as the physical limitations on trading arrangements have been removed (Economides 2001: 8-9, 11, "Good-bye to all that", Scarlata 1992, Von Rosen 1992: xvii, "Internet securities" and Allen and Hawkins 2002: 50). Another important effect is that the playing field between traders has been levelled, as nowadays all investors have access to tools formerly only available to
professionals or wealthy investors. In summary, important contributions made by the Internet include that

- it provides a low-cost infrastructure which is accessible on a broad basis through a PC and browser software.
- it permits liquidity even though there may be only fewer users.
- it provides a platform investors can directly trade on with each other, thus lowering commissions and spreads and in this way getting better prices ("Internet securities").

As mentioned above, automation also permits trading across countries and nationalities. It is not surprising therefore that cross-country activity has increased sharply due to technicalisation. Cross-border trading in Europe showed a five-fold increase between 1985 and 1995 ("Global equity markets") and US transactions in foreign securities have risen from $17.85 billion in 1980 to $253.4 billion in 1990. One major trend of the 1990s was cross-listing, which facilitated access to foreign markets. In the meantime, the number of companies listing on several exchanges has decreased by more than 50 percent compared to its high in 1997. Obviously cross-listing did not pay-off for companies. Another development is called "passing the book". This permits 24-hour trading of financial instruments by passing control of trading between traders at different exchanges around the world. The third trend is underwriting of securities through offices other than the domestic (Scarlata 1992).

The major effect, however, of technicalisation and trading securities over the Internet is a trend called disintermediation. This implies direct transactions between issuers and investors on the primary market, and between investors on the secondary market respectively. The result is a reduction in traditional financial intermediaries. This is particularly notable as since the Buttonwood Agreement, signed in March 1792¹, brokers

¹ The Buttonwood agreement was a forerunner to the New York Stock Exchange. 24 brokers organised a stock market at the Buttonwood tree in what is Wall Street today (Havens, Shteyman and Saber 2000: 9).
"have given preferential treatment to each other fixing commissions and restricting access to information about executed trades...Throughout that time, the club of brokers has been increasingly criticised for its monopoly on access to and information about the stock market" (Havens, Shteyman and Saber 2000: 5).

Due to the introduction of electronic trading systems, the future role of brokers in equity markets is insecure, as they are sidelined by investors who are provided direct market access through electronic order books. The greater the access possibilities through electronic trading, the more the role of intermediaries is questioned. Furthermore, the shift from a pure dealer structure to auction systems implies that users can directly transact with one another. However, this is only possible in very large and liquid markets (Boland 1999: 18 and "The changing capital markets" 1991: 74). One major effect of disintermediation is a lot of pressure on intermediaries – brokers, dealers, market makers, or exchanges – to cut their cost. They are forced to focus more on value adding services, such as advisory service, risk management, or corporate finance, as in the long run there is not much money to be made with simple execution of trades, as this process is becoming automated (Allen, Hawkins and Sato 2001: 40, Amati 2001: 5 and Gaa et al. 2001: 52).

At the moment stock exchanges do not yet sell their services directly to customers, but only to those investment banks which hold membership. This might however change in the future. Stock exchanges might permit investors to use their electronic trading systems directly. In this way they would circumvent investment banks, which in turn would prove to be an even greater threat to the existence of brokers. On the other hand, brokers could start matching trades among their own customers, in turn circumventing the stock exchange, provided that clearing and settlement institutions permit it. The result would be a convergence of the two functions, with brokers becoming more like stock exchanges and vice versa (Gaa et al. 2001: 34). However, traditional brokers will not disappear totally due to the following factors:

- Wealthy investors need personal service due to the complexity of managing their investment.
Monitoring their portfolio personally the entire day is something many investors do not have enough time for.

The information overload requires professionals who filter out and interpret the essential pieces of information.

High market volatility requires professional advice and continuous adaptation of strategies ("Internet securities").

Despite the numerous advantages of the advent of the Internet and technicalization and disintermediation going hand in hand, the quick emergence of Internet securities also increases the risks of market volatility and fraud. The ease with which information can be spread over the Internet makes it prone to fraud: price manipulation, fraudulent offerings of securities, broker misconduct, false and misleading statements, fraudulent advice, etc. are typical examples of problems involved in Internet securities trading. Other risks frequently associated with Internet-trading are credit or counterparty risk, liquidity risk, replacement cost risk, and systemic risk ("Internet securities" and Scarlata 1992).

Europe is more cautious than the US regarding Internet trading. Progress is being made though, as the number of people with Internet access and the number of people owning shares is sharply on the increase. Inter-market trading shows that investors are flexible in their choice of stock exchange for transaction. This is beneficial for the efficiency of capital markets, as cross-border arbitrage operations lower valuation differences and increase liquidity (Von Rosen 1992: xvii and "Internet securities").

4.2.2 Consolidation of institutional investors

In the case of stock exchanges, the customers (investors) have always determined which suppliers (companies) would have their shares listed at a particular exchange. The reason is that investors determine the liquidity of an exchange and companies have their shares listed at the exchange with the deepest liquidity. In recent years, the negotiation power of investors has been increased further by the fact that only a few globally acting institutional investors have decided over the
turnover. This was the result of massive competitive pressure among banks, resulting from such factors as technicalisation and European integration. Although the retail banking sector in the EU is still relatively fragmented (consolidation has mainly taken place within national boundaries), the investment banking sector is highly integrated, with business being conducted on a pan-European or even global basis. (Cabral, Dierick and Vesala 2002). Through consolidation of institutional investors, relative order size has increased. The result is that exchanges increasingly face an oligopolistic demand structure. This is due to declining investment banks’ margins, so that they are forced to cut costs. At the same time, large players are better able to charge higher prices for their services ("Good-bye to all that" 1999 and Loistl 2000: 98). Many do so by joining forces. According to Berger, Demsetz and Strahan (1999), the number of US banks fell by almost 30 percent between 1988 and 1997 due to financial consolidation. At the same time, the 8 largest banking organisations held a share of 35.5 percent of total nationwide assets in 1997, compared to only 22.2 percent in 1988. Underwriting, for example, is dominated by a small number of leading institutions. As a result, a general tendency towards the emergence of an oligopolistic market structure can be observed (Group of Ten 2001: 3).

In the past few years, large investment banks have urged stock exchanges to rationalise the value chain of securities trading from order placing to clearing and settlement. Investors today expect low cost, as well as fast and flexible (24 hour) execution. Moreover, institutional investors seek high liquidity and easy exchange access, as well as anonymity. At the same time, investment banks are placing even more pressure on exchanges today by becoming active themselves and setting up and investing in ATSs (for further details see Section 4.2.3). In this way they circumvent traditional exchanges by using competitive and cost efficient trading platforms (Loistl 2000: 102). A side-effect is that as institutional investors consolidate, their in-house research capabilities increase, which makes them less reliant on brokers in this respect. This further endangers the future role of brokers, already weakened by the ongoing trend towards disintermediation (see also Section 4.2.1.) (Boland 1999: 18).
4.2.3 The development of Alternative Trading Systems

As can be seen in Section 4.1., stock exchanges held a monopoly position until the beginning of the twentieth century and later they were not-for-profit organisations competing only with one another. Today, however, they need to handle competition from new private trading systems which aim to make a profit. These trading systems are referred to as Alternative Trading Systems (ATSs) or Electronic Communication Networks (ECNs), private trading systems, proprietary trading systems ("Internet securities"), or MONSTERs (Market-Oriented New Systems for Terrifying Exchanges and Regulators) (Lee 1998: 1). The two most frequently used terms are ATS and ECN. They are sometimes used interchangeably, with ECNs more often denoting a class of ATSs used for US equities, notably those listed on NASDAQ (Financial Internet Working Group: "Glossary"). The European definition of ECNs is different, however, and describes them as ATSs on which securities can be bought directly from issuing houses (Groß 2002: 41). More precisely, all ECNs are ATSs, but not vice versa. For this reason, the SEC in the US and the FESCO in Europe have decided to officially stick to the term Alternative Trading System in their regulations. An Alternative Trading System is officially defined by the SEC as any system that

"(1) constitutes, maintains, or provides a marketplace or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the functions commonly performed by a stock exchange under Exchange Act Rule 3b-16 and (2) does not set rules governing the conduct of subscribers other than the conduct of such subscribers' trading on such organization, association, person, group of persons, or system, or discipline subscribers other than by exclusion from trading" (SEC 1998).

The definition of the European securities market regulators is almost identical to that of the SEC (European Commission 2001a). As the distinction between ATSs and ECNs is in many cases blurred, especially when taking into account the different definition of ECNs in Europe, it seems reasonable to refer to trading systems operating outside the auspices of traditional exchanges as ATSs, except when talking about a specific system operating in the US which explicitly calls itself ECN. The crucial point for users is that ATSs, whichever form they may
take, are "electronic systems that operate as exchanges, matching buy and sell orders automatically, without human intervention, for a low fee" ("Internet securities"). Their most important characteristics are technical efficiency and price and the fact that they are privately owned. They do not make money on the spread between bid and ask price, but charge a fee when a transaction is effected. In most cases, buyer and seller remain anonymous. Many ATSs do not have their own trading and settlement system, but use that of exchanges ("Internet securities", Von Rosen 1994: 1214 and SEC 2000).

4.2.3.1 Reasons for their emergence

The first ATSs were launched after the introduction of new rules on handling orders at the antitrust investigation in 1997 by the SEC, reacting to the scandal on NASDAQ stock exchange in 1996 when market makers were accused of illicitly widening their trading spreads. The new rules permitted non-traditional exchanges to set up trading platforms (Allen and Hawkins 2002: 51). ATSs emerged to offer trading off traditional exchanges, as most exchanges have problems in adapting to the demands of investors. At its beginning the development of ATSs went hand in hand with the development of e-commerce. Today, most online marketplaces offer far better services than traditional commerce, as buyers can connect to many sellers without having to connect point-to-point to each. The sophistication of trading systems has accelerated substantially over the past few years and the financial services industry is one of the drivers of the technological revolution (Korhonen 2001: 7). One of the original motivations for the establishment of ATSs was after-hours trading. Although the vast majority of trading on ATSs is done during regular trading sessions, the after-hours market has played an important role in the development of ATSs. Instinet, the first ECN, established its market niche providing after-hours trading to institutional and professional traders as early as the 1970s (SEC 2000). The majority of ATSs were set up in the 1990s and one of the major growth periods of ATSs was between 1997 and 2000. In general it must be noted, however, that the emergence of additional trading systems is not necessarily economically logical, as it is generally an advantage to the users of a trading system if there are as many participants as possible, as system-liquidity is believed to increase with the number of participants. This
effect is also referred to as the network effect. The result is lower spreads as well as buying and selling without market impact, which is responsible for investors tending to use the large, well-established marketplaces. On the other hand, there used to be substantial establishment costs before the advent of electronic trading, which, together with the network effect, substantially impeded competition. All these competition-restricting factors made and still make stock exchanges slow to invest in and introduce new technology and fulfil customers' needs and wishes. The largest stock exchanges, for example, were the last ones to introduce automatic trading systems and the NYSE, the biggest stock exchange, has still not yet done so (Jensen and Natorp 2000).

In order to become more independent from stock exchanges, institutional investors as customers of traditional services of exchanges have started obtaining a stake in the substitutational products offered by private suppliers. Some ATSs, such as Instinet or Island, even "were established by their main shareholders to cross-match their order flow and to benefit from their order flow without having to pay dealers" (Havens, Shteyman and Saber 2000: 15). As will be elaborated on in more detail in Section 4.2.3, this became possible as a result of the Order Handling Rules of 1996 passed by the SEC (Nextrade: "Company Information"). As a result of the regulatory changes, market entry barriers to the market of products and services traditionally offered by exchanges have decreased substantially and regulators welcome the competition triggered by the newcomers. Financial barriers are comparably low and the technical know-how for the establishment of a trading platform is not lower with newcomers than with traditional exchanges. This combination of technical know-how of newcomers on the one hand and financial strength and market power of institutional investors on the other, is a severe threat to traditional exchanges (Loistl 2000: 99). The fact that equity markets are relatively homogeneous and liquid makes them even more suitable for implementing electronic trading in a cost-efficient way "Typically, deep, liquid markets, with broadly standard asset classes and straightforward trade types are 'easiest' to migrate to electronic trading" (Allen and Hawkins 2002: 51). There are hardly any direct costs of providing customers with automated services.
In particular so-called distance costs are small or non-existent in connection with automated trading services, they increase, however, with distance from the customer in connection with access to floor systems (Domowitz and Steil 1999).

The advantage for investors today is the possibility of choosing between markets on the basis of different infrastructure criteria. They can select networks with the highest liquidity, adequate transparency and low transaction costs (Malkamäki and Topi 1999: 7). Institutional investors prefer the lower trading costs and anonymity of ATSs to the instant execution normally provided by traditional stock exchanges. Some ATSs already have enough trading volume to accommodate all except the largest block trades (Gaa et al. 2001: 49).

The first reaction by European countries to the emergence of the first ATSs in the US was to push for rules that would ban the trade in securities via systems other than recognised exchanges. This approach failed, as it would have driven business out of Europe. In a second attempt to fend off foreign competition, established exchanges took considerable steps to modernise systems, provide better services, and reduce costs. The result was investment in new trading and settlement systems. This strategy proved to be successful, as ATSs have not yet really gained a foothold in Europe, as will become evident in Section 4.2.3.4 ("Too many trading places": 22).

4.2.3.2 The regulation of ATSs

Regulation was and sometimes still is a substantial obstacle to the emergence of new trading platforms. The reason is that "in many countries, traditional exchanges have taken their financial supervisors hostage" ("Good-bye to all that" 1999). In other words, regulation was designed in a way to shield off competition, which was justified by investor protection and liquidity. The SEC, for example, made it difficult for trading networks to register as exchanges. It has taken years for the private trading platforms to convince the SEC of the necessity of changing its rules to encourage electronic exchanges ("Good-bye to all that" and "Internet securities"). Finally, however, the competitive forces driving changes in financial markets also led to changes in regulatory oversight of the markets (Abken 1991:
The first step in this direction was the adoption of Order Handling Rules in 1996 by the SEC, as mentioned earlier. The aim of the Order Handling Rules was to ensure a fair and orderly alternative securities market. Market makers and specialists had to "reflect in their quote the price of any orders they placed in an ECN if the price was better than their own public quotation" (SEC 2000). In general, one must say that securities regulators have recognised the substantial benefits ATSs can bring to markets and investors. They are expected to reduce transaction costs (directly for system participants by increasing the speed of execution and by providing new liquidity pools for selected securities and indirectly by increasing competition among exchanges and brokers) and to increase the chance of best execution (Collins 2002). The result of the upswing of ATSs was a dramatic decline in spreads between bids and offers, which benefited investors through lower costs. Moreover, ATSs were integrated into the national market system through the ECN Display Amendment, which made market maker and specialist orders entered into ATSs accessible to the public, as it allowed ATSs to voluntarily communicate to the public quotation system the best price and size of orders entered by a specialist or market maker for each security. The new Order Handling Rules did not address, however, how ATSs should be regulated (SEC 2000).

New rules became necessary, though, since market participants have developed a range of ATSs which provide services on which registered exchanges formerly used to have a monopoly. These ATSs are direct competitors to traditional exchanges and might even become the primary market for selected securities in the future. As a result, the traditional definition of stock exchanges is no longer up-to-date. For this reason, the SEC found a new definition in its Rule on Alternative Trading Systems in 1998 (see Section 4.2.3), which became effective in 2000, to allow ATSs to choose between registering as a national securities exchange or as a broker-dealer. The purpose was to integrate the increasing number of ATSs more effectively into the national market system. Furthermore, the SEC wanted to give ATSs the chance to register as exchanges and at the same time give existing exchanges the chance to better compete with
ATSs. Another purpose was to strengthen the public securities markets while at the same time encouraging innovative new markets. In this way they gave room to the development of new trading systems without pinning them down to the organisational structure of traditional exchanges (SEC 1998).

As mentioned above, under the new regulations, most ATSs are allowed to choose whether they want to be regulated as exchanges or as broker-dealers. However, systems which exercise self-regulatory powers, such as the regulation of their members' or subscribers' conduct in the course of activities outside the trading systems, are obliged to register as an exchange or must be operated by a national securities association (SEC 1998). Today, some ATSs are seeking to be regulated as exchanges instead of trading systems for manifold reasons:

1. It provides them with the benefit of being able to list all conventional stock exchange stocks, to be a self-regulated company, and to have linkages to other international exchanges.
2. Access to the Intermarket Trading System at the NYSE, which would allow them to trade formerly exclusive NYSE listed stocks.
3. The advantage for US-based ATSs is that they are no longer regulated by NASDAQ, their competitor.

The disadvantage is that as an exchange ATSs also have to fulfil the task of market-regulation, something they would like to leave to traditional exchanges. The first exchanges that have registered as a regulated exchange are Archipelago, Island, Tradepoint, and NexTrade ("Farewell to the floor?" 1999).

One problem with ATSs not being registered as an exchange is that they are private, available only to selected subscribers, and regulated as broker-dealers and are therefore not obliged to provide equal access to all investors or to treat all participants fairly. Moreover, these systems are not adequately supervised for market manipulation and fraud and market participants are able to manipulate the prices of public securities markets by using ATSs. Another flaw is that ATSs do
not have to ensure that rapid increases in trading volume (such as in times of high volatility) can be handled. The resulting disparities have a negative impact on investor protection and the market as a whole, and call into question the fairness of current regulations (SEC 1998). In general, authorities must be careful to avoid a market architecture which gives strategic advantages to certain players and anticompetitive practices (Allen, Hawkins and Sato 2001: 48). Traditionally, exchanges were seen as markets rather than market participants. Therefore securities regulators focused on supervising trading behaviour to promote orderly interaction between buyers and sellers. The most important points were efficient execution and public dissemination of trading information. Furthermore, exchanges were used to monitor market participants to prevent market abuse or manipulation and promote centralisation and liquidity of the markets. Exchanges were therefore expected to exercise self-regulatory functions over their members and to provide access to markets to all participants. In connection with brokers, dealers, and other intermediaries the main concern was investor protection. The choice for ATSs between registering either as exchanges or broker-dealers has therefore not eliminated all concerns, as there are certain gaps in the regulatory structure. If ATSs are regulated as broker-dealers they are not required to grant fair access and price transparency. On the other hand, if registered as an exchange, a number of unnecessary requirements are applied (such as member governance and regulation) (Collins 2001).

Although ATSs fulfil the same function as exchanges, there is no level playing field between them. The tendency of some European countries to require all marketplaces to be registered as regulated markets seems reasonable, in particular when considering that otherwise major exchanges may eventually seek to be regulated as ATSs. At the moment there seems to be more pressure for ATSs to become exchanges than vice versa, as can be seen from the examples of Archipelago, Island, Tradepoint, and NexTrade (Korhonen 2001: 39).
4.2.3.3 Organisation

According to FESCO (2000), ATSs can be broadly classified into five types of systems according to the way prices are determined.

1. **Active Bulletin Boards**

   They invite offers to be made to the system operator, who then hands them on to many potential pre-registered clients. The offeror is then informed whether the offers have been accepted or not (Korhonen 2001: 14).

2. **Order-driven automated trade matching systems**

   In order-driven systems prices follow orders. There are two types, continuous matching and auction matching. Auction matching systems accept limit orders entered by participants; these are stored, and at the end of the auction period (usually one day) the single price that maximises the number of orders executed, the number of securities, or the total trade value is calculated for each security (Korhonen 2001: 14). That means that these systems cannot provide immediacy, though, which is the main advantage of large exchanges. Immediacy does not come for free of course. Transaction costs are higher with large exchanges, as the market makers need to be reimbursed. The question about the optimal organisation of the market therefore depends on the liquidity preference of the market participants. Continuous matching systems, in contrast, match orders automatically in time and price priority without time delay (Korhonen 2001: 15).

   Some matching systems are organised as so-called hit-or-take systems. Under these systems, buy- and sell-offers are shown on a screen, and clients can simply execute a transaction by clicking on an offer. Matching systems enable investors to trade anonymously with multiple partners. Sometimes matching systems also route orders to other execution centres if there is no matching order available in the system ("FESCO's attempts", Gaa et al. 2000, Financial Services Authority 2000 and "Securities Law Institute-Glossary").

3. **Quote-driven systems**

   Thirdly, these systems assume that orders follow prices. They display quotations of dealers and provide automatic execution based on them. Clients can choose
between accepting the prices published by dealers and trade or wait for better quotes (Korhonen 2001: 15).

4. Crossing systems
Crossing systems accept orders for securities which are executed in a batch run at a reference price from another market (usually the primary market where the security is listed). Orders entered do not contain a specified price but clients agree to trade at prices based on the primary market, in many cases the mid-point of the bid-ask spread at the time of order matching or at the opening or closing price of the primary market. Consequently these systems do not engage in price discovery and are therefore also referred to as price-taking systems or passive or derivative pricing systems (Korhonen 2001: 15). The advantage is that there is no market impact on the trades. Big orders are crossed at the closing price, which remains unaffected by the unfavourable price movement such a trade would otherwise cause. As the price does not adjust to supply and demand, some orders will remain unmatched (Abken 1991: 10).

5. ECNs are a special case as they usually fall in between some of the above definitions. As mentioned above, the European definition of ECNs and the one used in the US show substantial differences. In European terms, ECNs are ATSs on which securities can be directly bought from issuing houses (Groß 2002: 41). In the US, ECNs are usually defined as "trading systems that automatically distribute participants' orders to third parties and permit full or partial execution of those orders. Hence most of them could be categorised as order-driven automated trade matching systems" (Korhonen 2001: 16). ECNs are purely order driven, i.e. no participant undertakes to provide liquidity for the securities traded. Their main strength is effective price formation, therefore crossing-systems do not qualify as ECNs. Some ECNs act as destination-only markets, i.e. trades are matched internally, while others scan the market with high-speed communications technology to find the best prices. The participants of ECNs are usually professional financial intermediaries, few systems have started to accept orders directly from institutional investors. However, orders have to be sponsored by a professional intermediary, i.e. a broker-dealer takes the responsibility for trades executed by the investor (Korhonen 2001: 16-17). In order to avoid confusion the
term ATS will be used here for all non-exchange trading systems, except for those explicitly calling themselves ECNs, as stated in Section 4.2.3.

After the design and organisational forms of ATSs have been clarified, a short description of the largest and most important ATSs will be given:

1. United States:

   - **Island** Systems is a US-based ECN which was created by Datek Online Inc., one of the most successful US online brokerage firms, and gets much of its revenue from day-traders. Each time Island receives an order the system is scanned to find a match. If there is a matching order execution is carried out immediately, otherwise, the order is displayed in its real-time limit order book available on the Internet until a matching order comes in or the order is cancelled. Island was the first ECN to file for stock exchange status. In some high-tech stocks it had a share of up to 20 percent in 2000. In the near future, Instinet and Island are going to be combined into one electronic marketplace called INET. INET will offer US broker-dealers access to both NASDAQ and exchange-listed US securities. Clients will be agency brokers, market makers, retail brokers, and program traders, who will be able to trade anonymously ("About INET", Korhonen 2001: 64 and Havens, Shteyman and Saber 2000: 33).

   - **BRUT** was founded in 1998 in the US as an ECN and functions as a combination of broker, stock exchange, and market maker, matching orders for certain stock. It provides an electronic trading platform for brokers and institutional investors and tries to achieve best execution for both NASDAQ and exchange-listed securities ("Overview"). BRUT is an anonymous trade match system for broker-dealers and institutional investors (Korhonen 2001: 63).

   - **Archipelago** was founded in December 1996 and filed for US exchange status in August 1999. In 2000 it announced plans to create a fully electronic national stock exchange for NYSE, Amex, and NASDAQ stocks. Archipelago is an out-bound routing ECN. It aims to find the best internal and
external price by routing orders directly to the markets offering the most competitive prices (lowest price and best order/execution ratio). Its main users are large institutions, hedge funds, online brokers, and market makers. It was authorised by the SEC to become Archipelago Exchange (operating together with the Pacific exchange in San Francisco) in 2000 (Korhonen 2001: 62 and Havens, Shteyman and Saber 2000: 28).

- **JIWAY** was one of the more recently set up ATSs. Launched in 2000, it offered trading in 6,000 US and European blue chips but had to close down its operations at the end of 2003 (Jensen and Natorp 2000).

- **NexTrade** was founded in 1998 and was the first ECN to offer 24-hour trading for broker-dealers in the US. Subscribers are institutional investors (broker-dealers, hedge funds, or market makers). For orders not matched internally, prices of other ECNs and market makers are scanned. NexTrade is currently applying to the SEC to become a registered, fully electronic exchange (Havens, Shteyman and Saber 2000: 35 and Korhonen 2001: 65) (Nextrade: "Company Information").

- **Market XT** is a US broker dealer, founded in 1997, providing extended-hour trading in NYSE and NASDAQ stocks for individual investors through its subscribing brokerage partners. Its order routing technology continuously scans different markets, such as the NYSE, NASDAQ, regional exchanges, as well as other ATSs searching for the best price for each security. Trading is anonymous and the order book is displayed on the Internet (Havens, Shteyman and Saber 2000: 28 and Korhonen 2001: 65).

- **Attain** was founded in 1998 and uses NASDAQ's Small Order Execution System to execute trades of about 1000 AMEX, NASDAQ and NYSE shares as well as exchange-traded options without the use of brokers. It "is an order display alternative to the traditional market making price quote system on the NASDAQ" ("ATTAIN ECN Features").

- **Posit** is a US crossing system that matches orders of institutional investors anonymously at a price taken over from the stocks' primary markets, the midpoint of the bid/ask spread. Posit also provides sophisticated tools for executing complex automated transactions, such as for portfolio management.
If a match is found, the order is executed automatically. If no internal match is found, clients can decide whether to route them to other systems or keep them unmatched in the system. POSIT offers trading in NASDAQ and NYSE stocks (Korhonen 2001: 66).

2. Europe:

- **Bloomberg Tradebook** was founded in 1998 and is an agency broker. Clients are institutional traders, broker-dealers, hedge fund managers, as well as market makers and portfolio managers worldwide. It provides execution together with access to news, equity information and analyst reports. Bloomberg offers its clients the possibility of connecting directly to more than 28 markets and provides access to trading capabilities on 65 markets in 54 countries (Bloomberg: "About us"). Tradebook is an ATS which matches and order-routes incoming orders. It operates a continuous order-driven market with anonymous trading. Tradebook grants access to listed stocks in a wide range of countries, such as Australia, Canada, Denmark, Finland, France, Germany, Japan, Spain, Sweden and the UK (Korhonen 2001: 68).

- **E-Crossnet** is an automated crossing system operated in the UK and was launched in March 2000. Its focus is on European equities (14 markets) and it provides anonymity. There are six daily crossing runs (Korhonen 2001: 63).

- **Tradepoint** is a British electronic exchange which tries to divert business from the LSE. It trades in most UK-listed stocks and also offers European debt securities. Tradepoint was established in 1992 in the UK. It became approved as a stock exchange in 1995. Its two advantages are that it is fully electronic and that costs are minimal. The entire system is run in a few rooms. It is an automatic matching system to which professional dealers and institutional investors can enter orders anonymously ("Shaping up" 1996).

- Finally, **Instinet** is by far the biggest and one of the most popular ATSs and is active in both the US and Europe. It is a division of Reuters founded in 1969 as "a limit order book where market makers or institutional investors can negotiate in private or trade automatically the best bid and offer orders
displayed through the system" ("Internet securities"). Instinet also acts as a global agency broker on traditional exchanges and competes with other brokers for business, without trading for its own account. Apart from providing access to more than 40 equity markets worldwide, Instinet mainly trades stocks listed on the NYSE. Professional dealers and institutional investors can access the sell and buy orders for the different shares and subsequently decide to accept an order, start anonymous price negotiations with the orderer, or place a sell or buy order. The price is generated by the system, which means that after-hours trading is also possible. Instinet is also an example of an ATS where participants can trade stocks among themselves directly and anonymously without intermediation. Its main success is its global strategy. In April 2001, Instinet was listed on NASDAQ. At the beginning of 2000 it had about 18,400 users and around 3,000 international clients. It has recently purchased a controlling interest in Tradepoint, the UK electronic exchange and also acquired a stake in Archipelago. Instinet has no plans to register as an exchange, it emphasises that it is primarily a broker-dealer ("Shaping up", Jensen and Natorp 2000, Korhonen 2001: 64, and McIntyre 2004).

Experts expect the large number of ATSs to decrease in future, since this market does not have unlimited potential. Therefore, it is likely that the wave of mergers and alliances among stock exchanges will also spill over to ATSs. Recent examples are the merger between Archipelago and RediBook and Instinet purchasing a majority stake in Tradepoint.

4.2.3.4 The extent of off-board trading in Europe

Stock exchange trading has experienced quite an upswing over the past decade in Europe. Due to privatisation and liberalisation, equity supply has more than doubled. Additionally, the single currency has boosted corporate restructuring while at the same time issuers are becoming more active (Amati 2001: 85).

Despite the fact that European financial markets have generally developed at relatively high speed in the past few decades, ATSs are much more wide-spread
in the US than in Europe. According to Malkamäki and Topi (1999: 23), about 30 to 40 percent of all securities transactions and 15 percent of all equity trades in the US are done via the Internet. As mentioned above new trading systems such as Tradepoint, which undermine traditional markets, have also been established in Europe. In 2000, FESCO identified 27 trading systems in Europe fulfilling the ATS definition. Most ATSs were active in the UK (16) and Germany (6) (FESCO 2000). However, ATSs still have not managed to acquire more than five percent of overall equity trading turnover in Europe. The reasons are that European stock exchanges are already to a large extent based on electronic trading systems, they have created common trading platforms across European exchanges, and stocks are traded in auctions rather than through market-makers, which seems to make them less vulnerable to competition from new trading platforms than their US counterparts. Electronic trading systems are in the majority of cases incorporated within mainstream exchanges, as many existing exchanges in Europe have developed their own such systems as a result of competitive pressures (such as from demutualisation). Competitive pressures are higher among European exchanges, as regulation is less influential in Europe than in the US and in particular due to competitive forces within the single market (Allen, Hawkins and Sato 2001: 35). In turn, this has meant less opportunity for off-exchange electronic trading systems, as it is harder for them to offer a particular advantage over what the traditional exchanges offer (Allen and Hawkins 2002: 51). This is evidenced by the fact that it is not to be expected that these systems will gain enough market share to pose a real threat to exchanges, since traditional stock markets will remain popular due to their liquidity. For example, Tradepoint is the only serious electronic competitor of the LSE to date (Sales 1999). Although ATSs have been less successful in Europe than in the US, they have pushed established exchanges to extend trading hours to offer evening sessions (Korhonen 2001: 33). It is to be expected that ATSs will not be able to compete solely over price in the long run, as existing exchanges will also become low-cost producers. For the same reason, many ATSs in the US are also expected to disappear again (Havens, Shteyman and Saber 2000: 3, Malkamäki and Topi 1999: 27, Committee of Wise Men 2001: 81 and Allen, Hawkins and Sato 2001:
35). On the other hand, as trading costs on traditional exchanges are currently still above those of ATSs, competitive pressure from ATSs is expected to increase in the short term (Gaa et al. 2001: 49). The crucial point for European stock exchanges is to find an efficient structure for trading European blue chips to be able to compete. In future, European ATSs will mainly be a threat to smaller electronic exchanges which have to carry the burden and cost of stricter regulation than ATSs and at the same time have to compete with large exchanges (Korhonen 2001: 35).

4.2.3.5 Advantages and disadvantages of ATSs

In this section I will try to point out possible advantages and disadvantages of ATSs for the main stakeholders, investors, and traditional exchanges. First, I am going to look at the advantages of ATSs:

- Execution is faster in interactive electronic exchanges, which leads to improved transparency (Keeler 2000). This is a major advantage for small investors which favour higher transparency.

- The major advantage of ATSs is the low fees charged. Island, for example charges between $0.001 and $0.0035 per share compared to about $0.06 per share charged for orders executed through a traditional broker (Allen, Hawkins and Sato 2001: 34 and Domowitz and Steil 2001). According to Domowitz and Steil (2002), trading costs at ATSs are between 28 and 33 percent lower than those of the NYSE and NASDAQ. In Europe, fees can be up to 70 percent below those of traditional exchanges in Europe, when taking cross-border transaction fees into account. Low trading costs are an advantage for investors.

- New trading platforms offer new trading possibilities, e.g. matching or crossing, which suit the needs of institutional investors (Loistl 2000: 99). Crossing systems furthermore facilitate trading of large blocks, as they are in general less transparent than continuous trading systems, which gives participants more protection. If the full interests of market participants meet simultaneously, the market impact of block trades is much smaller, furthermore, they do not require market participants to continuously
monitor the market, which is of course costly (Korhonen 2001: 31). This constitutes an advantage particularly for large institutional investors.

- Another strength is longer trading hours. The fear of lower liquidity in after-hours trading is avoided by quickly matching orders electronically. This keeps spreads low and private investors in particular benefit from 24-hour service (Amati 2001: 7). ATSs also had a major impact on the length of the trading day. They have improved access to US markets for overseas investors and speeded up trading as well as clearing and settlement (Korhonen 2001: 30-31). Longer trading hours are an advantage for all groups of investors, in particular for overseas investors.

- ATSs are able to eliminate intermediaries. Many institutional investors claim that once an order is placed with a broker there might be a certain degree of information leakage. This might result in adverse price quotes, which negatively influence execution costs for the original investor. As human intermediation is unnecessary in fully automated trading systems, investors are reluctant to pay for the services of a traditional broker. (Domowitz and Steil 1999: 24). This is an advantage for investors in general, but obviously a major disadvantage for intermediaries.

- ATSs offer anonymous trading. In this way they also press traditional exchanges to change their transparency rules ("Internet securities"). The reason why traders favour anonymity is that information about how often and how much a trader is buying or selling could move prices unfavourably for the investor (Abken 1991: 10). Anonymity is an advantage for large investors, small investors, however, favour more information transparency.

- The absence of license fees for trader firms and fast order execution through the Internet allows savings to be passed on to customers (or kept as profits). Most ATSs charge a small fee per executed trade (Amati 2001: 6). If savings are passed on to customers, it is an advantage for investors, otherwise it is advantageous for the owners of the ATSs.

- ATSs put pressure on traditional exchanges to reduce the cost of search and execution and increase the efficiency of markets for large investors.
Furthermore they provide additional services such as research and analytical data to all potential market participants and fostered competition in general. ATSs compete with exchanges as well as broker-dealers and investment banks (Korhonen 2001: 18-19). This is an advantage for investors.

- ATSs have substantially contributed to the demutualisation of exchanges by focusing on profit themselves (Korhonen 2001: 28). This is an advantage for investors as it makes exchanges cheaper and more flexible, but a disadvantage for exchange members.

- ATSs improve liquidity by creating niche markets to large market participants. During system-outages of exchanges ATSs can even act as back-ups in providing liquidity. An ATS could theoretically maintain the market as long as the trades can be cleared and settled without problems (Korhonen 2001: 28-29). This function of ATSs is an advantage for the economy as a whole.

- ATSs enhance the efficiency of price formation, as they provide the possibility of trading between bid and offer prices of the established markets. They were also the first to adopt decimalised price conventions, which permitted a further reduction in spreads (Korhonen 2001: 29). This is an advantage for investors, but a disadvantage for market makers and others benefiting from bid-ask spreads.

- ATSs offer more flexible trading by creating and using new types of orders, such as good-till-cancelled orders\(^2\) or all-or-none orders for example\(^3\) (Korhonen 2001: 30). This is particularly beneficial for large institutional investors since they are most likely to make use of such instruments.

\(^2\) Good-till-cancelled orders are valid until they are executed or cancelled (Korhonen 2001: 30).

\(^3\) All-or-none orders are either entirely executed or not at all (Korhonen 2001: 30).
At the same time ATSs might pose several disadvantages for investors:

- The main disadvantages of ATSs is low liquidity compared to large established exchanges ("Good-bye to all that"), which is a disadvantage for investors.

- The systemic risks might increase due to the economic globalisation of financial exchanges. Moreover, cross-market spillovers will be more likely as the new exchanges contribute to the unification of world financial markets. Such spillover effects are particularly strong in times of high volatility (Abken 1991: 17). This might be disadvantageous to the stability of the world economy.

- The success of ATSs might result in liquidity dispersion between different trading systems. Increased market fragmentation could lead to an increase in costs of execution. Higher trading volumes lead to higher operating margins for market operators and in this way to declining spreads for customers (Allen and Hawkins 2002: 54).

"It is unclear whether the benefit of anonymous trading is worth the negative aspects of fragmented market places. Proponents of fragmentation believe it ensures competition and therefore makes best execution the more likely outcome" (Havens, Shteyman and Saber 2000: 20).

Empirical evidence suggests that competition has always benefited investors so far (Amati 2001: 7). A dispersion of liquidity would be a disadvantage for investors, however.

- Execution might even become more important for institutional investors than best price. Best price is considered a balance between immediacy, speed of execution, minimal market impact, and anonymity rather than a visible market quote (Havens, Shteyman and Saber 2000: 8). Brennan⁴ (quoted in Sales 1999) believes that ATSs registering as exchanges will not have much of an impact on the large exchanges as

"markets have only one function: to discover prices...[and] so far nothing the world has shown itself to be able to discover price for equities nearly

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⁴ Brennan D.: Interview.
as effectively as the NYSE’s auction system” (Brennen quoted in Sales 1999).

One important issue for stock exchanges is, however, how ATSs free-ride on central price discovery. In other words, the question is whether price information is a public good or not (Allen, Hawkins and Sato 2001: 45). If the listing authority is removed from traditional stock exchanges, a level playing field will be established with an equal cost structure for all participants. If not, traditional stock exchanges will be at a disadvantage as the listing process is time consuming and costly. For this reason the accusation that ATSs are parasites on stock exchanges is justified as no ATS lists stock (Baker 2000). Since the listing of a stock is a precondition for the existence of ATSs, ATSs depend on the output from stock exchanges. For this reason ATSs are no serious competitors to stock exchanges in their present form (Jensen and Natorp 2000). The fact that ATSs free-ride on functions of traditional exchanges is a disadvantage for them.

- Barber and Odean (2001) argue that by enabling day-traders to directly trade via Internet, ATSs bolster the overconfidence of investors, who trade more actively and speculatively than without the Internet and in this way increase volatility. This is a disadvantage for the stability of an economy.

4.2.4 European integration and the stock market

The euro securities markets taken together are the second largest in the world behind the US market. The size of the market for euro-denominated securities however, is quite small relative to the size of the economy when compared to the US. Financial markets in Europe are smaller and less liquid, as exchanges are efficiently organised on a national level and investment is still regional (Havens, Shteyman and Saber 2000: 5). Since a positive relationship between finance and real economic growth has been found in a number of studies, growth of financial markets can also be expected to have a positive impact on the real economy. If one expects the financial markets to be endogenously determined by the real economy and its needs, however, the financial market of a country or region has the optimal size. If the financial market is considered supply-leading, i.e. if

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5 Brennan D.: Interview.
finance positively influences the real growth of an economy, European integration can be expected to yield substantial benefits (Blum et al 2002: 6). Securitisation is expected to proceed in Europe however, due to the increased size and liquidity of the euro securities markets compared to the former separated national markets (McClauley and White 1997). Moreover, the number of shareholders in Europe has already increased significantly over the past few decades and the value of cross-border institutional trading rose five times between 1985 and 1995 ("Global equity markets"), although according to Harrison (1995: 99-100), it was not until the single market programme, that the creation of a unified securities market in Europe was pursued. The aim was to permit issuers to raise capital on a community-wide basis, intermediaries to offer services anywhere, and investors to choose from a wide range of investment opportunities. These benefits were the prime motivation for monetary and fiscal authorities to pave the way for European financial integration.

"On a level playing field where equity prices and dealing commissions will be the same throughout Europe, competition means an investor's choice will depend on an exchange's capacity to add value" (Moore 1990: 53).

It was only in 1993 that the Investment Services Directive (ISD) was adopted. The Directive had been held up for many years because of different views among member states on stock exchange structure. The ISD creates the regime for a single passport for securities firms other than banks which allows them to offer their services anywhere within the EU. Today, there are three fundamental factors which drive rapid change:

- Exchange rate risk has been eliminated with the introduction of the euro.
- The ISD has removed restrictions in European financial markets by providing financial intermediaries with a single passport.
- Advances in information technologies contribute to the reduction in trading costs and allow quicker access to financial services (Hasan, Malkamäki and Schmiedel 2001).

These changes also stimulate competition among European stock exchanges. As a result, European financial services integration is expected to yield substantial long-term benefits, such as:
- Improved investor protection.
- Lower cost of capital through competition and choice.
- Efficient matching of supply of and demand for capital and therefore improved capital allocation.
- An increase in intermediation efficiency as well as cheaper cross-border clearing and settlement.
- An overall strengthening of the EU economy through higher productivity of capital and labour (Committee of Wise Men 2001: 9 and Schmiedel 2001).

Despite several measures on an EU-wide basis, most stock exchanges in Europe are still national institutions trading only local, country-specific stocks. Recently, increasing efforts have been made for stock exchanges to operate across national borders. Pan-European exchanges could bring about several advantages, such as standardisation of trading platforms across exchanges, higher market liquidity, and a lower degree of market fragmentation. All these effects could help to lower the costs and difficulties involved in cross-border trading in Europe. On the other hand, some market participants prefer the product differentiation offered by smaller exchanges. Moreover, different cross-country regulations and legal differences are still a large obstacle to cross-border trading. Another problem is the relatively high cost of obtaining information on foreign stocks. Finally, the consolidation of European exchanges will very likely have to be delayed until the fragmented landscape of clearing and settlement institutions is consolidated (McAndrews and Stefanadis 2002). A study by the European Commission at the end of 2002 concluded that the integration of European financial markets would raise the level of EU-wide real GDP by more than one percent (London Economics 2002). Another positive effect of financial market integration is the smoothing of consumption patterns over time by eliminating the impact of domestic shocks on domestic consumption, since investors who hold too many domestic assets in relation to international assets compared to an "optimal portfolio" suffer from a lack of risk-sharing across different countries (OECD 2003: 100). Furthermore, financial integration is expected to promote financial
development by optimising the exploitation of economies of scale inherent in financial activity (European Commission 2001b).

In the following subsections the history of moves towards a European financial market will be described in more detail.

4.2.4.1 The first steps towards a unified European stock market

Stock market integration has been pursued by the EU for more than 40 years now. This means that the EU leads the way in its effort to promote stock market integration compared to other regions in the world (Licht 1997: 1). The first important step to overcome barriers between European securities markets was the implementation of the OECD Code of Liberalisation of Capital Movements (see Section 4.2.). The removal of economic barriers reduces the importance of physical location of market places, as services can be provided and accessed electronically (Malkamäki and Top 1999: 7-8). The first steps towards stock integration on an EU-wide basis were held back, as the intentions of the Treaty of Rome to create a single market failed. The first progress was made in 1985 when a white paper was prepared by the European Commission which mentioned 300 action points for EU legislation to remove restrictions on the establishment of a single market for goods, services, capital as well as the free passage of people. The white paper then became the basis for an amendment to the Treaty of Rome. This legislative program was to be in place by the end of 1992. In regard to financial services, the following goals were identified in the white paper:

- Complete liberalisation of capital movements.
- Unification of national markets for financial services.
- Establishment of common regulations for financial institutions (Scott-Quinn 1994).

The overall goal of the EU was to achieve a single European market by harmonising regulatory requirements and in this way reducing disparities among national markets. The first approach of the EU was communality. This would have eliminated diverse regulatory systems, but the pressure on the decision-making mechanism turned out to be too great. Therefore the mutual recognition
approach was adopted, which gave new momentum to regulatory harmonisation efforts. The first directives were relatively modest, allowing member states to prescribe stricter rules where applicable. However, as securities markets became more competitive though the advance of technology, issues became more contentious and directives had to become more detailed (Licht 1997: 21, 24).

4.2.4.2 The European Investment Services Directive

The European Investment Services Directive (ISD), which came into force on 1 January 1993, was the first milestone in European financial integration. The ISD, which made it harder for regulators to protect their domestic exchanges, broke up monopolies and substantially increased competition among exchanges ("Shaping up" 1996).

The ISD was intended to contribute an essential instrument to achieve an internal market in which each investment firm has the right of establishment and provision of financial services. The two major issues of the ISD are regulation of investment firms and regulation of securities markets. Its most important aim is the harmonisation of the legal framework to the necessary level to ensure the mutual recognition of authorisation and supervision systems, so that a single authorisation would be valid throughout the Community and that only supervision principles of the Home Member State would be applied. It creates a single passport for businesses regulated in one member state, which permits them to conduct business in the whole community without having to fulfil further regulatory requirements. In this way the Investment Services Directive will ensure access for all market participants and products within Europe. Regarding stock exchange membership, the ISD is assumed to enable firms and banks to trade in any regulated market in the community, e.g. by establishing remote access to foreign stock exchanges without further regulatory approval, provided they are authorised as such in their home country. Authorisation in the home country is a necessary requirement to protect the interest of investors and the stability of the whole financial system. At the same time, exchanges recognised in one member state would have unrestricted access to other member states, i.e. they would be free to set up terminals in any member country so that local participants should be
The intention of the ISD was increased internationalisation. The success of the ISD can be recognised from the fact that several integration projects have been started in response to the major harmonisation efforts of the EU since then. An example of one of these projects was EASDAQ, which was the first case of genuine regional stock market integration, or Euro NM (Licht 1997: 48-52 and Jensen and Natorp 2000).

"The removal of important legal barriers to direct cross-border electronic trading since 1996, both within the EU and between the EU and the US, has allowed automated markets to expand their networks dramatically, attracting foreign traders whose cost of access to local floor market was much higher" (Domowitz and Steil 1999: 7).

4.2.4.3 The introduction of the euro

The introduction of the euro has added another integrative force and the single currency has also been a major catalyst of change in Europe ("Good-by to all that"). According to Gaspar (2000), the introduction of the euro has had a major direct impact on the ongoing process of financial market integration through the elimination of exchange rate risk. Also the integration of stock markets was speeded up by the single currency, which further added to the attractiveness of stocks and bonds as investments as markets have become deeper and transaction costs have been further reduced. As a result companies today are concentrating their listings on fewer exchanges and investors are changing their investment strategies from a country-based to a more sector-based approach (Gaa et al. 2001: 50). Williamson (1997: 410) believes that the EMU decreases the distinctions between exchanges from the investors' point of view. This in turn might enhance cooperation between national equity exchanges since the introduction of the euro...
has increased the tendency towards cross-border investment, which makes separate stock exchanges less useful. The euro will therefore result in less fragmentation of the market, because investors will not have to take currency fluctuations and development into account when undertaking cross-border investments within the EMU. In many cases, currency changes formerly played a key role in the failure or success of an investment. Even though shares are of national nature due to different taxation policies, European blue chips have become more attractive after the elimination of exchange rate risks. At the same time, the correlation between stock markets will increase due the effects of the single market and the single currency (Seifert 1995: 223 and Amati 2001: 5).

"Development towards a single and fully contestable European market for financial services seems obvious. It also implies that location will gradually lose some of its importance for marketplaces and that competition between financial centres, marketplaces and securities firms will intensify…The trend seems likely to be towards larger unit size and more integrated infrastructure" (Malkamäki and Topi 1999: 7-8).

Abaham and Pirard (2002: 13) summarise the major effects of the euro as follows:

- Reduction in transaction costs by elimination of exchange costs within the euro area.
- Lower market risk and volatility due to the absence of internal foreign exchange risks and costs.
- Larger markets with higher liquidity due to increased transparency, as well as reduced fragmentation and transaction costs.
- Stronger tendency towards convergence of national equity markets within the euro area.
- Enhanced spread of equity culture.
- Sectoral investment approach instead of country approach, and reduction of home-bias.
- Concentration of trading in blue chips at large financial centres.
- As a result, more pressure on small exchanges which will have to find niche-markets or merge in order to survive.
Intense competition among markets and need for cooperation, which will eventually lead to consolidation among European exchanges.

Melle (2002) conducted a study on the effects of the euro on European stock market integration. Her main conclusions show that although the European market already showed a high degree of integration and efficiency before the euro, integration has increased since its introduction. This is evidenced by the fact that correlation between the major markets (German, French, Italian, Dutch, and Spanish) has risen. The euro has accelerated the intensity of the integration process and added to the pressure of creating new alliances. Despite all progress, European exchanges still have difficulties in accessing the US market, which is mainly due to the fact that regulations and accounting standards are still not uniform.

4.2.4.4 The Financial Services Action Plan

The Financial Services Action Plan (FSAP) was passed at the Lisbon European Council in March 2000 and is to be implemented by 2005. The FSAP was developed in order to decrease the high level of both economic and legislative fragmentation of financial services in Europe. According to the Committee of Wise Men (2001: 7-8), the regulatory framework of the EU was too slow, rigid, complex, and ill-adapted to the pace of change in global financial markets at that time. If the EU does not manage to capture the benefits of an integrated European market, economic growth, employment and prosperity will decrease and competitive advantage will be lost to countries outside the EU. The aim was therefore to eliminate the geographical dimension of investment, replacing it by a sector-based focus (Amati 2001: vii). Another goal of financial market integration is to benefit the financing of small and medium-sized companies and make the raising of capital cheaper for large companies by increasing liquidity and enhancing efficient pricing through lower transaction costs (Committee of Wise Men 2001: 75-76). Furthermore, financial services have a high potential for job creation. Yet the stock market capitalisation of the US is significantly higher than that of the EU (in 2001, stock market capitalization to GDP ration amounted to 93 percent in the US, compared to 85 percent in the EU-15, and only 70 percent in
the euro area) (IMF 2003: 121). This can be seen as an advantage, since a large financial market is assumed to have a positive impact on the growth of the real economy (i.e. as supply-leading) (Blum et al. 2002). Moreover, cross-border trading is limited and private savings are not invested efficiently. All of the above factors limit job creation. One of the main concerns is easy market access as well as mutual recognition of prospectuses. The latter point is achieved by the European Prospectus Directive, which has to be implemented by all member states by 2005. Prudential and supervisory rules would also help encourage investors to trade across borders (Amati 2001: vii).

Currently, the European financial market is still inefficient due to the following factors:

- The high number of independent national stock exchanges.
- Fragmented and therefore inefficient and expensive clearing and settlement systems.
- Few pan-European listings.
- Low investment in venture capital.
- New forms of trading platforms, such as ATSs, which require a new consumer protection framework as well as ecommerce security and fraud prevention rules.
- An inefficient regulatory system, such as a lack of clear Europe-wide regulation on many issues (e.g. prospectuses, market abuse, investment service provision) makes mutual recognition difficult.
- A lack of agreed interpretation of existing rules as well as different national regulators, which leads to varying applications of the same rules.
- Different legal systems as regards, for example, bankruptcy proceedings.
- Different taxation systems.
- Political barriers, such as creative techniques to protect national markets.
- External trade barriers (European trading screens are not authorised in the US).
- Cultural barriers, such as different approaches to corporate governance, competition policy, disclosure standards, or entrepreneurial cultures.
Absence of common principles guiding all financial services legislation.
Outdated listing requirements.
Lack of acceptance of the mutual recognition principle.
Absence of a comprehensive market abuse regime.
No set of common takeover rules.
Inadequate level of consumer protection (Committee of Wise Men 2001: 10-12, Amati 2001: 1 and Ernst and Young Switzerland n.d.).

According to the Committee of Wise Men (2001: 67), the following benefits can be expected from full financial market integration in the EU:

- More efficient, deeper and broader securities markets.
- Lower transaction costs and higher market liquidity.
- Diversification and innovation in the financial systems.
- More possibilities of risk pooling.
- Fiercer competition between financial markets and intermediaries.
- Economies of scale and scope and an increase in efficiency.
- A strengthening of the economy so that the financial markets become a more attractive location for investment.

In order to reap all these benefits, the FSAP contains a list of measures to be implemented. These measures cover four strategic objectives (retail markets, wholesale, prudential rules and supervision, and wider conditions for an optimal single financial market). In more concrete terms, the major aims of the FSAP are:

- To eliminate all barriers to pension fund investments and cross-border marketing of investment services and products.
- To make financial statements of companies from different countries more comparable to ensure the transparency and disclosure needed to underpin cross-border securities trading. From 2005 on, the IAS and the IFRS will form the basis for comparable financial reports within Europe.
To increase the depth and functioning of the risk capital market by improving the possibilities of financing new companies.

A review of the ISD to eliminate overlapping administrative formalities and impediments for investment service providers which operate across borders.

A single passport for issuers.

To modernise admission to listing.

To introduce home country control for all wholesale members and define the status of professional investors.

To introduce a single passport for recognised stock markets.

To establish a central counterparty and to foster consolidation of clearing and settlement institutions in the EU.

To improve cooperation among EU financial market regulators in order to solve cross-border problems and to establish common supervisory approaches (European Commission 2000b: 9).

To speed up progress on the proposals on take-over bids and the restructuring and winding-up of credit institutions and insurance companies (European Commission 2000b: 2, 9 Committee of Wise Men 2001: 3, 16, and Amati 2001: 1).

Despite all efforts, Seifert (1999: 25) still sees a lot of room for improvement. Due to the deficiencies mentioned above, there are overcapacities on European exchanges which make them too expensive. According to his estimates there were "redundant costs" of 10.9 billion euros at the German stock exchange in 1999 alone. Different fees at different exchanges cost market participants 2.9 billion euros.

4.2.4.5 Basel II

Basel II is one of the latest regulations of the BIS in the area of financial services and is to come into force by the end of 2007 (implementation was originally planned for the fourth quarter of 2006 but had to be postponed) (European Parliament: "Sitzungsprotokoll des Ausschusses für Wirtschaft und Währung vom 10.9.2003"). The fundamental objective of Basel II is to set a framework that enhances the stability of the international banking system. At the same time, it is
meant to provide consistent capital adequacy regulation in order to avoid competitive inequality among internationally active banks. The framework is supposed to promote stronger risk management practices by the banking industry to reduce the risk of an international bank crisis. This systemic risk can be triggered by the bankruptcy of a single bank, however. To account for this risk, regulatory institutions stipulate a minimum equity to be held by banks. Although Basel I was generally considered to have an overall positive impact, it was heavily criticised for its low level of risk-sensitivity. For this reason Basel II was developed, the three pillars of which are minimum capital requirements, supervisory review, and market discipline ("Basel II"). Pillar one entails modified regulations for calculating the minimum equity required for a certain level of credit risk. Pillar two introduces a supervisory review process under which the correct calculation of the amount of equity to be held by banks is supervised. Pillar three is meant to strengthen market discipline by forcing banks to disclose any information which might help market participants in estimating the specific risk of a bank. Furthermore, Basel II tries to level the playing field between banks from different countries (Buchmüller and Macht 2003).

The main change prompted by Basel II under pillar one is that minimum capital requirements to be held by banks should now more closely aligned with the risks of credit portfolios held by banks. The regulations prior to Basel II stated that loans to domestic enterprises had to be secured by eight percent equity by banks. Each credit risk used to have the same price, differentiation therefore took place only on securities. From 2007 on, banks will be allowed to give out loans only after calculation of the individual risk of a company. Thanks to this procedure banks would be able to adapt their credit terms to individual risks. As a consequence, it is assumed that credit costs will rise for enterprises with low creditworthiness. The groups suffering most from the new regulations will be sovereigns and banks, whose risk weightings used to be very low as well as small and medium-size enterprises, whose lower credit quality will on average increase capital requirements. The reason is that small enterprises are considered less transparent and vested with relatively little equity. The equity rate among SMEs
was at an average of only seven percent in Germany in 2000. This is expected to put SMEs at a considerable disadvantage compared to large enterprises with an average equity rate of 23 percent. Banks could give fewer loans to SMEs and if they do so, interest rates will have to rise ("IPO/PRE-IPO-Partner, Capital Consultants und Going-Public-Beratung"). This could result in a credit crunch for SMEs. As a low equity rate obviously influences the rating in a negative way, one consequence would be the emergence of innovative credit products and a further boom in credit derivatives (Garside and Pedersen 2002). SMEs in particular will be looking for alternatives to credit financing, which are therefore expected to increase in importance in future. If the credit crunch cannot be evened out by other sources of finance, a collapse of GDP might result. If 50% of SMEs collapse, a systemic crisis will emerge affecting 15% of GDP. One of the main weaknesses of Basel II that policymakers worry about is that banks might be encouraged to lend too much in boom times (when ratings are good) and cut back on lending in times of a recession (when credit ratings fall), as this would require too much regulatory capital. However, borrowers need bank credit most in times of recession ("Full speed ahead for Basle"). As a result of Basel II, more companies are expected to try to raise capital rather via the stock exchange (Winkeljohann and Senczek 2002). In order to prevent financially weak companies from raising funds via the stock market and endangering its stability, listing requirements will have to be strict.

4.2.4.6 Institutions regulating and supervising the securities market in the EU

In this section, the most important institutions dealing with financial market regulation will be briefly introduced.

- The first committee to be set up was the Securities Contact Committee, which was established in 1979 and has helped to develop several EU directives on listing, as well as the directives on half-yearly reports, major shareholdings, insider dealing, and public offer prospectuses since then. Its members are nominated on a case by case basis depending on the meeting agenda. Its primary function is to facilitate the harmonised implementation of directives. The Securities Contact Committee has three main tasks:
To facilitate the harmonised implementation of the directives mentioned above by regularly consulting and solving practical problems arising from their application.

- To facilitate the establishment of a concerted attitude of member states on stringent or additional conditions and obligations which member states may lay down at national level.

- To advise the Commission on any necessary supplements or amendment to the above-mentioned directives (European Commission 2000a: 32, 36).

In 1985, both the High Level Securities Supervisory Committee (HLSSC) and the UCITS contact committee came into being.

- The HLSSC is an informal group of high level representatives of member states' securities supervisory authorities, finance ministries, and central banks. It is chaired by the Commission and its main function is to assist in and advise the Commission on policy issues related to securities markets and the development of the relevant European legislation. It is not concerned with detailed technical questions though. Being an informal committee it has no formal tasks. Apart from the functions mentioned above, it also examines problems or disputes between member states regarding the implementation of existing legislation (European Commission 2000a: 32-33).

- The UCITS contact committee consists of representatives from the member states' competent authorities and Ministries of Finance. Its tasks are to facilitate harmonised implementation, to create a forum for consultations between member states, and to advise the Commission on additions or amendments to the UCITS Directive (European Commission 2000a: 32).

In 1997 the FESCO (Forum of European Securities Commissions) was created by the chairmen of EU Securities Commissions. It currently comprises 17 statutory securities commission members of the EEA and is chaired by a representative of one of its members. It concentrates on the development of common regulatory standards and the enhancement of cooperation between members in such fields as enforcement and market
surveillance. According to the FESCO charter, the members have committed themselves to supporting the fair and efficient realisation of a single European financial market through close cooperation, to developing common regulatory standards for supervision of financial services and markets, and to improving market surveillance and enforcement by mutual assistance and cooperation. The three priorities of FESCO are investor protection, market integrity, and market transparency (European Commission 2000a: 32, 39).

- The IOSCO (International Organisation of Securities Commissions) is a worldwide organisation of securities regulators which issues authoritative recommendations on securities regulation and efficient surveillance of international securities transactions. Its main purpose is to maintain just, efficient and sound markets by promoting high standards of market regulation. The three priorities are:
  - To ensure effective surveillance of international securities transactions through common standards.
  - To exchange information.
  - To provide mutual assistance in promoting the integrity of markets by rigorously applying standards and by effectively sanctioning offences (European Commission 2000a: 32, 44).

As well as these official EU institutions, the stock exchanges have also joined forces by forming trade associations. The Federation of European Stock Exchanges (FESE) for example, is a trade association with 26 members which are large stock exchanges in each of the 25 EU member states plus Switzerland and Norway. Its primary purpose is to serve as a forum for information exchange and a means of joint presentation vis-à-vis other bodies such as the European Commission (Licht 1997: 55). The World Federation of Exchanges should also be mentioned. This is a private international organisation comprising the operators of the world's leading financial markets. Its main goals are the provision of a platform where stock exchange issues can be discussed on a regular basis. Such issues are the harmonisation of standards for business processes (particularly with regard to cross-border trading) in the exchange industry, the strengthening of
cooperative relationships with supervisory authorities, as well as the representation and development of organised and regulated markets ("The World Federation of Exchanges").

Furthermore, the Committee of Wise Men proposes the establishment of two new committees: An EU Securities Committee (ESC) with primarily regulatory power and the EU Securities Regulators Committee (ESRC) with advisory functions. The ESC should act as a regulatory body in the securities field and advise the Commission on securities issues. Member states will nominate members to the ESC, which will be chaired by the Commission, i.e. by the European Commissioner responsible for securities matters. The ESRC would rather be concerned with ensuring a more consistent implementation of Community Law and act as an advisor to the Commission. The ESRC should consist of one representative of each Member State who is designated by the national supervisory authority. Finally, a monitoring group should produce half-yearly reports on the progress on and the problems of integration (Committee of Wise Men 2001: 28-29).

Apart from fostering an internal market, one major point on the EU agenda is regulatory convergence between the US and the EU, as the capital raising and allocation process is becoming more and more global due to the growing interdependence of national economies. The US and EU equity markets together form 80 percent of global financial markets. Although they have decrease, cross-listings are still important, with 255 EU companies listing in the US and 168 US companies listing on European exchanges (82 in Germany, 68 on the London stock exchange, and 17 in Paris). In 2002 European companies raised 15 percent of their capital raised via IPOs in the US and transactions in US equities between US and foreign investors have ranged between $3 and 5 trillion per year in the past few years (Draghi 2003: 1-2). Despite this, EU-US regulatory divergence is still significant. For this reason, a convergence on particularly legal infrastructures of the market (company law, corporate governance, and accounting) as well as on the regulation and supervision of the financial markets has to take place (Draghi
The reasons why the SEC is currently still limiting access to the US market for European exchanges are concerns over the quality of European markets (trading systems, supervision, disclosure, etc.) and the products offered (due to fears over European accounting and corporate governance). Common accounting standards in particular would be a great help to investors, enabling them to compare companies across borders. Even within the EU variations persist. The International Financial Reporting Standards will be required to be adopted by all listed companies in 2005, but they still leave ample scope for different interpretation and application, just like the IAS (Draghi 2003: 3, 8).

4.3 Implications for the traditional stock exchanges

4.3.1 Stock exchanges as competing suppliers in the services industry

Stock exchanges are firms that compete on the provision of liquidity and price discovery. In the past few decades competition among exchanges and also ATSs has become fierce as investors have become more global in their perspective and therefore competition among exchanges for the listing of securities and new members is growing. In the course of this competitive process, exchanges try to exploit economies of scale and scope by listing new shares and by trying to increase volume in existing securities, the latter also being known as "competition for order flow" (Arnold et al. 1999: 1083). One very impressive example of the extent of competition is that the London Stock Exchange accounted for 20 percent of the turnover in Dutch equities as early as 1990, which made Amsterdam worry about its existence ("Good-bye to all that" 1999 and Moore 1990: 53).

Traditional stock exchanges cannot rely on their sheer size today, as investors do not care about tradition. Their criteria are cost and volume. For large investment houses the different trading practices, trading hours, and settlement procedures are an obstacle to trading. Therefore stock exchanges must not try to protect their former monopolies, but rather focus on the necessary reforms. Only in this way can traditional exchanges develop in a way to meet the demands of the market. Today, exchanges have begun to behave more like regular firms. They have adjusted to their new environment by increasing automation, by adopting a
new corporate governance structure, the creation of alliances, the battle for market share, higher cost efficiency, and revenue maximisation. In doing so, exchanges have invested heavily in upgrading their technology and reformulating their business strategies (Loistl 2000: 107, Von Rosen 1992: xx and Hasan, Malkamäki and Schmiedel 2002: 7).

4.3.1.1 The products and services of stock exchanges

In order to determine the competitive challenges of stock exchanges, one first has to look at the products and services stock exchanges provide and compete on. Determining what constitutes the inputs and outputs of financial institutions is generally controversial. In the following, an overview of the main outputs of stock exchanges is given:

- The main product of a stock exchange is the official share price. It is derived by matching supply of and demand for capital. The market price of shares has an important impact on the capital market and the economy as a whole.

- The stock exchange enables market participants to trade titles at any time, in this way offering a liquid form of investment at low cost by providing a meeting place. When the market is geographically fragmented, traders may have to devote time to seeking counterparties and bid-offer spreads are therefore likely to be wider as a result. The marketplace must be highly efficient so that transactions can be effected as completely as possible, and under high legal security.

- Listing can be seen as a quality control function to ensure that companies meet the disclosure requirements on the basis of the market segment in which they are listed according to their size and age.

- In general the exchange provides regulations for and supervises the correct execution of trades.

- It provides a guarantee on concluded transactions as well as clearing and settlement of trades.

- Furthermore, the exchange regularly publishes prices and trading stories.

- The main advantage of an exchange is that it standardises products and sometimes also invents new securities to trade.

On the input side, there are computers, software and personnel for matching and processing trades, but also the personnel and regulations necessary for the maintenance of the market place, the communication with companies to handle the listing procedures and supervision of trading (dissemination of company-specific information and observance of marketplace regulations). The input factors weighing most heavily are the trading system (technology and office expenses) and personnel costs. While the trading output is measured in terms of the number and value of executed transactions, the output related to the listing procedure and monitoring is difficult to measure. Therefore it is frequently proxied by the number and value of companies listed on a particular exchange (Hasan, Malkamäki and Schmiedel 2002:15 and Hasan and Malkamäki 2001).

Stock exchanges have historically had seven major sources of revenue: membership subscriptions, listing, trading (transaction fees), clearing, and settlement fees, and charges for providing company news as well as for quote and trade data. Lee mentions quote information as the main source of income for exchanges. 20-40 percent of the income is generated by price quotes. To open up another source, several exchanges have also tried to sell their technology, in this way creating additional revenues. In most of the areas mentioned above, stock exchanges face major competition and the opportunities for stock exchanges to increase their revenues are limited. If a stock exchange has no members, no membership fees can be collected. Most exchanges nowadays have customers and not members. At the same time, stock exchanges fiercely compete with each other for listings. For this reason, revenues from this service are limited. There is also a discussion going on about whether stock exchanges should continue to provide listing services, or if this is not best provided by an independent regulator so that the commercial interests of the exchange do not conflict with its regulatory
function. The only area in which stock exchanges still have a monopoly is price discovery. No dominant exchange has yet lost its functions as a price discoverer. Clearing and settlement as well as the sale of quote and trade data are other very stable sources of revenue for an exchange. Most securities exchanges do not provide clearing and settlement themselves, however, and there is a lot of pressure on those who do to reduce costs and charges. For this reason some exchanges try to cut costs by outsourcing major tasks. For example, many exchanges use IT software and hardware of other exchanges instead of building up the whole system on its own. For most exchanges, transaction fees are the most prominent source of revenues apart from price quotes. This might change however, as the cost of processing an extra marginal trade tends essentially towards zero through the use of automated trading systems. Competition among trading centres pushes transaction fees to almost the same level (Lee 2003: 5-7 and Lee 6 quoted in Schmerken 1999: 82).

According to Shirreff (1998), "exchanges no longer compete on products, but on the cost and efficiency of their systems, clearing and settlement, and their distribution network". Market participants are particularly interested in two things: value-oriented market participants want to achieve a good price on their transaction and time-oriented participants want to carry out their transactions as quickly as possible. The first group is made up of mainly institutional investors, the second of arbitrageurs (Loistl 2000: 104). As a result, 'the quality of every stock exchange is measured in terms of transparency, liquidity, reasonable transaction costs, speed and reliability" (Von Rosen 1992: xviii).

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6 Lee R.: Interview.
4.3.1.2  The threat by new competitors and substitute products

As already mentioned, investors are most interested in cheap and quick trading, no matter through which facility. It must therefore

"be pointed out that the customer, that is, the end user, is indifferent to the choice of system used, provided he gets the service he wants. He will choose the intermediary which produces the best price or the best execution. The intermediary must decide where and how to achieve that. It may be on- or off-exchange, electronic or open outcry" (Shirreff 1998).

According to an article in the Economist ("Good-bye to all that"), it would not even matter if traditional exchanges disappeared altogether. The reason is that electronics can take over all functions of an exchange, and carry them out more efficiently and more cost-effectively. Major advantages include a wider range of products and longer trading hours. The crucial point is to provide investors with a reliable price discovery system, i.e. a means of finding out what sellers are offering and what buyers are willing to pay (Sheeline 1990: 65-68). Buyers and sellers can find each other without gathering in the same place. Regulation is becoming easier because a clear trail is left in the electronic system. Other tasks, such as settlement, publishing information etc. can be fulfilled by third parties. This view is contested by other authors (e.g. Havens, Shteyman and Saber 2000: 20) though, as they consider the stock exchange to still have an almost monopoly function on the most important task from which ATSs benefit: price finding. On the other hand, although pricing is generally considered as the most important function of a stock exchange, institutional investors are not really interested in it. They seek trading platforms which guarantee the execution of their orders at an externally given price without causing any market impact (i.e. without influencing the price with their own order). Crossing-networks, for example, match buy and sell orders directly at a certain price. The most prominent example is Instinet (Sheeline 1990: 65-68 and Loistl 2000: 108). The second function solely fulfilled by stock exchanges is listing. Steil (2002: 73-74) believes, however, that there is no logical necessity for exchanges to carry out listing themselves. This could be easily taken over by accounting firms or rating agencies on a competitive basis.
This would both drive down listing costs and help discover the optimal listing standards for different companies. Furthermore, markets in which trades are executed electronically require a much lower level of trading surveillance than those with human intermediation.

4.3.1.3 The consequences for the role of stock exchanges

Exchanges are considerably worried about the threats mentioned above. For this reason, exchanges have to adapt to the new demands, otherwise they run the risk of becoming extinct. In many cases decision-making is painfully slow and conservative though, because it is in the interest of most members to preserve the status quo for as long as possible (“Farewell to the floor?” 1999). In some way, stock exchanges can be compared to airlines.

"Both have traditionally been symbols of national identity to which every Western economy has felt it has had a natural right. And yet both will be under threat in a Europe without borders" (Moore 1990: 53).

Small countries are certainly at a disadvantage in this respect, as they are unable to provide deep and liquid markets (Gaa et al. 2001: 44). On the other hand, fierce competition among stock exchanges can improve their services and bring down prices, just as competition in other service sectors has resulted in better customer service (Von Rosen 1992: xviii).

The OECD (2001) has identified four different strategies of financial exchanges to cope with investor demand for lower trading costs, improved liquidity, and immediate access to international trading floors. The first strategy, pursued by NASDAQ for example, involves establishing branches using local partners and a common technology. The goal is to gain access to local markets in order to ensure access to information on local companies. This strategy is intended to minimise information costs. A second type is based on the generation of economies of scale through mergers, such as in the case of Euronext, the merger between Paris, Brussels, Amsterdam, and Lisbon. The third way is to attempt a hostile take-over, as the Swedish OM Group did in its attempt to take over the London Stock Exchange. The fourth strategy is that pursued by the
NYSE. It attempts to interconnect leading equity exchanges through a shared common electronic interface in a Global Equity Market (for more details see Section 5.3.3.1.2) (Schmiedel 2001: 12). As a consequence of rapid technological change and the threat by competition through other exchanges and ATSs, many exchanges have invested heavily in modern trading technology. Today in many exchanges everything except the final order execution is automated. At the same time, many exchanges have demutualised or merged with their derivative exchanges (for further details please see Section 4.3.2.3). In Europe, a vertical integration with many clearing and settlement platforms has taken place (please also see Section 4.3.2.2) (Gaa et al. 2001: 38).

Automated trading is the factor that has called the traditional exchange model into question most. As the exchange is no longer a physical place and therefore the marginal cost of adding another member is close to zero, there is no need to ration access. Therefore some expect exchanges in future to no longer rely on membership fee revenue but on selling trade data, which, as can be seen from Section 4.3.1.2 is also a major source of income. In this field of business exchanges "will behave like media companies and attempt to charge for the provision of information" (Herring and Litan 2002). In any case it is believed that European securities markets will not be able to face the challenges from automated trading systems alone. Some suggest establishing a single European securities market as a network of the different trading and settlement systems linked via computer terminals. Regulation will have to take place on a European level so that uniform reporting is ensured. Some experts even talk of the need for a European SEC ("Too many trading places" 1993: 23).

After this short general introduction to stock exchange competition, the next section is intended to provide an overview of the decisive success factors of stock exchanges when competing with others. The question is which criteria stock exchanges need to fulfil in order to survive.
4.3.2 Criteria for the success of competing stock exchanges

In order to survive in the competitive environment exchanges are facing, they need to concentrate both on their strengths and on the critical success factors for exchanges. In this section those aspects vital for the survival and success of established stock exchanges will be identified.

Stock exchanges pursue the following goals:

1. Liquidity: This is the overarching goal of all exchanges.

"Liquidity is essential for trading systems. It enhances the effectiveness of the market overall, reducing costs by narrowing spreads and giving depth such that prices are less affected by particular trades. Liquid markets are typically better placed to absorb shocks than less liquid ones, contributing to the robustness of financial systems. Moreover, as discussed in the previous section, liquidity is an essential ingredient of price discovery and hence price signals of the wider economy" (Allen, Hawkins and Sato 2001: 45).

As a result, all criteria for success mentioned below are only subordinate goals to enhance liquidity.

2. Image: In order to protect the image of an exchange, strict insider regulations and an efficient securities and exchange supervision are absolutely crucial (Breuer 1993: 12).

3. Technology: According to a survey by A.T. Kearney, institutional investors rely heavily on technology to increase the efficiency of transactions, place higher emphasis on commissions and transaction costs in general, change traditional trading practices and question the benefit of using brokers (Loistl 2000: 100). The innovation in information systems provides stock exchanges with the opportunity to fulfil these new demands of investors by implementing totally new organisational structures which are more efficient. In the long run, transparency, service, and investor protection are major factors to ensure the survival of traditional stock exchanges (Von Rosen 1992: xvii).

According to a study by Schmiedel (2001: 25), stock exchanges are still operating at quite a low efficiency level. Large exchanges, however, tend to
outperform their smaller competitors. The table below gives an overview of the inefficiency scores calculated by Schmiedel (2001: 24) for various European stock exchanges. The significant parameter in his model is costs.

Table 1: Ranking of inefficiency scores of European stock exchanges.

<table>
<thead>
<tr>
<th>Exchange</th>
<th>Inefficiency score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swiss Exchange</td>
<td>0.0345</td>
</tr>
<tr>
<td>Euronext Brussels</td>
<td>0.0408</td>
</tr>
<tr>
<td>Euronext Amsterdam</td>
<td>0.0466</td>
</tr>
<tr>
<td>Budapest Stock Exchange</td>
<td>0.0466</td>
</tr>
<tr>
<td>Deutsche Börse AG</td>
<td>0.0719</td>
</tr>
<tr>
<td>Barcelona Stock Exchange</td>
<td>0.0845</td>
</tr>
<tr>
<td>Copenhagen Stock Exchange</td>
<td>0.1915</td>
</tr>
<tr>
<td>Tallinn Stock Exchange</td>
<td>0.1955</td>
</tr>
<tr>
<td>Bolsa de Madrid</td>
<td>0.2235</td>
</tr>
<tr>
<td>Bourse de Luxembourg</td>
<td>0.2606</td>
</tr>
<tr>
<td>Helsinki Stock Exchanges</td>
<td>0.3365</td>
</tr>
<tr>
<td>Euronext Paris</td>
<td>0.3924</td>
</tr>
<tr>
<td>OM Stockholm Exchange</td>
<td>0.4136</td>
</tr>
<tr>
<td>Iceland Stock Exchange</td>
<td>0.4258</td>
</tr>
<tr>
<td>Oslo Bors</td>
<td>0.4489</td>
</tr>
<tr>
<td>London Stock Exchange</td>
<td>0.4629</td>
</tr>
<tr>
<td>Wiener Börse</td>
<td>0.5288</td>
</tr>
</tbody>
</table>


7 “The estimates in this table are…individual inefficiency scores of European financial exchanges over the time period 1985-1999. The coefficients are listed in ascending order so that those stock exchanges with the lowest inefficiency level are ranked first” (Schmiedel 2001: 24). For further details on the methodology please see Schmiedel 2001.
The study suggests that operating efficiency is linked to size, ownership form, trading quality, market concentration, integration of other trading activities, exchange governance structure, and automated trade execution technologies. Cross-border trading facilities, though, did not result in efficiency gains. Mergers and alliances seem to have a beneficial effect in that exchanges can benefit from economies of scale or the sharing of the development cost of new electronic trading systems (Schmiedel 2001: 24-25). The Swiss exchange has mainly benefited from the integration of clearing and settlement transactions. Furthermore, Brussels and Amsterdam seem to have profited from the Euronext merger. Some of the young exchanges from former Communist countries performed very well, which can be explained by the negative relationship between the age of an exchange and its efficiency. The fact that the London Stock Exchange showed one of the worst results might serve as an explanation for the takeover attempt by the Swedish OM Group.

The criteria for success listed below are the most important mentioned in the literature on this subject. Stock exchanges rely on them to increase their efficiency and ultimately achieve maximum liquidity. The criteria are dealt with in alphabetical order without weighting their importance. External growth is discussed separately in more detail after the other factors, as it is one of the central theses of this thesis that external growth has become crucially important for the survival of stock exchanges nowadays.

4.3.2.1 Corporate governance and ownership structures
In the past, exchanges have been run for the benefit of their members, but now emergence of international competition, the consolidation of investors, and technological change has led to a radical shake-up of the old structures (Davies 1998). The reason why stock exchanges have not competed for market share like any other institution is that the owners of the exchanges were also its customers. For this reason, the owners were not the best profit maximisers (Hasan, Malkamäki and Schmiedel 2002: 9). The original reason for running exchanges as
mutual companies was rationing access to trading floors by charging substantial membership fees. As a result, only high-volume users would participate.

"This evolved into a system of seats or the right to trade, which was essentially a system of self selection based on high initial and yearly membership fees. Organisational profit making was never the motive; the exchange required funds only to the extent of meeting its expenses. Any surplus made by the exchange resulted in reduced access fees for members. The accepted norms of behaviour of members and their self imposed rules for trading governed the markets. Members were responsible for their conduct with one another, with users of the exchange and other stakeholders. With securities law in place, the concept of self-regulation under regulatory oversight emerged" (Ramaseshan 2002: 1).

In return for benefiting from the liquidity created on stock exchanges, non-members paid members to execute their orders on the exchange floor. In this way exchange members became intermediaries (brokers) for the transactions of investors (Steil 2002: 62). The fact that the marginal cost of adding a new member to an electronic trading network declines toward zero leads to the phenomenon of demutualisation. The central concept of demutualisation is the separation of ownership and membership. As there is practically no cost involved in an increase in the number of participants, it does not make sense anymore to impose a membership fee (access fee). Transaction-based charging has become far more feasible. The transacting parties on an electronic network are much more like clients or customers of a firm than members.

In general, stock exchanges are aware of the fact that they can only be successful in future if they demutualise. For this reason 79 percent of stock exchanges were considering demutualisation in 2001. The main reason is that 75 percent of mutually-owned exchanges believe they are not free to pursue optimal profit maximisation strategy. For this reason, they want to separate ownership and control and reduce the control of intermediaries over the management of the exchange (Ramaseshan 2002:2)\(^8\). At the same time, demutualization puts pressure on stock exchanges to merge or form alliances, if such a move can be expected to

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\(^8\) According to a survey of exchanges by the London-based BTA Consulting.
increase profits. Demutualisation takes place in different stages, as becomes obvious in the figure below:

Figure 4: The process of exchange demutualisation.

In the first phase of demutualisation, members are given shares and in this way become the legal owners of the exchange. Next, or in some cases in stage one, capital is raised through a private placement, usually to members as well as outside investors. Being now a demutualised privately owned company, exchanges can choose between staying privately owned and listing, which entails the removal of all restrictions on ownership and trading. One last option is to become a wholly-owned subsidiary of a publicly traded company, such as in the case of the Swedish Stock Exchange following its demutualisation in 1993 (Aggarwal 2002: 107).

The following potential benefits of demutualisation have been identified:
1. The disadvantages of mutualised exchanges are efficiency costs, namely higher trading costs for investors and higher capital costs for companies listed on the exchange. According to a survey by the FIBV (Federation of International Stock Exchanges), the operating costs of demutualised exchanges rose by only eight percent compared to twelve percent of others.
The reason was that these exchanges were more customer- and profit-oriented and eventually also recorded a higher profit than the other exchanges.

2. Demutualisation permits the exchange to bring its technology up-to-date. It leads to clearer commercial incentives for efficiency and innovations. A for-profit exchange is therefore better able to meet the challenges of technological advances and changes in the regulatory and economic environment. Another reason why exchanges strive to demutualise is that members who derive profits from intermediating non-member transactions will resist innovations that reduce the demand for their services, despite the fact that these innovations might raise the economic value of the exchanges as a whole. Owners will therefore block disintermediation, as an increase in the value of the exchange would not be able to compensate them for their loss of brokerage fees. As electronic trading systems might weaken the position of intermediaries, mutualised exchanges might have problems introducing automated trading systems. The ability of mutual exchanges to protect investor interests and enforce rules is also viewed with suspicion. There are so many competing vested interests that it is difficult to keep pace with the speed of the market.

"Internal conflicts often make traditional exchanges slow to embrace change. New, profit-seeking exchanges tend to be free of such wrangling and lighter on their feet. The old exchanges with the brightest futures may be those which abandon their mutual structure of ownership and become private companies, as the Milan and Sydney exchanges have done" ("Good-bye to all that" 1999).

3. By offering equity to potential partners, international strategic alliances and acquisitions can be developed. In order to prepare for the merger wave among stock exchanges, many exchanges decide to list on the stock market themselves. The reason behind going public is that companies which are listed on the stock exchange and which have multiple owners are forced to work efficiently. This is seen as a good means of meeting ever-increasing competitive pressure ("Mutter aller Schlachten" 2001: 52).

4. The governance and management structure has become more flexible, better able to respond to changes in the industry or market conditions, and less dependent on the interests of members and conflicts between classes of
members. Decision-making is improved, keeping the enhancement of shareholder-value in mind. According to a study by Schmiedel (2001: 22), ownership has a direct impact on the management of exchanges.

5. Members' equity is unlocked and the vested interest of traders can be bought out. However, demutualising itself makes little difference if the former members of the mutual organisation end up owning a controlling interest in the publicly traded exchange. Therefore the crucial point is not the change to the for-profit status, but the shift in control from entrenched local brokers to other investors, otherwise the exchange might not be able to fully exploit the advantages of demutualisation. Examples of exchanges which were organised as for-profit companies, but were not effectively demutualised include the German Stock Exchange and the Paris Stock Exchange. Before their IPO in 2001, these exchanges had the same incentive structure as a mutual exchange. This was due to the fact that ownership stakes, which were mainly controlled by members, could not be sold without the supervisory board's approval, which meant that it was virtually impossible to sell them. The essential point about demutualisation is therefore that non-members are free to buy equity stakes from current owners. Only in this way is it possible to change the incentive structure (Steil 2002: 66). Another striking example is the Borsa Italiana, which is officially demutualised but where in fact 90 percent of stakes are still in the hands of Italian intermediaries. At the other end of the continuum we have OM Stockholm, which is self-listed and has a very diverse shareholder base, with about 25 percent of shareholders being foreign (Steil 2002: 67).

6. The exchange can avoid concentration of ownership power and risk.
7. Appropriate incentives for management which also control them.
8. Easier access to additional capital.
The official reason why exchanges try to bring in non-members as owners is their need to raise capital for expansion and technology investment. Empirically, however, the primary function of demutualisation is to decrease the level of control of intermediaries over the exchange's strategy. Exchange members will only accept new outside ownership if there is a high degree of competition as competition makes it more difficult for them to protect their intermediation function. Another reason for the acceptance of outside ownership is if the largest member firms operate internationally; large international players have less motivation to defend mutualisation than local players. Demutualisation increases their strategic control over the exchange in relation to local members by modifying the one-member, one-vote system towards a system which is based on the size of the ownership stake (Aggarwal 2002: 107).

There are also several counter-arguments against demutualisation. For example, "the commercial nature of the exchange, namely profit maximisation, may contradict its role as a public entity providing a service" (Ramaseshan 2002: 5). Many stock exchanges used to be government-owned because they were seen as serving a public interest, since a fair and efficient capital market is considered a public good (IOSCO 2000). Stock exchanges therefore play an important role in not only the functioning of capital markets, but also of the overall economy. This is due to the fact that a functioning financial market is necessary for real-economic growth (Blum et al. 2002). What would happen, for example, if a for-profit exchange went out of business? This might result in serious trouble if listed companies found it difficult to raise capital elsewhere or if investors had to cope with reduced liquidity of their portfolios (Aggarwal 2002: 109). It should be noted, however, that concerns are similar in the privatised utilities sector. In most countries, the response has been the imposition of statutory duties on the directors of the utility "to act in the public interest" (IOSCO 2000). The same approach is taken with regard to stock exchanges by some countries. According to a model by Hart and Moore (1996), member-owners want low exchange costs and high exchange profits. Outside owners, on the other hand, only seek high profits. For a
wide group of shareholders it will be difficult to stop any anti-competitive activity, due to a lack of influence. As the shareholders of the exchange are not its users, they will also have no incentive to do so, in contrast to the members of a cooperative securities exchange (Lee 2003: 16). The problem is therefore that the interests of important stakeholders may not be adequately reflected due to the fact that former shareholders have become stakeholders (which has decreased their influence) and vice versa. Another question is what the consequences of freely transferable shares of listed exchanges are. What would happen if a hostile takeover led to a situation in which the interests of the new shareholders were not compatible with the role of the exchange as a public entity (i.e. if the exchange were controlled by one or more persons or if it were under influence of "inappropriate" shareholders)? In order to prevent such a situation most exchanges limit concentration of holding and control by imposing a shareholding limit. This limit is usually 5 percent, though at the Australian stock exchange it is 15 percent. Another concern is an appropriate governance structure to balance the interests of the public and shareholders. Another conflict of interest could arise through diversification. The financial viability of an exchange could be threatened if other commercial activities involved high financial risk (Ramaseshan 2002: 6 and IOSCO 2000: 9). One central problem in connection with demutualised exchanges occurs if the exchange is in a monopoly position. A for-profit exchange which is a monopolist will maximise profits by increasing price, reducing output, and decreasing expenditures. This is neither desirable for the users of the exchange nor for the general public. For this reason there are strong arguments against the tendency of trading in assets gravitating to a single exchange finally becoming a monopolist. Apart from regulatory worries, one must also not neglect the fact that there are significant costs involved in the process of demutualisation. On the other hand, not all of the potential benefits will really come into effect (Lee 2003: 13-15).

Despite all these reservations, there are numerous examples of successful demutualisations of stock exchanges. In 1993, Stockholm was the first exchange in the world to demutualise. Demutualisation was triggered by the fact that
Stockholm’s turnover declined by a third between 1987 and 1990 due to competition from London's SEAQ International\(^\text{10}\). In the course of the demutualisation, 50 percent of the shares were retained by members and the other 50 percent were allocated to listed companies. In 1994 the shares became freely tradable and were finally listed on the exchange itself in 1998. After demutualisation, the Stockholm exchange was the first in Europe to offer institutional investors remote cross-border membership and direct electronic access. Although the local Swedish members were reluctant to accept these measures, they were unable to block them due to their minority interest. It was the non-member owners who supported these measures. The success of demutualising is evidenced by the fact that in the first two years after demutualisation, turnover quadrupled and the share price rose nearly sevenfold. Helsinki and Copenhagen, which demutualisation in 1995 and 1996, applied a 60-40 split between members and listed companies when initially allocating the shares in the course of demutualisation. Amsterdam, in contrast, gave 50 percent to members and the other half to listed companies as well as institutional investors through an auction. Australia allocated all shares to its members, but on the day following demutualisation all shares were listed on the exchange (Domowitz and Steil 1999: 15-16). The listing proved to be very successful.

"Shares in the Australian Stock exchange, which are trading at three times their 1998 listing price, highlight the potential [of stock exchange IPOs]. They have been among the best performer on their own market" ("Exchange casts off shackles" 2000).

The reasons for the Toronto stock exchange to go public were the technological and regulatory changes, the launch of an ATS, and the resulting battle for market share in the Canadian stock market (Lorinc 2000: 23). Up to now the following exchanges have demutualised (Domowitz and Steil 1999: 43, Malkamäki and Topi 1999: 19 and "Mutter aller Schlachten": 52):

\(^{10}\) SEAQ is the London Stock Exchange's service for mid-cap securities and the most liquid AIM securities.
Table 1: Demutualised stock exchanges.

<table>
<thead>
<tr>
<th>Stock Exchange</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stockholm Stock Exchange</td>
<td>1993</td>
</tr>
<tr>
<td>Copenhagen Stock Exchange</td>
<td>1996</td>
</tr>
<tr>
<td>Amsterdam Stock Exchange</td>
<td>1997</td>
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<tr>
<td>Iceland Stock Exchange</td>
<td>1999</td>
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<tr>
<td>Vienna Stock Exchange</td>
<td>1999</td>
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<tr>
<td>London Stock Exchange</td>
<td>2000</td>
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<tr>
<td>Stock Exchange of Singapore</td>
<td>2000</td>
</tr>
<tr>
<td>Euronext</td>
<td>2000</td>
</tr>
<tr>
<td>Tokyo Stock Exchange</td>
<td>2001</td>
</tr>
<tr>
<td>New Zealand Stock Exchange</td>
<td>2002</td>
</tr>
<tr>
<td>Helsinki Stock Exchange</td>
<td>1995</td>
</tr>
<tr>
<td>Borsa Italiana</td>
<td>1997</td>
</tr>
<tr>
<td>Australian Stock Exchange</td>
<td>1998</td>
</tr>
<tr>
<td>Athens Stock Exchange</td>
<td>1999</td>
</tr>
<tr>
<td>NASDAQ</td>
<td>2000</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>2000</td>
</tr>
<tr>
<td>Toronto Stock Exchange</td>
<td>2000</td>
</tr>
<tr>
<td>Oslo Exchange</td>
<td>2001</td>
</tr>
<tr>
<td>Euronext</td>
<td>2001</td>
</tr>
<tr>
<td>Chicago Mercantile Exchange</td>
<td>2002</td>
</tr>
</tbody>
</table>

Based on Aggarwal (2002: 106) and Stamm (2004).

A few stock exchanges also got listed:

Table 2: Listed exchanges.

<table>
<thead>
<tr>
<th>Exchange</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>OM Group (now OMX)</td>
<td>1987</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>2000</td>
</tr>
<tr>
<td>Singapore Exchange</td>
<td>2000</td>
</tr>
<tr>
<td>Oslo Exchange</td>
<td>2001</td>
</tr>
<tr>
<td>London Stock Exchange</td>
<td>2001</td>
</tr>
<tr>
<td>New Zealand Stock Exchange</td>
<td>2003</td>
</tr>
<tr>
<td>Australian Stock Exchange</td>
<td>1998</td>
</tr>
<tr>
<td>Hellenic Exchanges</td>
<td>2000</td>
</tr>
<tr>
<td>Toronto Stock Exchange</td>
<td>2000</td>
</tr>
<tr>
<td>Euronext</td>
<td>2001</td>
</tr>
<tr>
<td>German Stock Exchange</td>
<td>2001</td>
</tr>
</tbody>
</table>


Due to the fact that the financial performance of demutualised and listed exchanges is more closely followed by shareholders and the market in general, demutualisation in general and listing in particular in many cases further increases the pressure on stock exchanges to form cooperations in order to maximise profits. All in all it can be said that up to now the evidence for the success of demutualisations – in the form of stock price movements – has been very encouraging (Aggarwal 2002: 113).
4.3.2.2 Degree of organisation and technicalisation

In this subsection two aspects of stock exchange success which are closely linked are discussed: on the one hand technicalisation, which refers to automation in trading, and on the other hand, organisational integration, which describes the degree of integration of clearing and settlement systems. Technicalisation is a prerequisite for integrating clearing and settlement efficiently so that straight through processing becomes possible. The fact that both of these factors are very important for stock exchanges is highlighted by the fact that "investment has been channelled aggressively into improving settlement and trading systems" (Moore 1990: 53).

The advantages of automated trading versus floor trading are a frequently discussed topic. The increased competition among international stock markets forces exchanges to search for ever more efficient trading systems with low cost, such as in the case of the Copenhagen Stock Exchange, which was the first one to introduce electronic trading in the 1980s (Jensen and Natorp 2000). Even minimal differences in market liquidity and fees determine the attractiveness of a market or trading system (Gerke and Hamann 1991: 14). The main advantage of electronic trading systems is their speed and higher cost efficiency compared to floor trading (Breuer 1993: 12). Trading floors cost a lot more money than electronic systems. For this reason many exchanges abandon them, which they expect to save them up to 40 percent of their cost ("Good-bye to all that" 1999). Apart from cost savings, automated trading offers the following advantages:

- Higher predictability of market reactions due to a more orderly and consistent market as the system rigorously adheres to market rules. This is also due to the high transparency of information concerning the trading process, i.e. timely information on prices and quantities of both potential and executed orders for each trader. If stock exchanges merge, the amount of information available even increases.

- More fairness, equality, and market transparency, as information can be accessed by all market participants at the same time since geographical barriers are removed. As a result, information and search costs are lower. Due
to the reasons mentioned above, this argument also increases the pressure on stock exchange to merge.

- More market participants, because there is no need for physical presence. This factor also contributes to the trend towards mergers and alliances.
- Cost reductions and lower market risk, since trades are matched and forwarded directly to the clearing system for settlement.
- Direct access to the trading system by all market participants, which makes markets cheaper to enter.

But in how far do automation and investments in new technology really pay off for exchanges? According to Domowitz and Steil (1999), automation has significantly reduced trading costs to the benefit of investors. Moreover, Hasan and Malkamäki (2001) found considerable economies of scale and scope to be exploited by stock exchanges. In order to estimate cost savings from the switch from floor to automated trading, several studies have been conducted. The switchover from floor-based to automated trading leads to higher efficiency whereas remote access is positively associated with cost inefficiency. This is due to the fact that exchanges incurred high establishment costs for remote membership access. There are no short-term efficiency gains here though inefficiencies are expected to decrease in the long run. Furthermore, a study by Schmiedel (2001: 22) came to the conclusion that the age of an exchange is negatively correlated to its efficiency. As far as market quality is concerned, traditional exchanges clinging to the floor system claim that they are better able to absorb large orders without market impact. This is questionable, however, as floor traders are suspected of benefiting from their knowledge of such deals ("Goodbye to all that" 1999). Domowitz and Steil (1999: 22) found that "market quality is roughly equalized across automated and floor technologies". Although much has improved, there are still considerable revenue and cost inefficiencies among exchanges. North American exchanges are perceived to be the most efficient in terms of both cost and revenue. European exchanges, on the other hand, have
improved most in terms of cost efficiency (Hasan, Malkamäki and Schmiedel 2002: 7). In general, technicalisation will increase the pressure on stock exchanges to cooperate, since automated trading platforms increase the potential for economies of scale and since it permits the linking of trading platforms.

A second very important competitive factor for stock exchanges linked to technicalisation is better and quicker clearing and settlement (Breuer 1993: 8). Clearing denotes the confirmation of the type and quantity of a financial instrument traded, the date of transaction, as well as the price and the identities of buyer and seller. Settlement means the fulfilment of the obligations arising from the transaction (Scarlata 1992). The clearing house, which places itself between the buyer and the seller, compares trades between parties and removes the risk from the settlement process. It ensures that the buyer receives the instrument purchased and that the seller receives payment by becoming the counterparty to all trades. In this way the clearing house guarantees every trade.

"Each participant has a net obligation with the clearinghouse to buy or sell the security based on his or her net position with other participants in the clearinghouse. A third institution – the depository – is an organization (not necessarily part of an exchange) that holds stocks and bonds for safekeeping on behalf of their owners. It has a computerized accounting system to record and transfer ownership of securities between participants by integrating a book-entry system with a money transfer system" (Scarlata 1992).

The degree of organisation of a stock exchange determines the number of steps involved in order to "produce" the products and services of stock exchanges. The aim is STP ("straight though processing"), which means that trading is automated to such a degree that from the placing of the order over trading to clearing and settlement, no human intervention is necessary. In view of the globalisation of markets, institutional investors demand the standardisation of transaction processes on a global basis (Loistl 2000: 101-102). This factor further adds to stock exchange cooperations.
In the area of clearing and settlement, a high degree of consolidation can be observed. The efficiency of clearing and settlement has substantial influence on transaction costs. In Europe, clearing and settlement institutions are nationally fragmented so that cross-border trading is quite costly. In 2001 there were 21 settlement systems in the 15 EU countries, in contrast to only two in the US. In the meantime, clearing and settlement institutions have already begun to consolidate and form alliances, which was mainly due to the introduction of the euro. Since CSDs and settlement houses are already relatively highly integrated on a national level, the stress has to be on reforms in cross-border settlement, particularly as there are significant economies of scale available to such institutions. With steadily rising cross-border activity, institutional investors and broker/dealers put pressure on clearing and settlement institutions to bring down the cost and complexity of cross-border trades. The main concern is the high transaction fees for the clearing and settlement of cross-border trades (on average 42 percent higher than for comparable domestic trades), which is due to the complexities of EU international securities and settlement systems and differences in the underlying scope of ICSD services (Gaa et al 2001: 55 and De Carvalho 2004).

A study by Schmiedel and Malkamäki (2002: 29) reports the existence of considerable economies of scale for both depository and settlement activities. The centralised US system is the most cost efficient; for this reason it can be considered a cost-saving benchmark. According to estimates, clearing and settlement costs are nine to ten times higher for European transactions than for US transactions. The cost of cross-border transactions in Europe can be ten times as much as domestic trades in Europe, and can even be up to an unbelievable forty-six times higher than in the US (London Stock Exchange 2001). Settlement institutions in Europe and the Asia-Pacific region therefore have a higher potential for cost savings per unit. The results of the study clearly support mergers and alliances among smaller settlement institutions. Regulation plays a crucial role in improving the effectiveness of the operative infrastructure of the settlement industry. "In the regulated and centralised US market settlement is carried out at
almost optimal scale compared to the corresponding systems in Europe and Asia-Pacific regions" (Schmiedel and Malkamäki 2002: 29-30). Therefore, the formation of a pan-European central counterparty – similar to the Depository Trust and Clearing Corporation in the US – has to be encouraged and similar efforts would have to be taken in regard to settlement operations and central securities depositories (McAndrews and Stefanadis 2002). The EU also considers the establishment of efficient clearing and settlement structures to be of prime importance as the number of cross-border transactions is increasing and as both exchanges and new types of trading platforms are increasingly dependent on consolidated clearing houses and central counterparty facilities (Committee of Wise Men 2001: 80).

There is also some progress to be reported, however. For example, Deutsche Börse Clearing and Cedelbank Luxembourg have merged to become Clearstream International. In 2002 Clearstream was acquired by Deutsche Börse. The purpose of this merger was a vertical integration of trading, clearing, and settlement services within a single institution. In September 2002 CrestCo, a UK-based clearing and settlement institution, became a wholly-owned subsidiary of Euroclear, the largest European clearing and settlement institution, which constituted a horizontal merger and in 2003 the London Clearing House and Clearnet, two leading CCPs, merged. Both cooperations are considered a step towards an integrated European capital market (Schmiedel and Malkamäki 2002: 7-8 and De Carvalho 2004). Euronext currently attempts to integrate the settlement system of each of its members under LCH.Clearnet, but has not yet finished conversion to the new clearing platform. Schmiedel and Malkamäki (2002: 30) expect further collaboration and consolidation among existing CSDs in Europe in the near future. If clearing and settlement bodies start to integrate, the pressure on exchanges to consolidate could increase even further (Skeete 2000).
4.3.2.3 Integration of derivatives markets

Derivatives markets grew significantly at the beginning of the nineties and derivatives have become an important product of exchanges (Breuer 1993: 8). The merger between equity and derivatives exchanges is just a logical continuation of consolidation among regional stock exchanges and of strategic advantage (Loistl 2000: 112). According to Williamson (1997: 407), the following are reasons for equity/derivative mergers:

- **Economies of scale.** Exchanges can, for example, integrate such functions as product development or marketing, or move to one building. The advantage for members is that rules are harmonised and that they only have to deal with one exchange. Furthermore, the development of cross-market products becomes easier.

- **The potential gains from a merger are enhanced further as technology progresses.** Equity and derivatives markets can be electronically integrated, which is cheaper than operating two separate markets. The same applies to clearing and settlement, where substantial synergies could be derived.

- **As competition is becoming fiercer, the independent survival of some exchanges might be threatened and the pressure to reduce costs is increased.** This also eventually leads to cross-border consolidation. In order to enhance their bargaining position in a cross-border merger, exchanges try to consolidate as far as possible on a national level.

Examples of mergers between equity and derivatives markets within countries can be found in Switzerland in 1993, Germany in 1994, the Netherlands, Finland, France, and Austria in 1997, Sweden in 1998, Hong Kong in 1999, Singapore in 2000, and Greece in 2002. In 2002 LIFFE was acquired by Euronext forming Euronext.liffe. The aim of this step was to provide an integrated derivatives market for the UK, Amsterdam, Brussels, Lisbon and Paris. The Milan stock exchange acquired the Italian options and futures exchange in the same year. Derivatives exchanges have also recently started to team up across countries. A prominent example is GLOBEX, a strategic alliance between the derivatives
markets of Euronext, Spain (MEFF), the Chicago Mercantile Exchange, Montreal, Sao Paolo Commodities and Futures Exchange, and the Singapore Exchange, providing the world's first electronic trading network for futures and option contracts (FESE 2004). According to Williamson (1999), mergers between equity and derivative exchanges within countries are one of the most common forms of linkages and will become even more frequent in future. The integration of derivatives markets will not necessarily increase the pressure on stock exchanges to merge or form alliances.

4.3.2.4 Market segmentation

As has become obvious in previous sections, there is a strong trend towards the concentration of trading facilities at a single geographic location. Consolidation among exchanges within a country seems to be inevitable, and even supranational exchanges are becoming more and more common. For some observers, a central worldwide trading platform is even imaginable. One reason is that product differentiation is difficult in relation to the provision of trading facilities (Loistl 2000: 110). It is unlikely, however, that one stock exchange will really be able to gain a real monopoly position (on the one hand due to regulator barriers, on the other institutional investors will not risk becoming captive to a single exchange.

The lesson to be learned from the US is that far fewer exchanges are required and secondly that the major stock markets concentrate on different types of trading: the NYSE focuses on liquid titles offering an auction market system, whereas NASDAQ provides a dealer market for less heavily traded shares. In Europe, on the other hand, the big stock exchanges copy each other instead of differentiating themselves. This is due to the desire of all exchanges to meet the needs of the biggest clients: pension funds and mutual funds. At the same time, "the risk in what European exchanges are now seeking to do is that by aping each other, they could undermine the strengths they already have" ("Shaping up"). Instead traditional stock exchanges have to ask themselves whether they offer up-to-date services or if certain market segments are missing. One option would be the introduction of a segment which allows block trading (such as the upstairs-market of the NYSE). Such a segment is strongly supported by a study by
Bessembinder and Venkataraman (2004) who found that over two-thirds of the block-sized trades in their sample were completed in the upstairs market. The question might also be if there is demand for hit-or-take segments or matching or crossing systems similar to those offered by ATSs (Von Rosen 1994: 1217).

Many small exchanges have to seek out niches in order to survive. At the same time, they must try to provide better service and incur lower costs through technological advantages. One niche would be to offer innovative financial products. If they try to compete on price with the large exchanges, they will fail (Brennan 1993). The strategy of the Vienna Stock Exchange, for example is to invest in Central and Eastern Europe. In 2004, for example, the Vienna Stock Exchange acquired a 24 percent stake in the Budapest Stock Exchange ("Austro-Banken raufen um Börse Budapest" and Wiener Börse: "Beteiligungen"). The need for offering a wide range of market segments is likely to increase to pressure on exchanges to cooperate.

4.3.2.5 Supervision of trading

Stock exchanges are self-regulatory bodies in most countries. Self-regulation denotes "the way in which the securities industry monitors itself to create a fair and orderly trading environment" ("New York Stock Exchange-Glossary"). That means that exchanges (no matter whether they are profit-oriented or not) need to be able to carry out self-regulatory duties concerning listing requirements, assurance of fair and equitable treatment of customers, market-manipulation, and surveillance of member firms (Aggarwal 2002: 109). Some fear that self-regulation might be under threat if exchanges demutualise.

"A demutualised exchange, focused on profits, may not take its self-regulatory role seriously. The benefits of effective regulation are not visible, while the expenditure on regulation is" (Ramaseshan 2002: 5). On the other hand, "with intense competition, any exchange that compromises on self-regulation and which is perceived to be lax in enforcement may eventually lose the patronage of investors. Thus in a competitive environment, self-regulation is expected to be stronger" (Ramaseshan 2002: 6).
As a result of demutualisation, the interest of exchange owners may substantially diverge from those of its main customers. Demutualisation leads to the profit-maximisation goal becoming more evident and explicit. This raises the question of conflicts of interest in connection with the regulatory function of exchanges, especially in regard to primary market regulation, secondary market regulation and member regulation. Is there a need for a special regime to protect the public interest, such as corporate governance rules or restrictions on share ownership? Will the regulatory function of the exchange be backed by adequate funding? Although there are also a number of potential conflicts of interest in a member-owned exchange (some even argue that a for-profit exchange might conduct its regulatory duties more diligently than traditional exchanges since they do not want to put the reputation of the exchange at risk and since fines may be a source of potential revenue) most experts express concern that the profit-orientation of demutualised exchanges adds to the scope of conflicts of interest. One argument is that "the benefits of good regulation are harder to quantify and therefore may not be given full weight" (IOSCO 2000: 5). Furthermore, the exchange might be reluctant to commit the necessary resources strict self-enforcement would require. Profit-oriented exchanges might be hesitant to enforce action against customers or users who constitute a major source of income. For the same reason of generating investment returns for its shareholders, a for-profit exchange may be less willing to suspend trading in liquid securities if transaction fees are lost through this measure (IOSCO 2000: 2-6). The problem of self-regulation becomes even more difficult when the exchange lists its shares on itself. In this case, the exchange has to self-regulate. Listed exchanges basically have three options to proceed in this matter:

1. The exchange can continue to perform all of its regulatory functions in the same way as before arguing that demutualisation and self-regulation do not conflict with each other. A case in point is the Swedish OM Group.

2. The exchange can establish a separate entity which takes over the regulatory function in order to reduce conflict of interest issues. An example of this model is NASDAQ. "One chance might be to keep SROs within exchanges,
but in a subsidiary with a 'Chinese Wall' separating trading and member surveillance from day-to-day operations" ("For-Profit Stock Markets").

3. The exchange can leave the regulatory function to a completely independent third party. On the one hand, this helps avoid conflicts of interest, on the other, it must be ensured that the third-party regulator can be held liable and performs its functions properly so that the reputation and brand name of the exchange does not get harmed (Aggarwal 2002: 109-110). The ASX, for example, has transferred the administration of listing rules to the Australian Securities and Investments Commission. When the LSE demutualised in 1999, the regulatory role was transferred to the Financial Services Authority.

In order to remedy the potential dangers from a stock exchange regulating itself, several measures can be taken by financial services authorities. These measures include the requirement for public directors, rigorous regulatory oversight, stricter transparency rules regarding decisions of the exchange, or a functional separation of the regulatory function of the exchange from its commercial activities. The last requirement is one reason why the NYSE has not demutualised yet, namely the fact that the SEC requires the establishment of an independent regulatory body first. However, the NYSE considers the regulatory function of the exchange an integral part of its reputation and branding (which it considers more important for the survival of the exchange in a demutualised environment than demutualising itself) and has therefore backed away from demutualisation. If regulatory agencies (no matter whether the exchange itself or third parties) fail to ensure supervision of trading, markets will dry out because investors lose trust. Therefore only markets with a transparent and efficient supervision will survive (Loistl 2000: 100). Supervision has been a task of most stock exchanges for decades, therefore it will not have significant influence on their cooperative strategy. Young exchanges might be an exception.
4.3.2.6 Transaction costs

Securities trading rests on three pillars: research, portfolio management, and trading. In times of ever reducing margins and higher information efficiency, the third pillar is becoming more and more important. For this reason cost efficiency of exchanges is crucial for customers (investors, in particular institutional investors). Institutions that continuously try to decrease transaction costs will win over customers from those which fail to do so (Loistl 2000: 100-101).

Transaction costs consist of four components: first, the commission cost (the broker's basic fee for purchasing or selling securities as an agent), second, the bid-ask spread, third, the market impact cost of trade execution, and fourth, the cost of clearing and settlement (administrative cost). Market impact refers to a possible price concession plus (for buys) or minus (for sells) the equilibrium price to be able to execute a trade immediately (Berkowitz, Logue and Noser 1988: 88). The cost of market impact depends on the patience of investors and on brokers. If investors trade large amounts of illiquid stocks or whole blocks of heavily traded stocks, they can create substantial market impact. Therefore, it is quite important to understand the nature and magnitude of market impact costs and their correlation with commission costs (Berkowitz, Logue and Noser 1988: 88). In order to keep clearing and settlement costs down settlement systems have to be integrated, since otherwise administrative costs will increase (for more details please see Section 4.3.2.2) (Amati 2001: 11). According to Gerke and Rapp (1994: 16), stock exchanges can make use of economies of scale by increasing their order volumes, which in turn permits a reduction in transaction costs per order. At the same time, increased liquidity also reduces implicit costs (the market impact) of a transaction. For this reason an increasing trend towards mergers and alliances can be observed, as the critical mass of single exchanges is frequently not large enough to ensure competitive, cost-efficient, and liquid trading. In Europe, for example,
"the fragmentation of European exchanges has been identified as one source of high transaction costs. Mergers between exchanges and the joint use of trading systems are considered to be part of the solution" (Kasch-Haroutounian and Theissen 2003: 1).

In an indirect way, taxes are also part of transaction costs which cannot be influenced by the stock exchange directly. Taxes have significant impact on the level of trading and are therefore a major policy tool of stock market competition and integration (Licht 1997: 64).

The amount of transaction costs to be borne by investors depends not only on the characteristics of the traded security, but also on the structure of the market as well as the order placement strategies of market participants. In quote-driven markets, market makers continuously post bid and ask prices, whereas in order-driven markets the buy and sell orders of final clients are matched directly. Therefore, in the latter case it is investors themselves and not intermediaries that keep the market liquid, this reduces transaction costs, since market makers do not have to be reimbursed for providing liquidity. Today, blue chips are traded in an electronic order book almost all over the world (Gajewski and Gresse 2003: 3). Electronic trading also has a positive impact on transaction costs. It reduces them by making markets more transparent, which in turn reduces the risk premium. Moreover, it allows cheaper order processing and lower overheads. Market impact costs are reduced as well, for example through pre-trade non-transparent systems. Studies by Vila and Sandman (1995) and Pirrong (1996) show that prices are less sensitive to large orders in automated than in traditional markets. It also improves the price dynamics, as electronic orders reach the market faster than manually processed orders. For this reason, prices incorporate new information more quickly, whereas volatility remains about the same (Allen, Hawkins and Sato 2001: 43). According to Abraham and Pirard (2002: 17-18), most exchanges in developed countries have materialised significant reductions in transaction costs in the past few years. Transaction costs generally reached similar levels between 25 and 35 basis points in 2000. The U.K. on the buying side (due to its stamp duty) and Spain were the only outstanding exceptions with 72.7 basis points on the buying side in the U.K. and over forty basis points in Spain.
Table 3: The cost of executing trades in different countries.\footnote{The Elkins/McSherry analysis measures total trading costs as execution commissions and fees plus market impact of trades.}

<table>
<thead>
<tr>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Euroland (main centres)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>39.3</td>
<td>27.6</td>
<td>28.7</td>
<td>29.3</td>
<td>30.7</td>
<td>30.1</td>
</tr>
<tr>
<td>France</td>
<td>29.9</td>
<td>26.6</td>
<td>24.9</td>
<td>33.8</td>
<td>37.0</td>
<td>31.9</td>
</tr>
<tr>
<td>Italy</td>
<td>36.1</td>
<td>30.4</td>
<td>34.2</td>
<td>39.0</td>
<td>37.2</td>
<td>33.5</td>
</tr>
<tr>
<td>Spain</td>
<td>47.1</td>
<td>43.0</td>
<td>42.3</td>
<td>41.2</td>
<td>38.5</td>
<td>49.9</td>
</tr>
<tr>
<td>Belgium</td>
<td>37.1</td>
<td>33.9</td>
<td>27.9</td>
<td>35.1</td>
<td>28.3</td>
<td>35.2</td>
</tr>
</tbody>
</table>

| **Other EU (main centres)** |      |      |      |      |      |      |
| UK buying         | 73.7 | 71.0 | 71.1 | 72.7 | 69.0 | 72.5 |
| UK selling        | 32.8 | 34.2 | 30.5 | 38.8 | 35.9 | 31.6 |
| Sweden            | 36.1 | 30.9 | 31.5 | 30.4 | 41.0 | 34.5 |

| **USA** |      |      |      |      |      |      |
| NYSE     | 34.1 | 23.6 | 24.6 | 28.4 | 32.2 | 29.3 |
| NASDAQ   | 51.9 | 29.9 | 33.3 | 36.3 | 38.6 | 40.4 |

| **Japan** |      |      |      |      |      |      |
| buying    | 30.6 | 18.2 | 35.1 | n.a. | n.a. | n.a. |
| selling   | 56.0 | 36.3 | 25.1 | 22.1 | 19.9 | 21.8 |

Source: Degryse and Van Achter (2002) based on Elkins/McSherry data "The cost of executing trades in 42 countries" published yearly in the Institutional Investor. Figures from 2000 onwards were directly taken from this journal.

Abraham and Pirard (2002: 18) consider these reductions to be the result of both automation and competition. In continental Europe the switch from open outcry to electronic trading also decreased costs. Furthermore, in bearish markets the pressure towards cost efficiency tends to increase even further. Since the potential for reductions in trading costs is considered to be relatively limited on European exchanges, more attention will be paid to the efficiency of clearing and settlement (the back-office components of transaction costs) in future. The need of stock exchanges to reduce their costs in order to be able to offer competitive transaction costs and the existence of economies of scale will make stock exchanges pursue cooperative strategies.

\footnote{From 2000 on, there is are no separate figures given for buying and selling in Japan.}
4.3.2.7 Transparency regulations

Transparency regulations on orders before and after settlement are an important criterion for the attractiveness of an exchange.

"Transparency is the ability of market participants to observe information about the trading process – pre-trade information concerns order sizes and quotes, while post-trade information centres on prices and quantities of executed trades. Other considerations include the timeliness of the information, which (subset of) participants can observe certain aspects, and pre and post-trade anonymity (when identities are revealed)" (Allen and Hawkins 2002: 53).

The pricing mechanism at a stock exchange is left to the free interplay of supply and demand. However, one must not neglect the fact that the price and extent of the counter-bid is influenced by the price of the bid. As traders know about this correlation, they want to place large orders anonymously. Investors favour transparency when they are looking for market information, otherwise they prefer to remain anonymous. Third parties are not supposed to get information about transactions, since they could otherwise take a "free-rider" position by imitating the behaviour of a block trader without sharing the costs of research (Von Rosen 1994: 1214 and Gomber 2000: 46).

That is why traders try to avoid entering block trades into the order book. All major exchanges have reduced transparency requirements for block trades, such as by delayed publication. Some exchanges even offer special market-segments for block trades, such as the upstairs-market of the NYSE. In this segment, larger orders can be traded anonymously over the phone among specialised block trading departments of stock exchange members. Those orders which are not matched in the upstairs-market are executed on the floor of the NYSE (Gomber 200: 46). As absolute anonymity is usually not granted by large exchanges, however, block traders have switched to new systems such as ATSSs which offer anonymity vis-à-vis the counterparty. Electronic trading provides a high potential for varying degrees of transparency across the whole trading process. Systems can disseminate real-time pre- and post-trade information market-wide. They also provide minimal information leakage to a degree which
trading based on personal contact could never achieve. The advantage of anonymous trading is that it might lead to a better price, especially in the case of large transactions (Jensen and Natorp 2000). Investors particularly want pre-trade information leakage to be eliminated. On the other hand, block orders do not automatically imply the desire for anonymity. In cases where traders trade large blocks of funds but want to signal that they do not have superior information it might be more sensible to reveal not only the order but also the identity of the trader to the market to explicitly document that there is no private information involved (Gomber 2000: 45). The ultimate form and degree of transparency of a trading system depends on market-specific factors, keeping in mind the ultimate goal of attracting liquidity (Allen, Hawkins and Sato 2001: 41). In retail markets, for example, greater transparency is desired by investors in order to guarantee consumer information and protection (Allen and Hawkins 2002: 53 and Loistl 2000: 105). Transparency regulations will not have substantial influence on the merger and alliance activity of stock exchanges.

4.3.3 External growth of stock exchanges

Just like any other company, stock exchanges need to grow in order to survive. Facing competitive pressure, European exchanges pursue different strategies to be successful. Some try to grow organically, while others look to far-reaching alliances or even mergers (Committee of Wise Men 2001: 81). External growth is a very important success factor for stock exchanges, since most of them will not be able to survive without growing externally in future.

Factors underlying the development of financial centres can be broadly divided into centripetal and centrifugal forces. Economies of scale (see Section 5.4.1) are, together with information spillovers or market liquidity, considered the most important centripetal force in payment and settlement and trading systems (Kindelberger 1974 and Gehrig 1998). The main centrifugal forces are market access costs (transportation costs and transaction costs) and information localisation. In markets where price information relies on complex local information (such as in stock or derivative markets), centrifugal forces are quite
strong. For this reason the trading of such instruments is more likely to take place in local rather than in global financial centres or electronic trading systems. The fact that there is an increasing trend towards cooperation also among stock exchanges shows, however, that the competitive situation strengthens centripetal forces.

The creation of linkages with firms that possess complementary capabilities or similar capabilities is one way to respond to the challenges of competition and globalisation. Linkages lead to economies of scale and scope, reduce risk, and strengthen the competitive position of a firm. At the same time firms have the chance to learn new or improve existing capabilities (Porter and Fuller 1986 and Kogut 1988). Empirical studies show that the above-mentioned factors are indeed the major reasons for strategic linkages in practice (Nohria and Garcia-Pont 1991: 107). In order to further boost this trend, several prerequisites need to be fulfilled on an EU-wide basis. One important factor to be mentioned in this context is the necessary harmonisation of companies' financial reporting in order to safeguard the interest of investors. Financial information has to be relevant, timely, reliable and comparable. The International Accounting Standards, which were developed in 1995, and also the International Financial Reporting Standards (IFRS), which listed companies will have to adopt for their consolidated financial statements by 2005, leave ample scope for interpretation (Amati 2001: 23). Another prerequisite is a common trading and also settlement system of cooperating entities ("One market or many?": 33). In addition, different national regulatory and tax schemes have to be taken into consideration. All in all further harmonisation is required in all the areas mentioned above as these barriers can result in unfair advantages to institutions in certain countries (Johnson 1996: 171).

On the other hand, one must not neglect the fact that external growth and cooperation between stock exchanges are difficult, as they are competing with each other. The buzzword in today's stock exchange world is coopetition. It describes the two parallel trends of increasing cooperation and competition among
exchanges, which will eventually lead to concentration of exchanges in Europe (Schmiedel 2001: 12). That means that competing players cooperate in certain areas while remaining competitors. If both benefit from cooperation it might be a successful option. In general, however, cooperation is still going slowly. Stock exchanges are very reluctant to merge and even alliances are hard to pull off despite obvious benefits: they could offer their customers a wider range of probably cheaper products ("Farewell to the floor?" 1999). The big players in investment banking are trying to develop their own trading platforms. One important point in this context is the question of the headquarters of a merged stock exchange, as each exchange wants to retain its national identity. Even an electronic trading system does not really solve this question (Loistl 2000: 109).

4.3.3.1 The forms of external stock exchange growth

Exchanges have different options to expand. The most obvious ones are mergers and alliances. According to Williamson (1997: 406), cross-border cooperation between exchanges is taking new forms. Alternatives to the cross-listing of products emerge, such as shared electronic trading platforms or remote trading terminals. The goal is to reach larger markets, but this also changes the notion of the location of a market: trading can be effected at a place distinct from where the market is based. One option is global expansion, the strategy NASDAQ is currently pursuing. The idea is that NASDAQ Europe, NASDAQ Japan, and NASDAQ Canada are used via a common technology and will ultimately be linked to create a global electronic trading platform. In 2003 however, NASDAQ Europe had to close down its operations. The main reason was that demand was and still is still mainly regional, therefore NASDAQ Europe, with its supranational strategy, was not able attract enough trading volume. A second type is based on the generation of economies of scale through mergers, such as in the case of Euronext, the merger between Paris, Brussels, Amsterdam, and Lisbon. The third way is to make an attempt at a hostile take-over, as the Swedish OM Group did in its efforts to take over the London Stock Exchange. The fourth strategy is that pursued by the NYSE. It attempts to interconnect leading equity exchanges through a shared common electronic interface in a Global Equity Market (for more details see Section 4.3.3.1.2) (Schmiedel 2001: 12). More
details on the current European Exchange Landscape will be given in the following subsections.

### 4.3.3.1.1 Mergers

The wave of stock market mergers is one of the major recent developments in the financial market. The aim of mergers is to create added value for shareholders. One potential benefit for investors, issuers, and intermediaries is lower spreads due to increased liquidity (Amati 2001: iii). Arnold et al. (1999: 1092-1094, 1100-1101) show that mergers between US regional exchanges led to a substantial increase in trading volume compared to regional exchanges that did not merge. In the short term, merging exchanges increased their dollar volume and over time their market share rose at the expense of other, non-merging exchanges. Moreover, the ability of the merged regional exchanges to compete with the NYSE improved. The conclusion is that mergers are able to improve performance. Arnold et al. (1999) and Bessembinder and Kaufman (1997) confirm that investors benefit from mergers. The wave of mergers has increased the battle for market share and led to narrower bid-ask spreads as well as lower cost and quality of trading. Amati (2000: 8) mentions the following benefits of a merger:

- Cost savings.
- More efficiency in the finalisation of the transactions, especially through time savings.
- Higher market liquidity.
- Better transparency of the price formation process.
- Better publicity of the information provided.
- Continuous trading.
- Fair governance and regulations performed by a single body of regulation.
- Proper stratification of the market by size and sector rather than geography.
- A common trading platform to support the stratified market structure and the inclusion of the relevant derivatives.
- Rationalisation, integration, and in some cases even mergers of clearing and settlement systems.
In the past few years, several mergers have taken place in Europe. Probably the most successful example is Euronext, which was created in 2000 through a merger of the stock exchanges of Paris, Amsterdam, and Brussels. A short while later the Lisbon Stock Exchange also joined in. A very current example is the merger between the Swedish OM-Group and the stock exchanges of Helsinki, Tallinn, Riga, and Vilnius in 2003. The new exchange, OMX, is listed on both the Stockholm and the Helsinki exchanges and provides an integrated Nordic and Baltic marketplace (OMX: "The OMX Way"). One of the most prominent examples was the planned merger between the London Stock Exchange and the German Stock Exchange with the purpose of setting up a common trading platform form for European stocks under the name of iX (Jensen and Natorp 2000). In January 1999, a cooperation was started to allow the members of both exchanges access to each exchange's electronic trading platform. In the second stage common rules and regulations, in a third stage a single centralised trading platform, and finally a merger between the two exchanges were planned. The three latter stages never came into effect though, mainly due to the hostile takeover bid by the OM-Group for the London Stock Exchange (Williamson 1999). The bid was refused, however, by the shareholders of the London Stock Exchange. Other interesting example is the acquisition of a 24 percent stake in the Budapest Stock Exchange by the Vienna Stock Exchange in May 2004. The creation of Bolsas y Mercados Espanolas is an example of a merger of regional exchanges within a country (the stock exchanges of Madrid, Barcelona, Bilbao, and Valencia merged together with MEFF, the Spanish Derivatives Exchange) (FESE 2004).

Despite some successful examples, many planned stock exchange mergers have failed to be implemented in the past. The fact that in a merger the identities of the participating exchanges may disappear can cause significant political problems (Lee 2003: 10). "The failures are especially due to difficulties in harmonising national regulations and the tendency to preserve the national stock exchange position and its idiosyncratic characteristics" (Amati 2001: iii). The main problems of harmonisation arise in the areas of common listing procedures
and governance structure. It is not possible to simply divide supervision of markets between two centres, as this would open up the possibility of regulatory arbitrage behaviour, meaning that companies shift listings from one centre to the other in order to benefit from a competitive regulatory advantage (Amati 2001: iii). Moreover, linguistic and cultural differences, or implicit rules against foreign institutions, despite the Single Market Programme and the European Monetary Union, might turn out to be major barriers to stock exchange mergers (Berger, DeYoung and Udell 2001).

If one looks at the geographical distribution of mergers, the majority of merger-related deals are to be found in Europe (Cybo-Ottone, Di Noia and Murgia 2000). Erich Obersteiner, CEO of the Vienna Stock Exchange, estimates that only three leading exchanges will emerge in Europe in the near future: the German Exchange, Euronext, and either the London Stock Exchange or the Swedish OM Group ("Mutter aller Schlachten" 2001: 52). On the other hand, many planned mergers have failed so far, for this reason it is difficult to make any reliable forecasts. In the mid-nineties, the planned merger between Paris and Frankfurt failed, just like the merger between London and Frankfurt in 2000 and the hostile takeover attempt of the LSE by the Swedish OM-Group ("Mutter aller Schlachten 2001: 50). So despite many efforts, a pan-European stock exchange has remained an illusion so far (Group of Ten 2001: 61).

4.3.3.1.2 Alliances
The second, generally more popular option of cooperation between exchanges is alliances. The trend towards alliances is a result of competitive pressure and the pressure from investment banks, who try to keep their costs down by avoiding the payment of membership fees to many different European stock exchanges in order not to have dozens of different terminals for trading and settlements. So the real gain from stock exchange alliances for investors is the reduction in membership fees for investment banks (Shy and Tarkka 2001: 9). Another motive behind alliances is to give international companies the chance to be listed on several exchanges around the world, so that their shares are traded 24 hours a day (Gaa et al. 2001: 54). In a second step, the purpose is to provide a common trading
platform among exchanges. In this way they open up to each others' markets for cross listing and trading. This gives traders the opportunity to operate across markets (Hasan and Schmiedel 2003: 7). Other benefits of alliances are the possibility of remote membership and lower transaction costs. In order to achieve an increase in liquidity, stock exchanges have to increase efficiency and transparency, speed up executions, and lower costs (Hasan and Schmiedel 2003: 9). According to Lee (2003: 7), opportunities for the sharing of functions among stock exchanges include marketing, listing, order routing, information dissemination, order execution, matching, clearing, settlement, and administration services. In the past, cross-border cooperation mainly took the form of cross-listing of products. This permitted access to a wider user base (across time zones). At the same time, the product range was widened. Electronic trading platforms have changed this pattern, as they allow the simultaneous trading of securities from multiple exchanges and remote trading terminals. From a technical point of view, cooperating exchanges need compatible electronic trading systems in order to establish a common trading platform. Moreover, it is important that they have distinct markets and products to create new opportunities from innovative products.

The advantage of an alliance over a merger is that exchanges can retain a certain degree of autonomy (Williamson 1997: 410). That is one main reason why Malkamäki and Topi (1999: 22-23) believe that stock exchange cooperation in Europe will rather be based on alliances than on mergers in the short term, in particular due to such factors as heterogeneous language, culture, accounting principles, or bankruptcy legislation.

"One advantage of an alliance is that it is better able to accommodate European diversity regarding for example habits, languages and legislation. Furthermore, alliances can ensure that stock-exchange trading continues to have a national dimension" (Jensen and Natorp 2000).

Another advantage of alliances over mergers is that they do not imply conversion costs. However, alliances are also costly as they require even more effort to standardise procedures. At the same time, synergies cannot be fully exploited. For
stock exchanges it is disadvantageous if liquidity is not concentrated on a single platform. Price transparency and price information are more difficult in the case of alliances. As a result, alliances frequently do not exploit the full economies of scale in trading systems. This is of particular importance, however, as ATSs have already taken away liquidity from traditional exchanges. (Lee\textsuperscript{13}, quoted in Schmerken 1999: 82).

There are numerous examples of stock exchange alliances in Europe. The most prominent example of a stock exchange alliance is NOREX, which originally comprised the Copenhagen Stock Exchange and Stockholmsbörsen in 1998. In 2000, the Iceland Stock Exchange and the Oslo Börs joined in. Finally, in 2003, the Helsinki Stock Exchange as well as the exchanges of Tallinn, Riga and Vilnius joined by merging with the Swedish OM-Group. In 1999, 8 European exchanges (Amsterdam, Brussels, Frankfurt, London, Madrid, Milan, Paris and the Swiss exchange) agreed to form an electronic market on which European blue chips would be traded. The market was to come into being by November 2000. The basis would have been a common market model, a harmonised rulebook, and common functionality based on the following seven features:

2. Harmonised access rules.
3. Pre-and post-trade anonymity and a central counterparty.
4. Harmonised functionality for continuous trading (order types, sizes, tick sizes, etc.)
5. Functional support for block trades.
6. Common approach to the prevention of market or index manipulation.
7. Fair and equal market access (Hasan and Malkamäki 2000: 12).

As it was not possible to agree on a common integrated trading system however, the project failed. In March 2000 three members of the alliance – Amsterdam, Paris, and Brussels announced that they would form Euronext as a result of their merger. Today, Luxembourg and Warsaw are also linked to Euronext via strategic alliances through a cross-trading and cross-membership agreement. In September

\textsuperscript{13} Lee R.: Interview.
2002, Euronext also signed a general cooperation agreement with the Tokyo Stock Exchange.

In 1999, Euro.NM was created, linking five new market exchanges, which included Neuer Markt (Germany), Nouveau Marché (France), Nieuwe Market (The Netherlands), the Nuovo Mercato (Italy), and Euro NM Belgium. The goal of Euro.NM was to gain critical mass to attract both investors and capital-seeking companies. For this purpose, listing and disclosure requirements as well as trading procedures had to be harmonised. Furthermore, it was attempted to establish connections between the markets with the aim of simplifying joint trading and data dissemination. Thirdly, it aimed to articulate the shared interests of its members as an institutionalised body to European and other authorities (Hasan and Schmiedel 2003: 10). Euro.NM closed down its operations in October 2000 however, following the merger of the Paris, Brussels, and Amsterdam exchanges forming Euronext. Another reason was that European second-tier markets (STMs) suffered most when the dotcom bubble burst. From its peak in March 2000 to October 2002, the index of the Neuer Markt, which used to be the largest European STMs, lost more than 95 percent in value. In 2003 the Frankfurt Stock Exchange finally closed down Neuer Markt (Audley 2004).

Smaller-scale alliances include the alliance between the German Stock Exchange and the stock exchanges of Vienna, Ireland, and Budapest. Equity trading of the Viennese and the Irish exchange are conducted via Xetra, and Budapest has a Xetra link providing direct access (Deutsche Börse: "Technical cooperations" and Budapest Stock Exchange: "Xetra Contact").

The London Stock exchange also pursues several linkages which involve the joint use of trading systems, for example with Johannesburg (for which the LSE provides the new trading system), Singapore, and the Australian Stock Exchange (London Stock Exchange: "Our technology goes live in Johannesburg"). Other very loose alliances include Athens, Istanbul, Belgrade, and Cyprus as well as the launch in 2003 of the FTSE Med 100 index by the
Cyprus, Athens, and Tel Aviv stock exchanges in association with Financial Times International Ltd. (Cyprus Stock Exchange). Another interesting project is SEM-ON.NET, an information platform of the stock exchanges of South-Eastern Europe (Banja Luka Stock Exchange, Belgrade Stock Exchange, Ljubljana Stock Exchange, Macedonian Stock Exchange, Montenegro Stock Exchange, New Securities Exchange Montenegro, Sarajevo Stock Exchange, and Varazdin Stock Exchange) ("SEM – The Stock Exchange Monitor"). Furthermore, the Stock Exchanges of Bratislava, Budapest, Ljubljana, Prague, and Warsaw hold regular working meetings with the purpose of coordinating listing, trading, and clearing and settlement rules. Moreover, these exchanges established the CESI Index, the joint index of Central European Stock Exchanges ("Co-operation with Central European Stock Exchanges"). In 2001, an alliance between SWX Swiss Exchange and the UK Tradepoint Financial Networks plc. started trading all pan-European blue-chips included in major indices. Virt-x provides an efficient and cost-effective means of trading pan-European blue chips based on integrated trading, clearing and settlement models which facilitate the process of trading and significantly reduce the costs of cross-border trading (Hasan and Schmiedel 2003: 12). In 2003, virt-x became a wholly-owned subsidiary of SWX following a takeover. Finally, a slightly different strategy is pursued by the NYSE. It is attempting to create a Global Equity Market (GEM). Currently, the agreement comprises 11 exchanges. In this alliance, the existing local exchanges maintain their identities but join a common electronic trading web. In this way order flows of the largest companies can be combined (Gaa et al. 2001: 54). However, since the announcement of the intention to create a 24-hour global equity market, not much has been heard of the project. Apart from regulatory matters, there also seems to be a lack of commitment from the participants (Jones 2003).

In the second half of the 1990s, mergers and alliances were mostly domestic or regional. The most recent mergers however, have been more on a pan-European basis. It is generally believed that a good time to consider a linkage between exchanges is when new technology has to be implemented, as the development of new technology is frequently very costly (Lee 2003: 8). This
might be the reason why the majority of the deals were done between 1997 and 2002, a period in which many stock exchanges invested heavily in technology. Others believe, however, that technology will decrease the need for alliances, as a screen can be easily put up abroad and business can be done via the Internet which would ultimately stop the current trend of stock exchange cooperation in the way it is pursued today (Lee\textsuperscript{14}, quoted in Schmerken 1999: 82). For a further outlook on the future of stock exchanges please see Section 6.

In the next section, 14 different management theories of mergers and alliances will be introduced and applied to stock exchanges. In order to find out if they are suitable for explaining stock exchange mergers and alliances, their main conditions and their fit with success factors as well as with the changes in the environment of stock exchanges will be analysed.

\textsuperscript{14} Lee R.: Interview.
PART II: ANALYSIS

5 TESTING THE EXPLANATORY VALUE OF SELECTED MANAGEMENT THEORIES FOR STOCK EXCHANGE MERGERS AND ALLIANCES

In this section, an attempt will be made to apply 14 theories of mergers and alliances to stock exchanges. The criteria used for analysing the theories are the critical success factors of stock exchanges identified in Section 4.3.2 plus European integration and ATSs. An initial investigation will consider any preconditions or general settings of theories that directly conflict with the specific characteristics of stock exchanges. The method of analysis used will be judgmental analysis. "Judgmental evaluation is based on a logical analysis conducted by interested people" (Jamieson and Chapelle 2004: 180). The value of judgmental analysis is to define and operationalise variables (which are in this case the success factors of stock exchanges) to determine if there is a link between the theories and the variables (Jamieson and Chapelle 2004: 180). All the criteria for success (from corporate governance and ownership structures to transparency regulations) plus the effects of European integration and ATSs will be analysed. In order to get a better overview of the suitability of the different theories, a point system has been introduced. Each factor that is positively related to a theory (as indicated in the text) is awarded a point. For each success factor that conflicts with the theory, one point will be subtracted (also indicated in the text). Two success factors – supervision of trading and transaction costs – are weighted by a factor of two, due to their special importance. Markets that are not properly supervised will soon dry out due to a lack of trust from investors. Furthermore, a lack of supervision could even endanger the stability of the whole financial system since investors lose trust in capital markets in general. Low transaction costs are probably the most important factors for attracting order flow. Many investors choose the marketplace with the lowest transaction costs. All other factors are easier to compensate for. Furthermore, one point is subtracted in the category "preconditions" if there are one or more factors specific to the nature of stock exchanges that do not fit with the assumptions or preconditions of the
theory. Finally, in the category "other factors" a plus or minus point can be given for factors that show a significant positive or negative relationship between the theory and stock exchanges, but are not directly linked to the criteria of success.

5.1 Overview of theories of mergers and alliances

The table below once again sums up the main characteristics of the different theories discussed in this section.

<table>
<thead>
<tr>
<th>Theoretical paradigm</th>
<th>Main features</th>
<th>Rationale for mergers and alliances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transaction cost economics</td>
<td>Deals with how an organisation should organise its exchange activities to minimise transaction costs.</td>
<td>Integrating external partners in the hierarchy of the firm saves governance costs reduces uncertainty, and leads to economies of scale. Partnering helps avoid the costs of opportunism and monitoring. Hierarchy costs are assumed to be smaller than coordination costs on markets.</td>
</tr>
<tr>
<td>Efficiency theories</td>
<td>The main concern is the exploitation of synergies to reduce financial, operational, and managerial costs.</td>
<td>Mergers and alliances lead to basically three types of synergies, i.e. financial synergies by risk reduction and access to cheaper capital, operational synergies by generating economies of scale, scope, and experience, and managerial synergies by making use of superior knowledge of the management of merging or allying companies.</td>
</tr>
<tr>
<td>Resource dependence</td>
<td>All organisations must engage in exchanges with their environment in order to gain access to the necessary resources.</td>
<td>A lack of critical resources leads to cooperation. Mergers and alliances are entered into in order to reduce dependency on firms with critical resources and increase dependency of other firms by gaining control over important resources.</td>
</tr>
<tr>
<td>Resource-based view</td>
<td>In order to gain sustainable competitive advantage resources have to be unique, i.e. rare, valuable, hard to imitate and not substitutable. In rapidly changing environments dynamic capabilities, i.e. the firm's ability to continuously adapt to the environment, are the necessary prerequisites for competitive advantage.</td>
<td>Mergers and alliances can help develop unique resources by combining the know-how of several firms as well as their market-power and prestige. Acquiring embedded knowledge from a partner is frequently a motivation for entering into interorganisational relationships.</td>
</tr>
<tr>
<td>Strategic choice</td>
<td>Firms try to exploit opportunities to increase competitiveness and market power. The main objectives of firms are profit and growth, which also drive their strategic decisions.</td>
<td>The main reasons for entering into a merger or alliance are an increase in market power, political power or efficiency, as well as product or service differentiation. Firms will enter into interorganisational relationships if they are able to realise financial benefits.</td>
</tr>
<tr>
<td>Reduction of income</td>
<td>Deals with the avoidance of income uncertainties, i.e. a gap between the desired level of income and its desired usage and the actual realisation of goals with hindsight. Institutions aim to increase predictability by taking over income uncertainties of individuals for a period of time by guaranteeing a fixed level of income for certain job performance.</td>
<td>Mergers and alliances lead to a reduction in income uncertainties by reducing or eliminating one of its sources, i.e. competitive pressure. This is achieved by cooperation across different markets, concentration of market power or risk sharing.</td>
</tr>
<tr>
<td>Theoretical paradigm</td>
<td>Main features</td>
<td>Rationale for mergers</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Stakeholder theory</strong></td>
<td>When making decisions, organisations have to take into account the interests of multiple stakeholders, as they help the firm to achieve its goal.</td>
<td>Mergers and alliances help firms to align their interests with those of stakeholders and develop and achieve common goals. At the same time, environmental uncertainty is reduced.</td>
</tr>
<tr>
<td><strong>Organisational learning</strong></td>
<td>Deals with the processes that lead to organisational learning, as a better competitive position can only be achieved through superior knowledge.</td>
<td>Mergers and alliances provide excellent learning opportunities, particularly to acquire tacit knowledge, which is part of organisational routines, skills, and culture. Moreover, the partners have the opportunity to gain process knowledge, i.e. skills to manage interfirm cooperations.</td>
</tr>
<tr>
<td><strong>Institutional theory</strong></td>
<td>Concerned with the pressures imposed on organisations by the institutional environment to be legitimate and conform to social norms.</td>
<td>Institutionalisation stimulates the engagement in interfirm relationships, particularly of young companies, which can benefit from a well-established partner. On the other hand, isomorphic pressures also lead to mergers and alliances, as firms mimic the behaviour of successful firms with already established cooperations.</td>
</tr>
<tr>
<td><strong>Population ecology theory</strong></td>
<td>Deals with the demographic and structural features of total populations of organisations. The causes for organisational behaviour can be found in the environment. Organisational change is not effected through adaptation but through selection.</td>
<td>The theory explains mergers and alliances indirectly by considering them as one form of organisational mortality. The density rate is believed to have high influence on the merger rate within a population.</td>
</tr>
</tbody>
</table>

**Theoretical paradigm**

<table>
<thead>
<tr>
<th>Rationale for mergers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monopoly theory</strong></td>
</tr>
<tr>
<td><strong>Tax theory</strong></td>
</tr>
<tr>
<td><strong>Theories referring to capital market inefficiencies</strong></td>
</tr>
</tbody>
</table>
| **Agency theories**   | Agency theories deal with the problem of ensuring that an agent pursues his or her principal's interests instead of his or her own. Agency theory assumes that human behaviour is self-interested, risk-averse and subject to bounded rationality. There is a conflict of goals of the organisation's members and information asymmetry between principals and agents in favour of the agents. Agency theories explain mergers by several factors:  
  - Hubris of agents, i.e. agents overestimate synergy effects, the possession of superior information, or their abilities to integrate and manage the target firm.  
  - Risk-aversion of management, i.e. managers try to spread their risk through diversification of the business.  
  - The management's desire to maximise turnover instead of shareholder wealth.  
  - The existence of a market for corporate control, which leads to the takeover of firms by competing management firms.  
  - The attempt of management to keep as much free cashflow as possible within the company by, for example, investing it in external growth instead of paying it out to shareholders. |

Source: Adapted from Barringer and Harrison 2000: 370.
5.2 Theories explaining mergers and alliances

5.2.1 Transaction cost economics

5.2.1.1 Content

The term "transaction costs" was first created by Arrow in 1969. Transaction costs are costs incurred in arranging, managing, and monitoring transactions across markets, such as the costs of negotiation, drawing up contracts, managing the necessary logistics, and monitoring accounts receivable" (Child and Faulkner 1998: 20).

Although the theory of transaction cost economics is frequently mentioned in connection with Oliver Williamson and his book "Markets and hierarchies" of 1975, the founder was Ronald Coase in 1960 in his article “The Problem of Social Cost” (1960). The Coase theorem states that under perfect competition and if income effects and transaction costs are assumed to be zero, voluntarily negotiated agreements among private parties which involve externalities will lead to the same allocation of resources regardless of the initial assignment of property rights among parties. Most real world problems involve positive transaction costs, however. Under this assumption, the initial distribution of rights does matter. As a result, also the decision between market and hierarchy becomes important. Williamson picked up Coase’s ideas and extended it to its theory of transaction costs. He defines transaction costs as the costs of the strategic behaviour of the partners to the transaction, which to a great extent determine the organisational form (Williamson 1985: 20-21). Transaction cost theory assumes pre-given, technologically separate units. These units are characterised by mutual exchange, which must be organised. Exchange leads to a certain amount of transaction costs, i.e. the costs of organising resource allocation, which are a result of fraction and which are mainly due to five factors:
Opportunism, which is defined as "self-interest seeking with guile" (Williamson 1985: 47). Opportunism plays a very important role in transaction cost theory. Without opportunism all transactions would be conducted via the market. There would be no reason for coordinating an exchange within a hierarchy (Williamson 1985: 31).

Bounded rationality refers to the fact that there are limits to the exercise of rationality in the form of lack of information and other factors. The reason is that human beings are not capable of processing and using all information available to them and at the same time they are unable to identify all possible states of the world and cause-effect relationships to calculate probability.

Small numbers recognise the fact that there are only a limited number of transaction partners to choose between.

Information impactedness, which reflects that precise information relevant to the transaction is not freely accessible by all parties involved. Some parties might have to incur considerable cost to obtain certain pieces of information (Williamson 1975: 20-32).

The goal of transaction cost theory is to establish governance structures which permit the minimisation of transaction costs, the two extremes being either the market or the hierarchy of the organisation. Market transactions cause governance costs, hierarchies bureaucratic costs (Williamson 1979 and Williamson 1985: 90-91). Williamson identified the following three aspects as being relevant for the decision between internal transactions and market exchanges:

- Asset specificity, which is the extent to which "an asset cannot be redeployed to alternative uses and by alternative users without sacrifice of productive value" (Williamson 1991: 281). The higher the share of specific assets in a firm, the more likely transactions will be organised within a hierarchy.

- Frequency of transaction, which refers to the fact that if a transaction occurs with increased frequency, the costs of a transaction within the hierarchy are lower than those of a market transaction.
Uncertainty, more specifically behavioural uncertainty, refers to the likelihood of opportunistic behaviour of the parties involved in a transaction. A high degree of behavioural uncertainty leads to high costs of safeguarding a contract. Therefore, the transaction is often internalised (Williamson 1991: 281).

Williamson (1985: 30) argues that if bounded rationality, opportunism, and asset specificity did not exist, transaction costs would be zero.

Jarillo (1988) extended the use of transaction cost theory by applying it to alliances. Apart from the two extremes make or buy, there is a third alternative, namely partner. Partnering refers to interorganisational relationships, such as strategic alliances. Interorganisational relationships provide ownership incentives which help avoid the costs of opportunism and monitoring inherent in market transactions. Jarillo (1988) and Osborn and Baughn (1990) even argue that networks or alliances are more efficient than markets or hierarchies in minimising transaction costs.

5.2.1.2 Critical review

Transaction cost economics has been used to explain a wide range of topics in connection with mergers and alliance formation, such as entry modes into foreign markets, alliance structures, or the creation of new ventures. Transaction cost economics focuses particularly on the motives of the partners, their investment, and the transaction form they use. It further stresses the efficiency and cost-minimizing motives for cooperations (Child and Faulkner 1998: 21-22).

There are numerous points of criticism, however:

- Francis, Turk and Willman (1983: 15) criticise Williamson for disregarding the influence of power on the decision between market and hierarchy.
- Granovetter (1985) states that there are many more factors than those of transaction cost theory which influence corporate success, such as the involvement of government, taxation laws, competition, as well as sociocultural norms and beliefs. Perrow (1986) and Goshal and Moran (1996) criticise transaction cost theory for neglecting the so-called "socially derived
internal transaction costs”. These transaction costs derive from social-level phenomena making the internalisation of transactions generally inefficient. Examples of such internal transaction costs are problems involved with integrating a newly acquired firm within existing hierarchical structures, synergies expected to result from a merger between two firms which often do not accrue due to intra-unit friction, or the loss of internal legitimacy by the employees of the company.

- Transaction cost economics deals with the choice between market and hierarchy only with regard to efficiency by taking a static view. In this way it does not have anything to say about how growing trust between partners can lead to a lower risk of opportunistic behaviour and the reduction of the boundedness of rationality through growing information exchange between the partners over time. It therefore does not take account of such questions as fairness or trust in transaction management (Parkhe 1993).

- According to Hill (1990), the invisible hand of the market will, in the long run, select actors which are cooperation oriented. As transaction cost theory does not take this into account, it overstates the motives for integration.

- Transaction cost theory assumes that managers are subject to bounded rationality. As a result they have difficulties in implementing optimally efficient transactions. At the same time these managers are assumed to be able to precisely calculate relative transaction costs and to implement the transaction in an optimally efficient way. That would mean that "managers are boundedly rational at the individual level, yet economically rational in the aggregate" (Martinez and Dacin 1999: 81).

- The most convincing point of criticism was brought forward by Faulkner (1995), who conducted multiple case studies examining whether transaction cost economics matters to executives who had been involved in alliance formation. None of the decision-makers indicated that transaction costs had played any role in the decision of alliance formation.

- Dieter Schneider (1995a: 265-273) criticises that even if managers had perfect knowledge about the transaction costs of organisation via the market compared to hierarchy costs, they would not be able to take a decision based
on them, as the choice between the organisational form also changes revenues as well as the perception of risks. At the same time, costs always have to be determined via the market. The same is true for the costs of hierarchy. Therefore the choice between hierarchical costs and costs of a market transaction is not a suitable approach, as the costs of hierarchy are only measurable via the market, which makes their measure dependent on one of the variables – the market.

5.2.1.3 The theory in the context of stock exchanges

First, it is necessary to highlight an important distinction between two types of transaction costs relevant to stock exchanges: Generally, transaction costs in the area of financial markets are referred to as the costs of trading which are to be borne by investors. When analysing how transaction cost theory can explain stock exchange mergers and alliances however, it is necessary to define transaction costs as those costs incurred by a stock exchange in entering into transactions with other parties with the goal of providing a market. The two forms are linked, however, as the transaction costs of the exchange are finally shifted to the investor in the form of fees, which are one component of transaction costs of trading.

When analysing stock exchange mergers and alliances from the point of view of transaction cost theory, the question is therefore who the transaction partners of stock exchanges are and in how far stock exchange mergers and alliances are able to contribute to a reduction in transaction costs of stock exchanges. On the customer-side, the transaction partners of stock exchanges are their members, or if membership has been abandoned, the brokers and dealers trading on the exchange as well as the companies listed, on the supply-side there are, apart from transactions that would occur in any firm, such as consulting or telecommunications services, the sourcing of office supplies etc., two main types of suppliers: other stock exchanges and clearing and settlement institutions. Since no transaction costs accrue for stock exchanges from transactions with their customers, this side will not be analysed any further. Analysis will therefore concentrate on the reduction of transaction costs with other stock exchanges and clearing and settlement institutions through mergers and alliances between stock
exchanges. Although derivatives markets also offer complementary products to those of stock exchanges, there are no transactions between stock exchanges and derivatives exchanges. Since transaction partners are also stakeholders of a firm, there is a link to stakeholder theory.

Transaction cost theory assumes pre-given, technologically separate units which are characterised by mutual exchange. This is clearly the case, with different exchanges as well as with clearing and settlement systems. According to Williamson (1985: 291), the reason for transaction costs are:

- Opportunism, which seems to be relevant for both transactions between stock exchanges and transactions between stock exchanges and clearing and settlement institutions, especially as most stock exchanges have recently become profit-oriented. Stock exchanges are struggling for survival and as products and services of stock exchanges are highly standardised, this further enhances competition. At the same time, clearing and settlement institutions are under immense cost pressure, which might also make them more prone to opportunistic behaviour.

- Bounded rationality, which is an important factor in financial markets due to their complexity.

- Small numbers, which recognise the fact that there is only a limited number of transaction partners to choose between. This seems to be particularly relevant, since there is in many cases only one exchange and one clearing and settlement institution per country.

- Information impactedness, which reflects that precise information relevant to the transaction is not freely accessible by all parties involved (Williamson 1975: 20-32). The fact that stock exchanges operate in a highly regulated environment might lead to an above-average degree of information impactedness. Some governments might try to protect national institutions in the exchange business, which might make information more difficult to obtain in many cases.

According to this analysis, all four preconditions for the existence of transaction costs of stock exchanges seem to apply.
Furthermore, Williamson identified the following three aspects as being relevant for the decision between internal transactions and market exchanges: asset specificity, frequency of transaction, and degree of behavioural uncertainty.

- **Asset specificity** does not seem to be extraordinarily high due to the high standardisation of products as well as the increasing assimilation of trading processes. According to Williamson's view (1991: 281), low asset specificity is an argument against mergers and acquisitions, since the higher the share of specific assets in a firm, the more likely transactions will be organised within a hierarchy. **Result: negative**

- **Frequency of transactions** is relatively high, since most stock exchanges pay a regular fee to clearing and settlement institutions and also to stock exchanges for using their trading infrastructure (the Vienna Stock Exchange, for example, pays a regular fee to the German Stock Exchange for using Xetra and to the OMX-Group for using their technology for derivatives trading). These facts support stock exchange mergers and alliances on the basis of transaction cost theory.

- **The degree of behavioural uncertainty** (the likelihood of opportunistic behaviour of the parties involved in a transaction) can be assumed to be relatively high, particularly due to the fact that many stock exchanges (but also clearing and settlement institutions) are under immense cost pressure and are struggling to survive, which increases the likelihood of opportunistic behaviour. This would be an argument in favour of stock exchange consolidation.

Two of the three factors relevant for the decision between market and hierarchical organisation of transactions speak in favour of organisation of transactions within a hierarchy and only one against it, which supports the advantageousness of stock exchange mergers and alliances compared to their independent existence.
5.2.1.4 The theory, the main criteria for the success of stock exchanges, and the stock exchange environment

- Corporate governance and ownership structures: The trend towards demutualisation of stock exchanges is a move towards the organisation of transactions via the market, due to the separation of customers, who are the transaction partners of stock exchanges on the demand side, and owners of exchanges. The fact that member-owners want low exchange costs (transaction costs) and high exchange profits, whereas outside owners only seek high profits, as Hart and Moore (1996) state, is another argument against transaction cost theory. On the other hand, this step can be considered neutral, since there are no transaction costs for stock exchanges in dealing with customers. ATSs seem to have chosen the opposite direction, as many ATSs are owned by their main customers (large investment banks). Although demutualisation makes mergers and alliances among exchanges easier, it does not explain them from a transaction-cost point of view. result: neutral

- Degree of organisation and technicalisation: As was seen in Section 4.3.2.2, technicalisation, i.e. automation of trading, can reduce transaction costs for exchanges, e.g. by sharing trading platforms with others, which makes cross-access easier and cheaper. Furthermore, it makes mergers and alliances more easily realisable. This success factor is therefore supported by transaction cost theory. The integration of clearing and settlement institutions can also be explained by transaction cost theory, since exchanges pay clearing and settlement institutions a regular fee for the provision of their services. Additional charges for clearing and settlement are borne by investors. The fact that clearing and settlement institutions are suppliers of stock exchanges explains their integration into stock exchanges from the point of view of transaction cost theory. Moreover, stock exchange mergers and alliances can be justified, since larger exchanges (through mergers and/or alliances) might have more market power and generate more volume, which might result in a reduction in fees to clearing and settlement institutions. result: positive.
Integration of derivatives markets: Since derivatives markets are not suppliers of stock exchanges, their integration will not lead to a reduction in transaction costs. **result: neutral**

Market segmentation: Market segmentation has no influence on transaction costs borne by stock exchanges. **result: neutral**

Supervision of trading: There is no link between supervision of trading and transaction costs of stock exchanges, since supervision is done by stock exchanges themselves and not by customers or suppliers of stock exchanges. **result: neutral**

Transaction costs: If stock exchange mergers and acquisitions reduce transaction costs of exchanges, the cost of trading for investors will also decrease, since a reduction in cost incurred by the stock exchange for providing a market place can be handed on to investors by lowering the fees charged. Low transaction costs for investors are perhaps the most important success factor of stock exchanges and the fact that it is supported by stock exchange mergers and alliances from the viewpoint of transaction cost theory is a decisive factor for its applicability to stock exchanges. **result: positive**

Transparency regulations: Transparency regulations have no influence on transaction costs borne by stock exchanges. **result: neutral**

European integration: The introduction of the euro rather seems to decrease the incentives for stock exchange cooperation from a transaction-cost point of view, since transactions have become less risky due to the elimination of currency risk. This means that advantages resulting from intragroup transactions are reduced compared to market transactions. Furthermore, access to foreign markets is simplified as exchanges recognised in one member state have unrestricted access to other member states, i.e. they are free to set up terminals in any member country so that local participants are
granted free access. These factors rather tend to lower the motivation for stock exchange mergers and alliances, since foreign markets are accessible without cooperating with local partners. On the other hand, European integration has also increased competition, making opportunism more likely. This would support transaction cost theory. **result: neutral**

- **Alternative Trading Systems:** Although there are no direct transactions between ATSs and traditional stock exchanges, ATSs force stock exchanges to reduce their transaction costs by putting competitive pressure on them. Stock exchanges therefore need to try to lower their transaction costs in order to be able to hand these savings on to their customers. At the same time, as seen in the case of European integration, an overall increase in competition increases the likelihood of opportunistic behaviour by transaction partners. **result: positive**

5.2.1.5 Conclusion

When assessing the explanatory value of transaction cost theory for stock exchange mergers and alliances it could be seen that all four preconditions for the existence of transaction costs of stock exchanges seem to apply. Furthermore, two of the three factors relevant for the decision between market and hierarchical organisation of transactions speak in favour of organisation of transactions within a hierarchy, which supports the advantageousness of stock exchange mergers and alliances compared to their independent existence. However, there is not really a large number of suppliers for stock exchanges to depend on. Stock exchanges do not enter into many transactions with suppliers in their core business. For this reason transaction cost theory covers general interesting aspects but is somewhat limited in its significance for explaining stock exchange mergers and alliances.
Table 5: Evaluation of transaction cost economics.

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Source: A.

^15 The negative point results from the small number of transaction partners of stock exchanges.
5.2.2 Efficiency theories

5.2.2.1 Content

Efficiency theorists believe that the main goal of mergers and alliances is the exploitation of synergies. One can distinguish between three basic types of synergies:

1. Financial synergies

   The outcome of financial synergies is lower cost of capital. There are several ways to achieve this: Firstly, by reducing the systematic risk of a company by investing in unrelated businesses. Secondly, by enlarging the firm and creating monopoly-type structures, as larger companies usually have access to cheaper capital. Thirdly, by establishing an internal capital market in which the firm may exploit superior information and in this way raise capital more efficiently (Trautwein 1990: 284).

2. Operational synergies

   Operational synergies comprise economies of scale, scope and experience. Economies of scale can again be plant-specific or product-specific. Plant-specific economies of scale are derived if a firm's size is below its minimum efficient size and cost can be saved through a merger by increasing the output. This may also permit the use of more efficient production technologies. Product-specific economies of scale result from reduced cost per unit with increasing output volume. They are achieved through the allocation of fixed costs, such as for administration, advertising, or R&D, to a larger number of products, thus reducing the cost per unit of output. Economies of scope derive from mergers which expand a company's product portfolio. Existing product and marketing resources can in many cases also be used for new products such as distribution channels, a company's brand image or its customer base. Learning curve effects can also be realised through the transfer of management know-how between the partner companies. Economies of experience refer to a reduction in cost of new products over time as firms gain experience in making them better and cheaper through
"learning by doing" (Scherer and Ross 1990: 163-166). The result of operational synergies is lower costs of certain business units or the development of unique products or services (Porter 1985: 311).

3. Managerial synergies

Managerial synergies are in some way similar to economies of experience. They occur when the management of one of the merging or allying companies possesses superior abilities from which the other company can benefit (Jensen and Murphy 1988). A change in ownership can sometimes also reduce managerial overheads (Scherer and Ross 1990: 166).

5.2.2.2 Critical review

Synergy motives are those merger motives most frequently given by managers in interviews or case studies as the most important merger explanation (Trautwein 1990: 285, Scherer and Ross 1990: 174 and Huemer 1990: 26, 50-51). However, the expected synergies often do not materialise. Statistical evidence paints a bleak picture of postmerger profitability and gains: on average, a merger results in reduced efficiency. Operational and managerial synergies in particular are hardly ever realised in practice (Porter 1987a, Trautwein 1990: 285 and Scherer and Ross 1990: 174). As evidenced by several event studies by Weston and Chung (1983) or Jensen (1984), many mergers lead to an increase in the stock price of the target company. However, the bidder usually gains nothing. Managers frequently overestimate their ability to exploit synergies. This factor links efficiency theories with the hubris hypothesis.

Another argument is that the concept of financial synergies is in opposition to capital market efficiency, which states that no financial synergies can be achieved through lower systematic risk or a superior internal capital market. This point of criticism was also confirmed by empirical studies on this subject (Rumelt 1986: 114-119, 149-159 and Montgomery and Singh 1984). Furthermore, also negative synergies may emerge. Synergies are generally defined as any potential complex effects that are derived from the combination of existing resources and abilities of different companies. They can influence the efficiency, the performance, and the value of the combined firms positively as well as negatively.
so that the new overall performance can be better or worse than the sum of that of the single enterprises (Schaper-Rinkel 1998: 73). Negative synergies lead to the overall performance of the combined enterprise being worse than the performance of the single independent enterprises (Sandler 1991: 164 and Thomaschewski 2004: 20). According to Funk and Sigle (1993: 147), negative synergies can also include unrealised positive synergies and positive synergies that came into effect later than expected. Negative synergies are basically as likely as positive synergies, they are often neglected, however (Thomaschewski 2004: 21).

5.2.2.3 The theory in the context of stock exchanges

The necessary prerequisite for the exploitation of synergies is the existence and identification of inefficiencies. Several studies have already been conducted for this purpose in the past, all of which have confirmed inefficiencies.

Efficiency theories distinguish between three types of synergies:

- Financial synergies: Although there is no explicit mention in relevant literature of stock exchanges forming mergers or alliances for the purpose of financial synergies, this motive cannot be rejected outright. The reason is that stock exchanges demutualise and get listed since they are in urgent need of capital – in particular due to the high costs involved in the development of electronic trading platforms. Therefore it is reasonable to assume that stock exchanges also enter mergers or alliances to derive financial synergies and obtain access to cheaper capital. On the other hand, this motive is probably not strong enough to actually trigger cooperation.

- Economies of scale, scope and experience: According to a study by Schmiedel (2001: 8, 25), numerous stock exchanges are still operating at quite a low efficiency level. Large exchanges tend to outperform their smaller competitors (please see Section 4.3.1.3. for more details). A positive relationship between exchange size and efficiency strongly hints at efficiency theories being an explanation for stock exchange cooperation, in particular since cost-efficiency of exchanges is crucial for customers and, as a result, also for the survival of exchanges. Gerke and Rapp (1994: 54) also come to
the conclusion that the regional fragmentation of stock exchanges results in pricing inefficiencies and high cost of providing the same service several times. For this reason an international tendency towards centralisation of securities trading can be observed.

- **Economies of scale:** Economies of scale are mentioned in literature as the most important centripetal force in financial markets. The competitive situation stock exchanges are facing strengthens centripetal forces even further, as stock exchanges need to become as efficient as possible. A study by Hasan, Malkamäki and Schmiedel (2002: 12, 35-36) reports both substantial revenue and cost inefficiencies among exchanges and suggests that, provided there are the necessary conditions for free competition among stock exchanges, economies of scale are major drivers of competitive pressure in the stock exchange environment. Data on the US securities industry also suggests that there are substantial economies of scale, albeit mainly among smaller exchanges. The largest economies of scale can be exploited in connection with the trading function. Economies of scale in equity trading are due to the high costs of setting up a trading system in contrast to the low costs of increasing trading volume or adding further participants (Jensen and Natorp 2000). The major advantage of stock exchange consolidation would therefore be compatible trading platforms. As many systems have a similar basic architecture, mergers – or at least the sharing of a common trading platform – would substantially improve efficiency (McAndrews and Stefanadis 2002). Other options of sharing functions among stock exchanges can be found in the areas of marketing, listing, order routing, information dissemination, order execution, matching, clearing, settlement, and administration services (Lee 2003: 7). Several empirical analyses confirm the existence of economies of scale in exchange operations and market making. Demsetz (1986) found that bid-ask spreads decline as transaction volume increases, indicating economies of scale in market making (Arnold et al. 1999: 1084). According to Doede (1967), the average operating costs of stock exchanges are indirectly correlated to trading volume, which is also
confirmed by study by Schmiedel (2001: 22). At the same time, market concentration and market quality are directly correlated to efficiency. According to Hasan, Malkamäki and Schmiedel (2002: 35-36) alliances, networks, mergers, and a higher degree of automation help to enhance efficiency, as exchanges benefit from increased economies of scale.

- **Economies of scope:** Although the focus of empirical research has been on economies of scale so far, there is also evidence of economies of scope which can be exploited by stock exchanges:

  "The economic background to vertical consolidation is primarily economies of scope, including easier access to use Straight Through Processing (STP), whereby a transaction is automatically forwarded for clearing and settlement" (Arnt and Pedersen 2003).

  Stock exchanges can derive economies of scope most easily by offering more than one security, since incremental costs are low due to the existing network of buyers and sellers. On the other hand, users also benefit from the bundling of trading activities on only few market places, since they are able to save access and back-office costs to different trading infrastructures (Serifsoy and Weiss 2003: 7). A second area in which there are economies of scope is regulation. It must be noted, however, that compared to economies of scale, economies of scope are smaller in size and therefore not quite as important (Group of Ten 2001: 5). On the other hand, they lead to cost savings, which are crucial for exchanges struggling for survival.

- **Economies of experience:** In the literature on this subject there is no hint at any economies of experience among stock exchanges. Economies of experience could exist, however, in areas such as the development and implementation of trading platforms or regulation. However, such synergies are probably not main drivers of stock exchange cooperation, since these tasks do not have to be carried out repeatedly at short regular intervals. The fact that, despite the recent introduction of automation to stock exchanges, most functions of stock exchanges have not undergone substantial changes in the past also does not really favour the existence of economies of experience.
Managerial synergies: Up to now, no studies on managerial synergies have been conducted. There is only one side-result of a study by Schmiedel related to managerial synergies, namely that demutualisation has a direct effect on the management of a company. Unfortunately, Schmiedel does not give more details on this relationship. It can be assumed that managerial synergies are not a major driver of stock exchange mergers and alliances, in particular since countries try to protect the national identity of their exchanges, which means that they would try to ensure adequate influence by keeping as many managers of their exchange in important positions of the newly formed corporation. This might pose an obstacle to fully exploiting managerial synergies.

Finally, the risk of negative synergies has to be mentioned. Stock exchange mergers and alliances will not necessarily result in higher efficiency. Schmiedel (2001: 22) suggests that in some cases (e.g. in connection with cross-border trading facilities) cooperations might also lead to higher inefficiencies.

5.2.2.4 The theory, the main criteria for the success of stock exchanges, and the stock exchange environment

Corporate governance and ownership structures: As has been discussed in previous sections, demutualisation is one requirement for stock exchange mergers and alliances and consequently also for the exploitation of synergies derived from cooperation. According to a survey by FIBV, demutualisation itself also enhances efficiency, since the operating costs of demutualised exchanges in 2000 rose by only 8 percent compared to 12 percent of others. This is also a reason for going public: companies which are listed on the stock exchange and which have multiple owners are forced to work efficiently ("Mutter aller Schlachten" 2001: 52). Furthermore, the governance and management structure becomes more flexible through demutualisation, which might hint at managerial synergies. result: positive

Degree of organisation and technicalisation: Competition forces exchanges to search for ever more efficient trading systems at low cost. The main
The advantage of electronic trading systems is their speed and higher cost efficiency compared to floor trading (Breuer 1993: 12). Trading floors cost far more money than electronic systems. For this reason, many exchanges abandon trading floors, which they expect to create cost-savings of up to 40 percent ("Good-bye to all that" 1999). Furthermore, only electronic trading platforms allow cross-access and common trading platforms, which permits stock exchanges to save considerable costs if they team up, in particular due to the high set-up costs of such platforms. At the same time, straight through processing, for which electronic trading platforms are a precondition, is expected to render substantial economies of scope. A high degree of consolidation can be observed in the area of clearing and settlement, since there are significant economies of scale to be exploited. This is backed by a study by Schmiedel and Malkamäki (2002: 29). At the same time, the efficiency of clearing and settlement has substantial influence on transaction costs. The integration of clearing and settlement institutions into stock exchanges is also expected to lead to economies of scale and scope. By merging with other stock exchanges, partners might also trigger further consolidation among clearing and settlement institutions. **result: positive**

- **Integration of derivatives markets:** The integration of stock and derivatives markets is expected to yield economies of scale. Exchanges can, for example, integrate such functions as product development or marketing, or relocate to premises where all functions can be housed in one building. Most importantly, however, trading platforms might be electronically integrated (Williamson 1997: 407). Again, stock exchange mergers and alliances can also indirectly lead to links with derivatives markets, for example if one of the partners of the cooperation has already teamed up with a derivatives market. **result: positive.**

- **Market segmentation:** Market segmentation rather reduces efficiency, since synergies might decline due to more complicated and diverse regulations. Technical requirements might also be different for trading in the different
market segments. The potential for synergies therefore becomes smaller. By merging with other stock exchanges, these negative effects can be compensated for by synergies resulting from an increase in size. result: neutral

- Supervision of trading: In the area of supervision, cooperation between exchanges can lead to synergies, in particular economies of scope and experience (Hasan, Malkamäki and Schmiedel 2002: 35-36). result: positive

- Transaction costs: According to Gerke and Rapp (1994: 16), stock exchanges can make use of economies of scale by increasing their order volumes, which in turn permits a reduction in transaction costs. The easiest way to decrease transaction costs is to team up with other exchanges. Increased liquidity also lowers the implicit costs (market impact) of a transaction. result: positive

- Transparency regulations: Transparency regulations can have a negative impact on the efficiency of an exchange if stock exchanges offer different market segments with different transparency standards. If transparency is standardised throughout the exchange, no effects are to be expected. result: neutral

- European integration: The introduction of the euro has played an important role in widening the potential of synergies by eliminating currency risk and in this way encouraging investors to trade assets not by geographical but rather by sectoral criteria and to put more emphasis on liquidity (Allen, Hawkings and Sato 2001: 38). result: positive

- Alternative Trading Systems: The emergence of ATSs has increased competitive pressure on stock exchanges, which forces them to exploit all potential economies of scale. At the same time, they take away liquidity from traditional exchanges. This reduces the size of the exchange, which in turn
lower the potential for economies of scale. For this reason, stock exchanges team up in order to regain liquidity and size. **result: positive**

5.2.2.5 Conclusion

As can be seen from the elaborations above and as empirical studies also confirm, economies of scale and scope are indeed the major reasons for strategic linkages in practice (Nohria and Garcia-Pont 1991: 197). According to Malkamäki and Topi (1999: 11), there are not only production-side economies of scale, but also demand-side economies of scale through network externalities. For this reason critical mass in terms of customer base must be gained so that the market grows under its own momentum due to network effects. The easiest strategy to gain critical mass is cooperation. The result would be only very few markets because nobody is willing to use a new market with lower liquidity. The results of Malkamäki and Topi are in line with those of a study by Arnold et al. (1999: 1084) which reveals that merging exchanges were better able to attract order flow and narrow bid-ask spreads. According to Hasan and Malkamäki (2000: 12), the most significant economies of scale can be expected from standardised functions based on very simple information, such as limit orders and market orders and the processing of this information. Therefore standardisation in such areas is more likely throughout Europe than with complex information which requires face-to-face contact (such as listing procedures, news releases, and communication with companies). Centralisation in the latter field may lead to transportation costs and for this reason it is suggested that functions in that field be left with national exchanges.

Sometimes it is claimed that alliances do not permit synergies to be fully exploited, since they frequently do not make use of the economies of scale in trading systems, as the partners frequently cannot agree on a common trading platform\(^\text{16}\). The example of NOREX shows, however, that this is possible within any alliance and does not necessarily require a merger.

\(^{16}\) Lee R. (Interview) quoted in Schmerken 1999: 82.
Economies of scale have by far the largest potential for cost savings for stock exchanges. The other types might also hold some potential, but are, taken alone, probably not large enough to be able to serve as explanations of stock exchange mergers and alliances. On the other hand, economies of scale are highly dependent on harmonised regulations which are however lacking in many areas. Nevertheless efficiency theories can be seen as having very significant explanatory power for stock exchange mergers and alliances. Apart from the evidence presented above, this is also backed by the fact that by far the largest number of studies in the area of stock exchange cooperation has been conducted on exchange inefficiencies and the potential benefits of linkages. This suggests that many researchers consider this field to be extremely fruitful.
Table 6: Evaluation of efficiency theories.

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Source: A

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17 A point is firstly awarded for the fact that a large number of studies has already been conducted in this area, and secondly for the importance of cost reductions which can be achieved through synergies.

18 The negative point is given for the risk of negative synergies.
5.2.3 Resource dependence

5.2.3.1 Content

According to Wernerfelt (1984: 172), resources are "those (tangible or intangible) assets which are tied semipermanently to the firm". Das and Teng (1998: 22), classify the relevant firm-specific resources into four basic categories:

- Financial resource (i.e. capital).
- Technological resource (e.g. high research and development capability or superior know-how).
- Physical resource (i.e. production and distribution capacity or raw materials).
- Managerial resource (i.e. upper-level executives with superior management skills).

The competitive advantage of a firm is built on the combination of these resources.

The main problem of firms is how to handle uncertainties about the supply of resources and human competences. Resource dependence assumes that a firm can only obtain the necessary resources by entering into exchanges with its environment, leading to dependencies. The goal of the organisation must be to manage these dependencies in a way to ensure that

- dependency on other firms is reduced by acquiring control over critical resources and
- dependency of other firms on the organisation is increased by gaining control over strategically important resources.

Bearing this in mind, the main concern of the resource dependence theory is the negotiation of arrangements between external stakeholders, such as suppliers, competitors, governmental agencies, or creditors which provide the necessary resources, and a company. Many firms try to combine their resources with complementary or supplementary ones from other firms, hoping to create synergy (Child and Faulkner 1998: 34). A situation in which resources are not readily available will in many cases lead to cooperation instead of competition. The lack
of critical resources is therefore a strong argument for organisations to cooperate (Pfeffer and Salancik 1978: 131).

5.2.3.2 Critical review
According to Pfeffer and Salancik (1978: 140), there is significant empirical support for resource dependence theory. Studies show that many mergers are effected between firms that are highly interrelated in terms of resources.

Pfeffer and Salancik's results are criticised by other researchers, however, for not having been replicated by other studies and for lacking statistical control procedures to rule out other merger theories (Davis and Powell 1992: 325). At the same time resource dependence is said to lack the ability to explain why many firms decide on other options than mergers or alliances to gain access to critical resources, such as raising additional capital to purchase a resource through a market transaction or recruiting key personnel from competitors (Child and Faulkner 1998: 76).

5.2.3.3 The theory in the context of stock exchanges
Resource dependence distinguishes between the following categories of resources:

- Financial resources: Many stock exchanges are in urgent need of capital, which is proven by the fact that they demutualise and get listed in order to ensure access to additional capital. A major reason, as already mentioned, is the high cost involved in the development of electronic trading platforms. According to resource dependence theory, stock exchanges would have to enter directly into cooperations with their providers of capital in order to ensure access to financial resources. However, up to now no such case has occurred in practice. On the other hand, stock exchange mergers and alliances might also contribute to easier and cheaper access to capital, since larger corporations are generally at an advantage in this respect compared to smaller ones.
Technological resources: Technological resources are very important competitive factors for stock exchanges in today's environment. Almost all stock exchanges have switched from floor to electronic trading, since advances in information technologies contribute to a reduction in trading costs and allow quicker access to financial services (Hasan, Malkamäki and Schmiedel 2001). Investors also rely heavily on technology to increase the efficiency of transactions (Loistl 2000: 100). Technicalisation is furthermore a prerequisite for integrating clearing and settlement efficiently so that straight through processing becomes possible (Moore 1990: 53). Since electronic trading has mainly been introduced in the past decade, exchanges were lacking the technological resources for electronic trading platforms. Some exchanges developed platforms themselves, others, such as for example the Vienna Stock Exchange, linked to other exchanges (in this case via an alliance with the German Stock Exchange) to obtain access to existing trading platforms.

Physical resources: Stock exchanges do not depend on a large number of physical resources (apart from resources any average firm would need, such as office space, office equipment, etc.), in particular since they do not offer a physical product but a service. Dependence on physical resources has been further reduced with the abolishment of trading floors. **result: negative**

Managerial resources: Since the problem of stock exchanges finding adequate managerial resources has not yet been dealt with in the literature relating to this topic, it can be assumed that it is not one of the main drivers of stock exchange mergers and alliances. Moreover most stock exchanges were until recently run as mutual organisations and therefore the for-profit-orientation of stock exchanges was not very pronounced. This also meant that it was more difficult to measure the success of stock exchange managers. This might change, however, in the future and result in stricter performance measurement and more frequent changes in the management of exchanges. Montealegre (2002) puts the main emphasis on managerial resources when analysing the
introduction of a technical trading platform to a stock exchange in Ecuador from a resource perspective. One key resource is in his opinion the image of an exchange. Obtaining resources from the environment of the firm leads to dependencies on stakeholders, such as on suppliers, competitors, governmental agencies, or creditors. This links the theory to stakeholder theory.

5.2.3.4 The theory, the main criteria for the success of stock exchanges, and the stock exchange environment

- Corporate governance and ownership structures: The main motives for stock exchanges demutualising are to bring technology up-to-date and make governance and management structures more flexible in order to be able to respond to changes in the industry or in market conditions. Both factors are supported by resource dependence theory. The fact that stock exchanges even change their governance structure in order to be able to introduce electronic trading shows how important they consider technological resources and how much they depend on them. Furthermore, the need for increased flexibility in management is also highlighted by the tendency towards demutualisation. Demutualisation also facilitates cooperations by enabling partners to obtain a stake in partner-exchanges. **result: positive**

- Degree of organisation and technicalisation: As mentioned, a technical trading platform is one very important factor in the success of an exchange, since it reduces trading costs, allows more efficient clearing and settlement systems, and adds to the positive image of an exchange. Electronic trading platforms also reduce the dependency of stock exchanges on physical resources (the trading floor). At the same time, the high costs of developing electronic trading platforms make access to financial resources even more important. Moreover, the services of clearing and settlement institutions can also be considered as assets of stock exchanges. Clearing and settlement institutions are very important for stock exchanges providing an intangible product, as otherwise stock exchanges would not be able to operate an orderly market. For this reason, stock exchanges are dependent on them. In order to
reduce dependency, stock exchanges frequently integrate them into their structure or form alliances with them. On the other hand, stock exchange mergers and alliances might also be motivated by access to other, cheaper, or more reliable clearing and settlement systems. **result: positive**

- **Integration of derivatives markets**: Derivatives complete the product portfolio of stock exchanges, since they are frequently used for hedging purposes. For this reason, the services of derivatives exchanges can also be seen as an attractive resource of an exchange, since derivatives markets offer complementary products to the products offered by stock exchanges. As in the case of clearing and settlement systems, this explains why stock exchanges team up with derivatives exchanges. Mergers and alliances among stock exchanges might also be triggered by the desire to ensure access to adequate derivatives markets. **result: neutral**

- **Market segmentation**: Exchanges need know-how, technical capabilities, and appropriate financial resources in order to offer companies that are getting listed a market segment which suits their expectations and requirements. Larger exchanges might be able to offer a wider range of market segments than smaller ones, which, on the other hand, might seek out a small niche suiting a particular type of company in which they can be highly successful. **result: neutral**

- **Supervision of trading**: Adequate supervision of trading is tremendously important in order to ensure liquidity, since badly supervised markets would soon dry out due to a loss in trust by investors and listed companies (Loistl 2000: 100). Furthermore, it would significantly harm the image of an exchange. The NYSE considers the know-how on regulation of the exchange to be such an important managerial resource and such a central part of its reputation and branding (which it considers more important for the survival of the exchange in a demutualised environment than demutualising itself) that it has backed away from demutualisation (since it would otherwise have to
outsource supervision). Know-how on adequate supervision of trading might be a motive for young exchanges in particular (for example the recently emerging exchanges in South-Eastern Europe) to team up with others, either in order to work out adequate regulations together with other new exchanges (such as in the case of SEM-ON.net, the cooperation between South-Eastern European exchanges), or with more established exchanges which have more experience in this field. **result: positive**

- **Transaction costs**: Stock exchanges need sufficient financial resources in order to be able to develop and operate an electronic trading platform, as it decreases transaction costs. In order to get cheaper access to financial resources, many stock exchanges team up. **result: positive**

- **Transparency regulations**: Offering transparency regulations which suit investors is mainly a question of know-how and technical resources. Young exchanges in particular might team up for this purpose, for others this factor will be less important. **result: neutral**

- **European integration**: European integration has increased competition in financial markets. On the one hand, the abolishment of market entry barriers makes access to resources in other markets easier and permits stock exchanges to tap a larger fountain of resources, on the other hand, it also gives other stock exchanges and ATSs access to resources that previously were exclusively owned by one or more stock exchange. **result: neutral**

- **Alternative Trading Systems**: Today, ATSs can replace stock exchanges in many areas, except for the price-finding function and listing. This is fulfilled most efficiently by stock exchanges. For this reason, stock exchanges need to make sure they possess the necessary know-how and technological resources to provide these services effectively. Furthermore, stock exchanges benefit most from their image, which is heavily influenced by the diligent fulfilment of regulatory duties (that is the reason why for example the NYSE is hesitant
to outsource this function) and supervision of trading (Breuer 1993: 12). Stock exchanges require financial, technological, and in particular managerial resources in order to protect and improve their image, fulfil the price-finding function, and provide listing services efficiently. **result: positive**

5.2.3.5 Conclusion

The creation of linkages with firms that possess complementary or similar capabilities is one way to respond to the challenges of competition and globalisation and in particular to ensure access to technological resources. Financial and managerial resources play a less important role, and physical resources are of only very minor importance. Although most success factors support mergers and alliances from the viewpoint of resource dependence, the fact that stock exchanges do not depend on a greater variety of (in particular physical) resources reduces the explanatory power of resource dependence theory compared to its application to mergers and alliances of other firms which depend on a wider range of resources.
Table 7: Evaluation of resource dependence.

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Source: A.

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19 The minus point is due to the fact that stock exchanges depend on fewer (physical) resources than many other firms.
5.2.4 Resource-based view

5.2.4.1 Content

The resource-based view was developed by Barney in his article of 1991 "Firm Resources and Sustained Competitive Advantage". Another author that is assumed to have substantially influenced the resource-based view is Edith Penrose (1959, 1971). Her work on the growth of domestic and international firms substantially anticipated the resource-based view. Contrary to the resource dependence theory, the resource-based view adopts a more internal view. This means it looks at phenomena within a company as well as its competitive environment. According to the resource-based view the firm is considered to be a collection of tangible and intangible assets as well as capabilities which determine the efficiency of a company. The resource-based view rests on two assumptions:

- The resource profiles of firms are heterogeneous.
- Not all resources are perfectly transferable between firms (Barney 1991).

As a result not only industry structures, but also differences in resources may be responsible for superior profits. The company with the resources most suitable for its strategy will be most likely to succeed (Collins and Montgomery 1995: 120).

In order to lead to sustained competitive advantage, resources have to be unique, i.e. rare, valuable in the market, imperfectly imitable, and impossible to substitute (Dyer and Singh 1998). Evaluating resources requires looking at them in the context of market forces. A valuable resource in one market may have no or less value in a different market or at a different time. For a resource to be valuable it must pass several tests:

- It must add to the production of something demanded by customers.
- Inimitability: If the resource is hard to copy, it generates more sustainable profits.
- The resource should not depreciate too quickly, as only a longer-lasting resource can guarantee competitive advantage over a longer time.
- Appropriability: all the profits from the resource should benefit the company that owns it. Although the value the resource creates is always to a certain
extent distributed among customers, distributors, suppliers, employees, and other players, the degree to which the profit remains in the company is important (Collins and Montgomery 1995: 120-122).

Barney (1991) and Hall (1992) place special emphasis on creating sustainable competitive advantage. Valuable intangible assets are particularly suitable for adding to sustainability. A positive reputation, for example, can replace direct experience with a partner, thus reducing the fear of adverse selection or moral hazard. While Barney focuses on sustainable competitive advantages, Eisenhardt and Martin (2000) and Fiol (2001) believe that sustainable competitive advantages do not exist in a dynamic, rapidly changing environment. Competitive advantages can only be achieved because of the ability of firms to continuously adapt to the environment. This ability, which can be described as certain processes firms use to alter their resource base, is referred to as dynamic capabilities.

"To the extent that some firms in a rapidly changing market are more nimble, more able to change quickly, and more alert to changes in their competitive environment, they will be able to adapt to changing market conditions more rapidly than competitors, and thus can gain competitive advantage" (Barney, Wright and Ketchen 2001: 638).

The reason why the above mentioned factors can be a source of sustained competitive advantage is that these abilities are costly for others to imitate. They remain economically valuable as long as the competitive environment continues to change quickly (Barney, Wright and Ketchen 2001).

Interorganisational relationships can help develop such unique resources by, firstly, bringing together more know-how than a single firm, which is particularly important in the case of networks built for the purpose of research, and secondly, through the combination of firms with extraordinary market power and prestige (Dyer and Singh 1998). One resource that drives firms into strategic alliances is embedded knowledge, as alliances are usually faster and cheaper ways for accessing it (Lei 1993 and Forrest 1992: 28).
5.2.4.2 Critical review

Barringer and Harrison (2000: 374) criticise the resource-based view for not explaining how organisations develop their competencies. Instead of dealing with the crucial question of how competencies are developed and how competencies are actually transferred within the firm, the theory concentrates on the importance of unique resources and social exchange.

Another concern raised about the resource-based view is its testability. As many resources are intangible, they are hard to measure (Godfrey and Hill 1995). The second methodological problem is related to the time period of analysis. As the sustainability of competitive advantages can only be measured over a long period of time, financial and time costs must not be underestimated and deter many researchers from becoming active in this field (Barney, Wright and Ketchen 2001).

5.2.4.3 The theory in the context of stock exchanges

In order to determine what valuable resources of stock exchanges are, one first needs to recall the most important resources of stock exchanges: technology, managerial resources (in particular know-how), the services of clearing and settlement institutions and derivatives markets, the image of the exchange, etc. In contrast to resource dependence theory, Barney (1991) explicitly mentions the image of a firm as a potential unique resource. For this reason it will be tested as a separate resource in the analysis below.

According to Collins and Montgomery (1995: 120-122), a valuable resource needs to fulfil the following requirements:

- Lead to the production of something demanded by customers:
  - Technology: Technology permits the creation and operation of electronic trading platforms, something investors consider very important, since they generally reduce transaction costs.
  - Managerial resources: The fact that investors tend to leave markets which are not organised and supervised properly (e.g. due to a lack of know-how
in this field), makes managerial resources crucially important and shows that these functions of stock exchanges are valued by customers.

- The services of clearing and settlement institutions and derivatives markets: Stock trading would not be possible without clearing and settlement of trades, for this reason it is a very important asset of stock exchanges. At the same time, derivatives markets also offer complementary products to stocks. In mature markets, derivatives are heavily traded.

- Image: The image of an exchange plays a very important role, in particular since many investors still rely on traditional stock exchanges because of their reputation. A good reputation signals reliability, which is something investors are seeking in stock exchange trading.

- **Inimitability (hard to copy):**
  - Technology: The problem of technology is that it is relatively easy to copy, even though it requires large financial resources to do so. The electronic trading platforms are not only similar among stock exchanges, ATSs also imitate stock exchanges by providing electronic trading themselves (and in many cases at lower costs). **result: negative**
  - Managerial resources: These resources are much harder to copy, in particular due to fact that the know-how consists of substantial implicit and process knowledge.
  - Services of clearing and settlement institutions and derivatives markets: Clearing and settlement institutions are just as willing to clear orders from ATSs as from traditional stock exchanges. Most ATSs employ the same clearing and settlement institutions as traditional exchanges. The same applies to derivatives exchanges. The purchase of derivatives is in no way linked to the purchase of stocks at a particular exchange. Therefore the investors on all stock exchanges and trading systems have equal access to derivatives. **result: negative**
  - Image: The asset most difficult to copy is the image of an exchange, particularly since it has to be built up over a long period of time.
• Slow depreciation:
  - Technology: Due to the pace of technological developments, technological resources generally tend to depreciate very quickly. Although the bulk of the investment needs to be made in the development stage, existing trading platforms need to be maintained and upgraded in order to keep them technologically up-to-date. Furthermore, a technological revolution, which would require the development of something totally new, cannot be ruled out. result: negative
  - Managerial resources: Managerial resources, of which know-how is one important factor, tend to depreciate very quickly, in particular due to the steadily decreasing half-life of knowledge. result: negative
  - Services of clearing and settlement institutions and derivatives markets: Although these services are generally not expected to lose value quickly, both clearing and settlement institutions and derivatives markets will have to continue to invest in technology in order to make trading as efficient as possible. The challenge of derivatives markets is furthermore to find ever new creative instruments for hedging.
  - Image: The image of an exchange is an asset that, if properly cultivated, will not depreciate at all. On the one hand, the development of ATSs has harmed the image of large exchanges to some extent since ATSs are substantially more cost-effective. On the other hand, stock exchanges still hold a monopoly on listing and are also considered to be most effective in terms of price-finding.

• Appropriability (the whole resource should benefit the company that it owns):
  - Technology: The group benefiting most from technology is investors, since cost advantages are passed on to them in the form of transaction costs. In times of fierce competition, low transaction costs are a very important competitive factor for stock exchanges. Technology also benefits stock exchanges, however: first, it allows them to avoid a loss in
market share, and secondly they can sell their technology on to other exchanges.

- Managerial resources: Compared to other resources, managerial resources and know-how, in particular tacit knowledge, seem to show a high level of appropriability as long as managers do not hand over their knowledge to other companies.

- Services of clearing and settlement institutions and derivatives markets: Profits from clearing and settlement institutions as well as derivatives markets will mainly stay with these institutions, which is not surprising in the case of derivatives markets, since stock exchanges do not pay derivatives exchanges for the provision of their services. Stock exchanges can benefit from derivatives trading, however, since some investors might decide to turn away from shares on which no derivatives are offered. Stock exchanges might therefore benefit from higher trading volume if there is a derivatives exchange offering products on the underlyings traded on the exchange. On the other hand, stock exchanges pay a regular fee to clearing and settlement institutions. If the clearing and settlement system is outstandingly cost-efficient, a stock exchange might be able to attract more liquidity on this basis, which also benefits exchanges.

- Image: The resource which shows the highest degree of appropriability is certainly the image of an exchange. The only institutions that might also benefit from a good reputation of an exchange are derivatives markets which offer derivatives on stocks traded on the exchange and secondly clearing and settlement institutions through which trades are cleared. As can be frequently observed in order to avoid a spillover of profits, it makes sense to integrate these institutions.

As can be seen from the elaborations above, the only resource that passed all the tests in order to qualify as unique was the image of an exchange. Since most resources of stock exchanges are not sustainable, they have to merge or form alliances. Furthermore, stock exchanges will have to focus on strengthening their image.
Apart from the aspects analysed above, there is also a more dynamic variant of the resource-based view which stresses the ability of firms to continuously adapt to the environment. This seems to be a very important resource in the fast-changing environment of stock exchanges today, since ownership structures, technical requirements, regulatory matters, market conditions (entry of new competitors, cooperation among competitors, European integration) etc. are currently undergoing substantial change. According to Montealegre, the most important dynamic capabilities are managerial.

5.2.4.4 The theory, the main criteria for the success of stock exchanges, and the stock exchange environment

- Corporate governance and ownership structures: Demutualisation is one of the prerequisites for stock exchange mergers and alliances and also helps to foster the reputation of an exchange by giving it a more up-to-date image. Furthermore, it also improves flexibility, which is in line with the dynamic capabilities version of the resource-based view. On the other hand, sometimes concerns are raised about the impact of profit-orientation on the ability of the exchange to provide a public good, to act as a self-regulatory institution, and to ensure adequate supervision of trading. The last point, for example, is one of the reasons why the NYSE has not demutualised yet. Young exchanges are most likely to enter into cooperations in view of this aspect. result: neutral

- Degree of organisation and technicalisation: Although technicalisation as such does not constitute a unique resource, it also adds to the image of an exchange, making it appear more up-to-date and price-efficient. Moreover, technical trading platforms allow cooperations with other exchanges more easily. The image-argument can also be used to justify the integration of clearing and settlement structures. result: positive

- Integration of derivatives markets: Cooperation between stock exchanges will have no influence on the creation of unique resources by integrating derivatives markets. result: neutral
Market segmentation: Market segmentation is generally viewed positively by the financial community, since it allows the exchange to tailor standards to the needs of different companies in a more sophisticated way. Large exchanges find it easier to offer a larger variety of market segments. On the other hand, it might also have negative effects if, such as in the case of the Neuer Markt of the German Stock Exchange, a whole market segment has to be closed down. Market segmentation might also help exchanges to adapt more easily to new market conditions by keeping exchanges flexible. result: neutral

Supervision of trading: As already mentioned above, supervision of trading is one very important, if not the most important factor for the image of an exchange. If investors lose trust, the market will dry out. For this reason, many exchanges do not want to outsource this function to other institutions. Mainly young exchanges will team up in order to make sure to provide adequate supervision. result: positive

Transaction costs: If stock exchanges manage to create a unique image (by benefiting from cooperation with other exchanges), investors might be willing to accept slightly higher transaction costs, if e.g. the stock exchange has the reputation of offering extremely quick clearing and settlement, or strict supervision, etc. result: positive

Transparency regulations: Stock exchange mergers and alliances will not be of great help to stock exchanges to create unique resources in terms of transparency regulations. result: neutral

European integration: The effects of globalisation and European integration make it harder for firms to retain a competitive advantage based on physical, financial, or technological assets, as competitors can easily acquire similar assets or even jump to new technologies. For this reason, stock exchanges
need to concentrate on developing capabilities which are more difficult to imitate, such as a good image, for example (Barney 1997 and Wernerfelt 1984). Furthermore, according to Williamson (1997: 410), the EMU decreases the distinctions between exchanges from the investors' point of view. In the past, equity markets had always been subject to nationalism in terms of regulation, accounting standards, and protectionism of the national exchanges as financial centres. Currency risk also played a decisive role. All in all location will gradually lose some of its importance for marketplaces (Malkamäki and Topi 1999: 7-8). For this reason stock exchanges will obviously have to enter into cooperations. **result: positive**

- Alternative Trading Systems: Alternative Trading Systems copied many of the capabilities exchanges had previously considered unique. In this way they made it more difficult for exchanges to develop unique resources. The resource that, apart from liquidity, probably distinguishes traditional stock exchanges most from ATSs is their image. The problem of young exchanges is frequently a lack of positive image, therefore they might benefit substantially from cooperation with long-established exchanges in the course of competition with ATSs. **result: positive**

5.2.4.5 Conclusion
As can be seen above, the critical resource stock exchanges need to focus on is their image, since it is the only truly unique resource. If one looks at the development of stock exchanges over time, this has to be confirmed. Those financial centres (such as the NYSE, the LSE) that have historically been important, have managed to gain even more importance. Although lacking empirical support, this can be assumed to be, apart from the high liquidity these exchanges offer (which is certainly the most important factor), also to a considerable extent due to their good image. Other exchanges find it very hard to challenge their supremacy. This is also in line with the resource-based view explaining mergers and alliances by the ability of firms to benefit from a larger know-how base and to benefit from the combination of firms with extraordinary market power and prestige (Dyer and Singh 1998).
It is difficult for stock exchanges to build up unique resources based on physical, financial, technological, or managerial resources. However, explaining competitive advantages of stock exchanges in terms of their image and explaining stock exchange mergers and alliances as means to create a unique image (through the combination of extraordinary market power and prestige) and to benefit from positive network externalities seems to serve as a good explanation for stock exchange mergers and alliances. On the other hand, the resource-based view explains stock exchange mergers by the fact that these organizations have to merge due to the fact that they have not managed to develop resources that meet the requirements of the resource-based view. Therefore they have to cooperate in order to survive. At the same time, it must be said that since physical or technological resources do not lead to valuable unique resources, some factors very important to the survival of stock exchanges are neglected. The most important success factor not considered is transaction costs, for example, since stock exchanges today compete heavily on transaction costs.
Table 8: Evaluation of the resource-based view.

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Source: A.

<sup>20</sup>This point is awarded for the fact that stock exchange mergers and alliances can be explained by the fact that stock exchanges have not managed to create unique resources.
5.2.5 Strategic choice

5.2.5.1 Content

According to the strategic choice view the strategic reasons for entering into an alliance are manifold. Barringer and Harrison (2000: 375-376) suggest grouping them into four categories:

- Increasing market power by erecting entry barriers or creating monopoly-type influence.
- Increasing political power, i.e. the influence on domestic or international governing bodies.
- Increasing research, production, marketing, or other efficiency.
- Achieving product or service differentiation.

Choice is available in terms of organisational design and the company's environment. The environment can thus be manipulated by the top management to fit its goals. Managers are believed to have a proactive role, shaping the company and its environment (Pfeffer and Salancik 1978, Lorange 1980, Astley and Van de Ven 1983: 249). The strategic choice perspective suggests that the choices made by top managers have significant influence on the design and performance of a firm. Management is therefore an important source of competitive advantage (Schoemaker 1990).

Child (1997) places more emphasis on the environment as a given factor which influences management decisions and cannot be significantly shaped. The reason is that the environment creates threats and opportunities for the firm which influence or even determine the strategic choices available to managers. As a result, managers make their choices in response to the environment of the corporation, trying to optimise the company's strategy in the given environment. Child considers fitness to the environment the most important prerequisite for corporate success.
5.2.5.2 Critical review

The strategic choice perspective argues that the main goal of interorganisational cooperation is to improve market power and competitiveness. In practice, many alliances are formed for these reasons. One of the main advantages, which is also a disadvantage however, is that the strategic choice perspective is very broad. Participation in almost any alliance or merger can be justified. Strategic choice also integrates many motivations derived from other theoretical paradigms described in this section. The breadth of this theory is probably one of the reasons why research is fragmented and only few conclusions could be validated. Moreover, the success of a strategy is substantially influenced by the environmental context, which makes it hard to measure (Kent 1991, Barringer and Harrison 2000: 375-376).

5.2.5.3 The theory in the context of stock exchanges

- Increasing market power by erecting entry barriers or creating monopoly-type influence: The central incentive for stock exchanges to gain as much market power and trading volume as possible is economies of scale and scope, which are of significant size, as has been analysed above. The existence of large-scale exchanges per se poses a substantial market entry barrier, since smaller exchanges will find it difficult to compete on price with larger ones benefiting from economies of scale.

- Increasing political power: In former times, national stock exchanges had substantial influence on their national regulators. That was one reason why stock exchanges were shielded from competition in the past. In the course of European integration, however, this has changed significantly. Since the control exerted by stock exchanges over regulators is vanishing today, they try to team up in order to remain influential. This can be done either by forming mergers or alliances or via trade associations (such as FESE, for example).
Increasing efficiency: As has already been discussed under the heading of efficiency theories, economies of scale and scope are a major reason for stock exchange cooperation. This is not only true for the trading function itself, but also for side-activities. Stock exchanges can, for example, combine product development or marketing, listing, order routing, information dissemination, order execution, matching, clearing, settlement, and administration services or move to one building. Studies have shown that mergers and alliances bear substantial cost-savings. The hypothesis of Schmiedel (2001: 8) is that there is still a high degree of inefficiency among stock exchanges. For this reason, provided there are the necessary conditions for free competition among stock exchanges, economies of scale and cost efficiency are major drivers of competitive pressure in the stock exchange environment (Hasan, Malkamäki and Schmiedel 2002:12).

Achieving product or service differentiation: The lesson to be learned from the US is that far fewer exchanges are required and secondly that the major stock markets concentrate on different types of trading: the NYSE focuses on liquid titles offering an auction market system, whereas NASDAQ provides a dealer market for less heavily traded shares. In Europe, the big stock exchanges copy each other instead of differentiating themselves. This is due to the desire of all exchanges to meet the needs of the biggest clients: pension funds and mutual funds. At the same time, "the risk in what European exchanges are now seeking to do is that by aping each other, they could undermine the strengths they already have" ("Shaping up"). Instead, traditional stock exchanges have to ask themselves whether they offer up-to-date services or if certain market segments are missing (Von Rosen 1994: 1217). Stock exchange mergers and alliances can in some cases be pursued for the purpose of differentiation, such as in the case of the Vienna Stock Exchange acquiring a stake in the Budapest exchange in order to gain a foothold in markets for Eastern European stocks. In the majority of cases, however, stock exchange mergers and alliances are rather pursued to strengthen market power in already established areas of the exchange.
As can be easily recognised, strategic choice view combines core aspects of many other theories, such as monopoly theory, efficiency theory, the theory of reduction of income uncertainties, etc. Being strategically oriented, however, strategic choice view rather takes on a long-term view. In practice, however, it will be difficult to apply the distinction between steps taken mainly for strategic or other purposes.

5.2.5.4 The theory, the main criteria for the success of stock exchanges, and the stock exchange environment

- Corporate governance and ownership structures: Demutualisation permits stock exchanges to increase their market power by supporting cooperations and technicalisation of trading, which might create market entry barriers for new competitors. This is due to economies of scale and scope resulting from mergers and alliances which can be passed on to investors in the form of lower transaction costs (with which new entrants might not be able to compete due to their smaller size). Demutualisation also speeds up decision-making, which enhances the overall efficiency of exchanges. Moreover, getting listed might increase the efficiency of stock exchanges even further due to increased outside pressure from shareholders. On the other hand, stock exchanges might lose political power, since they might have to outsource supervision if they demutualise or even get listed. **result: neutral**

- Degree of organisation and technicalisation: Just like demutualisation, technicalisation also fosters mergers and alliances, since integrated trading platforms can be formed and cross-access permitted. As technicalisation requires high initial investment, new potential competitors might be deterred. It also leads to higher efficiency, since the introduction of electronic trading brings about substantial cost savings. The same applies to straight through processing, which is only possible in connection with electronic trading and which speeds up and facilitates clearing and settlement for investors and which might also constitute an entry barrier. By teaming up with clearing and settlement institutions (and also derivatives exchanges), stock exchanges
might try to achieve monopoly-type influence, however, this does not explain stock exchange mergers and alliances directly. **result: positive**

- Integration of derivatives markets: By teaming up with derivatives exchanges, stock exchanges might try to achieve monopoly-type influence, however, this does not explain stock exchange mergers and alliances directly. **result: neutral**

- Market segmentation: Market segmentation is the best means to achieve product differentiation by offering different segments tailored to the needs of different companies. By covering all demands, stock exchanges might be able to create monopoly-type structures by erecting entry barriers, since new competitors would not know which segment to serve. Market segmentation is obviously easier for larger exchanges, nevertheless it might reduce efficiency due to a loss in synergies. **result: neutral**

- Supervision of trading: In the field of supervision of trading stock exchanges can most easily increase political power by establishing linkages with other exchanges to exert more influence on domestic or international governing bodies. The reason is that a lot of coordination with official regulatory bodies is necessary in this area. In this way stock exchanges might try to increase their influence by keeping the supervisory function inhouse. This becomes more difficult, however, if a stock exchange demutualises or even gets listed on itself. In this case, supervision must frequently be left to other institutions. For some exchanges, this is a reason for deciding against demutualisation (such as for the NYSE). **result: positive**

- Transaction costs: Low transaction costs are an important factor for investors when deciding on which exchange to trade. Large exchanges can exploit economies of scale and scope and in this way achieve monopoly-type structures and erect entry barriers. Studies have shown that mergers and alliances increase the efficiency of exchanges and tend to reduce transaction
costs. On the other hand, if an exchange decides to increase its product and service portfolio for strategic reasons, this will rather result in higher transaction costs, since synergies are lost. result: neutral

- Transparency regulations: There is no incentive for stock exchanges to team up from the viewpoint of transparency regulations for strategic reasons. result: neutral

- European integration: European integration makes influence on governing bodies more difficult since regulations are stipulated on an EU-wide instead of a national level. At the same time, the EU also abolished market entry barriers for providers of financial services and stock exchanges. For this reason, large exchanges are at an advantage, since they will firstly have a better chance of influencing regulators and secondly, as they are more likely to be able to set up market entry barriers by creating monopoly-type market structures. result: positive

- Alternative Trading Systems: ATSs are new competitors of stock exchanges. This fact increases the likelihood of exchanges entering mergers or alliances for strategic reasons, since they must try to fend off competition by increasing market power, increasing efficiency, and enlarging product or service differentiation. New ATSs must be prevented from entering the market through entry barriers. result: positive

Finally, large stock exchanges also benefit from positive network externalities, as already mentioned. This fosters convergence towards only few central trading platforms, which again leads to monopoly-type market structures and substantial entry barriers.
5.2.5.5 Conclusion

The creation of linkages is certainly an appropriate way for stock exchanges to respond to the challenges of competition and globalisation from the viewpoint of strategic choice theory. Linkages lead to economies of scale and scope, reduce risk, and strengthen the competitive position of a firm (Porter and Fuller 1986 and Kogut 1988). From the point of view of exchanges, the main goal is to reduce competitive pressure by increasing market share to such an extent that new market entrants are fended off due to the high sunk costs of market entry and exit. Since there are substantial economies of scale (and also scope) inherent to stock exchange trading, stock exchange mergers and alliances can be satisfactory explained by the strategic desire to gain size and at the same time increase efficiency. The same is true for increasing the political power of an exchange, since small exchanges have a hard time enforcing their interests on a pan-European basis. Finally, the integration of clearing and settlement institutions as well as derivatives markets and the search for new sources of revenue (such as by selling technology for example) shows that stock exchanges are looking to differentiate their products and services. Mergers and alliances can also make differentiation easier. All in all strategic choice theory can be viewed as a good theory for explaining stock exchange mergers and alliance, despite the fact that it is very broad covering aspects of several other perspectives, as already mentioned above. On the other hand, as long-term strategic planning is the main prerequisite for success of stock exchanges according to Monteallegre (2002), strategic choice perspective can be considered suitable to explain stock exchange cooperation.
Table 9: Evaluation of the strategic choice view.

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Source: A.

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21 One extra point is awarded for positive network externalities which are strategically very important.
22 The minus point is due to the fact that strategic choice view is very broad including core ideas of many other theories.
5.2.6 Reduction of income uncertainties

5.2.6.1 Content

Income uncertainty is defined as the problem that people frequently do not manage to fully realise the level of income they desire and to use it in the way they desire. This is due to imperfection in and unequal distribution of knowledge. Income uncertainty therefore denotes the difference between the desired income and its usage at a definite planning time and the actual realisation of goals with hindsight. Such a difference is unwanted. For this reason the theory of reduction of income uncertainties is intended to reduce, and if possible prevent, these differences as far as possible. There are different reasons for the occurrence of income uncertainties of firms, such as the surprising market entry of new competitors, the dropping out or sloppiness of employees, insufficient quality of parts sourced from suppliers which can only be remedied after several weeks, or exchange or interest rate changes. Income uncertainties can be reduced by collecting and analysing all knowledge on facts, theories, trends and expected events available at a certain planning time. Institutions aim at a better predictability, i.e. a reduction in income uncertainties (Schneider 1995a: 14-15, 1995b: 47).

Enterprises take over income uncertainties of individuals for a certain period of time by guaranteeing a certain level of remuneration for certain job performance. Cooperations between firms aim at reducing or eliminating one reason for uncertainty, which is competitive pressure. This is achieved by cooperating across different markets (such as in the case of a supplier–customer cooperation), by concentration of market power (in the case of cooperation between competitors), or by risk sharing of expensive research and development projects (Schneider 1995b: 47-48, 430).

5.2.6.2 Critical review

Cooperations also increase uncertainties, which derives from the delegation of decisions or the need to reach group decisions (Schneider 1995b: 430).
5.2.6.3 The theory in the context of stock exchanges

The first question before starting with a more detailed analysis is if stock exchanges suffer from income uncertainties. Schneider (1995a: 14-15) mentions competitive pressure as well as the surprising market entry of new competitors as one of the main reasons for income uncertainties. Both factors are clearly relevant for stock exchanges, mainly due to European integration and the market entry of ATSs. Moreover, stock exchanges usually suffer from a loss of turnover in times of economic downturn.

A reduction of income uncertainties can be basically achieved in three different ways:

- Cooperation across different markets: In the context of stock exchanges, cooperation across different markets can either take place between different national stock markets, which is common practice already today, or vertically across firms. Typical examples of the latter type are the integration of derivatives markets or of clearing and settlement institutions. Furthermore, some stock exchanges have also begun to sell technology or research. The advantage is that the streams of income are diversified, which spreads the risk of stock exchanges.

- Concentration of market power: Stock exchanges try to achieve as much market power as possible, in particular due to the cost pressure from large institutional investors and due to economies of scale and scope inherent to stock exchange operations. Furthermore, positive network externalities also encourage concentration in the stock exchange industry, since stock exchanges offer a liquid form of investment at low cost by providing a meeting place. When the market is geographically fragmented, traders may have to waste time seeking counterparties and bid-ask spreads are therefore likely to be wider as a result. That concentration of market power is a decisive factor is further underlined by the fact that small stock exchanges have come under increasing pressure since they are unable to compete with large
exchanges due to their higher costs and lower liquidity. This goal of Schneider’s theory links it to monopoly theory.

- Risk sharing of expensive research and development projects: Risk sharing among stock exchanges takes mainly place in connection with the development of electronic trading platforms. Since this is very capital-intensive, many stock exchanges either join forces in developing them or purchase their technology from other exchanges, which has the additional potential advantage of access to both exchanges via a single trading screen.

5.2.6.4 The theory, the main criteria for the success of stock exchanges, and the stock exchange environment

- Corporate governance and ownership structures: Demutualisation facilitates the reduction of income uncertainties by permitting with greater ease cooperation among exchanges, since equity can be sold to cooperation partners. result: positive

- Degree of organisation and technicalisation: As already mentioned above, the internalisation of clearing and settlement institutions leads to a spread of risk by generating new and partly independent sources of income, as a clearing and settlement institution cooperating with a certain exchange can also carry out clearing and settlement activities for other stock exchanges or ATSs. Partnering exchanges can also benefit from such a move. Furthermore, technicalisation also increases the likelihood of stable income, since it helps to ensure a fair, orderly, and efficient market which attracts liquidity. Stock exchange mergers and alliances are triggered by the desire of stock exchange to share the costs and risks of developing automated trading platforms. result: positive

- Integration of derivatives markets: The integration of derivatives markets can also add to a spread of risk, since turnover in derivatives is not directly linked to turnover in stocks. Furthermore, the derivatives exchange could also offer products on underlyings other than those traded at the stock exchange they
are linked to. As in the case of clearing and settlement institutions, partners of a cooperation can benefit from integrated derivatives markets, if one of the partners spreads its risk in this way. It does not, however, provide a direct explanation for stock exchange cooperation. **result: neutral**

- **Market segmentation:** Market segmentation also leads to a spread in risk, since decreases in turnover in one market segment can be balanced out by other market segments. Furthermore, it might lead to less competitive pressure, as new entrants or competitors might be discouraged by the fact that all market segments are sufficiently served already. Mergers and alliances make exchanges larger, which helps them to provide a wide range of market segments more easily. **result: positive**

- **Supervision of trading:** Risks resulting from supervision of trading would, if at all, only be minimised by very young exchanges through a merger or alliance. **result: neutral**

- **Transaction costs:** Cooperations between exchanges lead to lower transaction costs due to economies of scale and scope. In view of the cost pressure exchanges are facing, this is one of the most important competitive factors in increasing market power and detering potential market entrants, since they would not be able to operate profitably under a certain size. **result: positive**

- **Transparency regulations:**

  There is no significant link between income uncertainties resulting from transparency regulations that could be optimised through stock exchange cooperation. **result: neutral**

- **European integration:** By encouraging cooperations between stock exchanges from different countries, financial market integration provides more possibilities of risk-pooling. Concentration of market power becomes more difficult, due to the elimination of entry barriers, which speaks in favour of
stock exchange cooperation. On the other hand, European integration has also fostered equity culture and eliminated currency risk, which makes streams of revenue not only larger but also more stable. For this reason, stock exchanges would have fewer incentives to team up than before. Despite the fact that cooperation across markets can diversify the risk of shocks, it cannot remedy the consequences of international shocks. **result: neutral**

- Alternative Trading Systems: As mentioned above, the entrance of new competitors (ATSs) is one important reason for income uncertainties among established market players. Stock exchanges have reacted by trying to increase market power through cooperations and diversification of risk across different markets and activities. **result: positive**

5.2.6.5 Conclusion

The emergence of ATSs is a major source of uncertainty for established exchanges. Furthermore, turbulent world markets add to this problem, as is evident when one looks at the number of shareholders, which has decreased again in Europe after the economic downturn in 2000/2001. Stock exchanges react by trying to increase their market power through mergers and alliances. The sharing of research and development costs can also be observed in many cases. Cooperations between exchanges can also open access to new streams of revenue (if partners have teamed up with the national clearing and settlement institution or a derivatives exchange, or are engaged in other commercial activities such as selling research or technology). For this reason Schneider's theory of reduction of income uncertainties serves as a valuable explanation for stock exchange cooperation.
Table 10: Evaluation of the theory of reduction of income uncertainties.

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Source: A.
5.2.7 Stakeholder theory

5.2.7.1 Content

Freeman (1994) defines stakeholders as all those people who are affected by or who can affect the organisation. Examples are suppliers, employees, customers, investors, competitors, regulatory and governmental agencies, or the local communities in which the firm operates. The corporation is a network with multiple participants with multiple interests, with each stakeholder making contributions to and receiving rewards from corporate activity (Donaldson and Preston 1998: vii).

Stakeholders are very important for a firm as they help it to achieve its goals. Therefore, stakeholder relationships must not be put at risk and a firm has to consider the legitimate interest of all relevant stakeholders when making important decisions (Freeman 1984, Donaldson and Preston 1995). Brenner and Cochran (1991) summarise the essence of stakeholder theory in six propositions:

1. A minimum set of stakeholder needs must be fulfilled by a firm in order to ensure its further existence. For this reason, it is important that management finds out which stakeholders matter most, as it will be impossible to satisfy the interest of all groups to the same extent.

2. In order to understand the main needs of the stakeholders, it is of great help to look at the most important values and interests of the firm's stakeholders.

3. The choice processes among stakeholders involved in managing a firm are a function of the stakeholders' values and their influence.

4. Understanding the behaviour of a firm requires careful examination of the organisation's stakeholders, the relative importance of their different values and interests, as well as the relative influence of each stakeholder.

5. The firm must balance the different needs of the various stakeholders using economic, legal, and moral criteria.
6. Organisational management which follows the concepts of stakeholder theory will produce superior results in the long run.

In order to coordinate stakeholder interests, organisations tend to form coalitions, such as strategic networks with stakeholders to achieve common objectives. These coalitions help the firm to align stakeholder interest and to reduce environmental uncertainty (Freeman 1994, Jarillo 1988, Harrison and St. John 1996).

5.2.7.2 Critical review

According to Donaldson and Preston (1995), there is a lot of descriptive evidence for stakeholder theory. By the mid-1960s about 80 percent of upper-level managers had already recognised the need to not only behave in the interest of shareholders but also take the needs of other stakeholders into consideration. Today most managers believe in practicing stakeholder management and are believed by others to do so. Although they may not use the term stakeholder theory, most managers act according to its central thesis, namely to satisfy the needs of a wide range of stakeholders, not only that of stockowners.

One of the weaknesses of stakeholder theory is its lack of empirical testing. Another limitation is the concern raised by many critics that a very large firm, such as IBM or GM, can put stakeholder theory into practice having thousands of stakeholders. Moreover, stakeholder theory is not very prescriptive, but of a rather descriptive nature, i.e. hardly any advice is given about the form cooperations should take (Barringer and Harrison 2000: 377).

5.2.7.3 The theory in the context of stock exchanges

Since all corporations have stakeholders, this precondition does not have to be tested. In the case of stock exchanges, the main stakeholders are investors (private, institutional), intermediaries (brokers, dealers), listed companies, national and EU regulatory bodies, clearing and settlement institutions, derivatives exchanges, employees, other exchanges and ATSs (competitors), banks, and the public in general (since stock exchanges are frequently considered
to produce a public good). The most important stakeholders of stock exchanges are listed firms (since they provide the basis for stock exchange business), investors (since they bring order flow), and regulators. One popular strategy for coordinating stakeholder interests with greater ease is to enter into different forms of networks with them. Thus in order to explain stock exchange mergers and alliances from the viewpoint of stakeholder theory, the interests of other stock exchanges must be analysed in order to find out why stock exchanges might cooperate among themselves. Furthermore, the interests of other stakeholders in cooperations among stock exchanges have substantial influence. Since it would be almost impossible to find and evaluate all the pros and cons from the viewpoint of the different groups, primarily the interests of those stakeholders identified above as most important to the exchange will be analysed.

5.2.7.4 The theory, the main criteria for the success of stock exchanges, and the stock exchange environment

In the context of analysing the interests of other stock exchanges, it may generally be said that other stock exchanges do not want their competitors to become too powerful or even hold a monopoly-type position, since this would result in a loss of business for them. Therefore, they will only favour stock exchange cooperation if they are one of the participants or can draw other advantages from it. This will not be mentioned separately under each analysis point.

- Corporate governance and ownership structures: Stock exchanges welcome demutualisation of competitors, since this makes cooperation easier, but it is also supposed to make competitors more efficient, which is less desirable. The other important stakeholders favour demutualisation, since it is expected to reduce transaction costs by making exchanges more cost-efficient and by permitting cooperations. Another aspect is the problem of for-profit exchanges operating a fair and orderly market. Since inadequate regulation and supervision of markets would result in a general loss in trust in capital markets, all members of the financial community are interested in avoiding such problems. For this reason, demutualisation might be viewed sceptically. The group most opposed to demutualisation are intermediaries, as from their
Ulrike Thorwartl Judgmental Analysis of Literature on Stock Exchange Mergers and Alliances in Europe

point of view there will be a loss of control over the exchanges and of long-established rights. At the same time, demutualisation also leads to a shift in the structure of important stakeholders. The influence of politics is reduced, whereas shareholders gain in importance. Exchanges members become less influential and other stakeholders investing in the exchange (and in this way becoming shareholders) will gain more influence. **result: neutral**

- **Degree of organisation and technicalisation**: Technicalisation makes cooperations easier by permitting cross-access to trading platforms or by merging trading platforms. In this way the partner-exchanges can benefit from technologically advanced systems and other stakeholders from increased efficiency. The integration of clearing and settlement institutions will lead to substantial synergies, which is welcomed by the most important stakeholders. In contrast to technicalisation, integration of clearing and settlement institutions cannot be explained directly by stock exchange mergers and alliances from the point of view of transaction cost theory. **result: neutral**

- **Integration of derivatives markets**: The integration of derivatives markets is expected to result in reduced costs for customers, and is therefore welcomed. However, as in the above case, it also cannot directly explain stock exchange cooperation from the stakeholder view. **result: neutral**

- **Market segmentation**: In many cases the aim of cooperation is to cover as many market segments and niches as possible. This is welcomed by all stakeholders (except competitors), since it suits the needs of a large client base as long as it does not increase transaction costs. **result: neutral**

- **Supervision of trading**: Proper supervision of trading is welcomed by all stakeholders of an exchange, even competitors, since otherwise the image of capital markets in general might suffer. Young exchanges in particular team up to ensure proper supervision. **result: positive**
- Transaction costs: Stock exchange mergers and alliances lower transaction costs, as an increase in size results in cost savings, which is obviously welcomed by investors, listed companies, and regulators. Investors generally tend to choose the exchange offering the most favourable trading conditions, with transaction costs being one of the main factors. Listed companies mainly benefit from higher liquidity. **result: positive**

- Transparency regulations: Transparency regulations are a delicate issue for stock exchange, since on the one hand institutional investors want relaxed regulations for the trading of large blocks, on the other hand, private investors favour greater transparency in order to guarantee consumer information and protection (Allen and Hawkins 2002: 53 and Loistl 2000: 105). Therefore stock exchanges will not be able to fully balance the interests of all groups. That is one reason why young exchanges will pursue cooperations with more established exchanges in this field. **result: positive**

- European integration: Cooperation among stock exchanges is welcomed by European authorities, since it is believed to make them more efficient. At the same time, European integration increases competition, which might make other stock exchanges more willing to cooperate. **result: positive**

- Alternative Trading Systems: Alternative Trading Systems have substantially added to the intensity of competition among trading systems and pose a serious threat to traditional exchanges. Therefore it might increase their willingness to cooperate in order not to lose business to ATSS. **result: positive**

5.2.7.5 Conclusion

Stakeholder theory covers many aspects of stock exchange mergers and alliances. In this analysis the interests of other stock exchanges as well as the three major stakeholders are primarily taken into account when analysing the drivers behind cooperations among stock exchanges. This of course limits the view, on the other hand, taking into account all the different groups of stakeholders would not be
feasible within the scope of this analysis. Since cooperation decreases competition and allows exchanges to become more efficient, it is welcomed by exchanges as the main stakeholders. The only fear sometimes mentioned in this context is a loss of national identity through stock exchange cooperations. In general it may therefore be concluded that stakeholder theory is able to explain stock exchange mergers and alliances. A major weakness of stakeholder theory for stock exchange cooperations is, however, that since institutional investors, listed firms, and regulators are the most important stakeholders of stock exchanges, stakeholder theory would require stock exchanges to team up with these stakeholders, which has not been the case yet, mainly due to restrictions in ownership after demutualisation (this is in contrast to ATSs, whose majority owners are frequently their biggest customers).
Table 11: Evaluation of stakeholder theory.

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Source: A.

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The minus point is for the fact that the theory is so broad that it is almost impossible to take into account all stakeholder interests and secondly for the fact that stakeholder theory would actually require stock exchanges to directly enter into cooperations with their most important stakeholders (listed firms, investors, and regulators). The fact that many investors are at the same time shareholders of ATSSs, constitutes another problem. By investing in listed exchanges, investors might also become shareholders in exchanges themselves.
5.2.8 Organisational learning

5.2.8.1 Content

Learning theory assumes that the main motivation for organisations to form interorganisational relationships is capitalising on opportunities for organisational learning. The reason is that one of the main factors for improving the competitive position is superior knowledge (Hamel 1991, Kogut 1988, Mowery, Oxley and Silverman 1996:79). According to Cohen and Levinthal (1990), a firm's need to learn is defined as

"the amount of new knowledge to be acquired from a target firm in a particular strategic combination context for the purposes of building new firm capabilities, or facilitating the exploitation of existing firm capabilities" (Cohen and Levinthal 1990: 135).

The type of knowledge firms most urgently want to learn in an alliance is tacit knowledge. The transfer of such knowledge across organisational boundaries is difficult, however, as it is part of organisational routines, skills and culture (Nelson and Winter 1982: 77-78). Due to this fact Kogut (1988: 323) argues that markets and contractual mechanisms are not suitable means for the transfer of tacit knowledge. In order to be able to capitalise on the learning opportunities a cooperation between firms provide, a firm must have the intent to learn and the ability to learn (Hamel 1991). Particularly in times of ever increasing development costs and risks and simultaneously shrinking product life cycles, rapid market penetration is becoming more and more important, especially in technology- and therefore also knowledge-intensive industries (Mowery, Oxley and Silverman 1996: 79). Firms try to learn in order to create unique resources, which links the theory of organisational learning to Barney’s resource-based view. For this reason an organisation's learning capability has become an important competitive factor (Stata 1989: 64). That is the reason why one of the assets transferred most frequently across firms is technical knowledge (Hamel 1991, Kogut 1988, Mowery, Oxley and Silverman 1996:79).
Chen and Mingfang (1999) add another dimension to interfirm learning by distinguishing between two types of knowledge a firm can learn through an alliance: content and process knowledge. Whereas content knowledge refers to skills in functional areas, process knowledge denotes the skills to manage interfirm cooperations, such as effectively negotiating cooperative contracts or managing inter-partner relations.

5.2.8.2 Critical review

The importance of interfirm learning is backed by surveys conducted in 2001 which show that in 40 percent of all alliances learning is a critical goal. This figure is expected to rise to over 50 percent in the next few years (Palmer 2001: 35). A study by Deeds and Hill (1996) shows that the rate of product innovation is positively correlated to the number of strategic alliances a firm is involved in.

A difficulty that might arise with interfirm learning is that knowledge is frequently not easily accessible, as partners may protect their knowledge resources. Particularly when the partners are competitors or potential competitors, firms may be reluctant to share knowledge that could possibly create a new competitor. This protectiveness may be mitigated, however, by increasing trust between the alliance partners after some time (Inkpen 1998). There is a second darker side to the concept of organisational learning, as partners might try to exploit a naïve partner by gaining access to proprietary technology or knowledge (Hamel 1991). The theory of organisational learning does not account for the risk of inadvertently losing privileged information which is not part of the alliance agreement. Moreover the theory neglects the costs involved in learning. Of course it is possible for a firm to increase its ability to learn through training. However, such measures are costly. Therefore, a cost/benefit analysis would have to be conducted first. This is almost impossible, however (Barringer and Harrison 2000: 380).

5.2.8.3 The theory in the context of stock exchanges

Organisational learning is one main motivation for inter-firm cooperations. Firms want to capitalise on opportunities for organisational learning, since this is a
major factor in times of ever increasing development costs and risks and simultaneously shrinking product life cycles, in particular in the area of technical knowledge. According to a study by Palmer (2001: 35), 40 percent of firms mentioned organisational learning as a critical goal of alliances. Before starting the analysis, it must first be established if stock exchanges have a need to learn. Many functions of stock exchanges have not changed considerably over time in terms of the requisite know-how, therefore the need for stock exchanges to learn is focused mainly in the area of technology.

5.2.8.4 The theory, the main criteria for the success of stock exchanges, and the stock exchange environment

- Corporate governance: Demutualisation provides an important prerequisite for stock exchanges to be able to form mergers and alliances. In this way it also indirectly encourages organisational learning. **result: positive**

- Degree of organisation and technicalisation: Technical knowledge is very important for stock exchanges. This is particularly true concerning the switch to electronic trading platforms, which are costly to develop. For this reason mergers and alliances are frequently entered into with the purpose of acquiring technical knowledge. Stock exchanges can also learn technical know-how from clearing and settlement institutions, possibly also indirectly via another stock exchange (that has linkages to clearing and settlement institutions). **result: positive**

- Integration of derivatives markets: As in the case of clearing and settlement institutions, knowledge could also be indirectly acquired from derivatives exchanges, in particular since the system behind trading platforms is in many cases similar. **result: positive**

- Market segmentation: Young exchanges in particular might have an incentive to enter into cooperations in order to acquire knowledge on proper market segmentation from more experienced exchanges. Since this is not a motive for larger, long-established stock exchanges, it cannot be viewed as generally
valid. The same is true for supervision of trading and transparency regulations. **result: neutral**

- Supervision of trading: Supervision of trading is no major area of learning for stock exchanges. **result: neutral**

- Transaction costs: Acquiring technical know-how might lead to reductions in transactions costs, since technical trading platforms are generally considered to be more cost-effective than floor trading. **result: positive**

- Transparency regulations: Stock exchanges will not cooperate mainly for learning purposes in the area of transparency regulations. **result: neutral**

- European integration: European integration makes learning more important for stock exchanges, because it encourages the market access of competitors, which increases the need of exchanges to remain up to date and to introduce technical trading platforms. **result: positive**

- Alternative Trading Systems: Alternative Trading Systems were the pioneers of electronic markets and stock exchanges had to follow in order to remain competitive. For this reason, ATSs have created an incentive for stock exchanges to learn. **result: positive**

### 5.2.8.5 Conclusion

The field in which there is the greatest need for stock exchanges to engage in organisational learning is certainly technical know-how. Therefore many mergers and even more frequently alliances are started with this goal. Many of the functions of stock exchanges have remained unchanged for decades, despite dramatic changes in the environment. As such in many respects stock exchanges do not demonstrate a need for organisational learning in many areas. Young stock exchanges are an exception, however, since they may also seek to acquire experience in other fields, such as market segmentation, supervision of trading, etc.
Table 12: Evaluation of organisational learning.

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²⁴ The minus point is for the fact that with the exception of technology there are few areas in which established stock exchanges need to learn.
5.2.9 Institutional theory

5.2.9.1 Content

Institutional theory takes on a social view to explain organisation–environment relations by examining the context of organisations. Institutionalisation refers to "the processes by which societal expectations or appropriate organisational form and behaviour come to take on a rule-like status in social thought and action" (Martinez and Dacin 1999: 78). According to institutional theory, the institutional environment of a firm puts pressure on an organisation to conform to social norms, which leads to legitimacy-seeking behaviour on the firm's side, i.e. firms attempt to organise themselves in a way that fits with their institutional environment and social norms (Granovetter 1985 and Powell 1991). Since the social environment is strongly influenced by its stakeholders, institutional theory and stakeholder theory are linked. As a result, these pressures determine to a large extent the organisational form of a firm, so that efficiency considerations or the process of competition have less influence than institutional pressures (DiMaggio and Powell 1983).

On a firm level, institutionalisation stimulates the engagement in interorganisational relationships of many firms. Particularly young and small firms can benefit from an alliance with a larger, well-established partner in terms of visibility, reputation, image, prestige, as well as access to resources and expertise. Institutional theory serves as an explanation for many other forms of cooperation as well, for instance memberships in a social organisation, trade association, or consortium (Crawford and Gram 1978).

Institutionalisation can, however, also be seen in the broader context of an organisational field, which is a large nonstatic network of firms that consider each other relevant. Within the field, the different actors continuously adapt their behaviour to the pressures and values of the field, with each organisation contributing to the development of pressures and values at the same time. The
The result is increasing similarities among organisations within organisational fields. This can be due to three mechanisms:

- **Coercive isomorphism:** The organisation is formed by pressures by organisations (stakeholders) upon which the firm is dependent as well as by the society's cultural expectations. Examples of such pressures are government regulations, consumer expectations, or the pressure from the parent corporation of a subsidiary company.

- **Mimetic isomorphism:** In times of uncertainty firms tend to imitate the behaviour of other firms. This strategy of imitating industry norms and acquiescing to the environment is very common. As a result the strategies of successful firms are consciously or unconsciously imitated by managers of other firms in the same industry. This also involves entering into alliances or mergers simply because other successful firms have done so. According to the resource-based view, strategies of other firms can only be imitated if they are not unique. By making their strategies unique, firms try to prevent other from imitating them and to gain a sustainable competitive advantage.

- **Normative isomorphism:** Increasing similarities are due to the fact that the organisational routines are influenced by professionally trained employees (DiMaggio and Powell 1983).

### 5.2.9.2 Critical review

A study by Wiewel and Hunter (1985), who found a direct relationship between a new firm's ability to increase its legitimacy and its participation in interorganisational relationships, confirms the assumption that institutionalisation fosters engagement in cooperative relationships. The idea of mimetic isomorphism was confirmed by a study by Powell, Kogut and Smith-Doerr (1996), who made investigations into the biotech industry. They found out that firms not engaged in any form of interorganisational relationship are becoming rare. A typical firm is involved in multiple partnerships. Atler and Hage (1993: 272-279) extended these findings into a population ecology explanation for the popularity of cooperation in certain industries. In populations in which alliance
formation has become a norm, firms will try to adapt to this norm by also engaging in interfirm cooperations.

Tolbert and Zucker (1996) criticise institutional theory for lacking definitive boundaries, which limits its explanatory power of organisational phenomena. Institutional theory is further criticised for not taking into account motivating factors for the establishment of organisational forms outside the boundaries of the legitimacy argument. Such factors include power (Pfeffer and Salancik 1978), control (Ouchi 1977), interest and agency (Powell 1991), and the efficiency motive of transaction cost theory. On the other hand, institutional theory is frequently criticised for being too narrow and behaviourally oriented. It cannot explain, for example, why alliances and networks take particular forms (Barringer and Harrison 2000: 381). Moreover, as every firm imitates the other firms it is almost impossible to gain sustainable competitive advantage, which is in sharp contrast to Barney's concept of uniqueness of resources (Osborn and Haagedoorn 1997).

5.2.9.3 The theory in the context of stock exchanges

The increasing similarities between firms resulting from institutional pressure can be put down to three mechanisms:

- Coercive isomorphism: Cooperations are due to pressures by organisations upon which the firm is dependent. In the context of European stock exchanges, these include regulators, listed companies, and investors. Stock exchanges are facing greatest pressure in the areas of cost efficiency and high liquidity. Since institutional theory does not deal with efficiency and competitive pressures, these factors have to be omitted. As far as legitimacy issues and social norms are concerned, the environment expects stock exchanges to provide a fair and orderly market, which means that from this point of view supervision and regulation are most important. This is particularly true with respect to young exchanges however, since more established exchanges have already proved themselves able to organise a fair and efficient market.
Mimetic isomorphism: Cooperations are formed as firms tend to imitate the behaviour of other firms in times of uncertainty. Due to the numerous changes in the stock exchange environment, uncertainty has increased substantially for stock exchanges in the past decade. At the same time, some of the large European exchanges have begun to team up, for example Paris, Amsterdam, Brussels, and Lisbon forming Euronext or the Nordic exchanges forming NOREX. Although not all cooperations have been as successful as these two examples, many other exchanges, particularly young exchanges in South-Eastern Europe, might strive to imitate the behaviour of the larger, longer-established exchanges.

Normative isomorphism: Stock exchange cooperations are due to the fact that employees are trained more professionally. Although there are not many arguments in favour of this mechanism, demutualisation could have some normative isomorphic effect, since the management of for-profit exchanges might be better trained than that of mutual exchanges in former times, as the performance of the management of for-profit exchanges is followed more closely.

5.2.9.4 The theory, the main criteria for the success of stock exchanges, and the stock exchange environment

Corporate governance and ownership structures: The change to for-profit structures paves the way for stock exchange cooperation, which made isomorphic tendencies possible in the first place. As mentioned above, demutualisation might also trigger normative isomorphism. result: positive

Degree of organisation and technicalisation: Technology is considered one of the most important success factors of stock exchanges. Exchanges imitate the behaviour of others by entering into mergers and alliances in order to bring their technology up to date. Apart from efficiency considerations, technical trading is also an important image factor. result: positive
Integration of derivatives markets: From the viewpoint of institutional theory there is no direct link between integration of derivatives markets and stock exchange cooperation. **result: neutral**

Market segmentation: If stock exchanges merge, they might be able to offer a larger variety of market segments. Since this is in many cases desirable for the institutional environment, it might be a motive for stock exchange cooperation from the viewpoint of institutional theory. **result: positive**

Supervision of trading: As already mentioned, the environment expects stock exchanges to provide a fair and orderly market. This is mainly an incentive for young exchanges seeking legitimacy to enter into mergers and alliances with longer-established partners. **result: positive**

Transaction costs: Although transaction costs are an important success factor for stock exchanges, they are only related to efficiency arguments and therefore not relevant in the context of institutional theory. **result: neutral**

Transparency regulations: As in the case of supervision of trading, young exchanges might team up with more established ones in order to justify transparency regulations. **result: positive**

European integration: According to Harrison (1995: 99-100), the creation of a unified securities market in Europe has been pursued for more than 40 years now. European regulators welcome consolidation in the stock market sector, since it is, apart from enhancing the efficiency of European capital markets, expected to improve investor protection and lower cost of capital through competition and choice. The resulting pressure on stock exchanges might lead to coercive isomorphism and as a result stock exchange mergers and alliances. **result: positive**
Alternative Trading Systems: ATSs have substantially contributed to stock exchanges losing their "natural right to exist", since it has been shown that it is possible to replace them with other institutions. For this reason they might contribute to the search for a new identity by stock exchanges. **result:** positive

5.2.9.5 Conclusion

The strong trend towards concentration of trading facilities at a single geographic location is not only due to efficiency considerations, as postulated by many other theories, but also due to the fact that stock exchanges need to find a new identity. In other words, they are seeking a strategy that permits them to ensure long-term survival. This feature of institutional theory strongly links it to strategic choice theory. Stock exchanges are no longer the only institutions providing trading facilities. As isomorphism is in general not a desirable feature of stock exchanges (since by copying each other they undermine their strengths), they need to team up. The most likely explanation is mimetic isomorphism, as stock exchanges struggling for their survival might tend to copy the behaviour of other exchanges that have pursued successful cooperation strategies. This is particularly true for young exchanges in emerging markets seeking to benefit from an alliance with a larger, well-established partner in terms of visibility, reputation, image, prestige, as well as access to resources and expertise. Furthermore, the behaviour of other industries, in which mergers and alliances have become increasingly common, might be copied. Normative isomorphism and coercive isomorphism seem to be of relatively little importance, however.
Table 13: Evaluation of institutional theory.

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Source: A.

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25 The minus point is for the fact that the theory mainly explains cooperations of young exchanges.
5.2.10 Population ecology theory

5.2.10.1 Content

Population ecology theory does not deal with single organisations but with the demographic and structural features of total populations of organisations (Astley and Van de Ven 1983: 249). A population is defined as an "aggregate of relatively homogeneous" (Hannan and Freeman 1977) organisations. According to population ecology theory, the causes for the behaviour of organisations can be found in the environment. The environment consists to a large part of stakeholders of the firm, which links population ecology theory to stakeholder theory. The focus is on the effects of changes in the social, economic, or political environment on the forms organisations take, with the goal to investigate the distributions of firms across different environments and the capabilities of different organisational structures under different environmental conditions (Hannan and Freeman 1977: 929-936). Autonomous strategic choice is possible only to a certain degree and environmental resources exist in the form of niches, with the distribution of these niches across society not being manipulable by single firms (Aldrich 1979: 138).

In contrast to many other theories, e.g. strategic choice view, population ecology theory postulates that organisational change is not effected through an adaptation process but through a selection process. Although adaptation is possible according to population ecologists, selection is the core mechanism of organisational change. As firms have only limited possibilities to change their structure due to structural inertia, variations in organisational structures are caused by the creation of new and the demise of old structures. It is the environment which selects the mixture of organisations which survive, managers have only limited and temporary influence on the fate of the firm. As a result, their role is considered inactive and in the long run they have hardly any power (Astley and Van de Ven 1983: 256 and Pfeffer and Salancik 1978: 263).
Although population ecology theory does not explain mergers and alliances directly, it does so indirectly by considering mergers as one form of organisational mortality. The density rate, a major figure of population ecology, which explains the number of organisations in a given population, is believed to have strong influence on the merger rate within a population. The higher the density rate, the more potential partners are available and the higher the merger rate will be. The formation of alliances can be seen as a similar mechanism, a change in structure brought about by the environment as a way of survival for firms which would otherwise die (Hannan and Freeman 1989: 139).

5.2.10.2 Critical review

Even population ecologist themselves admit that their model of natural selection is much more suitable for small, powerless organisations with resources being distributed unequally in their environment than for large, politically influential organisations with easy access to resources. At the same time, the structural inertia argument necessary to explain the selection process is also related to the size of an organisation. The larger organisations are, the higher their structural inertia and the higher the degree of control the organisation can exercise over its environment (Aldrich 1979: 111-112). Referring to this Perrow (1979: 241) argues that large organisations are often not the result of adaptation to the environment, but that they create a new environment. Empirical evidence of population ecology is also not very convincing. The results of a study by Oliver (1988: 557) raise serious doubts about the assumption that organisations are as strongly coupled to their environment as assumed by population ecology theory.

5.2.10.3 The theory in the context of stock exchanges

According to population ecology theory it is the environment which selects the mixture of organisations which survive. It explains mergers and alliances as one form of selection (Pfeffer and Salancik 1978: 263). The more potential partners there are in a given population, the higher the merger rate will be. In the context of this theory, stock exchanges can be analysed like any other firm, since their natural monopoly has been abolished, which has led to the emergence of competitors and therefore a certain degree of population density. In the analysis
below, all factors that influence the density rate will be considered relevant. At the same time, one has to consider the factors which lead to the death of stock exchanges. Stock exchanges have to close down if they are unable to attract not enough order flow or an insufficient number of companies willing to list on the exchange, with the two factors being very strongly interrelated. The criteria of success identified in this thesis will help stock exchanges to avoid such a situation. Furthermore, indices can be seen as subsystems of stock exchanges. Therefore the death of an index (which serves a certain market segment) can be considered as the death of a partial death of a stock exchange.

5.2.10.4 The theory, the main criteria for the success of stock exchanges, and the stock exchange environment

- Corporate governance and ownership structures: Demutualisation has opened up the possibility of preventing organisational death by giving stock exchanges the option to enter into alliances. In this way managers can to a certain degree influence their environment. Mergers are not considered to prevent death, they are just a different form of it. **result: positive**

- Degree of organisation and technicalisation: Technicalisation is an important success factor in preventing outselection by the environment by making stock exchanges more efficient. It also helps managers to influence the selection process of the environment. In order to share the high development costs of electronic trading platforms, stock exchanges frequently team up. **result: positive**

- Integration of derivatives markets: The desire to integrate derivatives market is no incentive for stock exchanges to merge or form alliances since there is no link to the density rate. **result: neutral**

- Market segmentation: As has already been stated in previous sections, there is a strong trend towards concentration of trading facilities at a single geographic location. Consolidation among exchanges within a country seems to be inevitable, and even supranational exchanges are becoming more and
more common (in order to lower the density rate). For some, even a central worldwide trading platform is imaginable. One reason is that product differentiation is difficult in relation to the provision of trading facilities (Loistl 2000: 110). The result is that high density rates (the number of organisations in a given population) will inevitably lead to high mortality rates, since there is no demand for a large number of exchanges by the environment. This tendency was already observed in the US many decades ago, when regional stock exchanges merged. The major stock markets need to concentrate on different types of trading in order to make the population more diverse and in this way reduce the density rate. Particularly for small exchanges the only options are to either seek out niches, team up, or be outselected. In Europe, however, the big stock exchanges imitate each other instead of differentiating themselves, which helps to contribute to organisational death. **result: positive**

- Supervision of trading: Changes in the quality or practice of supervision of trading has no effect on the density rate. **result: neutral**

- Transaction costs: Transaction costs do not directly influence the density rate. **result: neutral**

- Transparency regulations: There is no direct link between transparency regulations and the density rate. **result: neutral**

- European integration: European integration has substantially added to higher competitive pressure among European stock exchanges. On the one hand, the density rate has increased tremendously though the abolition of entry barriers of competitors and protectionism by national regulators, on the other hand, the introduction of the euro has decreased the distinctions between exchanges from the investors' point of view (Williamson 1997: 410). The higher the density rate, the higher the rate of mergers and alliances will be. By entering
into cooperations, stock exchanges try to decrease the density rate. **result:** positive

- Alternative Trading Systems: The emergence of Alternative Trading Systems has also increased the density rate since they offer the same services as stock exchanges in many areas. This is a further reason why stock exchanges need to team up in order to reduce the density rate. **result:** positive

5.2.10.5 Conclusion

The increase in the density rate of stock exchanges due to European integration and globalisation in general seems to be a good explanation for the increasing trend towards mergers and alliances. Before the removal of market entry barriers, there were no real populations, since each stock exchange was unique offering only the stocks of its country to the investors of its country. As already mentioned in Section 4.1.10, the model of natural selection is much more suitable for small, powerless organisations than for large, politically influential organisations (Aldrich 1979: 111-112). Perrow (1979: 241) argues that large organisations are often not the result of adaptation to the environment, but that they create a new environment. Although this does not really seem to be the case for most large exchanges, since they are also threatened by competition, it seems reasonable that population ecology theory is most suitable for smaller stock exchanges.
Table 14: Evaluation of population ecology theory.

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26 The extra-point is given since all the criteria of success will help stock exchanges survive.
27 The minus point is for the fact that the theory mainly explains cooperations of small, powerless exchanges.
5.3 Additional management theories explaining mergers only

5.3.1 Monopoly theory

5.3.1.1 Content

Monopoly theory is the oldest explanation for mergers that can be found in literature. According to monopoly theory, the main goal of mergers is to increase market power, which is achieved through a high market share and entry barriers to the market. This is in line with economic theory, which postulates that the higher market share and entry barriers, the higher the profitability of a firm will be, as it can set prices at its discretion and in this way increase its profits.

The most popular way to increase monopoly power is through horizontal mergers. Vertical or conglomerate mergers can also deter potential entrants. One advantage of vertical or conglomerate mergers is the possibility to cross-subsidise products. The profits of one product can be used for another product in a highly competitive market with no or very low profit margins. Both vertical mergers and conglomerate mergers can create entry barriers by requiring new competitors to invest in all markets in which the vertically or concentrically integrated firm is already active to compete successfully. This strategy is frequently pursued by market leaders using concentric mergers (Hughes, Mueller and Singh 1980:30 and Trautwein 1990: 286).

5.3.1.2 Critical review

The monopoly motive played an important role in the past, today it is frequently assumed to be of limited significance. The main reason is that today's antitrust laws aim at restricting activities of a firm which lead to a monopoly position, as mergers intended to create market power are not beneficial for the economy as a whole but only for the firms involved (Scherer and Ross 1990: 174). On the other hand, there are certain industries, such as the computer industry or the airline industry, which are still characterised by monopoly-type structures.
Empirical evidence for the monopoly theory is also quite weak. According to managers, the idea behind a merger is hardly ever monopoly power. It may be argued, however, that managers are not likely to admit unpopular motives behind a merger. In most cases the market shares involved are negligible. As stated above, one reason is probably that large horizontal mergers are under intense scrutiny of antitrust authorities (Trautwein 1990: 286 and Ravenscraft and Scherer 1987: 211).

5.3.1.3 The theory in the context of stock exchanges

According to monopoly theory, firms enter into mergers in order to increase market power by achieving a high market share and erecting entry barriers to the market. One popular means of obtaining monopoly power is horizontal mergers. The theory that stock exchanges are seeking to regain the monopoly position they once held (at least on a national level) seems to show a logical desire. This is further substantiated by the existence of synergies for stock exchanges as well as positive network externalities for investors, which both foster the tendency towards monopoly structures. The fact that achieving a monopoly position is also one goal of strategic choice view strongly links monopoly theory to strategically-oriented explanations of stock exchange mergers.

5.3.1.4 The theory, the main criteria for the success of stock exchanges, and the stock exchange environment

- Corporate governance and ownership structures: Demutualisation changes governance structures in a way that allows stock exchanges to achieve a monopoly position by permitting mergers among exchanges. Mergers are the easiest way for stock exchanges to increase their market power. **result:** positive

- Degree of organisation and technicalisation: As with demutualisation, technicalisation also enhances the chances of stock exchanges becoming monopolists, since it makes it easier to integrate trading on a single technical platform. This would have been almost impossible with floor trading due to
distance costs. Technicalisation is therefore one of the most important prerequisites for allowing stock exchanges the possibility of becoming monopolists in a market larger than their national borders. On the other hand, technicalisation has also made it more difficult for stock exchanges to remain or become monopolists, since entry barriers are much lower, due to lower back-office costs related to automated trading and the lower costs of setting up an electronic trading platform compared to a trading floor. **result: neutral**

- Integration of derivatives markets: Stock exchanges might gain access to derivatives markets by merging with other exchanges. This link is very vague however, therefore no correlation can be assumed. **result: neutral**

- Market segmentation: Market segmentation is an important prerequisite for achieving monopoly power, since it avoids the exploitation of market niches by other exchanges. By merging with others, exchanges stock exchanges become larger, which makes it easier for them to cover the whole market. **result: positive**

- Supervision of trading: Stock exchanges will not achieve a monopoly-type position by focusing on optimising supervision of trading. **result: neutral**

- Transaction costs: As can be seen from the elaborations above, transaction costs are highly dependent on synergy effects exploited in a merger. Mergers therefore help exchanges to reach a monopoly position via lower transaction costs, since transaction costs are a very decisive factor for investors and their choice of exchange. **result: positive**

- Transparency regulations: A merger between exchanges will not be of great help to change transparency regulations in a way to achieve a monopoly position, since transparency regulations do not depend on the market power or the size of an exchange. **result: neutral**
- European integration: European integration has put an end to the former national monopoly position of stock exchanges by removing entry barriers to national markets. In order to regain market power, they need to team up. **result: positive**

- Alternative Trading Systems: Alternative Trading Systems will make it very difficult for stock exchanges to regain the monopoly position they once had. This is mainly due to the low entry costs of new companies. Larger stock exchanges have better chances than smaller ones of course, which supports the idea of using mergers to gain a monopoly position. It may be argued that it is a fallacy to believe that stock exchanges are able to regain the position they once had, since competition in a global market is too fierce. On the other hand, ATSs are not as strong in Europe as in the US since most European stock exchanges have switched to electronic trading, which shows that it is possible to successfully challenge competitors. **result: positive**

5.3.1.5 Conclusion
The goal of reaching a true monopoly position is much more difficult to achieve for stock exchanges today than it was in the past. Firstly, stock exchanges used to be nationally fragmented due to market entry barriers, secondly, technology has created a global stock market, as the location of stock exchanges has lost importance, and thirdly, technicalisation has also substantially lowered entry barriers for stock exchanges. On the other hand, synergies and positive network externalities are factors that favour large, monopoly-type structures in stock markets. At the same time, monopolists tend to reduce output and increase prices, something that is not desirable. This fear was negligible as long as the owners of the exchange were also its members (and most important customers). Since it is considered that stock exchanges deliver a public good, regulators would probably try to prevent such a situation.
Table 15: Evaluation of monopoly theory.

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Source: A.

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28 The extra point is awarded for the positive network externalities which support the tendency towards monopoly structures.

29 The minus point is for the fact that European regulators will prevent stock exchanges from behaving like typical monopolists increasing prices and reducing output.
5.3.2 Tax theory

5.3.2.1 Content

Tax savings are an important source of synergies. For this reason tax savings are a frequent motive for mergers. Tax savings are most frequently realised through:

- the purchase of companies which show a substantial difference between the book value and the current market value of their assets. By writing up the value of these assets to the current market value, the depreciation base can be increased considerably.
- the purchase of companies with an unutilised tax loss carry forward, which can offset parts of the profits of the bidding firm so that the overall tax expenses are reduced.
- an increase in tax-deductible interest payments due to a rise in debt financing (Roll 1988).

The fact that tax authorities and legislators are stakeholders of companies links tax theory to stakeholder theory.

5.3.2.2 Critical review

According to a study conducted by Auerbach and Reihus (1988: 78), mergers are hardly ever motivated by major tax savings. Even in those cases where considerable tax savings were found, there is no evidence that they played a decisive role for the realisation of the merger. On the other hand, the major importance of tax laws and the numerous arguments over taxation policies would rather suggest that tax motives are of major importance to firms.

5.3.2.3 The theory in the context of stock exchanges

The first question one has to ask is how stock exchanges are taxed and if there are any differences to the taxation of other companies. Up to now, there are no studies of any sort on taxation as an important factor for stock exchanges, let alone on tax theory as a possible merger motive. Demutualised stock exchanges are taxed like any other public limited company. For this reason there do not seem to be any
more incentives for stock exchanges to merge for tax reasons than for other companies. Since the general evidence for tax theory is very weak, it can also be assumed that it does not play a major role for stock exchanges.

- There are no obvious reasons why stock exchanges might show a substantial difference between the book value and the current market value of their assets. **result: negative**

- The only hint at a possible unutilised tax loss carry forward might be the high development costs of an electronic trading platform.

- Debt financing: There is no example yet where a stock exchange has risen cash via debt financing. **result: negative**

5.3.2.4 The theory, the main criteria for the success of stock exchanges, and the stock exchange environment

- Corporate governance and ownership structures: By giving stock exchanges the possibility to merge or form alliances, demutualisation is also a precondition for the exploitation of potential tax savings. **result: positive**

- Degree of organisation and technicalisation: The high development costs of electronic trading platforms might result in a tax loss carry forward. **result: positive**

- Integration of derivatives markets: If a stock exchange mergers with another one that has a favourable tax structure due to the integration of a derivatives market (e.g. an unutilised tax-loss carry forward resulting from a takeover of a derivatives exchanges), tax theory might be a motive for a merger. **result: positive**

- Market segmentation: Market segmentation will generally have no influence on the tax structure of stock exchanges. **result: neutral**
- Supervision of trading: There is no link between supervision of trading and the tax structure of a stock exchange. **result: neutral**

- Transaction costs: Tax savings might increase the efficiency of an exchange and in this way transaction costs. **result: positive**

- Transparency regulations: No relationship (see supervision of trading). **result: neutral**

- European Integration: European integration itself has not lead to major changes in the tax structure of stock exchanges up to now. **result: neutral**

- Alternative Trading Systems: Also the emergence of ATSs had no impact on the tax structure of stock exchanges. Since stock exchanges have come under immense cost pressures, however, they might be urged to merge in order to exploit tax savings in order to improve their financial situation. **result: positive**

5.3.2.5 Conclusion
Since there does not seem to be a higher incentive for stock exchanges than for other companies to merge for tax reasons, and as general evidence for tax theory is very weak, it can also be assumed that tax theory does not play a serious role for stock exchanges. Savings are too small in scale in to act as a motivation for stock exchange mergers and alliances. Therefore tax savings will at best be a side-effect.
Table 16: Evaluation of tax theory.

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30 The minus point is given for the fact that tax savings usually relatively small in scale.
5.3.3 Theories referring to capital market inefficiencies

5.3.3.1 Content

According to the market efficiency hypothesis by Fama (1970: 383-387), capital markets are informationally efficient, which means that stock prices are assumed to reflect all relevant information. This is true for the strong form of the hypothesis. Under the semi-strong form, securities' prices are assumed to enclose all publicly available information, under the weak form only information that may be contained in the past history of the stock price itself is reflected. If market efficiency prevails, arbitrage profits are eliminated, as no market participant has access to superior information. The theories described below deny the existence of efficient capital markets, at least in the strong form, which leads to differences in expectations of the market participants.

- Information or valuation theory

  Following this theory, mergers are the result of superior information (insider knowledge) held by managers about the value of the target. The acquirer believes that he has superior information on the true value of the firm, that he might be better able to manage it successfully than the existing management, that he has detected an undervalued company which can be sold in pieces at a profit, or that the combination of the manager's firm with the target's businesses will lead to higher profits. This means that at least in the opinion of the manager of the bidding firm, the target is undervalued by the stock market due to asymmetric distribution of information, i.e. imperfections in the capital market. The low price results from a lack of publicly available information, i.e. from insider knowledge held by certain market participants. The premium paid by the acquirer does therefore not reflect his or her expectations regarding increased operative efficiency, but can be seen as the arbitrage profit between the valuation of the market and his or her own (Ravenscraft and Scherer 1987: 7-8, Trautwein 1990: 286, Steiner 1975: 130 and Holderness and Sheehan 1985).
Disturbance theory
This theory, developed by Gort (1969), is based on the assumption that merger waves are caused by economic disturbances. The most common disturbances are technological changes and security price movements. It is interesting to note that under information theory, security price movements were the result of information imbalances and uncertainty, whereas under disturbance theory they are their cause. Disturbances result in a higher level of general uncertainty and lead to changes in the expectations of the individual market participants. The merger wave is caused by the fact that previous non-owners of assets now value assets more highly than their owners, and vice-versa. In other words, outsiders, for example managers of potential acquiring firms, become relatively more optimistic and insiders, i.e. current stockholders, become relatively more pessimistic. This greater spread in expectations leads to mergers, which are expected both in times of falling as well as rising share prices. The reason why information can be spread asymmetrically is that people evaluate available information differently or that some are more optimistic than others.

5.3.3.2 Critical review

Information or valuation theory
Valuation theory is very common to justify mergers and managers often quote it as a merger motive (Ravenscraft and Scherer 1987: 14 and Trautwein 1990: 287). However, statistical evidence is relatively weak. Secondly, valuation theory is not compatible with capital market efficiency. Ravenscraft and Scherer (1987) argue, though, that this must not necessarily be the case as capital market efficiency, at least in its weak form, requires only the reflection of all publicly available information in the stock price. If the bidder has insider knowledge about the target, he or she reveals it in the bid. As a result the stock price will rise, reflecting the new information with the effect that the bidder will not capitalise on the private information (Wensley 1982). However, studies have shown that stock prices in many cases fell back to pre-
merger-announcement levels when the merger did not take place. According to the theory, the stock price would have been expected to remain at its higher level due to the private information of the bidding firm revealed in the bid. Since disbelief in the efficiency of capital markets is very common, however, the theory is still widely accepted (Trautwein 1990: 287).

- Disturbance theory
  There is not much evidence for disturbance theory. It fails to explain, for instance, why the oil crises in 1973/74 did not result in a merger wave or why the merger boom in the 1960s was not triggered by major disturbances. In addition, as most disturbances affect only certain sectors of the economy a sectoral pattern of mergers would be expected to prevail, which in fact can only be observed in the minority of cases. This theory is therefore considered rather implausible (Trautwein 1990: 290). Moreover, as in the case of valuation theory, disturbance theory is not compatible with the assumption of an efficient capital market, under which the expectations of stockholders and non-stockholders are expected to be the same, as changes in expectations would have to cause immediate adaptations of the market price and the portfolios of investors (Hughes, Mueller and Singh 1990: 33-34).

5.3.3.3 The theories in the context of stock exchanges
Theories referring to capital market inefficiencies are only applicable to stock exchanges that have already gone public, since otherwise no valuation through the capital market takes place.

- Information or valuation theory
  Up to now, no empirical studies have been conducted on this phenomenon in the area of stock exchanges. The only example might have been the hostile takeover bid by the Swedish OM-Group for the London Stock Exchange, where the OM Group considered the LSE to be undervalued due to the fact that the good image of the LSE was not adequately reflected in the stock prices (Fairlamb 2000). All
motives of valuation theory can be assumed to be applicable to exchanges to the same degree as to other companies.

- **Disturbance theory**

Several disturbances have occurred in the environment of stock exchanges lately, such as the introduction of technical trading, the consolidation of institutional investors, the liberalisation of national financial markets and consequently the entry of new competitors, an overall slump in securities prices in the past four years, a general economic downturn, etc. For this reason disturbance theory is a possible explanation for stock exchange mergers and alliances.

5.3.3.4 The theories, the main criteria for the success of stock exchanges, and the stock exchange environment

- **Corporate governance and ownership structures**: Changes in corporate governance structures were the crucial prerequisite for stock exchanges to be able to become listed companies in the first place. Thus without demutualisation, all theories relating to capital market inefficiencies would have to be ruled out. The fact that many stock exchanges have listed only recently might be an argument in favour of valuation theory, since it might be more difficult for the market to correctly estimate the value of newly listed companies (and especially since the market has no experience with valuing stock exchanges in general) than of more established companies. **result: valuation and disturbance: positive**

- **Degree of organisation and technicalisation**: As mentioned above, technical revolutions are the major argument for disturbance theory. On the other hand, the integration of clearing and settlement institutions might support valuation theory, since the market might not be able to correctly estimate the additional value arising from integrated clearing and settlement (since this is also a relatively new trend). **result: valuation and disturbance: positive**
Integration of derivatives markets: As in the case of clearing and settlement, the market might also have problems in estimating the true value of derivatives markets integrated into stock exchanges. However, the tradition of integrated derivatives markets is certainly longer than that of clearing and settlement. On the other hand, technicalisation has added a new feature in this context, since stock exchanges and derivatives markets might be operated from and be accessible via a single electronic trading platforms, resulting in synergies for both exchanges and investors. result: valuation: positive, disturbance: neutral

Market segmentation: Proper market segmentation also enhances the value of stock exchanges. The de facto increase in value of a stock exchange through such a measure however might also be difficult to estimate for the market. result: valuation: positive, disturbance: neutral

Supervision of trading: The question in connection with supervision of trading concerns any change in value of the exchange due to the fact that listed exchanges almost always have to outsource this function. It is frequently viewed as one of the core functions of an exchange on which stock exchanges had a monopoly and in which they had unique knowledge. This factor might lead to inaccuracies in valuation. result: valuation: positive, disturbance: neutral

Transaction costs: Electronic trading leads to synergies which can be passed on to investors in the form of lower transaction costs. For the market it might however be difficult to estimate the correct amount of cost savings. result: valuation: positive, disturbance: neutral

Transparency regulations: Transparency regulations that fit the market very well might attract more investors and therefore lead to a higher value of the exchange. The effect of changes in transparency regulations on the market value of an exchange will in most cases be very hard to measure, however.
Changes in transparency regulations are frequently the result of a technical revolution, i.e. the introduction of an automated trading platform. **result:** valuation and disturbance: positive

In all the above areas, stock exchanges might have superior knowledge on the true value of other exchanges, since they have gone through the same processes and changes as other exchanges and can therefore better estimate their financial impact. This argument strongly supports valuation theory.

- European integration: European integration has indirectly led to an economic disturbance by opening up the market for new competitors and by permitting ATSs. European integration is therefore an argument in favour of disturbance theory. **result:** disturbance: positive, valuation: neutral

- Alternative Trading Systems: The emergence of ATSs caused a large economic disturbance, since stock exchanges had to cope with new competitors for the first time. Therefore it was probably very difficult for the market to estimate the negative effects of the emergence of ATSs on traditional stock exchanges, in particular since they had proved to be extremely successful in the US. The fact that ATSs would not play such a significant role in Europe was almost certainly not really recognised from the beginning. Therefore, disturbance theory is particularly well suited for explaining earlier mergers and alliances among stock exchanges. **result:** disturbance: positive, valuation: neutral

5.3.3.5 Conclusion

Theories referring to capital market inefficiencies are only applicable to stock exchanges that have already gone public, since otherwise no valuation through the capital market takes place. This, of course, limits the applicability of these theories. Although demutualisation is generally considered a prerequisite for stock exchange mergers, they do not necessarily have to be listed in order to team up with others. Stock exchange mergers between non-listed stock exchanges can therefore not be explained by theories referring to capital market inefficiencies.
Based on the arguments mentioned above, valuation and disturbance theories seem to be most significant for early stock exchange mergers and alliances, since at that time the estimation of the true value of changes in stock exchanges and their environment was most difficult. Stock exchanges which have themselves been through such processes therefore have access to superior information. Thus stock exchange mergers among listed exchanges can be well justified on the basis of theories referring to capital-market inefficiencies. On the other hand, there is a strong argument against theories referring to capital market inefficiencies: it is the task of stock exchanges to provide a fair, orderly, and efficient market. By justifying mergers on the basis of valuation theory, they undermine their own business.
Table 17: Evaluation of valuation theory.

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Source: A.

31 The minus point is for the fact both theories are only applicable to listed exchanges and that justifying mergers on the basis of valuation theory undermines the business of stock exchanges themselves.
32 See footnote no. 31.
5.3.4 Agency theories

5.3.4.1 Content
Agency theories deal with ensuring that a principal's objectives are fulfilled through an agent. Agents are, however, frequently guided by their self-interests to a greater extent than by the objectives they are supposed to fulfil. Agency theory assumes that human behaviour is self-interested, risk-averse, and subject to bounded rationality. Further, there is a conflict of goals of the organisation's members and information asymmetry between principals and agents. Agents possess more specific information about the context in which they act. Principals have the possibility to enhance their knowledge about the conduct of their agents by spending more money on information, as information is a purchasable commodity. Agency theory therefore tries to identify governance mechanisms, such as control and incentive mechanisms, which prevent agents from self-serving behaviour (Eisenhardt 1989).

Agency theory is relevant to cooperative ventures where each partner becomes an agent for the other. The question is therefore how self-seeking, opportunistic behaviour of one partner at the expense of the other can be prevented. In order to avoid suspicion and to foster trust between the partners, they should determine the basis on which information is shared between them and how returns are distributed (Child and Faulkner 1998: 24-25). Within the scope of agency theory, different hypotheses of the reasons for mergers have been developed.

- **Hubris hypothesis**
  If a firm seeks a potential target firm it undertakes a valuation of the equity of the target. This valuation is based on public and perhaps also non-public information. It also contains estimated synergy effects or discounts included in the current market price due to weak management. The value derived from this valuation is compared to the current market price. If the market price is
below valuation the bid is made, otherwise it is abandoned as the shareholders of the target firms would not sell below market price. Even though there are sometimes no synergies or other sources of takeover gains, some bids are made because the bidding firms believe in the existence of gains. In such a case the takeover premium is a mistake made by the bidding firm. This mistake is due to hubris, i.e. overbearing presumptions of bidders that their valuations are correct and that the market does not reflect the full economic value of the firm or the combined firm. In many cases managers simply overestimate their abilities to integrate and manage the target firm. In some cases, gains do exist, but at least part of the takeover premium is caused by hubris (Roll 1986: 121, 198-200).

- **Risk-aversion of management**
  
  Coffee (1988: 80-85) believes that the conflict of interest between the management and shareholders derives from different attitudes towards risk. Managers are mainly risk-averse while shareholders are risk-neutral. The reason why managers are generally more risk-averse than stockholders is that by working for the firm, managers rent a significant part of their wealth – their human capital – to the firm. The rent for their human capital depends to a high degree on the success or failure of the firm, as the success or failure of the firm gives information about the manager's talents, which influences his or her future wages. Their own career is therefore closely linked to the existence of the firm, which does not only determine their current and future income but may even lead to legal consequences resulting from the manager's personal liability in case of insolvency. For this reason the manager tries on the one hand to diversify into different lines of business and on the other hand to keep his or her risk as low as possible by maintaining the firm's independency through paying out low dividends and stressing internal financing. Shareholders can spread their risk by investing in different titles. According to portfolio theory, the optimal portfolio for any investor is diversified across stakes in many firms in order to avoid being too dependent on one firm. At the same time if an investor has his or her capital distributed
over a large number of firms, he or she will have no special interest in the control of the firm. That is why the gap between security ownership and control of a firm is widened and incentive problems arise when managers who are not the shareholders of the firm are those who take decisions (Coffee 1988: 80-85, Amihud and Lev 1981: 605-608 and Fama 1980: 288-292).

- **Turnover maximisation model**
  This theory is the oldest explanation for mergers in literature. Baumol and Marris argue that managers' main target is to maximise sales and growth rates of revenues and assets. This, however, need not necessarily also imply the maximisation of shareholder wealth. The reason why managers focus on the above-mentioned goals is that they try to pursue their personal interests, which are in many cases prestige and power and which are more strongly related to a company's size or growth rate than to its profitability. "Executive salaries appear to be far more closely correlated with the scale of operations of the firm than with its profitability" (Baumol 1967: 47). Also Marris states that "measures of size, in contrast, for example, to measures of profitability, explain a lion's share of the interfirm variance of executive compensation rates" (Marris 1963: 187). The growth goal is also in accordance with other non-monetary goals of managers, which consider the growth of their organisation as "one of the best methods for satisfying personal needs and ambitions, an attitude which is reinforced by psychological tendencies to identify the ego with the organisation" (Marris 1963: 187-188).

- **Corporate control**
  According to a hypothesis by Jensen and Ruback (1983: 6), a market for corporate control, which is defined as "a market in which alternative managerial teams compete for the rights to manage corporate resources" (Jensen and Ruback 1983: 6), is in many cases responsible for mergers. The assumption behind this model is that the main task of management is the maximisation of shareholder value, expressed by the market valuation of the company. If managers fail to do so, competing management teams will try to
take over the firm and replace the current management. In this way management inefficiencies will be eliminated. The competition among managerial teams provides a correction mechanism which ensures that economies of scale or other synergies resulting from the combination or reorganisation of firms are realised. In this way mergers have the function of a disciplinary force in the capital market, substituting the lack of internal control by shareholders (Jensen and Ruback 1983: 6).

- Free cashflow hypothesis

Based on agency theory, one explanation of mergers is the free cashflow hypothesis by Jensen (1986: 322). According to this model, managers try to retain as much free cash flow as possible within the company instead of paying it out to shareholders in the form of dividends. The reason is that payouts reduce the influence and independence of management and lead to a higher degree of control by shareholders when new capital has to be raised at a later point. At the same time, free cashflow is also employed to even out earnings fluctuations. Moreover, management uses free cashflow to make investments which are not necessarily profitable, but rather increase their income and power, both of which are in many cases dependent on the company size. Prominent examples are investments in external growth, mainly expansion into new industries, which often do not develop favourably however, due to a lack of industry-specific expertise (Jensen 1986: 322).

5.3.4.2 Critical review

According to Kootz (1996: 26), agency theories are a widely accepted explanation for mergers and frequently used in the business press. But although there is considerable empirical support, managerial hypotheses cannot fully explain mergers. First of all, the assumption that all managers are selfish does not hold true in all cases. Furthermore, the remuneration of top-managers is frequently linked to the financial performance of the firm, which decreases the explanatory value of agency theories. In most studies agency theories were only used if efficiency or other economic theories did not hold true, arguing that if efficiency motives could not be proven, there obviously must have been managerial ones
behind the merger. Agency theories can explain single cases, but they do not serve as a justification for different merger rates over time. Managerial motives have also been criticised for not taking into account the effects of the market for corporate control, the existence of a labour market for managers, and managerial behaviour. They also neglect the fact that the remuneration of many corporate leaders is at least partly linked to the company's stock price (Bühner 1990a: 314, Bühner 1990b: 1290, Ravenscraft and Scherer 1987: 212, 214, Steiner 1975: 143, Jensen and Ruback 1983: 45-47 and Huemer 1990: 33).

Hubris hypothesis is backed by a study of takeovers in the United Kingdom conducted by Firth (1980) which strongly suggests the presence of bidding errors. The bidding firm's shares showed a loss around the takeover period which was related to the premium paid to the target firm. "This supports the view that the stock market expects zero benefits from a takeover, that the gains to the acquired firm represent an 'over-payment' and that the acquiring company's shareholders suffer corresponding losses" (Firth 1980: 254). An objection against the hubris hypothesis frequently mentioned is that it implies that managers consciously act against shareholder interests. If the motive behind all takeovers was hubris, shareholders could prevent them by forbidding bids (Roll 1986: 213-214).

The corporate control hypothesis has a rather unfavourable empirical record. Numerous analyses confirm that in a majority of cases returns dropped to below average after a change in management (Ravenscraft and Scherer 1987). According to a study by Arthur D. Little, about 50 percent of all mergers resulted in below-average returns for the following three years (Behrens 1998: 55). Another argument against this theory is the fact that one condition for a takeover for many companies is that the existing management stays for at least another two years to ensure continuity. According to Fama (1980: 293), the market for corporate control fails if top managers decide that collusion and expropriation of security holder wealth are better than competition among themselves. This risk might be lowered by the inclusion of outside directors, however. In contrast, the
free cashflow hypothesis tested by Jensen was supported empirically. He came to the conclusion that the strategy of retaining free cashflow is one of the main causes for the development of conglomerates in the US (Jensen 1986: 328).

5.3.4.3 The theories in the context of stock exchanges

Before starting with the analysis of agency theories, it first must be assessed whether agency relationships are relevant within stock exchanges. This is clearly the case, as the owners are different from the managers of a stock exchange.

- Hubris hypothesis
One reason for hubris might be the argument presented above, namely that stock exchange managers might consider themselves in a superior position to estimate the true value of changes in and around other stock exchanges, since their own institutions have been going through similar developments. On the other hand, it is the ultimate increase in liquidity and order flow that reflects the true value of changes. Since the investors on the stock exchange (those generating liquidity) are the same as those estimating the value of the exchange, the two figures should not really diverge a lot in the longer-run. Therefore hubris might be the reason behind differences in valuation.

- Risk-aversion of management
One expression of the risk aversion of management might be investment in derivatives exchanges as well as clearing and settlement institutions. Mergers among stock exchanges are less likely under this motive, since financial markets are highly interlinked nowadays and economic shocks are in most cases worldwide. Therefore diversification across countries can only absorb domestic but not international shocks. Unfortunately there are no studies on payout-rates of stock exchanges or the degree of internal financing. Therefore this theory is hard to evaluate, however it can be assumed to play a similar role as in other companies.
- Turnover maximisation model

In the case of stock exchanges, one has to assume that turnover maximisation also maximises shareholder value due to positive network effects, since there are significant synergies for both exchanges and investors. For this reason stock exchanges cannot be compared one-to-one with other firms in this respect, since larger size can be assumed to also lead to higher efficiency. Therefore the turnover maximisation model seems to be less significant for exchanges. **result:** negative

- Corporate control

In many cases it is probably difficult to assess if mergers have been conducted on the basis of the corporate control hypothesis or for other motives. In the course of demutualisation and for-profit orientation, however, the efficiency of management has become more important. For this reason the corporate control hypothesis might have some relevance for stock exchanges with management teams that have not really managed the switch to for-profit orientation.

- Free cash flow hypothesis

There are no empirical studies of any sort on this theory, therefore its relevance for stock exchanges is hard to evaluate. It can be assumed to play a similar role as in other companies, however.

5.3.4.4 The theories, the main criteria for the success of stock exchanges, and the stock exchange environment

- Corporate governance and ownership structures: Changes in corporate governance structures might result in managers being over-optimistic on the efficiency gains involved. Moreover, as already mentioned, stock exchanges with management teams that have not really managed the switch to for-profit orientation might be taken over in order to eliminate inefficiencies in management, which speaks in favour of the corporate control theory. **result:** hubris hypothesis and corporate control: positive, rest: neutral
Degree of organisation and technicalisation: As in the case of corporate governance and ownership structures, managers might overestimate the efficiency gains from electronic trading or the integration of clearing and settlement institutions. **result: hubris hypothesis: positive, rest: neutral**

Integration of derivatives markets: As in the above examples, managers might overestimate the efficiency gains from the integration of clearing and settlement institutions. **result: hubris hypothesis: positive, rest: neutral**

Market segmentation: Market segmentation might be linked to the turnover maximisation model. Stock exchange managers might try to increase the turnover of an exchange by creating a larger range of market segments (e.g. by merging with other exchanges). Some segments might not be profitable, however, since the additional administrative costs and lost synergies might more than outweigh the additional turnover. **result: turnover maximisation model: positive, rest: neutral**

Supervision of trading: Managers might overestimate the positive effects of proper supervision of trading on the image of an exchange. **result: hubris hypothesis: positive, rest: neutral**

Transaction costs: As in the above examples, managers might overestimate the efficiency gains from mergers resulting in a reduction of transaction costs and therefore an increase in turnover, since the image of an exchange also plays an important role. The turnover maximisation model can be ruled out in this context due to positive network externalities. **result: hubris hypothesis: positive, rest: neutral**

Transparency regulations: There is no obvious link between transparency regulations and agency theories, since changes in transparency regulations do not bring about any significant benefits to managers. **result: neutral**
- European integration: Managers are also likely to overestimate the synergy effects from the introduction of the euro or additional business being taken away from banks due to Basel II. **result: hubris hypothesis: positive, rest: neutral**

- Alternative Trading Systems: In view of the threat by ATSs, European stock exchange managers might be too risk-averse, overestimating the potential of ATSs in Europe. **result: risk-aversion: positive, rest: neutral**

5.3.4.5 Conclusion
The theory that is supported most by the success factors of stock exchanges is hubris hypothesis. There are also some – relatively weak – arguments for risk-aversion, turnover maximisation, and corporate control. In general agency theories can be considered relevant, however, taken separately, only hubris hypothesis seems to really serve as a possible explanation for stock exchange mergers.
Table 19: Evaluation of hubris hypothesis.

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Table 20: Evaluation of agency theories other than then hubris hypothesis.

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Source: A.
5.4 Results

Based on the point system for evaluating the different theories, the maximum score a theory could theoretically achieve was 12 points. Comparing the scores of the different theories, the following ranking can be observed:

1. Efficiency theories (9 points)
2. Hubris hypothesis, valuation theory (8 points)
3. Institutional theory, resource-based view, (7 points)
4. Stakeholder theory, monopoly theory, income uncertainties, organisational learning (6 points)
5. Resource-dependence, strategic choice, population ecology theory (5 points)
6. Disturbance theory, tax theory (4 points)
7. Transaction cost economics, agency theories other than the hubris hypothesis (2 points)

This ranking is to be viewed ordinally, i.e. if a theory scores twice as many points as another that does not mean that it explains a theory twice as well. The points are to be seen primarily as an orientation. Building three categories of quality of explanation, theories ranking between position 1 and 5 can be considered as very good explanations for stock exchange mergers, positions 6 to 11 as of medium suitability for stock exchanges, and positions 14 to 16 as not really applicable to stock exchange cooperations. That fact that efficiency theories seem to be highly significant for stock exchange mergers and alliances is not surprising in view of the cost pressure stock exchanges are facing due to competition from other stock exchanges as well as ATSs. On the other hand, the weakness of the explanatory power of transaction cost theory seems to result from the small number of transaction partners of stock exchanges. The main problem of tax theory is that tax savings are usually so small in scale that they will not serve as a sole explanation for stock exchange mergers, but can at best be viewed as a side-effect.
It becomes obvious that there are numerous theories which serve as good explanations of stock exchange mergers and alliances. At the same time, none of the theories was linked to all the criteria of success as well as European integration and the influence of ATSs. The reason is that none of the theories is holistic. Each of them explains corporate cooperation from a relatively narrow point of view. Therefore a combination of theories, a so-called eclectic approach is necessary to fully explain stock exchange mergers and alliances. Unfortunately there is still a lack of integration of theories to be observed in literature. In the course of the analysis it was attempted to create links between the theories. Numerous hints at possible connections between theories were made. Two theories that lend themselves beautifully to being merged are efficiency theories and hubris hypothesis. Synergies are very important for companies and a very strong merger motive. At the same time, expected synergies do not always fully come into effect. Some managers might overestimate their ability to exploit synergies and therefore hubris might be, together with efficiency motives, a strong driver of mergers and alliances.
6 THE VISION OF A CENTRAL TRADING PLATFORM FOR THE GLOBAL STOCK MARKET: CHANCES AND LIMITATIONS FROM TODAY'S VIEWPOINT

The question of whether a single global exchange or at least trading platform is realistic and beneficial is commented very diversely by different experts across literature. Some authors (e.g. Dixon 1999), believe that the ultimate solution will be a single global exchange which trades continuously, others (e.g. Behos and Crouhy 1996) claim that a monopoly position of one stock exchange is neither realistic nor beneficial for financial markets in general. Many authors (such as Gaa et al. 2001, Benos and Crouhy 1996, Lee 1994, etc.) can agree, however, that large-cap stocks are very likely to be traded worldwide on a few trading networks, whereas smaller firms will remain listed on national exchanges.

In the following table the main arguments in favour and against the concentration of trading on a single worldwide platform will be presented.

Table 21: Arguments for and against a central worldwide trading platform.

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<th>CENTRAL TRADING PLATFORM</th>
<th>NATIONAL EXCHANGES</th>
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<td>A large centralised trading platform will be characterised by high liquidity and security. This would ensure trading confidence and is highly appreciated by institutional investors (Dixon 1999 and Gaa et al. 2001: 53).</td>
<td>The big institutional investors will not risk becoming captive to a single monopoly exchange. According to Andre Cappon(^{33}) of CBM, a consultancy, the emergence of two or three competing global networks of exchanges is much more likely (“Good-bye to all that” 1999).</td>
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\(^{33}\) Cappon, A. (Interview) quoted in "Good-bye to all that" (1999).
Technological progress in the area of telecommunication creates a kind of "natural monopoly" for the largest exchanges, in national markets as well as on a global scale, due to positive network externalities. Exchanges or trading systems are analogous to a communication network, as the benefit to one trader increases when other traders join in. According to Economides (1993), liquidity concerns limit the number of markets. For this reason networks are by nature self-reinforcing and show a positive critical mass (Herring and Litan 2002).

Shy and Tarkka (2001: 8) argue that there is not only one single worldwide telephone company, or mail carrier, or commercial bank. For this reason it is also unlikely that a single equity market will emerge.

<table>
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<th>According to Hasan, Malkamäki and Schmiedel (2002: 11), a single market will come into being when regulatory barriers (such as accounting standards or unequal tax treatment) that prevent the formation of a single market are abandoned and when telecommunication technologies are appropriately advanced, i.e. when the market is no longer dependent on physical location.</th>
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<td>Apart from the factors mentioned by Hasan, Malkamäki and Schmiedel (2002: 11), there are many more aspects that hamper worldwide stock exchange consolidation:</td>
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<td>- Language and cultural differences.</td>
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<td>- Different currencies.</td>
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<td>- Insufficient knowledge about foreign investment opportunities due to high information costs.</td>
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<td>- Widespread fragmentation of Europe's clearing and settlement systems.</td>
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<td>- Government policies which favour</td>
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home-country investment through the requirement of pension funds to invest largely in domestic government securities (Gaa et al. 2001: 44).

The switch to a single trading platform is technically simple. It is merely a question of which computer servers are linked to which basement (Dixon 1999).

National stock exchanges are highly resistant to giving up their trading platforms, having spent a lot of money on creating them (Dixon 1999).

According to Bröker (1989), competition among financial exchanges does not make much long-term sense. For a financial market to be efficient, scale is absolutely crucial and liquidity is almost all.

Domestic markets will continue to exist, as there will always be relatively illiquid products and agents desiring to trade them (Gaa et al. 2001: 68). There is still a very strong home-country bias among investors. In developed countries, 92 percent of equity investment was still domestic in 1999 (Lewis 1999). Furthermore, according to Blume (2000), investors show different preferences regarding speed of execution and anonymity.

A simulation by Gerke and Hamann (1991: 19-20) shows that if a market is split up into several sub-segments, the number of cleared transactions is

Competition will be based on trading costs and service to clients. Different exchanges will cater to the needs of different clienteles by trying to exploit
diminished. The result is diverging share prices within the same economic setting. This diverging development rests on the assumption of the submarket developing independently. If this assumption is lifted, arbitrage processes start, which even out the difference in share prices between different market places. The possibility of arbitrage suggests that substantial cost savings can be achieved by establishing a central trading system.

Even the NYSE, the largest market player, has already explored the possibility of a Global Equity Market (GEM) together with the Australian Stock Exchange, Euronext, Hong Kong Exchanges and Clearing, The Bolas Mexican de Valores, the Bolas de Valores de Sao Paulo, The Tokyo Stock Exchange, and the Toronto Stock Exchange\(^{34}\) (Skeete 2000).

Baker (2000) believes that before a single European stock exchange is not fully established, the possibility of a global stock exchange is not realistic. Apart from that GEM has made hardly any progress since the agreement has been signed.

Source: A.

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\(^{34}\) The goal is an interconnection of the exchanges' trading systems and the development of a global market structure based on transparency, self-regulation, and auction price discovery. All three main time zones would be involved, which would allow around-the-clock trading mechanisms for the world's global companies and in this way increase their liquidity. GEM would be accessed through the domestic stock exchanges of investors so that the exchanges' brand and individual standing would remain intact. On the other hand, a single global pool of liquidity could be created. All stock exchanges adhering to the principles of transparency, self-regulation, and the auction model will be invited to participate in GEM. Furthermore, GEM will try to achieve economies of scale to lower transaction costs for investors and intermediaries (Skeete 2000).
Most experts agree that consolidation among stock exchanges is set to continue. The question is what form it will take. According to Seifert (1999: 25), there are two options for European stock exchanges in future: there might be one large European exchange or an oligopoly characterised by fierce competition might survive and eventually lead to efficiency. Lee (1994: 89) believes that finally a hub-and-spokes system with four major marketplaces, namely New York, a European centre, Tokyo, and a Chinese marketplace, will emerge. These main trading centres will be interconnected electronically. Furthermore, there will be several subsidiary markets which will also be linked to the main centres by electronic networks. Jensen and Natorp (2000) distinguish between the trading and the listing function of stock exchanges. They expect the trading function to become centralised, whereas listing will remain with national exchanges.

"The trading function, which is characterised by economies of scale, will probably be centralised in a small number of large stock exchanges, if not in one single European stock exchange. On the other hand, it is likely that the stock-exchange listing of small companies in particular, which is best achieved on a regional basis, will continue to be decentralised" (Jensen and Natorp 2000).

McAndrews and Stefanadis (2002), compare the situation of European stock markets today to that of its US counterparts in the first part of the 20th century. European national exchanges show a number of similarities with US regional exchanges. They mainly trade local, country-specific stocks and the emergence of an equity culture and the removal of barriers to cross-country trading will increase competition, just like technological and regulatory changes brought about competition among the US exchanges. Looking at the US example, consolidation might be a lengthy process, with economies of scale being utilised only slowly over the years. On the other hand, unlike in the US, European consolidation does not face technological constraints. For this reason, the obstacles in Europe are mainly of regulatory and financial nature. As they can be resolved faster than technological innovation usually occurs, the European consolidation process can be expected to proceed with more speed than it did in the US. In order to ensure fair competition, regulation will have to be undertaken
at the EU level, as different local regulations would turn customers to markets where regulatory costs are lower. What is conceivable to many experts is a central electronic exchange for blue chips, small and medium-sized companies will continue to be traded on local stock markets.

In conclusion of this section, Jean-Francoise Theodore, CEO of Euronext is quoted:

"Is a single European exchange the future of tomorrow's European financial markets? I wouldn't cast a strong prediction but I do not think so. I do not wish so. If we, market minded people, don't believe that competition is the best policy, producing the best model, who will do?" (Theodore 2002).

This argument becomes even stronger when considering the emergence of a single worldwide platform. In view of the facts that even consolidation within Europe is marked by a large number of failing mergers and alliances and that the GEM project of the NYSE has made hardly any progress so far, the notion of a single worldwide trading platform is not realistic at the moment.

This outlook to the future of stock exchanges concludes the part of the thesis describing and analysing the phenomenon of stock exchange mergers and alliances itself. The remaining part of the thesis will deal with terminological research in this field.
7. Glossary

The changes in the stock exchange world described in this paper and the phenomenon of mergers and alliances in this industry also go hand in hand with a number of terminological developments in this field, in particular due to the emergence of new, private trading systems, for which new terms had to be created. The intention of this section is to provide a comprehensive glossary of technical terms relevant to stock exchange mergers and alliances. Before, important technical terms which do not have clear boundaries will be looked into and defined and contrastive aspects between English and German technical terms will be highlighted.

Terminology is defined as the totality of terms and the concepts behind them in their respective scientific field. Terminology science can be divided into general terminology and special terminology. Special terminology comprises the terminology of different scientific fields, whereas general terminology deals with basic principles and methods of terminology (Felber 1995: 12). The main focus of special terminology is on the technical terms of different scientific fields. In contrast to non-technical communication, technical language is highly dependent on the accuracy of definitions. For this reason, technical terms have to be well-defined. In the case of non-technical communication, the content of a term (the entirety of its characteristics) is not precisely specified and can vary from speaker to speaker and even with the same speaker across time. Non-technical terms adapt to the communicative setting in which they are used, whereas technical terms are bound to a system of terms which remains unchanged as long as the artefacts behind the term do not change (Felber 1995: 27-28).

Technical communication can only be described meaningfully in the context of technical information, technical knowledge, and terminology. Therefore technical communication is interdisciplinary and polycentric (Budin 1996: 3). That is also the reason why the compilation of the glossary would not have been possible without the preceding analysis of literature on stock exchange
mergers and alliances. Without technical knowledge, technical information, technical communication, and terminology would be without content. The linkage between technical knowledge and language becomes obvious from the fact that without technical information no new knowledge would be created, without communication all systems would die due to a lack of information, and without terminology the whole system would not have any structure (Budin 1996: 83).

Terminology therefore helps to improve the organisation of knowledge: the definition of technical terms through their discoursive usage in dictionaries, papers, monographs, etc. does not only serve the purpose of transmission of information, but also the dynamics of knowledge: technical terms are related to each other by metaphors, analogies, or new hypotheses, which leads to the establishment of new theories or their modification. The dynamics of terminology is the intrinsic driver of the dynamics of theories and knowledge (Budin 1996: 121). Technical communication and streams of information are therefore an integral part of any scientific research. The scientific knowledge, which is steadily advancing, is characterised by the creation of new terms, which give this knowledge a distinctive structure. This is only possible, if the new terms are used in scientific discourse and recorded in terminological information systems (Budin 1996: 1).

When looking at bilingual aspects of terminology another interesting feature is added: the comparability of concepts across different languages and cultural contexts. This is the focus of this section. A lack of contrastive aspects across different languages emerges when most terms and also the concepts behind them did not develop in parallel in the two languages, but were adopted one-to-one by one of the languages. This problem is particularly obvious in the context of financial markets. Investment managers in a German-speaking country translate hardly any technical terms into German. Instead, English terms are used either as foreign words (the pronunciation and the word form, e.g. the ending, such as in the case of scannen, are adapted to the language in which communication is taking place) or, even more frequently, as a guest word (the word and the
pronunciation remain unchanged) (Adaktylos and Halper 2000: 127). The same is, to a large extent, true for the field of mergers and alliances. Many terms in this glossary can be assumed to be primarily used as foreign or guest words. Furthermore, there are a large number of terms with a German translation, but with the concepts behind them being taken over one-to-one from English-speaking countries. For these reasons, it is relatively hard to find differing concepts in such fields as financial market terminology or the language of mergers and acquisitions. Nevertheless, those divergent concepts that exist will be presented in this section.

7.1. Important ambiguous terms and contrastive aspects of terminology of stock exchange mergers and alliances

- Hedge fund

This term is terminologically interesting, since it is highly misleading. A hedge fund is a type of unregulated investment fund which uses long and short positions in commodity and financial instruments to maximise financial performance.

"The name is undoubtedly a complete misnomer [sic!] since it is generally an investment company which takes aggressive positions involving significant risk in many different markets as its fundamental investment strategy. Managers of such funds are normally remunerated on a percentage of profits and have an incentive to take such risks, which is the opposite of hedging, which aims at risk reduction" (Moles and Terry 1997: 269).

In German, *Hedge-Fund* is equally confusing, which is why Schäfer (1996: 372) prefers to translate it by "stark spekulierender Investmentfonds". Even German definitions frequently stress the fact that the affinity to the term *hedging* is deceptive: "Die Nähe des Begriffs zum Hedging darf also nicht zu der Vorstellung führen, hier handele es sich um relativ risikolose Geschäfte" (Jungblut 2001: 236).

- Best execution

Best execution denotes the duty of a broker-dealer to execute orders to the advantage of the customer.
"While there is no specific definition of 'best execution' under the securities laws, a broker-dealer has a duty to ensure that customers receive best execution on their orders by taking into account all the facts and circumstances surrounding a customer order. Factors a broker-dealer may consider include, among other things, the price of an order, the size of an order, and the trading characteristics of the security involved" (Investment Company Institute).

The problem with this term is, however, that the perception of best execution varies in the context of each individual trade and is highly dependent on individual preferences (Gerke 2002: 106). This becomes evident in the following quotation:

"There is no legal definition of best execution…The most important conceptual obstacle is that best execution should be defined relative to investor intentions and expectations, which are hard to observe and quantify. A 'patient' investor, for example, may want to wait to get a better price while an 'impatient' investor may want immediate execution and may be willing to forego the possibility of a better price. So should the broker send all orders to the faster market?" (Baciodore, Ross and Sofianos 1999: 1).

- Merger
The English term *merger* covers, at least when used in the wider sense of the word, a broader concept than the German *Fusion*, since forms in which the cooperating corporations do not legally amalgamate are also included (A).
Initial Public Offering

An Initial Public Offering, or IPO, means that shares are offered to the public for the first time in order to raise cash for a company (Brealey and Myers 2000: 410). According to Saunders (2000: 52), IPOs can include equity issues and debt contracts.

In contrast to the English terminology (at least when one follows Saunders' definition), the term Erstemission in German is only used in connection with shares (A).

Institutional investors

Institutional investors are "non-personal holders of blocks of securities: mutual funds, insurance companies, pension funds, banks, universities, etc." (Lesly 1991: 842).

It should be noted that different authors offer different definitions of the term. Banks, for example, are not always considered to be institutional investors (Fabozzi, Modigliani and Ferry 1998: 8). Therefore, the term institutional investor is not clearly defined. German definitions are more likely to include banks than those from English sources, which might be due to the fact that the Glass-Steagall Act separates the functions of banks and securities firms in the US (Financial Times and University of Chicago and Wharton School 1998: 444).
Market maker

Market-makers are in a position to buy and sell on stock exchanges for their own accounts if public supply and demand are insufficient to provide a continuous and liquid market. Thereby, they narrow the bid-ask spread. Market-makers match buy and sell orders, handle limit orders, and are assigned to market-making in specific stocks. In doing so, they are expected to buy when there is an excess of sell orders, and to sell whenever buy orders are prevailing. By knowing the current supply and demand situation, they can profit from their trading even if they have to buy and sell occasionally against market forces. Moreover, their profit derives from the difference between buying and selling prices. Another main advantage is that they have a much better picture of the future market direction (Reilly 1992: 124-126).

Although the basic idea of the function of market-makers may be similar on various national exchanges, it is obvious that the specific definitions of their obligations will differ. The above definitions serve as examples and apply to the U.S. stock market and the Deutsche Terminbörse only (A). Frequently, the English term market-maker is also translated by Kursmakler. This is not correct, however, since a Kursmakler is only a broker who does not trade for his own account, in contrast to a market-maker. Very similar to the function of a market maker is that of a specialist, which can be described as a market-maker on the
NYSE. In contrast to other exchanges, there is only one market-maker per security on the NYSE (called specialist) (Gomber 2000: 21).
- **Specialist**

| Specialist \n---|---|
| The term *specialist* denotes "a member of an exchange who makes an orderly market in one or more specific issues on a stock exchange. The specialist undertakes two functions:  
- buying and selling for his own account to meet temporary swings in the two-way flow of transactions and  
- executing limit orders and stop orders placed by floor brokers when market conditions are appropriate" (Moles and Terry 1997: 508). |
| Spezialist, monopolistischer Market-Maker \n---|---|

Market-makers operate a dealer market where "many dealers, called Market Makers, use their own capital, research, retail, and/or systems resources to represent a stock" and where "many Market Makers can represent the same stock; thus, they compete with each other to buy and sell that stock. Auction markets [such as the NYSE] have only one person, a specialist, who in a centralized location or 'floor' matches incoming orders to buy and sell each stock. Specialists are not allowed to provide research or retail sales support, and are limited to only one firm's available capital. The average Nasdaq stock has eleven Market Making firms that risk and invest their capital" (NASD-Glossary).
**Mutual fund**

**mutual fund**

Mutual funds, legally known as open-end companies, are one of three types of investment companies that pool the financial resources of individuals and companies and invest those resources in diversified portfolios of assets. The notion "Open-end company" refers to the fact that the number of shares in the fund is variable. New shares can be issued on a continuous basis. On the other hand, in contrast to a closed-end fund, the fund is obliged to buy back shares any time. In Britain, mutual funds are referred to as unit trusts (Cornett and Saunders 1999: 127, Saunders 2000: 372 and O'Neal 1999).

In Austria and Germany closed-end funds are not allowed, which implies that all investment funds are mutual funds (Eilenberger 1997: 134).

**Portfolio strategy**

**portfolio strategy**

The goal of this strategy is to achieve a reasonable balance and stability within the firm by combining a set of interrelated businesses. The portfolio strategy may refer solely to the financial basis or also take into account technological, market know-how, or product-market niche relationships (Lorange, Kotlarchuk and Singh 1987: 4).
The German term *Portfoliostrategie* is almost exclusively used in the context of securities. However, it can also be used in connection with other risks, such as the risk of an enterprise, which is spread by entering into cooperations with others (A).
### Alternative Trading System

An Alternative Trading System is officially defined by the SEC as any system that "(1) constitutes, maintains, or provides a marketplace or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the functions commonly performed by a stock exchange under Exchange Act Rule 3b-16 and (2) does not set rules governing the conduct of subscribers other than the conduct of such subscribers' trading on such organization, association, person, group of persons, or system, or discipline subscribers other than by exclusion from trading" (SEC 1998).

In contrast to the US, where most ATSs can choose between being regulated as an exchange or a broker-dealer, ATSs are generally regulated as investment firms in Europe. Virt-x or Tradepoint also started out as ATSs but have become exchanges in the meantime (at the request of their owners). One important factor is that stock exchanges do not only have to comply with securities regulations but also with the Stock Exchanges Act. The basic difference between stock exchanges and investment firms is the self-regulatory status of exchanges (FESCO 2000: 12, Börsensachverständigenkommission 2001: 7-8).
### Electronic Communication Network

ECNs are usually defined as "trading systems that automatically distribute participants' orders to third parties and permit full or partial execution of those orders. Hence most of them could be categorised as order-driven automated trade matching systems" (Korhonen 2001: 16). ECNs are purely order-driven, i.e. no participant undertakes to provide liquidity for the securities traded. Their main strength is effective price formation, therefore crossing-systems do not qualify as ECNs. Some ECNs act as destination-only markets, i.e. trades are matched internally, while others scan the market with high-speed communications technology to find the best prices. The participants of ECNs are usually professional financial intermediaries, only some systems have started to accept orders from institutional investors directly. Orders have to be sponsored by a professional intermediary, though, i.e. a broker-dealer takes the responsibility for trades executed by the investor (Korhonen 2001: 16-17 and Financial Internet Working Group: "Glossary")

### Electronic Communication Network

Gemäß der europäischen Definition sind Electronic Communication Networks alternative Handelssysteme, über die Wertpapiere direkt von Emissionshäusern erworben werden können (Groß 2002: 41).

The terms *Electronic Communication Network* and *Alternative Trading System* are often used interchangeably, with ECNs more frequently being a class of ATS used for US equities, notably those listed on NASDAQ. More precisely, all ECNs are ATSs but not vice versa. Whereas in the US ECNs are defined as all non-exchange trading systems which fulfil a price-finding function within the system, i.e. except Crossing Systems, the European definition includes only those
Alternative Trading Systems which permit the purchase of securities directly from issuing houses (Korhonen 2001: 16).

- **Out-bound routing ECN**

<table>
<thead>
<tr>
<th>out-bound routing ECN</th>
<th>ECN, das Aufträge auch zu anderen Handelssystemen umleitet (A)</th>
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<tbody>
<tr>
<td>Some ECNs take market orders (orders to buy or sell a stock immediately at whatever is currently the best available price) and limit orders and, if an internal match is not available, route them to the NASDAQ in search of the optimal price. These outbound-routing ECNs actively seek outside liquidity. If the national best bid or offer, the best price available across all markets, is from another market, an out-bound routing ECN sends its orders there. Interestingly, out-bound routing ECNs are some of the best customers of destination-only ECNs (Hendershott 2003: 12-13).</td>
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There is no proper German translation of this term, nor is it used in German, since this concept of re-routing orders to other trading places is unknown. One reason might be that in Europe ATSs are far less developed and widespread than in the US, which is mainly due to the relatively high efficiency of European exchanges and the fact that almost all of them have switched to electronic trading already (A).
- **Hit-or-take system**

<table>
<thead>
<tr>
<th>hit-or-take system</th>
<th>elektronisches Handelssystem mit fixen durch (Eigen-)Händler gestellten Kauf- und Verkaufskursen (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hit-or-take systems are a special type of matching systems. Under these systems, buy-and-sell offers are shown on a screen and clients can simply execute a transaction by clicking on an offer (&quot;FESCO's attempts&quot;, Gaa et al. 2000, Financial Services Authority 2000 and Securities Law Institute: Glossary).</td>
<td>Bei diesen Systemen wird eine Transaktion einfach durch das Anklicken eines Angebots ausgelöst. Hit bedeutet &quot;ein Wertpapier zu einem Geldkurs verkaufen, der von einem (Eigen-)Händler geboten wird&quot;, während take bedeutet den Kurs zu akzeptieren, zu dem ein Händler ein Wertpapier anbietet (Scott 2000: 253, 552, A).</td>
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</table>

Whereas the term *hit-or-take system* does not turn up in German texts, like the above-mentioned *out-bound-routing ECN*, there are German definitions of *hit* and *take*, which makes it possible to create a meaningful translation of this term (A).

Now that the most interesting terms have been highlighted and explained, the next section will contain the full English-German glossary of terms relevant to stock exchange mergers and alliances.
7.2. *English – German Glossary*

<table>
<thead>
<tr>
<th><strong>acquisition</strong></th>
<th><strong>Akquisition, Erwerb eines Unternehmens</strong></th>
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<table>
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<tr>
<th><strong>active bulletin board</strong></th>
<th><strong>Active Bulletin Board</strong></th>
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<tbody>
<tr>
<td>Active bulletin boards &quot;simply display invitations to make offers to the system operator. Communication takes place typically from one service provider to many potential (normally pre-registered) clients. The system informs as to whether submitted offers have been accepted or not...It is crucial that the system [sic!] also establish rules or operate a trading facility by which subscribers can agree to the terms of their trades... It is questionable [however,] whether systems that simply instruct suitable counterparties to contact each other, should be considered trading systems, ie ATSs&quot; (Korhonen 2001: 14).</td>
<td>Bulletin Boards ermöglichen Investoren, ihre Gebote zu veröffentlichen und Verhandlungen zu führen. Diese Systeme unterstützen jedoch nicht den Handelsabschluss selbst. Aufgrund dieser eingeschränkten Funktionalität ist es fraglich, ob sie als Alternative Handelssystem eingestuft werden können (Von Rosen 1994: 1214-1215).</td>
</tr>
</tbody>
</table>

Gomber (2000: 57) suggests considering as ATSs only those systems which provide automated order matching. Bulletin boards, which only collect and display information and potential parties of transaction and which do not match orders, are therefore not regarded as ATSs.

| **administrative cost(s)** | **Kosten für Clearing and Settlement** |
The costs of clearing and settlement are also referred to as administrative cost (Berkowitz, Logue and Noser 1988: 88).


**adverse selection**

Adverse selection describes "the tendency for people to enter into agreements in which they can use their private information to their own advantage and to the disadvantage of the less-informed party". A typical example is the insurance market, where people who take out insurance are more prone to accidents than others (Parkin 2000: G1).

Antiselektion, Gegenauslese, adverse Selektion


**after-hours trading**

After-hours trading is defined as transactions which are executed in "the period outside the regular trading session" (Schurr 2000).

Nachbörse, nachbörslicher Handel


**agent**

An agent is a person or company authorised to act on behalf of others (Johanssen and Page 1980: 14).

Vertreter

Ein Vertreter ist eine Person, die befugt ist, für andere rechtsverbindliche Erklärungen abzugeben und/oder entgegenzunehmen ("Vertreter").
<table>
<thead>
<tr>
<th>agency broker</th>
<th>see broker</th>
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<table>
<thead>
<tr>
<th>alliance</th>
<th>Allianz</th>
</tr>
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<tbody>
<tr>
<td>In a very general meaning, alliances are &quot;associations to further the common interests of the members&quot; (&quot;Alliance&quot;). One characteristic feature of strategic alliances most researchers agree upon is their linkage to a company's long-term strategic plan. As the goal is to improve a company's competitive position, a strategic alliance can be defined as a close, long-term, mutually beneficial agreement between two or more parties with the intent to improve the competitive position of each partner. At the same time, the partners remain financially independent. The strategic objectives of the alliance are achieved by combining complementary strengths as well as sharing resources, knowledge, and capabilities. Frequently, the partners will be actual or potential competitors (Spekman et al. 1998: 748, Schaper-Rinkel 1997: 26 and Devlin and Bleackley 1988: 18).</td>
<td></td>
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<tr>
<td>Allianzen oder strategische Allianzen sind Koalitionen von zwei oder mehr selbständigen Unternehmen, die mit dem Ziel eingegangen werden, die individuellen Stärken in einzelnen Geschäftsfeldern zu vereinen. Die Partner geben ihre Autonomie partiell auf, bleiben jedoch hinsichtlich ihrer gesamten Unternehmenspolitik und vor allem finanziell weiterhin selbständig (Backhaus 1990: 2).</td>
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<table>
<thead>
<tr>
<th>all-or-none order</th>
<th>All-or-None Order, Alles-oder-Nichts Order (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-or-none orders are either entirely executed or not at all (Korhonen 2001: 30).</td>
<td>&quot;All-or-None Order werden vollständig ausgeführt oder bleiben im Orderbuch bestehen&quot; (Kraus 2000).</td>
</tr>
</tbody>
</table>
Alternative Trading System
An Alternative Trading System is officially defined by the SEC as any system that "(1) constitutes, maintains, or provides a marketplace or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the functions commonly performed by a stock exchange under Exchange Act Rule 3b-16 and (2) does not set rules governing the conduct of subscribers other than the conduct of such subscribers' trading on such organization, association, person, group of persons, or system, or discipline subscribers other than by exclusion from trading" (SEC 1998).

Alternatives Handelssystem

In contrast to the US, where most ATSs can choose between being regulated as an exchange or a broker-dealer, ATSs in Europe are generally regulated as investment firms. Virt-x or Tradepoint also started out as ATSs but have become exchanges in the meantime (at the request of their owners). One important factor is that stock exchanges do not only have to comply with securities regulations but also with the Stock Exchanges Act. The basic difference between stock exchanges and investment firms is the self-regulatory status of exchanges (FESCO 2000: 12, Börsensachverständigenkommission 2001: 7-8).

arbitrage profit
The term \textit{arbitrage profit} describes risk-free profit realised by purchasing a security or commodity in one market at one price while simultaneously selling it in another market at a more advantageous price (Eiteman, Stonehill and Moffet 1995:674).

Arbitragegewinn, risikoloser Gewinn
Marktteilnehmer versuchen durch Arbitrage risikolose Gewinne durch Ausnutzung von Kursunterschieden in verschiedenen Märkten zu machen (Stewart 1992:32).
### asset specificity
Asset specificity is "the degree to which the assets needed to perform the activity are not transferable to other activities i.e. are unique to certain activities, including human expertise and knowledge of sources of competitive advantage" (Widener and Selto 1999).

### Faktorspezifität
Diese beschreibt das Ausmaß der allgemeinen Verwendbarkeit eines Inputproduktes und ist damit ein entscheidender Faktor, ob eine Hierarchie oder ein Markt die günstigere Organisationsform in einer Branche darstellt (Janko 1995).

### auction market
*see order-driven system*

### auction matching
In the case of auction matching, orders are executed on stock exchanges "on the basis of a 'free auction market' in the sense that every transaction involves a double competition, i.e. buyers compete with one another and stock is sold to the highest bidder, and sellers simultaneously compete with one another and stock is purchased from the lowest offer" (Woelfel 1994: 15).

### (Matching von Orders nach dem) Auktionsprinzip
(Siebers and Weigelt 1998: 31, A)
Dies ist ein "Verfahren, durch das an der Börse...der unter den gegebenen Voraussetzungen höchste Geldkurs bzw. niedrigste Briefkurs realisiert wird"(Siebers and Weigelt 1998: 31).

### auction system
*see order-driven system*

### backward vertical merger
*compare vertical merger*

### vertikale Fusion nach rückwärts
(Hopfenbeck 1996: 148)
"The 1988 Basel Capital Accord (Basel I) was introduced by the Basel Committee on Banking Supervision in response to concerns by the Governors of the G10 central banks that the capital of the world's major banks was being dangerously eroded. Basel I essentially required internationally active banks to measure their credit risk and hold capital to at least 8% of their assets...But Basel I...offers only a 'one size fits all' approach, it lacks risk sensitivity, it ignores firms' own internal risk management methodologies and it does not sufficiently recognise credit risk mitigation techniques" (Egnsystems).

Basel II

Basel II is one of the latest regulations of the EU in the area of financial services and is to come into force by the end of 2007. The fundamental objective of Basel II is to set a framework that enhances the stability of the international banking system. At the same time, it is meant to provide consistent capital adequacy regulation in order to avoid competitive inequality among internationally active banks. The framework is supposed to promote stronger risk management practices by the banking industry in order to reduce the risk of an international bank crisis. To account for the systemic risk of an international banking crisis, regulatory institutions stipulate a minimum equity to be held by banks. The three pillars are minimum capital requirements, supervisory review, and market discipline ("Basel II"). Pillar one entails modified regulations for calculating the minimum equity required for a certain level of credit risk; pillar two introduces a Supervisory Review Process under which the correct calculation of the amount of equity to be held by banks is supervised. Pillar three is meant to strengthen market discipline by forcing banks to disclose any information which might help market participants in estimating the specific risk of a bank (Buchmüller and Macht 2003).

Basel II

<table>
<thead>
<tr>
<th><strong>batch run</strong></th>
<th><strong>Massendisposition</strong></th>
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<tbody>
<tr>
<td>In a batch run a large number of orders for securities are executed at a certain reference price (Korhonen 2001: 15).</td>
<td>Bei der Massendisposition werden eine Vielzahl von Aufträgen, die bis zu einem bestimmten Zeitpunkt gültig erteilt wurden, in einem Zyklus verarbeitet (Clearstream 2004: 9).</td>
</tr>
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<table>
<thead>
<tr>
<th><strong>best execution</strong></th>
<th><strong>best Execution, beste Ausführung</strong></th>
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<tbody>
<tr>
<td>&quot;While there is no specific definition of 'best execution' under the securities laws, a broker-dealer has a duty to ensure that customers receive best execution on their orders by taking into account all the facts and circumstances surrounding a customer order. Factors a broker-dealer may consider include, among other things, the price of an order, the size of an order, and the trading characteristics of the security involved&quot; (Investment Company Institute). The problem with this term is, however, that the perception of best execution varies in the context of each individual trade and is highly dependent on individual preferences (Gerke 2002: 106). &quot;The most important conceptual obstacle is that best execution should be defined relative to investor intentions and expectations, which are hard to observe and quantify. A 'patient' investor, for example, may want to wait to get a better price while an 'impatient' investor may want immediate execution and may be willing to forego the possibility of a better price. So should the broker send all orders to the faster market?&quot; (Baciodore, Ross and Sofianos 1999: 1).</td>
<td>Nach diesem Prinzip haben die mit der Verwaltung von Effektendepots beauftragten Anlageberater die Verpflichtung gegenüber ihren Kunden, &quot;für deren Aufträge eine bestmöglich Ausführung am Markt zu erzielen. Probleme ergeben sich in der Praxis oftmals dadurch, dass sich die einheitliche Definition des Begriffs 'best-möglich' als sehr schwierig und von den individuellen Einschätzungen und Interessen abhängig erweist&quot; (Gerke 2002: 106).</td>
</tr>
</tbody>
</table>
**bid-ask spread**
The bid-ask spread is the "difference between the price that a dealer pays for the security (the bid price) and the price at which the dealer sells the security (the asking price)" (Kidwell, Peterson and Balckwell 1993: 816).

**block trade**
"A block sale, trade or transaction is a trade in a specific security (or portfolio of securities) which is larger than normal for the particular market given the ruling market conditions" (Moles and Terry 1997: 32).

**blue chip**
A blue chip is a type of equity that is considered to be of the highest quality, which involves little risk of a sharp decline in either income/earnings or capital value. The common stock of ordinary shares of companies that are regarded a stable investment in terms of capital gains and dividend payments are referred to as blue chips. The term comes from the colour of the best diamonds or the colour of the highest value poker chips (Moles and Terry 1997: 49).

**book value**
The book value is the amount at which an item is being carried in the accounts. For depreciable assets the book value equals cost minus accumulated depreciation (Meigs and Meigs 1990: 158).

**Bid-Ask Spread, An-/Verkaufsspanne**
Die An-/Verkaufsspanne (Bid-Ask Spread) ist auf Händlermärkten die Differenz zwischen dem Kurs für eine Kauforder und dem Kurs für eine Verkauforder (Lahmann 1994: 118-119).

**Pakethandel**

**Blue Chip, Spitzenwert**
Spitzenwerte und Favoriten unter den Wertpapieren werden als Blue Chips bezeichnet. Darunter fallen Aktien von großen, international bekannten und weltweit bedeutenden finanzkräftigen Unternehmen (Siebers und Weigert 1997: 42). Obwohl der Begriff ursprünglich aus den USA kommt, werden heute auch Spitzenwerte in anderen Ländern als Blue Chips bezeichnet (A).

**Buchwert**
| **broker** | **Broker, Makler** (Büschgen 1998b: 169)  
*Broker* ist die angloamerikanische Bezeichnung für einen Wertpapierhändler, der (im Gegensatz zu einem *Trader* oder *Dealer*) für fremde Rechnung, d.h. im Auftrag eines Kunden, Börsengeschäfte ausführt (Wiener Börse 2000: 35). |
| --- | --- |
| A broker is an agent who buys and sells securities on behalf of others (Graves 1982: 99). | **Broker mit der Berechtigung, als Eigenhändler tätig zu werden** (Sischka 2002: 104)  
| **broker-dealer** | **Fusionsstrategie zur Abwerbung eines bestimmten Kunden** (A) |
| Broker-dealers are often part of larger organisations such as securities and futures firms. Broker-dealers can be any individual or firm acting as a principal in a securities transaction, either buying or selling securities for itself and/or others (Downes and Goodman 1998: 135). |  
*Fusionsstrategie zur Abwerbung eines bestimmten Kunden* (A)  
At this level the firm focuses on its main competitor or competitors. The challenge is to formulate a product/market strategy that is competitive in regard to winning a particular customer (Lorange, Kotlarchuk and Singh 1987: 4). |
### business family strategy

The strategy at this level is to develop related new business activities by combining business activities based on a common technology or know-how. This allows the firm to exploit synergies in technology, product markets or distribution. It might also result in new businesses being set up by combining existing units (Lorange, Kotlarchuk and Singh 1987: 4).

### Buttonwood Agreement

The Buttonwood Agreement was a forerunner to the New York Stock Exchange. Twenty-four brokers organised a stock market at the Buttonwood tree in what is Wall Street today (Havens, Shteyman and Saber 2000: 9).

### capital market

Capital markets are markets that trade equity and debt instruments with maturities of more than one year (i.e. medium-to-long term) (Cornett and Saunders 1999: 29).

### capital market efficiency

Compare *market efficiency hypothesis*.

### Fusionsstrategie zur Erweiterung der Geschäftsaktivitäten durch Synergien (A)

### Buttonwood Agreement

Im Jahr 1792 legten 24 Broker und Makler mit dem Buttonwood Agreement, welches unter dem Buttonwood Baum in der Wall Street geschlossen wurde, den Grundstein für die Gründung der New York Stock Exchange. Der Vertag besagte, dass die Aktien nur privat und untereinander getauscht werden konnten ("Infoportal New York City – Wall Street")

### Kapitalmarkt


### Kapitalmarkteffizienz

(Lahmann 1994: 119)
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>central counterparty</strong></td>
<td>When transactions are executed the central counterparty automatically becomes &quot;the buyer for each seller and the seller for each buyer&quot; (Eurex 2002)</td>
</tr>
<tr>
<td><strong>zentrale Gegenpartei</strong></td>
<td>Die zentrale Gegenpartei wird gegenüber &quot;jedem Verkäufer zum Käufer und gegenüber jedem Käufer zum Verkäufer&quot; (SIS x-clear n.d.). Dadurch kommt es zu einem &quot;Ausgleichmechanismus, der vor allem die Minimierung des Risikos von Gegenparteien mit unterschiedlichen Bonitäten bezweckt&quot; (&quot;SWX-Glosary&quot;)</td>
</tr>
<tr>
<td><strong>Central Securities Depository</strong></td>
<td>Central Securities Depositories (CSDs) are entities that hold securities, either in certificated or uncertificated form, to facilitate the transfer of ownership of securities. They are responsible for registering and settling security transactions (United States Department of the Treasury 2004).</td>
</tr>
<tr>
<td><strong>Central Securities Depository, zentrale Wertpapierverwahrstelle</strong></td>
<td>Dies ist eine nationale bzw. internationale Organisation für die Abwicklung des Wertpapiergeschäfts und die Verwahrung von Effekten (SIS Swiss Financial Services Group)</td>
</tr>
<tr>
<td><strong>Chinese Wall</strong></td>
<td>Chinese Walls are internal barriers (usually within banks) that prohibit internal information transfer to ensure the independence of departments (Saunders 2000: 501 and &quot;Living in leaner times&quot;: 58).</td>
</tr>
<tr>
<td><strong>Chinese Walls, Chinesische Mauern</strong></td>
<td>Chinesische Mauern dienen v.a. im Bankbereich dazu, die Unabhängigkeit von Abteilungen zu sichern, indem sie Informationsfluss zwischen diesen verhindern (Brunner and Lanni 2002: 6).</td>
</tr>
</tbody>
</table>
clearing

*Clearing* denotes the confirmation of the type and quantity of a financial instrument traded, the date of transaction, the price, and the identities of buyer and seller (Scarlata 1992).

clearing house

A clearing house is a division of an exchange that verifies trades, guarantees the trade against default risk, and transfers margin amounts, if involved. Legally, a market participant makes a transaction with the clearing house (Daigler 1993: 380).

coefficient isomorphism

The organisational form of a company is determined by pressures from organisations upon which the firm is dependent as well as by the society's cultural expectations. Examples of such pressures are government regulations, consumer expectations, or the pressure from the parent corporation of a subsidiary company. The result is increasing similarity between firms (DiMaggio and Powell 1983).

Clearing, Clearance, Abrechnung

( Picot, Bortenlänger and Röhrl 1996: 72)

Beim Clearing geht es um die Berechnung der Verpflichtungen, die sich für jede der betroffenen Parteien aus abgeschlossenen Geschäften ergeben – dabei handelt es sich um den Prozess der Berechnung, der Netto- oder Bruttoverpflichtungen zum Ergebnis haben kann (Kommission der Europäischen Gemeinschaften 2002b: 5).

Clearinghaus, Liquidationskasse

Dies ist eine einer Börse angeschlossene Institution die garantiert, dass jeder Kontrakt erfüllt wird. Sie ist damit für den Schutz der Käufer und Verkäufer vor finanziellen Verlusten verantwortlich, indem sie Transaktionen überprüft and zum rechtlichen Transaktionspartner wird (Fuhrmann und Fritz 1990: 77).

erzwungener Isomorphismus

Ähnlichkeiten zwischen Organisationen können durch erzwungenen Isomorphismus, d.h. die externe Setzung verbindlicher Standards, entstehen (Jann und Franzke 2001).
**coinsurance effect**

Coinsurance effects result from the fact that increased volume decreases the margin of fluctuation of streams of revenue from high-risk activities. That is why coinsurance effects are especially important in technology-intensive or extractive industries, where risks are particularly high. Coinsurance effects are a major motive for alliances, as through a network of alliances the risk can be spread much more broadly than through a merger (Gullander 1976: 104-105).

**co-marketing**

The term co-marketing denotes "a partnership between two or more companies in which both companies jointly market each other's products" ("CCI-Glossary").

**commission**

compare transaction costs

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**Coinsurance-Effekt, wechselseitiger Versicherungseffekt**


**Co-Marketing, Mitvertrieb**


**Provision, Courtage**

(Becker 1994: 614)
**concentric merger**
Concentric mergers are formed for the know-how potentials of the companies concerned. The result is an extension of product lines, market participations, or technologies. The main focus is on technology or research and development activities (Hermsen 1994: 35-36 and Lorange, Kotlarchuk and Singh 1987: 5-6).

**konzentrische Akquisition**

**conglomerate merger**
see *diversification merger*

**consortium**
A consortium, also called management group or syndicate, combines a number of firms working together on a specific project too large and capital-intensive for a single firm (Goede 1996: 113).

**Arbeitsgemeinschaft, Konsortium**
Unter Konsortium versteht man Unternehmensverbindungen auf vertraglicher Basis zur Durchführung bestimmter, genau abgrenzbarer Aufgaben. Ziele sind die Risikoverteilung und besonders die Stärkung der Finanzkraft (Jung 1999: 127).

**content knowledge**
Content knowledge refers to the knowledge of facts and to skills in functional areas (Chen and Mingfang 1999).

**Fachwissen, Faktenwissen**
Fachwissen bezeichnet das Wissen von Fakten auf einem bestimmten Wissensgebiet (Haun 2002: 64).

**continuous matching**
compare *order-driven system*

**fortlaufendes Matching** (Gomber 2000: 21)
co-option
Co-option is one purpose of a strategic alliance. Potential competitors are neutralised by integrating them in an alliance (Doz and Hamel 1998: 5).

Kooption, Kooptation

coopetition
"Coopetition refers to simultaneously cooperative and competitive behavior. A common form of coopetition is knowledge sharing among competitors" (Tsai 2002).

Koopetition
Koopetition beschreibt die Strategie des Zusammenschlusses mit einem Partner, der gleichzeitig Konkurrent ist (Weibel 2002).

corporate governance
The term corporate governance "refers to the role of the board of directors, shareholder voting, and to other actions taken by the shareholders to influence corporate decisions...Economists use the term governance more generally to cover all mechanisms by which managers are led to act in the interest of the corporation's owners" (Brealey and Myers 2000: 976).

Unternehmensverfassung, Corporate Governance
"Der auf dem systemtheoretischen Ansatz der Unternehmensverfassung begründete Informations- und Interessenaustausch zwischen Unternehmen und Umwelt wird im angloamerikanischen Bereich als Corporate Governance bezeichnet". Der Begriff der Unternehmensverfassung zielt dabei auf die Abhängigkeiten und Wechselwirkungen der betrieblichen Organisationsverfassung (Grundsatzfragen betreffend die Organisationsform der Unternehmung), der Marktverfassung (Beziehungen des Unternehmens zum beschaffungs- und absatzseitigen Markt) sowie der Finanzverfassung (Finanz- und Rechnungswesen) ab (Lechner, Egger and Schauer 1999: 198).
<table>
<thead>
<tr>
<th>corporate growth</th>
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<tbody>
<tr>
<td>Corporate growth can be defined in many different ways, such as by an increase in sales or market share. Corporate growth can be the result of an internal or external growth strategy (&quot;Corporate growth&quot;: 326 and Schaper-Rinkl 1997: 65).</td>
</tr>
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<table>
<thead>
<tr>
<th>Unternehmenswachstum</th>
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<tr>
<td>&quot;Unternehmenswachstum ist definiert als eine langfristige positive Änderung der Unternehmensgröße&quot;. Dazu wird am häufigsten die Umsatzgröße als Kennzahl herangezogen. Unternehmenswachstum kann intern oder extern erfolgen (Lück 2004: 687).</td>
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<table>
<thead>
<tr>
<th>co-specialisation</th>
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<tbody>
<tr>
<td>Co-specialisation is one purpose of a strategic alliance. Synergies are created through the combination of previously separate resources such as skills or knowledge (Doz and Hamel 1998: 5).</td>
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<table>
<thead>
<tr>
<th>Ko-Spezialisierung</th>
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<tbody>
<tr>
<td>Ko-Spezialisierung beschreibt die Schaffung von Synergieeffekten durch die Zusammenführung komplementärer Kernkompetenzen im Zuge von strategischen Allianzen (Eggs, Englert and Schoder 1999).</td>
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<tr>
<th>counterparty risk</th>
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<tr>
<td>&quot;Counterparty risk is the potential exposure any individual firm bears that the second party to any financial contract will be unable to fulfil its obligations under the contract's specifications&quot; (Eiteman, Stonehill and Moffett 2001: 286).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gegenparteirisiko</th>
</tr>
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<tbody>
<tr>
<td>Dies ist das &quot;Risiko, dass die Gegenpartei eines Finanzkontraktes die Kontraktbedingung nicht einhält&quot; (Basler Ausschuss für Bankenaufsicht 1993: 40).</td>
</tr>
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<table>
<thead>
<tr>
<th>credit risk</th>
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<tbody>
<tr>
<td>This is the risk that a counterparty to a transaction will fail to perform its financial obligations according to the terms and conditions of the contract, thus causing the holder of the claim to suffer a loss (Abteilung für Finanzmarktanalyse 1993: 60).</td>
</tr>
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<table>
<thead>
<tr>
<th>Bonitätsrisiko</th>
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<tbody>
<tr>
<td>Das ist das Risiko, dass eine Vertragspartei ihre finanziellen vertraglichen Verpflichtungen nicht erfüllen kann (Basler Ausschuss für Bankenaufsicht 1994: 13).</td>
</tr>
</tbody>
</table>
**crossing**
Crossing involves the trading of securities by crossing systems at prices based on those of another (frequently the primary) market, which are in many cases the mid-point of the bid-ask spread at the time of order matching or at the opening or closing price of the primary market (Korhonen 2001: 15).

**crossing system**
Crossing systems accept orders for securities which are executed in a batch run at a reference price from another market (usually the primary market where the security is listed). Orders entered do not contain a specified price, but clients agree to trade at prices based on the primary market, in many cases the mid-point of the bid-ask spread at the time of order matching or at the opening or closing price of the primary market. These systems therefore do not engage in price discovery and are thus also referred to as price-taking systems, or as passive or derivative pricing systems (Korhonen 2001: 15).

**Crossing**
Crossing bedeutet die Zusammenführung von Kundenorders auf Basis der an einer regulären Börse festgestellten Kurse, wobei der Preis in der Mitte des höchsten Kauf- und niedrigsten Verkaufsgebotes festgesetzt wird (Gerke 2002: 207).

**Crossing-System**
Crossing-Systeme sind eine "Unterform von Alternativen Handelssystemen. Im Gegensatz zu Electronic Communication Networks (ECN) verzichten Crossing-Systeme auf ein eigenes Orderbuch, sondern es werden die Kundenorders auf Basis der an einer regulären Börse festgestellten Kurse zusammengeführt, wobei der Preis in der Mitte des höchsten Kauf- und niedrigsten Verkaufsgebotes festgesetzt wird. Crossing-Systeme agieren demnach als 'Trittbrettfahrer'. Da ausgeführte Transaktionen für die anderen Marktteilnehmer nicht zu sehen sind, unterbleibt eine Beeinflussung des Marktes" (Gerke 2002: 207).
### Cross-listing

*Cross-listing* denotes the practice of listing shares in a company on different stock exchanges (usually in different countries) "in order to create a larger market for the shares. This is a necessary procedure because the securities houses and stock brokers of one country cannot normally deal through the exchanges of another. The practice has led to the creation of multinational securities houses" (Butler 1993: 72).

### Cross-Listing

Cross-Listing ist eine Wettbewerbsstrategie von Börsen und bedeutet, dass Unternehmen an mehreren bzw. auch an anderen als ihren Heimbörsen notieren. Dadurch versuchen Börsen, ihr Transaktionsvolumen zu erhöhen, indem sie ihre Produktpalette erweitern. Der Vorteil für Unternehmen ist, dass eine größere Anzahl von Investoren Zugang zu den Aktien hat ("Europas Börsen im Wettstreit").

### Cross-matching

*see matching*

### Currency Risk

The currency risk, or exchange risk, is the uncertainty in the return on a foreign financial asset due to the unpredictability regarding the rate at which the foreign currency can be exchanged into the investor's own currency (Alexander and Sharpe 1990: 801).

### Wechselkursrisiko

Unter dem Wechselkursrisiko versteht man die Gefahr eines Verlustes an Geldbeträgen, die in ausländischer Währung festgelegt sind, aufgrund von Veränderungen der Devisenkurse zwischen der inländischen und der ausländischen Währung im Zeitablauf (Moser 1985:73).

### Current Account

The current account is a record of a country's exports and imports of goods and services along with unilateral transfers. In other words, the current account consists of the balance of trade (exports and imports of goods), the invisible account (exports and imports of services) and unilateral transfers (Moles and Terry 1997: 222).

### Leistungsbilanz

**day-trader**

Day-traders are floor traders who "buy and sell a stock within the same day, seeking to profit from very short-term fluctuations in supply and demand – an activity known as day trading" (Houthakker and Williamson 1996: 113).

**dealer**

"Dealers link buyers and sellers by buying and selling securities at stated prices", thus acting as market makers and providing a liquid market (Mishkin and Eakins 2000: 17). Dealers are individuals or institutions which buy and sell financial instruments which they own for their own account (Coopers & Lybrand 1987: 145).

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**Day Trader, Tagesspekulant**

(Schäfer 1996: 213)


**(Eigen-) Händler**

<table>
<thead>
<tr>
<th><strong>dealer market</strong></th>
<th><strong>Handelsbörse</strong></th>
</tr>
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<tbody>
<tr>
<td>This is a market where &quot;many dealers, called Market Makers, use their own capital, research, retail, and/or systems resources to represent a stock&quot; and where &quot;many Market Makers can represent the same stock; thus, they compete with each other to buy and sell that stock. Auction markets [such as the NYSE] have only one person, a specialist, who in a centralized location or 'floor' matches incoming orders to buy and sell each stock. Specialists are not allowed to provide research or retail sales support, and are limited to only one firm's available capital. The average Nasdaq stock has eleven Market Making firms that risk and invest their capital&quot; (&quot;NASD-Glossary&quot;).</td>
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<thead>
<tr>
<th><strong>dealer structure</strong></th>
<th><strong>demand-side economies of scale</strong></th>
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<tbody>
<tr>
<td>see dealer market</td>
<td>see network effect</td>
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<table>
<thead>
<tr>
<th>demutualisation</th>
<th>Demutualisierung, Abschaffung der Gegenseitigkeitsstrukturen</th>
</tr>
</thead>
<tbody>
<tr>
<td>The fact that the marginal cost of adding a new member to an electronic trading network declines toward zero leads to the phenomenon of demutualisation. The central concept of demutualisation is the separation of ownership and membership. (&quot;Mutter aller Schlachten&quot; 2001: 52).</td>
<td>Unter Demutualisierung (Abschaffung der Gegenseitigkeitsstrukturen) &quot;versteht man die Umwandlung einer Börse in ein am Profit orientiertes Unternehmen, das selbst Anteile ausgibt, die von Mitgliedern, Finanzinstitutionen und der Öffentlichkeit erworben werden können. Unter diesen Bedingungen hängt die langfristige Rentabilität und das Überleben einer Börse vom Wert ihrer eigenen gehandelten Anteile ebenso ab, wie die der anderen bei ihr geführten Unternehmen&quot; (Shahira 2002).</td>
</tr>
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<table>
<thead>
<tr>
<th>depreciation base</th>
<th>Abschreibungsbasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>The depreciation base of an asset is equivalent to its residual book value (Rosenberg 1993a: 102).</td>
<td>Bei der Abschreibungsbasis handelt es sich um jenen Wert, der als Grundlage für die Ermittlung der periodenbezogenen Abschreibung dient (Zentrums für Informations- und Facility-Mangement der TU-Wien: &quot;BWL-Glossar&quot;).</td>
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<tr>
<th>deregulation</th>
<th>Deregulierung</th>
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<tbody>
<tr>
<td>Deregulation is the process of removing restrictions on prices, product standards and entry conditions. Deregulation has been introduced where the existing regulation is thought to cause a barrier to entry in a market (Parkin, Powell and Matthews 1997: 467). In the context of stock exchanges, this term denotes mainly free capital flows and access to foreign markets (A).</td>
<td>Darunter versteht man &quot;die Zurücknahme staatlicher Regulierung, worunter alle direkten wirtschaftspolitisch motivierten Eingriffe des Staates zur Beseitigung von Marktmechanismen oder zur Übernahme von Marktfunktionen bei fehlendem Markt verstanden werden können…Weltweit ist seit den 80er Jahren eine Deregulierung auf den nationalen Kapital- und Geldmärkten beobachtbar&quot; (Siebers and Weigelt 1998: 94).</td>
</tr>
</tbody>
</table>
| **derivative pricing systems**  
see *price-taking system* |  |
|--------------------------|---|
| **disintermediation**    | **Abbau der Mittlerrolle** (Admiralty Investments), **Disintermediation**  
Disintermediation is defined as the process of cutting intermediaries – middlemen – out of existing industry value chains (Interactive Media in Retail Group 1997: 10). |  |
| **distance costs**       | **Distanzkosten**  
In the context of stock exchanges, distance costs are the costs associated with the distance from the trading centre. They are small or non-existent in connection with automated trading services, they increase, however, with distance from the customer in connection with access to floor systems (Domowitz and Steil 1999). |  |
| **diversification**      | **Diversifizierung, Diversifikation** (Hagemann 1996: 34),  
**Sortimentsausweitung** (Quelch and Kenny 1995)  
Diversification is a strategy for company growth by starting up or acquiring businesses outside the company's current products and markets (Kotler and Armstrong 1999: 42). |  |
diversification merger
Cases where there is no obvious connection between the buyer and the seller firm are subsumed under the term conglomerate or diversification merger. The reason for these mergers is in most cases a diversification strategy, and they are intended to enhance the firm's overall stability (Hermsen 1994: 35-36 and Lorange, Kotlarchuk and Singh 1987: 5-6).

konglomerater Zusammenschluss

divestiture
"A divestiture involves the sale of a portion of a company. Two popular means of divestiture are spin-offs and equity carve-outs" ("An overview of mergers and acquisitions").

Entflechtung, Zerschlagung

economies of experience
Economies of experience refer to a reduction in cost of new products over time, as firms gain experience in making them better and cheaper through learning by doing (Scherer and Ross 1990: 163-166).

Erfahrungseffekte
### economies of scale

Economies of scale are cost advantages which lead to a reduction in cost per unit resulting from a higher number of units produced, since fixed costs are distributed over a larger number of items. Therefore, larger companies usually have cost advantages compared to smaller competitors. This is a major motivation for cooperation, leading to higher production volumes (Gullander 1976: 104-105).

### economies of scope

If existing resources or abilities (such as management know-how, customer relations) can be used for new activities, economies of scope may be derived. In other words, the cost of performing different activities concertedly is lower than their isolated performance (Panzar and Willig 1981: 269-271).
Electronic Communication Network

ECNs are usually defined as "trading systems that automatically distribute participants' orders to third parties and permit full or partial execution of those orders. Hence most of them could be categorised as order-driven automated trade matching systems" (Korhonen 2001: 16). ECNs are purely order-driven, i.e. no participant undertakes to provide liquidity for the securities traded. Their main strength is effective price formation, therefore crossing-systems do not qualify as ECNs. Some ECNs act as destination-only markets, i.e. trades are matched internally, while others scan the market with high-speed communications technology to find the best prices. The participants of ECNs are usually professional financial intermediaries, relatively few systems have started to accept orders from institutional investors directly. Orders have to be sponsored by a professional intermediary, though, i.e. a broker-dealer takes the responsibility for trades executed by the investor (Korhonen 2001: 16-17 and Financial Internet Working Group: "Glossary").

Whereas in the US ECNs are defined as all non-exchange trading systems which fulfil a price-finding function within the system, i.e. except Crossing Systems, the European definition includes only those Alternative Trading Systems which permit the purchase of securities directly from issuing houses (Korhonen 2001: 16).

Gemäß der europäischen Definition sind Electronic Communication Networks Alternative Handelssysteme, auf denen Wertpapiere direkt von Emissionshäusern erworben werden können (Groß 2002: 41).
### EU Securities Committee

The establishment of the EU Securities Committee (ESC) is proposed by the Committee of Wise Men. It would primarily have regulatory power in the securities field and advise the Commission in securities issues. Member States will nominate members to the ESC, which will be chaired by the Commission, i.e. by the European Commissioner responsible for securities matters (Committee of Wise Men 2001: 28-29).

### EU Securities Regulators Committee

The establishment of an EU Securities Regulators Committee has been recently suggested by the Committee of Wise Men. It would mainly have an advisory function and be concerned with ensuring a more consistent implementation of Community Law, and act as an advisor to the Commission. The ESRC should consist of one representative from each Member State, who is designated by the national supervisory authority (Committee of Wise Men 2001: 28-29).

### exchange-traded option

An exchange-traded option is a contract traded on an exchange which gives the holder, in return for paying a premium to the option seller, the right to buy or sell a financial instrument or commodity during a given period. Options can be either call or put options (Carew 2001: 28-29).

### börsengehandelte Option

Eine Option verbrieft das Recht, aber keine Verpflichtung, innerhalb der Optionslaufzeit jederzeit zum Basispreis ein bestimmtes Objekt zu kaufen oder zu verkaufen. Börsengehandelt bedeutet, dass die Option an einer (Options-)Börse jederzeit ge- oder verkauft werden kann.
Execution costs are "the difference between the execution price of a security and the price that would have existed in the absence of a trade, which can be further divided into market impact costs and market timing costs" ("Trading-Glossary").

External growth is defined as growth through cooperation between companies which allows them to get access to complementary resources necessary for growth (Wittek 1980: 120).

External resources are defined as assets of which the firm has no direct ownership (Stevenson and Gumpert 1985 and Jarillo 1989: 135).
<table>
<thead>
<tr>
<th>Federation of European Stock Exchanges</th>
<th>Vereinigung europäischer Wertpapierbörsen (Grass 2001)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Federation of European Stock Exchanges (FESE) is a trade association with 26 members, the largest stock exchanges in the 25 EU member states plus Switzerland and Norway. Its purpose is mainly to serve as a forum for information exchange and a means of joint presentation vis-à-vis other bodies, such as the European Commission (Licht 1997: 55).</td>
<td>Am Finanzmarkt werden Kapitalanbieter und Kapitalnachfrager zusammengeführt (Zimmermann 1999: 21).</td>
</tr>
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<table>
<thead>
<tr>
<th>financial market</th>
<th>Finanzmarkt</th>
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<tbody>
<tr>
<td>The financial market comprises the money market (for short-term credit instruments) and the capital market (for long-term credit and equity instruments) of an economy and matches supply of, and demand for, capital (Rosenberg 1993b: 128).</td>
<td>Am Finanzmarkt werden Kapitalanbieter und Kapitalnachfrager zusammengeführt (Zimmermann 1999: 21).</td>
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<thead>
<tr>
<th>Financial Services Action Plan</th>
<th>Finanzdienstleistungsaktionsplan</th>
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<tr>
<td>The Financial Services Action Plan (FSAP) was passed at the Lisbon European Council in March 2000 and is to be implemented by 2005. The FSAP was developed in order to decrease the high level of both the economic and the legislative fragmentation of financial services in Europe (Amati 2001: vii).</td>
<td>Der Finanzdienstleistungsaktionsplan, welcher bis 2005 umzusetzen ist, hat als vorrangiges Ziel die &quot;Erleichterung des Zugangs zu den Kapitalmärkten&quot; und &quot;die Verbesserung der Stabilität des Finanzsystems&quot; und will generell vor allem eine weitere Integration der europäischen Finanzmärkte erreichen (Europäische Kommission 2000: 8).</td>
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<tr>
<th>Financial Services Authority</th>
<th>Britische Finanzmarktaufsicht</th>
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<tr>
<td>The Financial Services Authority is the British body equivalent to the SEC in the US (Bank of England 1999: 2).</td>
<td>Die Britische Finanzmarktaufsicht erfüllt die selben Aufgaben wie die SEC in den USA (&quot;Kosten der Regulierung&quot;).</td>
</tr>
</tbody>
</table>
**financial synergies**
The outcome of financial synergies is lower cost of capital. There are several ways to achieve this: firstly, by reducing the systematic risk of a company by investing in unrelated businesses; secondly, by enlarging the firm, as larger companies usually have access to cheaper capital; thirdly, by establishing an internal capital market in which the firm may exploit superior information and in this way raise capital more efficiently (Trautwein 1990: 284).

**finanzwirtschaftliche Synergien**

**floor system**
If an exchange operates a floor system, the brokers and dealers are physically present, trading on the exchange floor (Houthakker and Williamson 1996: 113).

**Parketthandel, Präsenzhandel**
Parketthandel bedeutet, dass der Handel zwischen Händlern und Maklern, welche physisch anwesend sind, am Börsenparkett stattfindet (Willberger and Tack 2002: 167).
Floor Trader

"Floor traders buy or sell only against their own portfolio rather than on behalf of either a customer or another broker. Essentially they are speculators seeking to profit from their instant access to market information by virtue of being on the trading floor, along with the fact that they avoid paying commissions by acting directly for themselves. Often floor traders buy and sell a stock within the same day, seeking to profit from very short-term fluctuations in supply and demand – an activity known as day trading" (Houthakker and Williamson 1996: 113).

Floor Trader, Parketthändler

(Fräher 1996: 328)

In 1997 the FESCO was created by the chairmen of EU Securities Commissions. It currently comprises the 17 statutory securities commissions of the EEA and is chaired by a representative of one of its members. It concentrates on the development of common regulatory standards and the enhancement of cooperation between members on enforcement and market surveillance matters. According to the FESCO charter, the members have committed themselves to supporting the fair and efficient realisation of a single European financial market through close cooperation, to developing common regulatory standards for supervision of financial services and markets, and to improving market surveillance and enforcement by mutual assistance and cooperation. The three priorities of FESCO are investor protection, market integrity, and market transparency. These goals are pursued by developing common regulatory standards and fostering cooperation on enforcement and market surveillance. (European Commission 2000a: 32, 39).

**forward vertical merger**

compare *vertical merger*

---

**vertikale Fusion nach vorne**

(Hopfenbeck 1996: 148)
free cash flow

"Free cash flow is generally defined as cash flow from operations (as reported in the statement of cash flows) minus capital expenditure (Hart and Zaima 2001: 350-351).

Free Cashflow, frei verfügbarer Cashflow


FTSE Med 100

The FTSE Med 100 index is an index launched by FTSE "in partnership with the Cyprus Stock Exchange, Tel-Aviv Stock Exchange and Athens Exchange. The tradable index is the first to cover this region and has been designed to allow the introduction of derivative products and to attract new investment to the region. The FTSE Med 100 Index consists of the 100 largest stocks from the three stock exchanges" (FTSE 2003).

FTSE Med 100 Index (A)

Good-till cancelled order

Good-till cancelled orders are valid until they are executed or cancelled (Korhonen 2001: 30).

Good-till cancelled Order

"Eine Good-till-Cancelled Order gilt solange, bis sie entweder ausgeführt oder vom Marktteilnehmer gelöscht wird (bzw. vom Börsenbetreiber bei Ablauf eines maximalen Zeitrums)" (Kraus 2000; emphasis added).
A hedge fund is a type of unregulated investment fund which uses long and short positions in commodity and financial instruments to maximise financial performance. "The name is undoubtedly a complete misnomer [sic!] since it is generally an investment company which takes aggressive positions involving significant risk in many different markets as its fundamental investment strategy. Managers of such funds are normally remunerated on a percentage of profits and have an incentive to take such risks, which is the opposite of hedging, which aims at risk reduction" (Moles and Terry 1997: 269).
High Level Securities Supervisors Committee

The HLSSC is an informal group of high level representatives of member states’ securities supervisory authorities, finance ministries, and central banks. It is chaired by the Commission, and its main function is to advise the Commission on policy issues related to securities markets and the development of the relevant European legislation. It is, however, not concerned with detailed technical questions. Being an informal committee, it has no formal tasks. Apart from the functions mentioned above, it also examines problems or disputes between member states regarding the implementation of existing legislation (European Commission 2000a: 32-33).

hit-or-take system

compare order-driven system

horizontal merger

Horizontal mergers refer to cases when the partner firms are active in the same market segment. As a result, a horizontal merger leads to economies of scale in production and distribution, and frequently to an increase in market share or an extension of the companies' product line (Hermsen 1994: 35-36 and Lorange, Kotlarchuk and Singh 1987: 5-6).

Komitee hoher Vertreter europäischer Wertpapieraufsichtsbehörden (A)

elektronisches Handelssystem mit fixen durch (Eigen-)Händler gestellten Kauf- und Verkaufskursen (A)

horizontale Fusion, horizontaler Zusammenschluss

Bei einer horizontalen Fusion verbinden sich Unternehmen desselben Wirtschaftszweiges (Samuelson and Nordhaus 1998: 395).
**hostile takeover** (Schnitzer 1994: 37)
In a hostile takeover, a raider makes a tender offer directly to the shareholders of the target company, without consulting the incumbent management, in order to take control of the company by acquiring a majority interest in the outstanding shares of that company. Sometimes a company being taken over is broken up and sold off in pieces, and at other times it is kept as a division of the acquiring company (Schnitzer 1994: 37 and Sheimo 1998: 1036).

**index**
An index is "any comprehensive measure of market trends, intended for investors who are concerned with general stock market price movements". A stock market index displays the average performance of stocks within a certain industry or at a certain market ("New York Stock Exchange-Glossary").

**information costs**
Information costs are the "opportunity cost of economic information – the cost of acquiring information on prices, quantities, and qualities of goods and services and resources" (Parkin 2000: G5).

**ifeindliche Übernahme**

**Index**
Ein Index ist eine "statistische Kennzahl, mit der Veränderungen gegenüber einem früheren Zeitpunkt (Preis-, Kurs- und Konjunkturbewegungen) sichtbar gemacht werden können. Ein Aktienindex ist ein Preisindex oder ein Performanceindex, der die durchschnittliche Kursentwicklung des Aktiensektors insgesamt oder einzelner Branchen darstellt" (Wiener Börse 2000).

**Informationskosten**
Dies sind die "Kosten, die im Zuge der Entscheidungsfindung aufgrund der Ermittlung notwendiger Informationen entstehen" (Gerke 2002: 415).
An Initial Public Offering, or IPO, means that shares are offered to the public for the first time in order to raise cash for a company (Brealey and Myers 2000: 410). According to Saunders (2000: 52) IPOs can include equity issues and debt contracts.

In contrast to the English terminology (at least when one follows Saunders' definition), the term *Erstemission* in German is only used in connection with shares (A).

Institutional investors are "non-personal holders of blocks of securities: mutual funds, insurance companies, pension funds, banks, universities, etc." (Lesly 1991: 842).

It should be noted that different authors offer different definitions of the term. Banks, for example, are not always considered to be institutional investors (Fabozzi, Modigliani and Ferry 1998: 8). Therefore, the term *institutional investor* is not clearly defined. German definitions are more likely to include banks than those from English sources, which might be due to the fact that the Glass-Steagall Act separates the functions of banks and securities firms in the US (Financial Times and University of Chicago and Wharton School 1998: 444).

A financial intermediary is any person or organisation that acts as an agent or broker between the parties to a transaction in financial instruments (Butler 1993: 148).
**internal expansion**

see internal growth

<table>
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<th>internal growth</th>
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| Internal growth, or internal expansion as it is also sometimes called, can be achieved by companies in three different ways:  
  - By creating new products internally.  
  - By adapting or upgrading existing products.  
  - By expanding into new markets (Duberman 1990: 24).  
| The main advantage of internal growth is that it "is less risky and yields higher return on invested capital than acquisitions" (Gertz 1995: 47). |

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<thead>
<tr>
<th>internes Wachstum, organisches Wachstum</th>
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<tr>
<th>internal market</th>
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<tr>
<td>The market of the member states of the European Union is called the internal market. It is characterised by the absence of trade barriers and tariffs (Goede 2003: 722).</td>
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<thead>
<tr>
<th>Binnenmarkt</th>
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<tr>
<td>&quot;Der Binnenmarkt bezeichnet ein Wirtschaftsgebiet, in dem keine Zölle oder andere Handelshemmnisse auftreten&quot;. Ein Beispiel ist der Binnenmarkt der EU (Thommen 2004: 100).</td>
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International Accounting Standards

The International Accounting Standards (IAS) are "the standards issued by the International Accounting Standards Committee, a committee founded in 1973 with the objectives of formulating and publishing accounting standards to be observed in the presentation of financial statements, promoting their worldwide acceptance and observance, and of working generally for the improvement and harmonization of regulations, accounting standards and procedures relating to the presentation of financial statements" (Parker 1992: 161).

International Financial Reporting Standards

By 2005 listed companies will have to adopt the International Financial Reporting Standards (IFRS) and apply them to their consolidated financial statements. The goal is to increase the efficiency of European capital markets by harmonising reporting guidelines (Amati 2001: 23).

Internationale Rechnungslegungsgrundsätze

Die internationalen Rechnungslegungsgrundsätze sind jene Regeln, die vom International Accounting Standards Committee festgelegt wurden. Dies ist eine "private Körperschaft, die sich zum Ziel gesetzt hat, Einheitlichkeit in den Rechnungslegungsgrundsätzen, die von Unternehmen in der ganzen Welt benutzt werden, zu erreichen" (Born 1997: 30).

International Financial Reporting Standards, internationale Rechnungslegungsstandards

Corporate clients hire investment banks to package and locate long-term debt and equity funding and to arrange mergers and acquisitions of domestic and foreign firms. In most of the world international banks provide both commercial banking services and investment banking services. Until 1999, the 1933 Glass-Steagall act restricted commercial banks from providing investment banking services in the United States. As a result, investment banking services in the US were supplied predominantly by securities firms such as Goldman Sachs, Salomon Brothers, or Merrill Lynch (Griffin and Pustay 1996: 183). This changed when the Gramm-Leach-Bliley Act came into force in 1999, allowing mergers between banks, insurance companies, and stock brokerage companies ("The Gramm-Leach Bliley Act").

Investment Services Directive
The European Investment Services Directive (ISD), which came into force on 1 January 1993, was the first milestone in European financial integration by making it harder for regulators to protect their domestic exchanges ("Shaping up" 1996). The two major functions of the ISD are regulation of investment firms and regulation of securities markets. Its most important aim is the harmonisation of the legal framework to the necessary level to ensure the mutual recognition of authorisation and supervision systems, so that a single authorisation is valid throughout the Community and that only supervision principles of the Home Member State are applied (Council Directive 93/22/EEC of May 1993 on investment services in the securities field: 1-2).

Wertpapierdienstleistungsrichtlinie
IOSCO

The IOSCO (International Organisation of Securities Commissions) is a world-wide organisation of securities regulators which issues authoritative recommendations on securities regulation and efficient surveillance of international securities transactions. Its main purpose is to maintain just, efficient, and sound markets by promoting high standards of market regulation. The three priorities are:

- To ensure effective surveillance of international securities transactions through common standards.
- To exchange information.
- To provide mutual assistance in promoting the integrity of markets by rigorously applying standards and by effectively sanctioning offences (European Commission 2000a: 32, 44).

Internationale Organisation für Wertpapieraufsichtsbehörden


issuing house

This is "a financial institution, usually a merchant bank that specializes in the flotation of private companies on a stock exchange. In some cases the issuing house will itself purchase the whole issue, thus ensuring that there is no uncertainty in the amount of money the company will raise by flotation. It will then sell the shares to the public" (Butler 1993: 154).

Emissionshaus, Emissionsbank

**joint venture**

"Joint ventures are a collaboration of two or more organizations for more than a transitory period. In this collaboration, the participating partners share assets, risks, and profits. Equality of partners is not necessary. In some joint ventures, each partner holds an equal share, in others, one partner has the majority of shares. The partners' contribution to the joint venture can also vary widely. Contributions may consist of funds, technology, …" (Czinkota and Ronkainen 1995: 452).

**learning curve effect**

Learning curve effects refer to the fact that certain activities are being performed more efficiently over time due to individual or organizational learning (Gullander 1976: 104-105). Learning curve effects can also be realised through the transfer of management know-how between partner companies (Scherer and Ross 1990: 163-166). The learning curve reflects three factors:

- The time required to complete a task or unit of work will decline with repeated performance of that task.
- The rate of reduction will decrease over time.
- This reduction in time will follow a general pattern (Wild 1998: 175).

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**Joint Venture, Gemeinschaftsunternehmen**


**Lernkurveneffekt**

<table>
<thead>
<tr>
<th>licensing agreement</th>
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A licensing agreement is a legal arrangement transferring the rights to manufacture or to market a product to another firm (Stapleton and Hart 1987: 116).

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<tr>
<th>Lizenzabkommen, Lizenzvertrag</th>
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<tr>
<th>limit order</th>
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"A limit order instructs a broker to buy a security for no more than a specific price or to sell for no less than a specific price" (Hart and Zaima 2001: 135).

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<tr>
<th>Limit-Order, Auftrag mit Kurslimit</th>
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(Zimmermann 1999: 43)

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<tr>
<th>limit order book</th>
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</table>
This is "a book in which a market-maker records limit orders" (Francis and Ibbotson 2002: G14).

<table>
<thead>
<tr>
<th>Limit-Orderbuch</th>
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Im Limit-Orderbuch werden alle eingehenden limitierten Aufträge aufgezeichnet (Pohlmeier 2003).
<table>
<thead>
<tr>
<th>liquidity</th>
<th>Liquidität, Marktlückidität</th>
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</thead>
<tbody>
<tr>
<td>Liquidity is &quot;the ability to buy or sell an asset (1) quickly and (2) at a known price, that is a price not substantially different from the prices for prior transactions, assuming no new information is available. A component of liquidity is price continuity, which means that prices do not change much from one transaction to the next, unless substantial new information becomes available. A continuous market requires depth, which means that numerous potential buyers and sellers must be willing to trade at prices above and below the current market price&quot; (Reilly 1992: 106).</td>
<td></td>
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<td>&quot;Die Sensitivität von Wertpapierkursen auf Veränderungen des Orderflusses wird als Marktlückidität bezeichnet. Als Maß für Liquidität wird die Ordergröße bezeichnet, die eine Marktpreisveränderung um eine Einheit erzeugt. Ein Markt verfügt dabei über eine größere Liquidität und 'Tiefe' (market depth), je größer die Order ist, die ohne wesentliche Preisveränderungen ausgeführt werden kann&quot; (Lahmann 1994: 119; emphasis added).</td>
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<tr>
<th>liquidity risk</th>
<th>Liquiditätsrisiko</th>
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<tr>
<td>Liquidity risk arises when a transaction cannot be effected at prevailing market prices due to the size of the position relative to normal trading lots (Jorion 2001: 340).</td>
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<tr>
<td>Unter dem Liquiditätsrisiko versteht man das Risiko, &quot;dass einzelne Produkte nicht oder zu keinem vernünftigen Preis verkauft oder risikomäßig geschlossen werden können&quot; (Obst und Hintner 2000: 1088).</td>
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<tr>
<th>management buy-in</th>
<th>Management buy in, Übernahme durch externes Management (LEO Online Dictionary)</th>
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<tbody>
<tr>
<td>The term management buy-in denotes &quot;the acquisition of a company by a team of managers, usually specially formed for the purpose, often backed by a venture-capital organization. Their normal target is the small family-owned company, which the owners wish to sell, or occasionally an unwanted subsidiary of a public company&quot; (Butler 1993: 174).</td>
<td></td>
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<tr>
<td>Dies ist eine Form des leveraged buy out, bei dem ein Unternehmen durch ein fremdes Management übernommen wird (Hieschler, Singer and Grampp 2002: 300).</td>
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</table>
### management buy-out

The term *management buy-out* denotes "the acquisition of a company by its managers, often in the face of closure, after the acquisition of the company by another group that wishes to dispose of it, or occasionally as a result of its owners wishing to dispose of the business" (Butler 1993: 174).

### managerial synergies

Managerial synergies are in some way similar to economies of experience. They occur when the management of one of the merging or allying companies possesses superior abilities from which the other company can benefit (Jensen and Murphy 1988).

### Management buy out, Übernahme durch eigenes Management (LEO Online Dictionary)

Dies ist eine Form des *leveraged buy out*, bei dem ein Unternehmen durch das eigene Management übernommen wird (Hieschler, Singer and Grampp 2002: 300).

### Managementsynergien

Managementsynergien entstehen durch den Transfer von allgemeinen Managementfähigkeiten über organisationale Lernprozesse (Güttel 2002: 95).
market efficiency hypothesis
According to Fama (1970: 383-387), capital markets are informationally efficient, which means that stock prices are assumed to reflect all relevant information. This is true for the strong form of the hypothesis. Under the semi-strong form, securities prices are assumed to reflect all publicly available information, under the weak form only information that may be contained in the past history of the stock price itself is reflected. If capital market efficiency prevails, arbitrage profits are eliminated as no market participant has access to superior information.

market impact
Market impact denotes the fact that investors might have to accept a price above (for buys) or below (for sales) the equilibrium price to be able to execute the trade immediately (Berkowitz, Logue and Noser 1988: 88). The cost of market impact depends on the patience of investors and on brokers. If investors trade large amounts of illiquid stocks or whole blocks of heavily traded stocks they can create substantial market impact. It is therefore quite important for money managers to understand the nature and magnitude of market impact costs and their correlation with commission costs (Berkowitz, Logue and Noser 1988: 88).

Effizienzmarkthypothese

Markeinfluss, Markt Impact
Der Markteinfluss („Market Impact“) beschreibt die durch die eigene Order ausgelöste Kursbewegung. So kann z.B. eine größere Kauforder nur allmählich und zu sukzessiv steigenden Kursen abgewickelt werden (Narat 2003).
Market-makers are in a position to buy and sell on stock exchanges for their own accounts if public supply and demand are insufficient to provide a continuous and liquid market. In this way they narrow the bid-ask spread. On U.S. stock exchanges, a market-maker is called a specialist. These specialists match buy and sell orders, handle limit orders and are assigned to market-making in specific stocks. In doing so they are expected to buy when there is an excess of sell orders and to sell whenever buy orders prevail. By knowing the current supply and demand situation they can profit from their trading even if they have to buy and sell occasionally against market forces. Moreover, their profit derives from the difference between buying and selling prices. A further main advantage is that they have a much better picture of the future market direction (Reilly 1992: 124-126).

Although the basic idea of the function of market-makers may be similar on various national exchanges, it is obvious that the specific definitions of their obligations will differ. The above definitions serve as examples and apply to the U.S. stock market and the Deutsche Terminbörse only (A). Frequently, the English term market-maker is also translated by Kursmakler. This is not correct, however, since a Kursmakler is only a broker, who does not trade for his own account, in contrast to a market-maker (Gomber 2000: 21).
<table>
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<th><strong>market value</strong></th>
<th><strong>Marktwert</strong></th>
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<tr>
<td>The market value is defined as &quot;the current resale value of a security. The market value of an issue is easily computed as the closing prices multiplied by the shares outstanding&quot; (&quot;New York Stock Exchange-Glossary&quot;).</td>
<td>Der Marktwert ist definiert als Preis, der am Markt für ein Gut erzielt werden kann. Als Marktwert einer AG wird das Produkt aus der Anzahl der ausgegeben Aktien und dem aktuellen Börsenkurs bezeichnet&quot; (Büschgen 1998b: 596).</td>
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<tr>
<th><strong>market volatility</strong></th>
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<td><em>see volatility</em></td>
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<table>
<thead>
<tr>
<th><strong>matching</strong></th>
<th><strong>Matching, Orderzusammenführung</strong></th>
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<tr>
<td>Matching, or order matching as it is also called, involves the automatic matching and execution of buy and sell orders. Order matching is carried out by electronic trading systems (&quot;London Stock Exchange-Glossary&quot;).</td>
<td>(Europäische Kommission 2002: 12) Unter Matching versteht man, dass ein elektronisches Handelssystem selbständig die besten Gegenofferte sucht, beide Seiten zusammenführt und die Abrechnung veranlasst (Lyk 2002: 350).</td>
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**merger**

In the strictest sense of the word "a true merger takes place when two corporations combine so thoroughly that neither of the participants survives legally. What emerges is an entirely new entity, with a new name, structure, line of products and services, culture, and so on" (Arsenault 1998: 84). The term *merger* sometimes refers even to a much wider range of activities in connection with the buying and selling of a company, such as classical mergers, acquisitions, management buy-outs or management buy-ins, minority equity purchases, divestitures, spin-offs, and joint ventures. Additionally, some authors use the term for other forms of cooperation such as strategic alliances or networks. (Frank 1993: 6-7, Bressmer, Moser and Sertl 1989: 35-36 and Gösche 1991: 11)

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**Fusion, Unternehmensverschmelzung**

"Der Zusammenschluss zweier oder mehrere Unternehmen erfolgt in der Weise, dass sie nach Vollzug der Fusion eine rechtliche Einheit bilden…Die Fusion kann dabei in Form einer aufnehmenden Verschmelzung oder einer Fusion durch Neugründung erfolgen" (Hopfenbeck 1996: 155).

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The English term *merger* covers, at least when used in the wider sense of the word, a broader concept than the German *Fusion* since forms in which the cooperating corporations do not legally amalgamate are also included (A).
mimetic isomorphism
In times of uncertainty firms tend to imitate the behaviour of other firms. This strategy of imitating industry norms and acquiescing to the environment is very common. As a result, the strategies of successful firms are consciously or unconsciously imitated by managers of other firms in the same industry. This also involves entering into alliances or mergers simply because other successful firms have done so (DiMaggio and Powell 1983).

mimetischer Isomorphismus
In diesem Fall entstehen Ähnlichkeiten zwischen Organisationen als Reaktion auf Unsicherheit (Jann und Franzke 2001).

minority equity purchase
(Gösche 1991: 11)
A minority investment is the acquisition of less than 50 percent of a corporation (Rosenberg 1993b: 220).

Minderheitsbeteiligung
"Von einer Minderheitsbeteiligung spricht man, wenn sich ein Unternehmen mit weniger als 50% am Kapital eines anderen Unternehmens beteiligt" (Thommen 2004: 425).

monopoly
This is a situation where one person or company controls all the market in the supply of a product ("Monopoly": 152)

(Angebots-) Monopol
### moral hazard

Moral hazard occurs when insurance reduces the incentives for individuals to avoid risk and expense through prudent behaviour. People with lots of medical insurance, for example, may spend less on preventive healthcare. If they get sick, they may make more visits to physicians and incur more expensive treatments (Mansfield 1994: 161).

### Moral Hazard, moralisches Risiko, Risiko des fahrlässigen Verhaltens

Moralisches Risiko (*Moral Hazard*) liegt vor, wenn ein Akteur aufgrund bestehender Vertragsverhältnisse sein Verhalten ändert und mehr Leistungen in Anspruch nimmt, als dies bei vollständiger Information oder bei Nichtbestehen des Vertrages der Fall wäre. Im Extremfall können Versicherungsbetrug oder fahrlässige Herbeiführung eines Schadensfalles als *Moral Hazard* qualifiziert werden (Badelt und Österle 1998: 83).

### mutual company

A mutual company is a corporation that is owned by its members and has no stock or shareholders in the conventional sense (Optima Investment Research 2000: 1).

### Unternehmen auf Gegenseitigkeit, Gegenseitigkeitsgesellschaft

Dies ist "ein Unternehmen im Besitz seiner Kunden, und nicht in der Hand einer separaten Aktionärsguppe" (Scott 2000: 349).
**mutual fund**

Mutual funds, legally known as open-end companies, are one of three types of investment companies that pool the financial resources of individuals and companies and invest those resources in diversified portfolios of assets. The notion "open-end company" refers to the fact that the number of shares in the fund is variable. New shares can be issued on a continuous basis. On the other hand, in contrast to a closed-end fund, the fund is obliged to buy back shares any time. In Britain mutual funds are referred to as unit trusts (Cornett and Saunders 1999: 127, Saunders 2000: 372 and O'Neal 1999).

In Austria and Germany closed-end funds are not allowed, which implies that all investment funds are mutual funds (Eilenberger 1997: 134).

---

**offener Investmentfonds, Kapitalanlagegesellschaft**

Offene Fonds sind Investmentfonds (d.h. Sondervermögen einer Kapitalanlagegesellschaft), deren Anteile anzahlmäßig variabel sind. Es können somit kontinuierlich neue Anteile (= Investmentzertifikate) ausgegeben werden, und die Kapitalanlagegesellschaft ist verpflichtet, diese jederzeit zurückzunehmen (Jansen 1999: 171-172 and Eilenberger 1997; 134).

---

**NASDAQ's Small Order Execution System**

This is an "automated execution system for processing small order agency executions of Nasdaq securities (up to 1,000 shares)" ("NASD-Glossary").

---

**national securities association**

A national securities association is an association of brokers and dealers registered as such with the SEC (SEC 2003: 3).

---

**Handelssystem der NASDAQ für kleine Orders (A)**

Bei der SEC registrierte US-amerikanische nationale Vereinigung von Wertpapiermaklern und -händlern (A)
### network effect

"The 'network effect' describes numerically how exponential advantages are brought to each network participant. Each new member gains exponential benefits, and each existing member reaps exponential benefits from each new member joining" (Trepp 2000: 3). The emergence of additional trading systems is therefore not necessarily economically logical, as it is generally an advantage to the users of a trading system if there are as many participants as possible, as system-liquidity is believed to increase with the number of participants. Other typical examples illustrating network effects is the telephone, since the benefit for the owner of a telephone increases with each new user (Jensen and Natorp 2000).

### netzeffekt


### network externalities

see network effect

### new market

see second-tier market

### normative isomorphism

Increasing similarities between firms are due to the fact that the organisational routines are influenced by professionally trained employees (DiMaggio and Powell 1983).

### normativer Isomorphismus

In diesem Fall entstehen Ähnlichkeiten zwischen Organisationen "durch Professionalisierung im organisationalen Feld" (Jann und Franzke 2001).
### OECD Code of Liberalisation of Capital Movements

The OECD Code of Liberalisation of Capital Movements deals with the liberalisation of all capital flows and is, apart from regional agreements, such as within the EMU, "still the single multilateral legal instrument that requires its adherents to open up their capital markets and refrain from discriminating against foreign investors" (Schuijer 2002). The Code, which was established in the 1960s, originally covered only transfers related to foreign direct investment, trade credits and certain longer-term securities. It took until the 1990s for short-term capital movements of speculative nature to be included, which substantially increased its importance. In the meantime, most members have realised the benefits of liberalisation, such as access to a global pool of savings, fiercer competition among financial institutions leading to improved efficiency, more options of portfolio diversification and risk-reduction, and the worldwide dissemination of proper disclosure and corporate governance standards. Without capital account liberalisation the globalisation and amalgamation of financial markets would not have been possible (Schuijer 2002).

<table>
<thead>
<tr>
<th>oligopolistic market</th>
<th>compare oligopoly</th>
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<tbody>
<tr>
<td><strong>oligopolistischer Markt</strong></td>
<td><strong>(Pindyck und Rubinfeld 1998: 523)</strong></td>
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### OECD-Kodex zur Liberalisierung des Kapitalverkehrs

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td><strong>Oligopoly</strong></td>
<td>This term denotes the &quot;control of a commodity or service in a given market by a small number of companies or suppliers&quot;. The corresponding market form is an oligopolistic market (&quot;Oligopoly&quot;: 944).</td>
</tr>
<tr>
<td><strong>Open Outcry</strong></td>
<td>This is &quot;a trading method where trading takes place in a designated physical area of the exchange within an agreed time period. Prices are agreed by traders on the floor of the exchange&quot;, by outcry or certain hand signals (Bank of England 1995: 279).</td>
</tr>
<tr>
<td><strong>Operating Costs</strong></td>
<td>Operating costs, or operating expenses, are those &quot;expenses incurred in the course of ordinary activities of an entity&quot; (Stickney and Weil 2000: 815).</td>
</tr>
<tr>
<td><strong>Betriebsaufwand</strong></td>
<td>Dies ist &quot;derjenige Teil der Aufwendungen, der in Erfüllung des eigentlichen Betriebszwecks entsteht&quot; (Weigert und Pepels 1999: 87).</td>
</tr>
<tr>
<td><strong>Operational Synergies</strong></td>
<td>Operational synergies comprise economies of scale, scope and experience (Scherer and Ross 1990: 163).</td>
</tr>
<tr>
<td><strong>Operative Synergien</strong></td>
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</table>
**order book**

An order book is a record of buy and sell orders in a given instrument. "The term derives from the word 'notebook' which specialists traditionally used for the purpose. It also refers to the aggregate of sell orders left with the specialist " (Downes and Goodman 1990: 40).

**Orderbuch, Auftragsbuch**


**order-driven market**

see **order-driven system**
order-driven system

In order-driven systems (also called auction markets) prices follow orders. There are two types, namely continuous matching and auction matching. Auction matching systems accept limit orders entered by participants; these are stored, and at the end of the auction period (usually one day) the single price that maximises the number of orders executed, the number of securities, or the total trade value is calculated for each security (Korhonen 2001: 14). This, however, means that these systems cannot provide immediacy, which is the main advantage of large exchanges. Immediacy does not come for free, of course. Transaction costs are higher with large exchanges, as the market-makers need to be reimbursed. The question about the optimal organisation of the market therefore depends on the liquidity preference of the market participants. Continuous matching systems, in contrast, match orders automatically in time and price priority without time delay (Korhonen 2001: 15). Some matching systems are organised as so-called hit-or-take systems. Under these systems buy-and-sell offers are shown on a screen, and clients can simply execute a transaction by clicking on an offer. Matching systems enable investors to trade anonymously with multiple partners. Sometimes matching systems also route orders to other execution centres if there is no matching order available in the system ("FESCO's attempts", Gaa et al. 2000, Financial Services Authority 2000 and "Securities Law Institute-Glossary").

order-driven system, auftragsgesteuertes Handelssystem

### Order Handling Rules

The Order Handling Rules, adopted by the SEC in 1996, were the result of pressure from private trading platforms on the SEC to change its rules to encourage electronic exchanges. The competitive forces driving changes in financial markets also led to changes in regulatory oversight of the markets, and finally securities regulators have recognised the substantial benefits ATSs can bring to markets and investors. The adoption of Order Handling Rules in 1996 by the SEC was the first step in this direction. The aim of the Order Handling Rules was to ensure a fair and orderly alternative securities market by smoothly integrating ATSs into the securities market ("Good-bye to all that", "Internet securities" and Abken 1991: 19).

### Order-Routing

"Order routing is the act of sending orders from their originators, primarily investors and brokerdealers, to the execution system" (Hendershott 2003: 2).

### Organic Growth

"organic growth

see internal growth"
**organisational learning**

*Organisational learning* denotes the acquisition of knowledge by an organisation which consists of principles, facts, skills and rules for decision-making, behaviour and actions. These form the basis of core competences (Stonehouse and Pemberton 1999 and Stonehouse et al. 2004: 26).

---

**Organisationslernen (Moerke 2000: 1)**


---

**out-bound routing ECN**

Some ECNs take market orders (orders to buy or sell a stock immediately at whatever is currently the best available price) and limit orders and, if an internal match is not available, route them to other markets in search of the optimal price. These out-bound routing ECNs actively seek outside liquidity. If the national best bid or offer, the best price available across all markets, is from another market an out-bound routing ECN sends its orders there. Interestingly, out-bound routing ECNs are some of the best customers of destination-only ECNs (Hendershott 2003: 12-13).

---

**ECN, das Aufträge auch zu anderen Handelssystemen umleitet (A)**

Dies sind ausgereifte Ordderroutingsysteme, die es ermöglichen, eine Order parallel in mehreren Märkten zu plazieren wenn einen interne Ausführung nicht möglich ist. Wird eine Order auf einem Markt ausgeführt, wird diese auf den anderen Märkten automatisch gelöscht (Gomber 2000: 64, A).
passing the book

Passing the book permits 24-hour trading of financial instruments by passing control of trading between traders at different exchanges around the world (Scarlata 1992).

passing the book, Weiterreichtung der Bücher mit den Handelspositionen (A)


passive pricing system

see price-taking system

pension fund

A pension fund is a financial services firm selling retirement plans to its customers (Rose 2000: 150).

Pensionsfonds


pit-auction system

see open outcry

plant-specific economies of scale

Plant-specific economies of scale occur if a firm's size is below its minimum efficient size and cost can be saved through a merger by increasing the output. This may also permit the use of more efficient production technologies (Scherer and Ross 1990: 163-166).

betriebsspezifische Skaleneffekte

Betriebsspezifische Skaleneffekte werden durch die Konzentration der Produktion an einem Standort erreicht (Bundesministerium für Arbeit und Wirtschaft Österreich: "Fragen zur EU-Osterweiterung").
| **population** | **(Organisations-)
Population** |
<table>
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<tbody>
<tr>
<td>A population is defined as an &quot;aggregate of relatively homogeneous&quot; organisations (Hannan and Freeman 1977).</td>
<td>In der <em>Population-Ecology-Theory</em> ist eine Organisationspopulation als eine &quot;Gruppe ähnlicher Unternehmen&quot; definiert (Gerbach 2002: 17).</td>
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<tr>
<th><strong>portfolio strategy</strong></th>
<th><strong>Portfoliostrategie</strong></th>
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<tbody>
<tr>
<td>The goal of this strategy is to achieve a reasonable balance and stability within the firm by combining a set of interrelated businesses. The portfolio strategy may refer solely to the financial basis or also take into account technological, market know-how, or product-market niche relationships (Lorange, Kotlarchuk and Singh 1987: 4).</td>
<td><em>Portfoliostrategie</em> beschreibt die &quot;Diversifikation eines Portfolios von Wertpapieren zum Zweck der Risikostreuung&quot; (Scott 2000: 423).</td>
</tr>
</tbody>
</table>

In German the term *Portfoliostrategie* is almost exclusively used in connection with securities trading. However, risk spreading can also be a goal of a whole organisation that can be achieved through mergers and alliances (A).

<table>
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<tr>
<th><strong>present value</strong></th>
<th><strong>Barwert</strong></th>
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<tr>
<td>The term <em>present value</em> refers to the value &quot;at an earlier date (usually now) of a given future sum discounted at compound interest&quot; (Kieso, Weygandt and Warfield 2001: 298).</td>
<td>Die Berechnung des Barwerts erfolgt durch &quot;die Gewichtung der im Zeitablauf anfallenden Zahlungsströme in Form eines Kalkulationszinssatzes. Der so errechnete Wert von Zahlungen zum heutigen Zeitpunkt wird als Barwert bezeichnet&quot; (Colbe 2000: 147).</td>
</tr>
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</table>
### price-taking system

A price-taking system, which is also referred to as a passive, or derivative, pricing system, does not engage in price discovery but uses a price reference from a primary market. The advantage of such a system is that even large block trades cause no market impact (Korhonen 2001: 15).

### primary market

"The primary market is the market in which a security is sold for the first time...For example, if a firm needs to issue new bonds or stocks to finance investment in new equipment, the initial sale of these new securities occurs in the primary market. Thus, the primary market is where the public (individuals or financial institutions) buys newly issued bonds or stocks from the firms issuing them" (Burton, Nesiba and Lombra 2002: 45).

### private trading system

**see Alternative Trading System**

### process knowledge

In the context of alliances, *process knowledge* denotes the skills to manage interfirm cooperations, such as effectively negotiating cooperative contracts or managing inter-partner relations (Chen and Mingfang 1999).

### production-side economies of scale

Prozesswissen, Verarbeitungswissen

Prozesswissen, auch Verarbeitungswissen genannt, beschreibt das Wissen über den Ablauf bestimmter Prozesse (Haun 2002: 64).
scale

Production-side economies of scale are derived through an increase in the number of items of one product made by a firm (Panzar and Willig 1981).

product life cycle

The typical product life cycle is a curve marked by five distinct stages: product development, introduction, growth, maturity, and decline (Kotler and Armstrong 1997: 274).

product-specific economies of scale

Product-specific economies of scale result from reduced cost per unit with increasing output volume. They are achieved through the allocation of fixed costs, such as for administration, advertising, or R&D, to a larger number of products, thus reducing the cost per unit of output (Scherer and Ross 1990: 163-166).

program trader

Program traders trade securities automatically with the help of sophisticated computer programs following mechanistic trading recipes (Cox and Rubinstein 1985: 137).
**quote-driven system**

This term denotes "an electronic stock-exchange system in which prices are determined by the quotations made by market makers or dealers. The London Stock Exchange and the US National Association of Securities Dealers Automated Quotation System use quote-driven arrangements" (Butler 1993: 239).

**quote-driven market**

*see* *quote-driven system*

**raider**

(Moles and Terry 1997: 114)

A raider, usually referred to as a predator in Britain, is someone who attempts to take over a corporation (Moles and Terry 1997: 449).

**Raider, Unternehmenshai** (Van Bernem 1997: 187)

Ein *Raider* ist ein als Großanleger auftretender Investor, der zunächst durch Käufe an der Börse eine größere Menge einer bestimmten Aktie zusammenträgt. Anschließend unterbreitet er den übrigen Aktionären ein Übernahmeangebot für die restlichen Aktien, um so die Stimmenmehrheit zu erreichen (Siebers und Weigert 1995: 287).
**rating report** (Standard and Poor's 2003)
A rating report is a report issued by a credit rating agency on the credit standing of a company. The two largest credit rating agencies are Moody's Investors Services and Standard and Poor's Corporation. "Each rating assigned to a security issue is a reflection of at least three factors: (1) the character and terms of the particular security being issued; (2) the ability and willingness of the issuer to make timely payments; and (3) the degree of protection [for] investors...if the security issuer is liquidated, reorganized or declares bankruptcy" (Roth 2003).

**Rating Bericht** (E/D/E 2003: 10), **Finanzbewertungsbericht**

**replacement cost risk**
This is the risk that the purchasing price of certain assets increases, which makes their replacement more costly ("replacement cost risk": 1241).

**Risiko gestiegener Wiederbeschaffungskosten (A)**
Die Wiederbeschaffungskosten "bestimmen sich nach den Ausgaben, um einen Vermögensgegenstand zu ersetzen und entsprechen damit dem Einkaufspreis am Beschaffungsmarkt". Wenn dieser steigt, steigt auch das Risiko der Wiederbeschaffungskosten (Gerke 2002: 868, A).
resources
According to Wernerfelt (1984: 172), resources are "those (tangible or intangible) assets which are tied semipermanently to the firm." Das and Teng (1998: 22) classify the relevant firm-specific resources into four basic categories:
- Financial resources (capital).
- Technological resources (e.g. high research and development capabilities or superior know-how).
- Physical resources (production and distribution capacity or raw materials).
- Managerial resources (upper-level executives with superior management skills).
The competitive advantage of a firm results from the combination of these resources.

Ressourcen

retail broker
Retail brokers are brokers whose clients are mainly small investors (Tomlinson 2004).

Retailbroker
"Unter einem Retailbroker versteht man einen Broker, der sich hauptsächlich auf Privatkunden konzentriert. Im Gegensatz hierzu gibt es etwa Broker, deren primäre Zielgruppe institutionelle Anleger…sind" ("Retailbroker").

search costs
"Generally speaking, search costs refer to expenditures spent by customers in order to get the relevant information, such as locations and credits of the sellers, prices and qualities of the products“ (Chen and Lin 2003: 84).

Suchkosten
Suchkosten sind jene Ressourcen, die ein Kunde aufwenden muss, der ein bestimmtes Produkt kaufen möchte, um das günstigste Angebot zu finden (Europäische Kommission 2000b: 12).
<table>
<thead>
<tr>
<th>Securities and Exchange Commission</th>
<th>U.S.-Börsenaufsicht</th>
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<table>
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<tr>
<th>secondary market</th>
<th>Sekundärmarkt</th>
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<tbody>
<tr>
<td>The secondary market is defined as a &quot;market where financial instruments are sold and purchased by those other than the original parties&quot; (Terry 1997: 853).</td>
<td>Dies ist eine Bezeichnung für den &quot;Markt, an dem die umlaufenden Titel gehandelt werden&quot; (Bestmann 1997: 580).</td>
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<tr>
<th>second-tier market</th>
<th>Neuer Markt</th>
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<tr>
<td>&quot;A second tier market is a place for many growing businesses to be launched onto the public platform before they make their transition into large and profitable companies being listed in the prime segment&quot; (Chiu 2003).</td>
<td>Dabei handelt es sich um ein Segment einer Börse, dessen Zielgruppe vor allem innovative kleine und mittlere Unternehmen (oft aus stark wachsenden Sektoren) sind, die noch nicht reif sind, in anderen Segmenten zu listen (&quot;Dortmund-Projekt-Glossar&quot;).</td>
</tr>
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</table>
Securities Contact Committee

The Securities Contact Committee was established in 1979, and has since then helped in developing several EU directives on listing, as well as the directives on half-yearly reports, major shareholdings, insider dealing, and public offer prospectuses. Its members are nominated on a case by case basis depending on the meeting agenda. Its primary function is to facilitate the harmonised implementation of directives. The Securities Contact Committee has three main tasks:

- To facilitate the harmonised implementation of the directives mentioned above by regularly consulting and solving practical problems arising from their application.
- To facilitate the establishment of a concerted attitude of member states on stringent or additional conditions and obligations which member states may lay down at national level.
- To advise the Commission on any necessary supplements or amendments to the above-mentioned directives (European Commission 2000a: 32, 36).
<table>
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<tr>
<th><strong>securitisation</strong></th>
<th><strong>Verbriefung</strong></th>
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<tr>
<td>Securitisation means &quot;converting an asset such as a loan into a marketable commodity by turning it into securities. Any asset that generates an income stream can be securitised – e.g. mortgages, car loans, credit-card receivables&quot; (Carew 1995:46).</td>
<td>&quot;Bei der Verbriefung von Kapital wird ein handelbares Papier erzeugt, das einen Finanzkontrakt als Inhalt aufweist. Als Grundlage für die Verbriefung kommen Hypotheken, Lebensversicherungen, Kredite für den Autokauf und andere nichtkündbare oder nur mit hohen Kosten auflösbare Engagements in Frage&quot; (Franzetti 1995: 89).</td>
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<tr>
<th><strong>self-regulation</strong></th>
<th><strong>Selbstregulierung</strong></th>
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<tr>
<td>Self-regulation denotes &quot;the way in which the securities industry monitors itself to create a fair and orderly trading environment&quot;. In due course, the exchange regulates &quot;the conduct and activities of its members, subject to oversight by a specified government regulatory agency&quot; (&quot;New York Stock Exchange-Glossary&quot;).</td>
<td>Unter Selbstregulierung versteht man, dass die Börse eine eigene, ihrer Tätigkeit angemessene Betriebs-, Verwaltungs- und Überwachungsorganisation gewährleistet, ihre Reglemente und deren Änderungen jedoch von einer Aufsichtsbehörde genehmigt werden müssen (Schweizerisches Börsengesetz 1999: Art. 4).</td>
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<tr>
<th><strong>settlement</strong></th>
<th><strong>Abrechnung</strong></th>
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<tr>
<td>Settlement means the fulfilment of the obligations arising from a transaction (Scarlatata 1992). Furthermore, it denotes &quot;the exchange of securities or commodities for cash or the making of payments under a financial contract. Settlement normally takes the form of an initial notification between the two parties confirming the details of the transaction and the dates and the methods that will be used to make the exchange. The settlement is then completed on the settlement date or value date with one or both parties making the required transfers&quot; (Moles and Terry 1997: 454).</td>
<td>Unter Abrechnung versteht man im Kontext des Wertpapiermarktes die Lieferung der beim Abschluss involvierten Wertpapiere an den Käufer sowie die entsprechende Zahlung an den Verkäufer (Kommission der Europäischen Gemeinschaften 2002b:5).</td>
</tr>
</tbody>
</table>
shareholder value

*Shareholder value* is defined as corporate value minus debt. This implies that, first, the total value of the firm or business unit must be determined. Corporate value consists of three components: the present value of the cash flow from operations during the forecast period; the residual value, which represents the present value of the business attributable to the period beyond the forecast period; thirdly, the current value of marketable securities and other investments that can be converted to cash and are not essential to operating the business must be added. The cash flow from operations represents the difference between operating cash inflows and outflows. These cash flows are relevant for estimating corporate value because they represent the cash available to compensate debtholders and shareholders. The cash flows are discounted by the cost of capital or the weighted average of the costs of debt and equity capital (Rappaport 1998: 32-33).

---

Shareholder Value, Eigenkapitalwert


As is the case with computing the cash flow, there are several different methods of calculating the shareholder value of a company. For this reason the methods described above only serve as examples (A).

**single market**

*see internal market*

**SMEs**

In 1996 the European Commission set out a definition of SMEs which was intended to be appropriate in all member countries. According to this definition, small enterprises must not have more than 49 employees and the annual turnover must not exceed 7 million euros. The corresponding numbers for medium-sized firms are 249 employees and 40 million euros (Tilley and Tonge 2003: 1-2).

**KMU**

specialist

The term *specialist* denotes "a member of an exchange who makes an orderly market in one or more specific issues on a stock exchange. The specialist undertakes two functions:

- Buying and selling for his own account to meet temporary swings in the two-way flow of transactions and
- executing limit orders and stop orders placed by floor brokers when market conditions are appropriate" (Moles and Terry 1997: 508).

spin-off

A spin-off is a separation of a subsidiary or a division of a corporation from its parent by issuing shares in a new corporate entity. Shareowners in the parent company receive shares in the new company in proportion to their original holdings, and the total value remains approximately the same ("New York Stock Exchange-Glossary").

spread

see bid-ask spread

Speciaalist, Kursmakler, monopolistischer Market-Maker


(Unternehmens)Spaltung

Eine Spaltung liegt vor, wenn auf Grundlage eines Spaltungsplanes die spaltende Körperschaft Vermögen in eine oder mehrere übernehmende Körperschaften einbringt und die Gegenleistung den Anteilsinhabern der spaltenden Körperschaft im Verhältnis ihrer Beteiligungen oder im Tauschwege gegen wertgleiche Anteile an der übernehmenden Körperschaft zukommt (Lechner, Egger und Schauer 1997: 742).
**stakeholder**

The term *stakeholder* refers to anyone with a legitimate claim of any sort on a company (Emery, Finnerty and Stowe 1998: 10).

**stock exchange**

According to a definition given by the Boston Stock Exchange, a stock exchange is a place where listed stocks are bought and sold (Winfield and Curry 1987: 7).

**straight through processing**

Straight through processing (STP) means that the end-to-end processing of transactions of all financial instruments is fully automated. In this way "STP not only comprises clearing and settlement times but also provides a flexible, cost-effective infrastructure which enables e-business expansion through real-time processing and access to enterprise data" (Bardoloi 2003).

**strategic alliance**

see alliance
synergy

Synergies occur if a combination of single enterprises or parts of enterprises results in a higher profit in the long run than in the event of their isolated existence. Synergies can be utilised by bundling or exchanging resources or abilities of the combined companies, in this way decreasing costs or increasing profits. Synergies are a necessary prerequisite for a successful merger or alliance (Salter and Weinhold 1994: 117).

systematic risk

Systematic risk, which is also referred to as market risk or undiversifiable risk, is that portion of total variability in return caused by market factors that simultaneously affect the prices of all securities. The systematic nature of these price changes makes them immune to much of the reduction effects of diversification (Francis 1991: 265).

systemic risk

This is "the risk that a disruption (at a firm, in a market segment, to a settlement system etc.) causes widespread difficulties at other firms, in other market segments or in the financial system as a whole" (Abteilung für Finanzmarktanalyse 1993: 61).
<table>
<thead>
<tr>
<th>Term</th>
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<tbody>
<tr>
<td>takeover</td>
<td>see acquisition</td>
</tr>
<tr>
<td></td>
<td>Although a takeover is the same as an acquisition, it is frequently referred to as a hostile acquisition (Gaughan 2000).</td>
</tr>
<tr>
<td>tax loss carry forward</td>
<td>This is &quot;a tax benefit that allows a company to apply losses to reduce tax liability. More precisely, offsetting the current year's net operating loss against future year's net incomes for tax purposes&quot; (Goede 2003: 1267).</td>
</tr>
<tr>
<td>technicalisation</td>
<td>By technicalisation we understand the steady progress of investment methods and strategies through automation (the use of modern computer technologies) (Gerke and Rapp 1994: 5 and Amati 2001: 5).</td>
</tr>
<tr>
<td>trade match system</td>
<td>see matching system</td>
</tr>
<tr>
<td>transaction costs</td>
<td>Transaction costs consist of four components: first, the commission cost (the broker's basic fee for purchasing or selling securities as an agent), second, the bid-ask spread, third, the market impact cost of trade execution, and fourth, the cost of clearing and settlement (administrative costs) (Berkowitz, Logue and Noser 1988: 88).</td>
</tr>
<tr>
<td>steuerlicher Verlustvortrag</td>
<td>Der steuerliche Verlustvortrag ist derjenige Teil des Bilanzverlustes aus einem Jahr, der im nächsten steuerlich geltend gemacht werden kann (wodurch sich die Steuerlast mindert) (Thommen 2004: 259).</td>
</tr>
<tr>
<td>Technisierung</td>
<td>Im Kontext der Finanzmärkte versteht man unter Technisierung den ständigen technologischen Fortschritt durch Automatisierung von Investmentstrategien und durch den Einsatz immer modernerer Technologien (Paulsen 1993: 5).</td>
</tr>
</tbody>
</table>
Ulrike Thorwartl  Judgmental Analysis of Literature on Stock Exchange Mergers and Alliances in Europe

**Treaty of Rome**
After having created the European Coal and Steel Community (ECSC) in 1951, the six members Belgium, West Germany, Luxembourg, France, Italy and the Netherlands signed the Treaty of Rome in 1957, "creating the European Atomic Energy Community (EURATOM) and the European Economic Community (EEC). The member states set about removing trade barriers between them and forming a 'common market'" (EU: "The History of the European Union").

**Vertrag von Rom**
Nachdem 1951 Belgien, Deutschland, Luxemburg, Frankreich, Italien und die Niederlande die Europäische Gemeinschaft für Kohle und Stahl (EGKS) gegründet hatten, kamen diese sechs Staaten überein, "eine Integration weiterer Bereiche ihrer Wirtschaft vorzunehmen. 1957 unterzeichneten sie den Vertrag von Rom und gründeten damit die Europäische Atomgemeinschaft (EURATOM) und die Europäische Wirtschaftsgemeinschaft (EWG). Ziel der Mitgliedstaaten war die Beseitigung von Handelsübemnissen und die Bildung eines 'Gemeinsamen Marktes'" (EU: "Die Geschichte der Europäischen Union").

**UCITS contact committee**
The UCITS contact committee consists of representatives from the member states’ competent authorities and Ministries of Finance. Its tasks are to facilitate harmonised implementation, to create a forum for consultations between Member States and to advise the commission on additions or amendments to the UCITS Directive (European Commission 2000a: 32).

**Kontaktausschuss betreffend Organismen für gemeinsame Anlagen in Wertpapieren**
**underlying**
"The underlying is the physical instrument, commodity, currency, interest rate or whatever, against which a future [sic!] or option is traded" (Inglis-Taylor 1995: 123).

**underwriting**
The term *underwriting* denotes the assistance in the issue of new securities (Cornett and Saunders 1999: 97). More precisely, on an underwritten issue, the respective investment bank agrees to buy the entire issue and then resell it. The issuing company therefore has a guarantee that it gets the cash it needs. Securities underwriting can be undertaken through either public or private offerings. Private offerings are securities issues placed with one or a few large institutional investors (e.g., insurance companies and mutual funds), whereas public offerings refer to issues placed with the general public (Cornett and Saunders 1999: 97, 101 and Brigham, Gapenski and Daves 1999: 507).

**Basiswert**
Der Basiswert bezeichnet "die einem Termingeschäft zugrundeliegende Ware. Es kann sich dabei um eine reale Ware (Aktie, Zinspapier, Währung, Commodity) oder ein künstlich definiertes Basisgut (Index, Korb von realen Gütern) handeln" (Straush 1990: 19).

**Underwriting, Emissionsübernahme** (Goede 2003: 1343)
**upstairs market**

Some exchanges offer special market segments for block trades, such as the upstairs-market of the NYSE. In this segment, larger orders can be traded anonymously over the phone among specialised block trading departments of stock exchange members. Those orders which are not matched in the upstairs-market are executed on the floor of the NYSE (Gomber 200: 46).

**ventures capital**

By venture capital we understand investments made by one or more companies or wealthy individuals investing in a company (often an SME) with usually high growth potential and/or good profitability. The idea is to back risky industrial and commercial ventures at the beginning of their operations. Investment can be either direct or indirect through a fund (Commission of the European Communities 1992: 25).

**Upstairs Market, Brokermarkt**

(Döfler 2004)

Dieses Marktsegment wird von institutionellen Investoren für große Transaktionen genutzt, da die Preisdifferenzen in diesem Segment geringer ausfallen (Oehler and Häcker 2003: 26).

**Risikokapital**

Als Risikokapital wird jene Form der Finanzierung bezeichnet, die im Wesentlichen als Beteiligungsfinanzierung für junge Unternehmen (oder Unternehmenszweige) auf die besondere Situation der hohen Risiken, aber auch großen Entwicklungschancen abgestellt ist. Es handelt sich dabei um eine Risikokapitalfinanzierung, welche zumeist in Form einer Eigenkapitalbeteiligung erfolgt (Lechner, Egger and Schauer 1990: 248).
**vertical merger**
In a vertical merger, two or more firms of preceding or succeeding stages in the production chain are combined, with the firms having a customer-supplier relationship. This type of merger is usually undertaken when the market for the intermediate product is imperfect. Depending on whether the acquired firm is in a preceding or succeeding stage one speaks of a forward vertical merger or a backward vertical merger, respectively. A vertical merger leads to a higher value added by the company (Hermsen 1994: 35-36 and Lorange, Kotlarchuk and Singh 1987: 5-6).

**volatility**
In the context of shares, volatility is the variability of movements in security price (Buckley 1996: 583).

**volume advantages**
Volume advantages occur through the bundling of similar resources and can again be split up into economies of scale, learning curve effects and coinsurance effects (Gullander 1976: 104-105).

The term *Volumenvorteile* is used in different ways, but not as an umbrella term for economies of scale, learning curve effects, and coinsurance effects, as is the case with the English term *volume advantages*. (A).
**World Federation of Exchanges**

This organisation "maintains a platform worldwide where exchange industry professionals discuss issues of common interest, identify new solutions which enhance the efficiency of regulated markets, and develop programs which protect their integrity...The Federation is a private international organization comprised of the operators of the world's leading markets, which are committed to the highest levels of market quality...Its purpose is to facilitate the representation and development of organized and regulated markets, and to meet the needs of evolving capital markets in the best interest of their users". Other goals include the harmonisation of standards for business processes (particularly with regard to cross-border trading) in the exchange industry as well as the strengthening of cooperative relationships with supervisory authorities ("The World Federation of Exchanges").

**Internationaler Börsenverband**

(Kommission der europäischen Gemeinschaften 2002a: 17)


8. Discussion and Conclusion

The main goal of this thesis was to compile an English-German glossary of technical terms relevant to stock exchange mergers and alliances in Europe. Since terminological research is only possible within the context of technical knowledge, the relevant literature on stock exchange mergers and alliances was reviewed by means of judgmental analysis.

The methods used comprise deductive multi-paradigm research in combination with terminological research. Judgmental analysis was applied to the relevant literature on stock exchange mergers and alliances in order to identify those general theories of mergers and alliances that fit best with the situation and characteristics of stock exchanges. In order to avoid biases, decomposition was a central feature of the analysis, which means that each theory was analysed separately, with each success factor (which served as the criteria for the fit between general theories and stock exchanges) being looked into individually as well. This approach was intended to help avoid the biases involved in holistic judgment. Furthermore, all judgments were justified verbally in order to make them traceable. The analysis did not involve group judgment, however, which is justified by the fact that the main goal of the thesis was not an absolute validation of analysis results but the compilation of a glossary of relevant technical terms of stock exchange mergers and alliances based on the analysis.

In the first part, the background of stock exchange mergers and alliances was looked into. Until a few decades ago, stock exchanges held a (regional) monopoly position, with each stock exchange serving its national market. This has changed considerably in the past decades due to such factors as globalisation, deregulation (capital account liberalisation), new regulations (e.g. Basle II), securitisation, consolidation of institutional investors, or technicalisation and disintermediation. All these factors increase the competitive pressures on stock exchanges. They are facing competition not only from other stock exchanges, but also from other trading venues, so-called Alternative Trading Systems (ATSs),
which are private trading platforms at which (mainly institutional) investors can trade shares at low cost and in most cases anonymously. Another important factor that has considerably changed the environment of stock exchanges in the past few decades is European integration. European integration grants financial institutions of EU member countries free access to all financial markets within the single European market, and the introduction of the euro has increased competition even further by eliminating exchange rate risk. All these factors lead to stock exchanges being competing suppliers in the services industry. In order to survive in this highly competitive environment, stock exchanges need to concentrate on a number of critical success factors. The criteria for success most frequently mentioned in the relevant literature are appropriate corporate governance and ownership structures, organisation and technicalisation, the integration of derivatives markets, proper market segmentation, proper supervision of trading, low transaction costs, transparency regulations, and external growth.

The phenomenon of stock exchange mergers and alliances is analysed by using fourteen different management theories. By judgmentally analysing in how far the different theories support the critical success factors of stock exchanges and whether they are in line with the effects of ATSs and European integration, the explanatory value of the different theories is assessed. By introducing a point system, the comparability of the outcome of the analyses of the different theories is improved. The theories that seem to contain most explanatory value are efficiency theories, hubris hypothesis, and valuation theory, with efficiency theories scoring the highest number of points. Furthermore, also institutional theory, stakeholder theory, the resource-based view, monopoly theory, the theory of reduction of income uncertainties, and organisational learning seem to serve as good explanations of stock exchange cooperation. Since there is more than one theory that is applicable to stock exchanges, and since no single theory supported all critical success factors and phenomena stock exchanges are facing, a combination of theories, a so-called eclectic approach, is necessary to fully explain stock exchange mergers and alliances. Unfortunately there is still a lack of
integration of theories to be observed in literature. In the course of the analysis it was attempted to create links between the theories.

In the glossary the relevant terms of stock exchange mergers and alliances are defined. Some terms that show differences in German and English definitions or other ambiguities are highlighted. In general, a high degree of congruency of English and German terminology can be observed. This is mainly due to the fact that in the fields of financial markets as well as mergers and alliances most concepts did not develop in parallel in the two languages, but were adopted one-to-one by one of the languages. Investment managers in a German-speaking country, for example, translate hardly any technical terms into German. Instead, English terms are used either as foreign words or, even more frequently, as guest words. Furthermore, there are a large number of terms with a German translation, but with the concepts behind them being taken over one-to-one from English-speaking countries.

When comparing the aims of this thesis with the outcomes it can be said that the main goal, the compilation of a glossary of relevant technical terms for stock exchange mergers and alliances, could be achieved. The fact that most concepts do not show any differences in English and German literature limits the number of contrastive aspects, however. As the speed of new developments in the stock exchange world and financial markets will not slow down in the near future, and as new developments and new knowledge in many cases also trigger the emergence of new technical terms, new interesting terminological research perspectives will emerge in this field. In the area of stock exchange mergers and alliances in general there is still ample scope for further research. It has to be said that there are more theories on mergers and alliances than those examined in this thesis. Generally, theory-based research on the different theories of stock exchange mergers and alliances is to be intensified. One interesting option would be to apply other methods than judgmental analysis to the problem examined in this thesis. The field also lends itself very well to case study research. It would be
interesting, for example, to try to apply the different theories to practical cases of stock exchange cooperation.
7 Summary

The main goal of this thesis was to compile an English-German glossary of technical terms relevant to stock exchange mergers and alliances in Europe. Since terminological research is only possible within the context of technical knowledge, first the relevant literature on stock exchange mergers and alliances was reviewed by means of judgmental analysis. In this way terminological research and research in the field of mergers and alliances were combined. A second goal is to identify the explanatory value of different general management theories on merger and alliances for the special case of stock exchange cooperation.

In a first step, important but sometimes ambiguously used terms crucial for further reading were defined. Secondly, the research strategy, methods, and methodology were explained. The methods used comprise deductive multi-paradigm research in combination with terminological research. Judgmental analysis was applied to the relevant literature on stock exchange mergers and alliances in order to identify those general theories of mergers and alliances that fit best with the situation and characteristics of stock exchanges. The criteria on which the analysis is based are the critical success factors of stock exchanges plus the effects of European integration and ATSs. In order to avoid biases, decomposition was a central feature of the analysis, which means that each theory was analysed separately, with each success factor (which served as the criteria for the fit between general theories and stock exchanges) being looked into individually as well. This approach was intended to help avoid the biases involved in holistic judgment. Furthermore, all judgments were justified verbally in order to make them traceable. The analysis did not involve group judgment, however, which is justified by the fact that the main goal of the thesis was not an absolute validation of analysis results but the compilation of a glossary of relevant technical terms of stock exchange mergers and alliances based on the analysis.
The thesis is generally split up into two main parts. In the first part, the background of stock exchange mergers and alliances is looked into. First, the theory of corporate growth is discussed. The most important decision for companies wishing to grow is whether to pursue internal or external growth. Whereas internal growth is generally considered less risky, external growth allows companies to grow more quickly and with fewer limitations. As mergers and alliances are forms of external growth strategies, the main focus was on external growth and its drivers. The most important drivers mentioned in the relevant literature are globalisation (of markets, technologies, and needs), shorter product life cycles, turbulent world markets, and the fact that products today rely on many different technologies. Furthermore, companies seek to grow in order to benefit from volume advantages (including economies of scale, learning curve effects, and coinsurance effects), economies of scope, and monopoly advantages.

The second important background factor of stock exchange mergers and alliances is radical changes in the stock exchange world. Until a few decades ago, stock exchanges held a (regional) monopoly position, with each stock exchange serving its national market. This has changed considerably in the past decades due to such factors as globalisation, deregulation (capital account liberalisation), new regulations (e.g. Basle II), securitisation, consolidation of institutional investors, or technicalisation and disintermediation. All these factors increase the competitive pressures on stock exchanges. They are facing competition not only from other stock exchanges, but also from other trading venues, so-called Alternative Trading Systems (ATSs), which are private trading platforms at which (mainly institutional) investors can trade shares at low cost and in most cases anonymously. Other advantages of ATSs are more speedy execution, new trading possibilities (such as matching or crossing of orders), longer trading hours, and the elimination of intermediaries. There are also several disadvantages, for example lower liquidity compared to established exchanges or the danger of liquidity dispersion. Furthermore, most of them free-ride on the price-discovery function of traditional stock exchanges by executing trades at the prices established on stock exchanges. Traditional stock exchanges have to bear much
higher costs than ATSs, apart from the costs of price discovery, also the costs of listing have to be mentioned. Although ATSs are most widely spread in the US, also European exchanges must continuously upgrade their services in order to fend off competition from this side. Up to now they have been quite successful, which is mainly due to the fact that most of them abandoned floor trading and switched to electronic trading platforms. Another important factor that has considerably changed the environment of stock exchanges in the past few decades is European integration. European integration grants financial institutions of EU member countries free access to all financial markets within the single European market, and the introduction of the euro has increased competition even further by eliminating exchange rate risk. All these factors lead to stock exchanges being competing suppliers in the services industry. Many of their traditional sources of income have come under threat, such as membership fees (as demutualisation involves the abolition of membership) or revenues from listing and transactions, since fierce competition in these areas has driven down prices.

In order to survive in this highly competitive environment, stock exchanges need to concentrate on a number of critical success factors. The criteria for success most frequently mentioned in literature are the following:

- Corporate governance and ownership structures: This factor is reflected by the increasing trend towards demutualisation. The main advantage is quicker and more flexible decisions, since the members of the exchange are no longer its owners.

- Organisation and technicalisation: In order to provide cost-efficient and quick trading services, many exchanges have decided to integrate their clearing and settlement institutions. This allows straight-through-processing and the exploitation of economies of scale and scope. Technicalisation refers to the switch to electronic trading platforms, with the main advantages being lower costs, the possibility of straight through processing, and the option of interlinking the trading platforms of different stock exchanges.
- Integration of derivatives markets: The main benefit of this move is economies of scale. Moreover investors appreciate having to deal with only one exchange.
- Market segmentation: Stock exchanges need to carefully choose which market segments they offer in order to be able to serve the diverse needs of companies planning to get listed.
- Supervision of trading: In order to avoid harm to the reputation of the exchange and the trust in capital markets in general, stock exchanges need to carefully supervise the market in order to avoid illegal behaviour of market participants. This is particularly important in connection with stock exchanges getting listed on their own market, as in this case they would have to regulate and supervise themselves. The ability of profit-oriented stock exchange to properly supervise the market is frequently questioned.
- Transaction costs: ATSs compete with stock exchanges mainly on transaction costs. Investors in many cases choose the trading venue offering the lowest costs.
- Transparency regulations: While institutional investors prefer a low level of transparency, private investors favour transparency. Stock exchanges need to find the right balance between the conflicting interests of these groups.
- External growth: This factor is considered necessary for many stock exchanges to survive. Due to positive network externalities, large stock exchanges are at an advantage compared to smaller competitors. Moreover the trading function shows considerable economies of scale.

The most prominent examples of stock exchange mergers are Euronext (including the stock exchanges of Paris, Amsterdam, Brussels, and Lisbon) and OMX (the merger between the Swedish Stock Exchange, Helsinki, as well as Tallin, Riga, and Vilnius). The most spectacular deal, which never came into effect, however, was probably the planned merger between the London Stock Exchange and Deutsche Börse. One reason for the failure was a hostile takeover bid by the Swedish OM-Group for the London Stock Exchange. Prominent examples of alliances are NOREX (the alliance between the stock exchanges of
Stockholm, Copenhagen, Iceland, Oslo, Helsinki, Tallin, Riga, and Vilnius) and Euro.NM, which was created in 1999 and linked five new market exchanges, including Neuer Markt (Germany), Nouveau Marché (France), Nieuwe Market (The Netherlands), the Nuovo Mercato (Italy), and Euro NM Belgium. Euro.NM closed down its operations again in October 2000, however. Furthermore, several alliances can be found among the relatively young stock exchanges of Central and Eastern European countries.

The analysis of the phenomenon of stock exchange mergers and alliances is based on fourteen different management theories. By judgmentally analysing in how far the different theories support the critical success factors of stock exchanges and whether they are in line with the effects of ATSs and European integration, the explanatory value of the different theories is assessed. By introducing a point system, the comparability of the outcome of the analyses of the different theories is improved. The theories that seem to contain most explanatory value are efficiency theories, hubris hypothesis, and valuation theory, with efficiency theories scoring the highest number of points. Furthermore, also institutional theory, stakeholder theory, resource-based view, monopoly theory, the theory of reduction of income uncertainties, and organisational learning seem to serve as good explanations of stock exchange cooperation. Since there is more than one theory that is applicable to stock exchanges, and since no single theory supported all critical success factors and phenomena stock exchanges are facing, a combination of theories, a so-called eclectic approach, is necessary to fully explain stock exchange mergers and alliances. An attempt at interlinking the different theories is made in the analysis by trying to find connections between the theories. Looking to the future of financial markets, it becomes obvious that currently the vision of a central worldwide trading platform is not realistic, in particular when considering the high number of failed attempts of stock exchange cooperation.

The glossary contains the relevant terms of stock exchange mergers and alliances. Some terms that show differences in German and English definitions or
other ambiguities are highlighted. In general, a high degree of congruency of English and German terminology can be observed. This is mainly due to the fact that in the fields of financial markets as well as mergers and alliances most concepts did not develop in parallel in the two languages, but were adopted one-to-one by one of the languages. Investment managers in a German-speaking country, for example, translate hardly any technical terms into German. Instead, English terms are used either as foreign words or, even more frequently, as guest words. Furthermore, there are a large number of terms with a German translation, but with the concepts behind them being taken over one-to-one from English-speaking countries.

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