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Peik Granlund
Research Department
28.2.2003

Economic evaluation of bank exit regimes in US, EU and Japanese financial centres

Suomen Pankin keskustelualoitteita
Finlands Banks diskussionsunderlag

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Economic evaluation of bank exit regimes in US, EU and Japanese financial centres

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Abstract

This paper evaluates bank exit regimes in selected financial centres using econometric methods. The focus is on bank exit regimes applicable to commercial banks in New York, London, Frankfurt, Helsinki and Tokyo in 1998–2002. Bank exit regimes are studied from the perspective of bank creditors and bank shareholders. In order to apply econometric methods, the exit regimes are indexed and then evaluated by comparing them with market indicators that reflect the interests of bank creditors and shareholders. These market indicators comprise bank refinancing costs and bank growth rates. In other words, two specific questions are addressed: (1) Do differences in bank exit regimes of significance to bank creditors explain differences in bank refinancing costs? (2) Do differences in bank exit regimes significant to bank shareholders explain differences in bank growth? The study shows that in those financial centres where the probability of bailout is higher, refinancing costs for banks are lower.

Key words: evaluation, bank, regulation, supervision, reorganisation, liquidation

JEL classification numbers: G15, G18, G21

Arviointitutkimus Yhdysvaltain, Euroopan ja Japanin pankkien uudelleenjärjestely- ja likvidaatiolainsäädännöstä ja -käytännöistä

Suomen Pankin keskustelualoitteita 5/2003

Peik Granlund
Tutkimusosasto

Tiivistelmä

Tässä tutkimuksessa arvioidaan pankkien uudelleenjärjestely- ja likvidaatiolakeja ja -käytäntöjä maailman eri rahoituskeskuksissa. Arvioinnissa sovelletaan taloustieteellisiä menetelmiä. Arvioinnin kohteena ovat New Yorkin, Lontoon, Frankfurtin, Helsingin ja Tokion rahoituskeskusten liikepankkeja koskevat lait ja käytännöt vuosilta 1998–2002. Lakeja ja käytäntöjä tarkastellaan pankkien velkojien ja osakkeenomistajien näkökulmasta. Taloustieteellisten menetelmien soveltamiseksi lait ja käytännöt indeksoidaan ja niitä vertaillaan pankkien velkojien ja osakkeenomistajien intressejä kuvaavien markkina-indikaattoreiden havaittuihin arvoihin. Näitä markkina-indikaattoreita ovat pankkien jälleenrahoituskustannus ja kasvuvauhti. Tutkimuksessa vastataan kysymyksiin vaikuttavatko pankkien velkojia koskevien lakisäännösten ja käytäntöjen erot pankkien jälleenrahoituskustannuksiin ja vaikuttavatko pankkien osakkeenomistajia koskevien lakisäännösten ja käytäntöjen erot pankkien kasvuvauhtiin. Tutkimus osoittaa, että niissä rahoituskeskuksissa, joissa pankkituen mahdollisuus on suurempi, pankkien jälleenrahoituskustannukset ovat pienemmät.

Avainsanat: arviointi, pankit, sääntely, valvonta, likvidaatio, uudelleenjärjestely

JEL-luokittelu: G15, G18, G21

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1 Introduction

The topic of this paper is ”Economic evaluation of bank exit regimes in US, EU and Japanese financial centres”. Pursuant to the topic, bank exit regimes (reorganisation and liquidation rules and practices for banks) in five of the world’s financial centres are assessed. The financial centres concerned include New York (USA), London (UK/EU), Frankfurt (Germany/EU), Helsinki (Finland/EU) and Tokyo (Japan). The evaluation focuses on the competitiveness of financial centres. In other words, bank exit regimes are evaluated in terms of their effects on the competition between the centres. Increasing global competition indicates competition also between world financial centres. In the evaluation, legislation evaluation methodology is used. Legislation evaluation methodology provides for a variety of approaches in order to estimate the effects of certain legislation and assess the legislation (according to a chosen set of values). As for a detailed legal description of the bank exit regimes concerned, the reader is referred to Granlund 2002.[1]

This paper links to previous research made on financial centre competitiveness. In this research, the focus has mostly been on the determinants of financial centre growth measured as the number of foreign banks attracted. Foreign banks have been considered to engage in new markets by establishing bank subsidiaries, bank branches and other financial institutions. By restricting the perspective on financial centre competitiveness to *foreign bank*-engagements, a certain level of sensitivity has been introduced in the analyses made. Since foreign banks (ie international capital resources) are seen as well informed and sensitive in their choice of location, their decision and actions have been considered as the best available attribute for rational behaviour.[2] In theoretical discussions on determinants for the location of foreign bank engagements, a categorisation of determinants into profit-oriented, advantage-focused and structural may be identified. Profit-oriented determinants of foreign bank-engagements deal with the traditional questions of company profitability. The probability of receiving new customers from the financial centre or the need for a bank to be close to its customers as a condition for future success relate to this group of determinants. Advantage-focused determinants concentrate on bilateral aspects between the home country of the foreign bank and the financial centre in question. Similarly,

[1] Granlund 2002 “Bank exit legislation in US, EU and Japanese financial centres” Bank of Finland DP 25/2002.

[2] Examples of studies focusing on foreign bank engagements as an attribute for financial centre competitiveness include Jeger, Haegler and Theiss 1992 “On the attractiveness of Financial Centers” and Brealey and Kaplanis 1996 “The Determination of Foreign Banking Location”. Kindleberger 1974 “The Formation of Financial Centres: A Study in Comparative Economic History” may be considered as a prime source in the debate on financial centre competitiveness.

they may relate to the fact that the bank may be apt to follow non-bank companies from the bank's home country engaging in trade in the financial centre. Finally, the theoretical debate also comprises structural determinants. Structural determinants are legal and governmental determinants affecting the foreign bank's decision where to engage. Taxes or reserve requirements are examples of this group of determinants. Looking at the empirical results of analyses made on determinants of bank engagement, most groups of determinants are represented by significant results. Eg local economy size, stock-market turnover, bilateral trade flow, foreign direct investment and the level of banking secrecy have been shown to correlate with the number of foreign banks established.[3]

More specifically, this paper links to the research made on the effects of structural determinants on financial centre competitiveness. In the paper, the five bank exit regimes are evaluated in terms of their implications on financial centre competitiveness. In practice, the bank exit regimes are evaluated by carrying out two separate analyses. In the first analysis, the effects of the bank exit regimes on the refinancing cost for banks are investigated by looking into the question: "Do differences in bank exit regimes of significance to bank creditors provide for differences in bank refinancing costs?". In the second analysis, another dimension of financial centre competitiveness is focused on. In this analysis, the effects of bank exit regimes on bank growth are dealt with. The question addressed here is: "Does variation in bank exit regimes significant to bank shareholders provide for differences in bank growth?". In both analyses, the question concerning financial centre competitiveness is transformed to a question involving bank stakeholders. This is done in order to create conditions for the application of the legislation evaluation methodology on empirical market conditions (ie identify relevant law provisions and select market attributes as indicators of legal effects).

Regarding the structure of the paper, chapter 2 presents various methodological approaches for the economic evaluation of legislation. As a result of the fact that the empirical analyses in this paper are comparative (ie covers and compares bank exit regimes in several financial centres), methods for comparative legislation evaluation are listed. Motives for the choice of method in this study are also presented in chapter 2. Chapter 3 concentrates on how the bank exit regimes, ie bank exit legislation and practice, are specified and quantified. This is done in order to enable the application of econometric methods. In the first sub-chapter, the rules and practices relevant to *bank creditors* are specified and quantified. In the second sub-chapter, rules and practices relevant to *bank shareholders* are concentrated on. In chapter 4, market attributes (indicators of eventual legal

[3] For empirical findings on conditions for financial centre growth see also Goldberg, Helsley and Levi 1989 "The Prerequisites for an International Financial Centre". Recently, Bebchuk and Cohen 2002 have provided evidence on the role of state-level take-over protection as a determinant of firm location in the US.

effects) are selected, principles for the collection of data presented and calculations made. When analysing the effects of features of the bank exit regimes relevant to bank creditors on bank refinancing costs, the market attribute selected is *the refinancing spread* on publicly traded bank bonds. The spread is defined as the difference between the bank bond yield and a risk-free rate of return (government bond) of equal maturity. When investigating the effects of features of the bank exit regimes relevant to bank shareholders on bank growth, the market attribute chosen is *the change in bank balance sheet end sums*. In chapter 5 and 6 results are interpreted and conclusions drawn. Interpretation is made in the light of existing theories and empirical findings on spreads and bank growth. Finally, implications of the results on financial centre competitiveness are considered.

2 Formulating the research problems

2.1 The main features of legislation evaluation methodology

In principle, there are several methodological paths to follow when evaluating bank exit legislation in various financial centres. To receive a picture of these alternative paths, *the logical fundamentals* of the evaluation research problem, *the character of the empirical reality* to which methods will be applied and *the variety of available methods* should be addressed. Furthermore, it is apparent that these dimensions are partly interdependent. Eg data availability may affect the view on potential methods. In order to analyse the dimensions mentioned, each of the dimensions is discussed separately below.[4]

Starting with **the logical fundamentals** of the evaluation research problem, this dimension comprises a number of sub-dimensions that have to be dealt with in order to proceed with the evaluation. To sum up, the areas that require further attention relate to a) the fact whether the evaluation focuses on one legal entity or several, b) the identification of values for the evaluation, c) the type of organising principle intended for the evaluation and d) the specification of the diachronic character of the study. – As for the question whether *the focus is on one legal entity or several*, this corresponds with an analytically "simple" or a comparative approach. In analytically "simple" approaches, one law or one set of law

[4] Originally, the question of applying quantitative techniques in the form of experiments to the evaluation of law was considered in Lempert 1966 "Strategies of Research Design in the Legal Impact Study: the Control of Plausible Rival Hypotheses". The role of regression techniques in legal contexts was initially analysed in Fisher 1980 "Multiple Regressions in Legal Proceedings". The tradition of Law & Economics has also partly dealt with the evaluation of laws on a case-base.

provisions is evaluated. In comparative approaches, several laws or sets of laws are compared and evaluated. Usually, comparative approaches indicate that resembling laws in various countries are compared and evaluated. Because a) the evaluation research procedure partly differs in the case of "simple" versus comparative approaches and b) the evaluation approach applied to the bank exit regimes in this paper is comparative, comparative approaches are separately looked into in more detail below. – Another sub-dimension of the logical fundamentals of the evaluation research problem is *the identification of values* for the evaluation. Often, one thinks of values in evaluation research as the values to be used in the assessment of the chosen legislation. But in theory, evaluation research also deals with the question concerning what values the law originally represents. If the legislation is evaluated in relation to the original aims (ie values) of the law, the evaluation is said to be *goal-oriented*. If the values used for evaluation are found elsewhere, the evaluation is characterised as *value-rational*. The first (ie goal-oriented) approach is the traditional one. Also, values have a major impact on how the legislation evaluation is carried out in detail. To sum up, values not only represent a) a yardstick for the value assessment of the law. They also constitute b) a formula for the identification of relevant law provisions, c) an indication of the areas where effects of the law should be searched for and to some extent d) affect assumptions concerning the causal relations between the law and its effects.[5]

The next entity relating to the logical fundamentals of the evaluation research problem deals with *the type of organising principle* intended for the evaluation. Most commonly, legislation evaluations are analyses of the effects of the legislation. But evaluations may also compare legal effects with the formal or informal goals attached to the legislation. Moreover, efficiency issues are common in evaluations, introducing benefits and costs as parts of the analyses. Some evaluations also classify as input analyses, focusing on the input (of any type) needed in order to reach specific legal effects. In other cases, legislation evaluations may concentrate on causes or processes leading to a certain outcome. – Finally, *the time dimension*, ie the specification of the diachronic character of the evaluation, is a matter that links to the logical fundamentals of the study. Legislation evaluation studies have been categorised according to the time when the study has been carried out and the time when the law has been introduced. *Ex ante-analyses* have dealt with anticipated effects of planned legislation, while *ex post-analyses* have focused on the time after the introduction of the law and, eventually, identifiable legal effects.[6]

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[5] Concerning the role of values in evaluation research see Shadish, Cook and Leviton 1991.

[6] Worth remembering is that in legislation evaluation research the time period for legal effects to emerge may strongly vary. This fact should not be mixed up with the question whether the scientific means are sufficient to detect effects of the law.

Another dimension to consider in evaluation research concerns **the character of the empirical reality** to which the legislation evaluation methods will be applied. In legislation evaluation two specific problems arise relating to the character of the empirical reality. First, it is apparent that particular methods are better suited than others in evaluating certain types of law provisions. Second, since legislation not only aims to change human behaviour but also human attitudes, there is often a need for evaluation methods to detect attitude changes. This may restrict the number of potential methods.

When it comes to **the choice of legislation evaluation method**, a variety of alternatives are possible. In order to describe the methods in a significant way, the perspective is restricted to one feature of the methods. This feature relates to the causal relation between the law and its effects. In other words, the feature concerns *the identification of the net effects* of legislation. To identify the net effects of legislation, existing arsenals provide for experimental approaches implemented through correlation-based methods, regressions and time series-analyses. – Initially, *experimental approaches* have been applied to estimate the net outcome of regulations. Depending on the amount of experimental elements introduced into the approaches, researchers have distinguished between *pre-experimental, quasi-experimental* and *experimental methods*. The idea in these types of applications has been to compare real or hypothetical situational or sequential descriptions of reality. In ex post evaluations, the identifiable reality has been compared with hypothetical or real, contra-factual (ie without legislation) reference-situations or -sequences. By comparing the descriptions, assumptions or conclusions on the effects of legislation have been made using correlation-based methods. The fact that the contra-factual descriptions of reality often have been chosen from neighbouring areas has resulted in the use of the term cross-sectional for many of these approaches.[7]

In some cases, when the legislation evaluation studies have involved contra-factual descriptions of reality, panel data (ie data with a time dimension) and frequently changing legislation over time, conditions for correlation-based approaches in the form of *regression analyses* have improved. Still, regression techniques have mostly been used in comparative legislation evaluation involving several jurisdictions (cross-sections). – The final potential method for the identification of the net effects of legislation applied is *time series analysis*. The starting point for this type of approach is the existence and discovery of trends. In

[7] Originally, Campbell and Stanley 1966 discussed the logic and alternatives for experimental designs in general evaluation research. Questions considered were primarily linked to the construction of contra-factual reference situations or -sequences and the criteria that should be met in order to draw conclusions about effects and generalise the results to similar cases. For a separate presentation of existing correlation-based approaches to compare situations and sequences see Tacq 1997.

time series analysis the cross sectional element is eliminated. This means that the scope of the analysis does not change over time. In legislation evaluation research this fact has indicated that both the sequence before and after the introduction of the law are covered for a given area. Time series analyses as a distinct type of legislation evaluation research have been fairly rare. This derives from the fact that the introduction of a law is usually a one-time event in the sequence of the analysis. This implies that the conditions for tracking trend-associated changes are not optimal.[8]

2.2 Principles and methods for comparative legislation evaluation

As a result of the fact that the evaluation of bank exit regimes in various financial centres represents a comparative approach, a number of viewpoints on principles and methods for comparative legislation evaluation (ie evaluation of two or more jurisdictions) are presented below. Overall, a comparative approach has significant implications for the structuring of the evaluation. In comparative evaluation studies, the effects of the various laws should first be identified. Then, the effects of the laws should be compared against prevalent value criteria. In relation to "simple" evaluative research, the comparative approach generates differences mainly in terms of the logical fundamentals of the evaluation research problem and the final choice of evaluation method. More specifically, a) *the development of consistent value criteria* for comparative assessment of the laws and their effects and b) *the applicability of certain evaluation methods* are the areas most affected by the comparative approach.

To start, **the development of consistent value criteria** in comparative approaches faces the same possibilities and problems as the value criteria used in "simple" value-based assessments of any legislation. The roles of the value criteria are the same. Value-criteria are used in order to assess the laws and their effects, ie decide if laws are good or not. – In comparative legislation evaluation, problems rise through the fact that various national laws seldom have identical goals. This fact has had particular implications for *goal-oriented evaluation* (ie assessing the laws and their effects by using the formal or informal goals of the laws). In order to deal with the problem, some alternatives have been introduced. Usually, this has meant that the value-criteria for the comparative assessment of the laws have been an average (a compromise) of the goals of the various laws evaluated. Sometimes, it has also meant that the goals of the laws of the

[8] For ideas on principles to solve the problem of causation in legal contexts see Hage and Meeker 1988.

researcher's home country have been used as the value-criteria for the assessment of all laws.[9]

Concentrating on **the applicability of certain evaluation methods**, the effects of the comparative character of the study differ depending on the method in question. In *experimental approaches* the comparative character improves the possibilities to construct the contra-factual reference-situation or -sequence. The contra-factual reference may be derived from the other jurisdictions. Alternatively, the existence of similar legislation in other countries provides data in order to check for weaknesses in the contra-factual reference chosen. – The comparative quality of the study may also improve the quality of conclusions drawn from *time series analysis*. Eg the estimation of effects of certain historical factors in traditional time series analysis results may be difficult. By combining time series analyses of similar laws in various countries, this historical uncertainty may be abolished. – In *regression analyses*, the search is for correlation between features of the law and features of those areas where effects of the law ought to be found. If correlation is found, the existence of causal relations between the law and market conditions is probable. The conditions for applying regression techniques on the data are a sufficient number of observations concerning both the independent variable (ie the legislation) and the dependent variable (ie the market conditions under the law). Moreover, the observations should vary over time and cross-section (ie between countries). For the application of regression techniques, the consequences of the comparative approach are significant. First, the comparative approach (especially if several countries are involved) introduces a sufficient number of cross-sections into the analysis. Second, by allowing for a time dimension in the analysis, a second level of variation is introduced for the observations (concerning both independent and dependent variables), further improving the conditions for the application of regression techniques.[10]

[9] In *value-rational comparative evaluation*, values applied in the value-based assessment of the laws and their effects are found elsewhere. In other words, value-rational assessment of laws uses values other than the goals of the laws. Consequently, the fact that goals of various national laws evaluated may differ, is not as large a problem.

[10] The most recent evaluative research on capital market legislation using regression techniques is the analyses carried out by La Porta, Lopez de Silanes, Schleifer and Vishny 1997, 1998 and 1999. In the research, various national jurisdictions are evaluated by comparing legal determinants (ie features of the jurisdictions) with concrete capital market conditions.

2.3 Specifying the research problems and the research procedures for this study

Final initial questions concern the specification of research problems, the choice of methods and the formulation of detailed research procedures for this study. As mentioned earlier, the aim of this paper is to *empirically* evaluate bank exit regimes in some of the world's financial centres. The evaluation is done in order to receive a picture of the effects of laws on the competitiveness between financial centres. Bank exit is defined in a broad manner including reorganisation and liquidation of banks both according to the legislation and practices applied. The bank exit legislation of the various financial centres has been previously presented in Granlund 2002. In this second paper, various bank exit regimes are evaluated and compared using legislation evaluation methodology. – Regarding **the specification of the research problems**, the question concerning effects of bank exit regimes on financial centre competitiveness is transformed to a question concerning bank stakeholders. In other words, a bank stakeholder perspective is used in the analysis. In sum, there are four reasons for selecting this approach. Firstly, the focus on bank stakeholders derives from the fact that financial centre competitiveness is a question about *attractiveness*, which in turn directs individual stakeholder behaviour. Secondly, such an approach *defines the values* for the legislation evaluation, since the laws and their effects are easily evaluated according to the values (perspectives) of the stakeholders. Thirdly, by focusing on stakeholders, the approach also creates conditions for *the specification of relevant law provisions*, ie provisions with implications on a particular category of bank stakeholders. Fourthly, applying a stakeholder perspective in the analysis also *directs and simplifies the choice of market features* as attributes for legal effects, since legal effects often constitute stakeholder behaviour.

Furthermore, relating to the specification of the research problems, the bank exit regimes are evaluated by focusing on *two different sub-problems*. The first sub-problem addressed may be formulated as the question: "Do differences in bank exit regimes of significance for bank creditors provide for differences in bank refinancing costs?" while the second sub-problem receives the form "Does variation in bank exit regimes significant to bank shareholders provide for differences in bank growth?". The sub-problems may be further concretised by specifying *the type of bank exit provisions and practices* evaluated. In this respect, attention is given to those aspects of the bank exit regimes that matter in an economic sense. In other words, provisions and practices dealt with concern the level of security (financial assistance to banks) that the regimes provide bank stakeholders. In addition, provisions focused on concern the amount (or lack) of powers (right to commence bankruptcy, risk for capital loss in bank reorganisation etc.) that the legislation provides bank stakeholders. Also, a specification of the

sub-problems requires *a definition of the market attributes* (areas of eventual legal effects) analysed. In the case of bank refinancing costs, refinancing spreads (the difference between the rate of bank bonds and the risk-free rate) of banks in various financial centres is looked into. In the case of bank growth, changes in bank balance sheet end sums for banks in various financial centres are investigated.[11]

Finally, a few words may be said about **the research procedure** applied in this analysis. The legislation evaluation method chosen in both sub-analyses is *regression analysis*. The search is for correlation between characteristics of the bank exit regimes and the market attributes (ie spreads or changes in balance sheet end sums) in the various financial centres. If correlation exists, the existence of causal relations between the bank exit regimes and the market attributes is probable. This means that the bank exit regimes affect actual market conditions and financial centre competitiveness to the extent investigated. – *Conditions* for the application of regression techniques stem from the comparative character of the study. The fact that bank exit regimes and market attributes (ie spreads and changes in balance sheet end sums) are analysed for five financial centres (cross-sections) contributes to the application of regression techniques. Similarly, the time dimension (enabling the consideration of changes in the law over time and creating a panel data set) further improves the conditions for regressions. As a result of the number of cross-sections and the time-dimension, the number of observations is sufficient in order to carry out the regressions.[12]

[11] Regarding *the time dimension* in the analysis, this partly varies due to which sub-problem is considered. As for the first sub-problem involving bank creditors, data on changes of the bank exit regimes in the financial centres and levels of bank spreads are collected for the years 1999–2002. Discussing the second sub-problem concerning bank shareholders, this analysis covers the years 1998–2002.

[12] *The groundwork* for the application of the regressions is done in sections 3.1–3.2 (specification and quantification of bank exit regimes) and 4.1. (collection of data on attributes for prevailing market conditions). The results of the calculations are presented in section 4.2.

3 Definition and quantification of relevant features of bank exit regimes

3.1 Specification and quantification of bank exit regimes according to bank creditor interests

3.1.1 The Financial Assistance Index (FAI) as an attribute for assistance probability

The aim of this section (3.1) is to specify and quantify the bank exit regimes to the extent these concern bank creditors. The focus is on those aspects of the regimes that matter to bank creditors in an economic sense. Aspects of this kind relate to a) *the degree of security that the regimes provide the creditors' investments* and b) *the amount of powers that the bank exit provisions transfer to bank creditors* in the reorganisation and liquidation of banks. In other words, the aspects of the bank exit regimes looked into, mainly deal with features related to eventual creditor capital loss. In addition, also other aspects of the bank exit regimes affect creditor security and rights. These aspects may also have implications on market conditions similar to the aspects analysed. In the following sections, correlation between the specified aspects of the bank exit regimes and market conditions is searched for. Since the bank exit regimes of five financial centres are covered over time in the analyses, it is improbable that other aspects of the regimes would correlate with the aspects specified.

In order to specify and quantify bank exit regimes to the extent these concern bank creditors, *two types of indexes* are introduced. In the formulation of the indexes, it is first *specified* which characteristics of the bank exit regimes are included in the indexes. These characteristics do not change over time, ie the format of the indexes are stable. In addition, the indexes receive *grades* according to the level of the chosen characteristics for each financial centre. Since bank exit regimes vary, bank exit regimes of the various financial centres will receive deviating grades. In the case bank exit regimes are reformed, the financial centre in question will receive new grades for the reformed regime. The regimes are graded by giving each index a number between 15 and 0. Number 15 corresponds with a high degree of security for creditor investments or large transfers of powers to creditors. Number 0 corresponds with no security or power-transfer. – The first index introduced is *the Financial Assistance Index* (FAI). FAI deals with the overall probability of banks receiving financial assistance in various financial centres. The second index created is *the Bank-Creditor Rights Index* (BCRI).

BCRI focuses on certain basic creditor rights in the reorganisation and liquidation of banks.[13]

Analysing **the Financial Assistance Index** (FAI) further, two main questions may be addressed. To begin with, the question concerning the format (ie the specified content) of the FAI is analysed. Then, the separate grades that the various financial centres receive according to the FAI are listed. – Regarding *the format of the FAI*, this index concentrates on the probability of banks receiving financial assistance. Comparing the various bank exit regimes, it is apparent that substantial differences exist between the regimes. To receive a picture of the differences between the regimes, the differences should be estimated in a number of theoretical dimensions. First, one dimension should differentiate between *the legal bases* for financial assistance and *the assistance practice* applied. In many centres, the legal bases may be very specified, while in other centres legal bases may be imprecise. The assistance practice of the financial centres also differs strongly. Practice directs financial assistance to problem banks pursuant to the varying principles set out by the bank exit legislation. Second, when considering bank exit regimes, *conditions* for assistance should be separately looked into. On this point, variation between legal conditions and actual practices may exist. Sometimes, practice is more restricted than the discretionary principles set out by the law. In other cases, one may be of the opinion that practice is more liberal than the law originally intended.[14]

Third, *the form of assistance* is another central feature when quantifying bank exit regimes of various financial centres according to bank stakeholder perspectives. In theory, the form of the assistance directs which bank stakeholders will benefit from the assistance. According to this view, financial assistance benefiting bank creditors should be in the form of subordinated debt or other low-priority assistance (eg contributions). Financial assistance in the form of ordinary (or prior) debt may of course create conditions for the redevelopment of the bank, but also establishes a claim against the debtor's assets of the same (or better) priority as any creditor claim, deteriorating the position of former creditors. Still, practice has shown that this aspect of assistance is not the most important one when estimating the effects of eventual financial assistance on market behaviour.

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[13] La Porta, Lopez-de Silanes, Schleifer and Vishny 1997 introduced various approaches for the specification and quantification of legal regimes. First, the application of traditional nominal (0–1) scales was considered in the article. This approach was motivated on the ground that the law either does or does not regulate certain features. Second, simple cardinal scales relating to a certain legal feature were used (assuming grade differences between countries exist). Finally, cardinal scales, based on aggregate nominal series were considered. The format of these cardinal scales, ie depending on what legal features were focused on in the aggregate nominal series, corresponded with independent indexes.

[14] For a presentation of the legal bases for financial assistance to banks and to a part the assistant practice followed in the various financial centres see Granlund 2002.

Consequently, the format of FAI mainly focuses on the overall probability of any major financial assistance. Fourth, in some financial centres *an uncertainty* regarding the conditions, timing and content of eventual assistance is promoted. As a result, exact assistance practice is difficult to estimate. The uncertainty relates to the notion of "constructive ambiguity" and constitutes a means to prevent the development of moral hazard problems.[15]

The following entity requiring attention is *the actual grades received by the bank exit regimes* according to the FAI. On this point, the bank exit regimes of New York, London, Frankfurt, Helsinki and Tokyo are analysed, respectively. – When it comes to financial assistance to *US banks*, the legal provisions concerning the assistance states that Federal Deposit Insurance Corporation (FDIC) funds constitute US financial assistance to (deposit) insured banks faced with financial problems. Conditions for assistance are mainly dependent on FDIC discretion. Main alternatives for the FDIC to handle bank failures comprise the pay off of depositors or direct financial assistance to banks. In practice, assistance is in the form of ordinary or subordinated debt. The FDIC has to choose those alternatives that would minimise the loss for the FDIC. Only in case of systemic implications, the FDIC may deviate from this restriction. From mid 1990's, depositors' claims are in a priority in relation to ordinary creditors in the realisation of bank assets. Moreover, subrogation of paid off depositors' claims to the FDIC will occur. Since the FDIC must minimise loss, the probability of such financial assistance to banks that under these circumstances would benefit bank creditors is very low. Considering US bank exit practice, small bank failures without systemic implications has been dealt with in a legalistic and prompt manner, implying losses for bank creditors. For larger bank failures, with eventual systemic implications, the approach has been more liberal. Large banks have been more probable in receiving financial assistance, also such assistance clearly benefiting bank creditors. Still, the probability of financial assistance to large US banks is seen as lower compared to other bank exit regimes. This derives from the fact that the US bank exit regime is characterised by the concept of "constructive ambiguity" and general reservations against governmental intervention. As a result, the FAI of other than the largest US banks receives a grade of 3/15 while the FAI of large US banks is 12/15.[16]

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[15] For literature on the subject of "constructive ambiguity" see Freixas, Giannini, Hoggarth and Soussa, 2000, p. 74.

[16] The latest rescue of a major US bank was the rescue of the Continental Illinois National Bank and Trust Co. (CINB) in 1984. As a result of a run of uninsured depositors and implications of systemic effects the government provided the CINB with a USD 2 billion assistance package. Only bank shareholders suffered losses due to FDIC arrangements. On the other hand, smaller US banks are seldom bailed out or dealt with in a way that would benefit bank creditors directly or indirectly.

The situation for *UK banks* is quite deviant to US banks. No legal base for financial assistance to UK banks exists. Eventual financial assistance to UK banks will most probably be lender of last resort (LLR) or other support from the Bank of England (BoE) due to the Memorandum of Understanding (MoU) entered into by HM Treasury, the BoE and the Financial Services Authority (FSA) in 1997. According to the MoU, assistance may be given normally only in the case of a genuine threat to the financial system. The form of the assistance is not specified in the MoU. This means that the assistance may take the form of loans, subordinated loans or subsidies. The Financial Services Compensation Scheme (FSCS, deposit insurance) may not assist banks directly. Focusing on former UK assistance practice, the BoE has been fairly active in the handling of banking crises before the establishment of the FSA. There has been examples of support to smaller insolvent banks with eventual and denial of support to larger failed banks without systemic implications (ie Barings). Consequently, the grades received by other than the largest UK banks in terms of the FAI index correspond to 8–9/15. For large UK banks the numbers given are 13/15. The relatively high scores also reflect the establishment of the FSA, the recent introduction of the new Financial Services Market Act (FSMA) and BoE ambitions in the area of financial stability.[17]

When it comes to *German banks*, the role of the German Central Bank (Bundesbank) as a source of assistance strongly differs from the UK BoE model. In principle, ie in legal terms, the channels for a German bank to receive financial assistance are two. The Liquidity Consortium Bank (LCB) handles the Central Bank's lender of last resort (LLR) function but may grant loans only to banks of unquestioned soundness. The Voluntary Deposit Protection Scheme administered by the Association of German Banks may directly assist member-banks. The assistance to member-banks may be in any form. The scheme is entitled to support the member banks, but it has no obligation to assist the banks. Furthermore, the funds of the scheme are limited. Though no other formal assistance procedures exist, the actual role of the Bundesbank in a major crisis is not clear. Partly, this depends on the capacity of the LCB. Analysing German bank exit practice, no larger German banks have faced serious problems during the last decade. Still, the situation may change. Bank problems have usually been dealt beforehand in a manner accepted by the industry and the authorities. The extent to which German insolvency laws apply to bank failures is unspecified. Accordingly, the probability

[17] Analysing the most recent UK bank failures and government actions taken, these include Barings Bank and Re Chancery plc. In the case of Barings Bank, the Bank of England (BoE) tried to arrange for a rescue of the bank. The rescue failed, but the administrator was allowed to negotiate an immediate contract with the Internationale Nederlanden Groep (ING) without consulting bank creditors. No public capital was required in the arrangement. In 1991, the Re Chancery plc. was reorganised on a voluntary basis. Similarly, no public capital was involved.

of assistance in the case of a failure may be considered high. The FAI for German banks is given a grade of 13/15 while the FAI for the largest German banks is assumed to be 15/15.[18]

For *Finnish banks*, the bank exit rules include an existing statutory route for state aid. The Government's Guarantee Fund constitutes this statutory route. In addition, the regime provides for a system of voluntary guarantee funds that may assist member-banks. Capital collected by the voluntary funds may be used to assist ailing banks. The voluntary funds may also borrow capital or receive assistance from the Government's Guarantee Fund. Banks may receive assistance directly from the Government's Guarantee Fund only in case the stable functioning of financial markets is endangered (ie systemic implications). Assistance from the voluntary funds or the Government's fund may be in any form. As a result of the banking crisis, the Finnish Parliament made a statement in 1993 to guarantee the functioning of the banking system in all situations. This statement was revoked in 1998. Before 1998, the Bank of Finland (BoF) also had the possibility to inject capital into insolvent banks in various forms. According to the current legislation, this option does not exist anymore. The banking crisis in the beginning of the 1990's provided data on the assistance practice of Finnish authorities. The concern for systemic implications of the failure of one bank was apparent (ie Skopbank). Capital was injected into the bank and the banking system as a whole, since the crisis was linked to a general recession deteriorating the overall results and assets of the banks. Since the Finnish legislation concerning the Government's guarantee fund does not allow for direct assistance to failed banks without systemic implications (and similar indications also have been made by the Finnish Government), other Finnish banks than the largest ones receive a FAI-grade of 12/15. The FAI for large Finnish banks is still considered to be 15/15.

When it comes to bank exit rules applicable to *Japanese banks*, these rules state that banks may receive financial aid from the Japanese Deposit Insurance Corporation (DIC). The financial aid may be in any form. Until 1996 financial aid to banks was only possible to facilitate mergers between a failing and a healthy bank. From 1997 onwards, DIC was able to finance mergers between ailing banks also. Initially, the amount of financial aid was limited to the potential pay off cost to depositors. In 1996, the Japanese Government made a statement to protect all deposits to their full amount. Accordingly, the limits for financial assistance to banks were extended. These principles still apply. In addition, the Bank of Japan

[18] Surprisingly, in 1974 the Bankhaus Herstatt was allowed to fail without governmental intervention. Still, it is clear that the German assistance practice is supportive. The problems of the banking industry are dealt with in near co-operation with the supervisory institutions. Recently failed banks, ie Schmidt Bank and Bankgesellschaft Berlin in 2002, have received capital injections.

(BoJ) is in some cases entitled to provide assistance to insolvent banks, even without sufficient security. Analysing Japanese bank exit practice, the role of the BoJ has been more central than the laws indicate. In history the BoJ has organised rescue operations involving public capital (DIC funds), BoJ funds and funds from the private sector. The decision concerning the use of public funds is taken by the Prime Minister's Office. Since there is solid evidence of financial assistance to Japanese banks, the FAI-grades received by the Japanese banks are fairly high. Still, one should not forget that Japan faces a large public deficit eventually restricting future supportive operations. Consequently, for the largest Japanese banks the FAI-grade given is 14–15/15. For other than the largest banks the grade is somewhat lower, ie 11–12/15. This is a result of the lack of systemic implications in the case of smaller bank failures and the fact that the refinancing of rescue operations may become a problem.[19]

Table 3.1 **Financial centre grades according to the Financial Assistance Index (FAI)**

	1998	1999	2000	2001	2002	MEAN
Probability of assistance to any bank (FAI)						
New York regime	3	3	3	3	3	3.0/15
London regime	8	8	9	9	9	8.6/15
Frankfurt regime	13	13	13	13	13	13.0/15
Helsinki regime	15	12	12	12	12	12.6/15
Tokyo regime	12	12	12	11	11	11.6/15
Probability of assistance to largest banks (FAI_L)						
New York regime	12	12	12	12	12	12.0/15
London regime	13	13	13	13	13	13.0/15
Frankfurt regime	15	15	15	15	15	15.0/15
Helsinki regime	15	15	15	15	15	15.0/15
Tokyo regime	15	15	15	14	14	14.6/15

3.1.2 The Bank Creditor-Rights Index (BCRI) reflecting legal creditor rights

The second index considered is **the Bank Creditor-Rights Index** (BCRI), concentrating on certain basic creditor rights listed in the various bank exit rules. Compared to the FAI which focused on the probability of financial assistance (ie

[19] In Japan, there is a long history of bank bail-outs and other Bank of Japan (BoJ) led arrangements in order to secure the continuance of banks' activities as separate independent entities or merged entities. An example of a larger bank recently receiving financial aid was the Long Term Credit Bank. Also smaller banks have usually received support, though there are a few examples of smaller banks being denied support.

rules and practices for assistance), the BCRI only deals with legislative issues. Since the rules are fairly stable over time, diachronic changes of the BCRI are rare. On the other hand, major differences in the BCRI-grades exist between the various financial centre bank exit regimes. More specifically, relating to *the format of the BCRI*, the aspects taken into account are three. – First, the BCRI concentrates on *the existence of certain reorganisation provisions* in the regimes significant to bank creditors. The focus is on the formal reorganisation means whereby creditor claims are cut in order to secure the continuance of bank activities. Creditor-voting or/and court-approval constitutes conditions for the cutting of creditor claims. The procedures have no effect on the position of shareholders. – Second, the BCRI also deals with *the judicial possibility for creditors to start bankruptcy proceedings* against banks. In other words, it looks into the powers of the creditors, not the security that authorities may provide by initiating compulsory liquidation. In practice, authorities in all financial centres have the right to initiate compulsory liquidation on financial grounds. Whether they do it or not is a question of a) them receiving adequate information about the condition of banks, b) the type and exactness of existing insolvency criteria and c) the will or obligation to act. What comes to creditor rights to initiate bankruptcy, one would assume this to be a right of any creditor. Still, analysing the bank exit regimes in the financial centres, this is not a feature of all the regimes. – Third, the BCRI also takes into account *whether creditors are subordinated depositors* in the realisation of bank assets. Depositor priority (US preference) significantly impairs the position of ordinary creditors in the realisation.[20]

The other topic relating to the BCRI is *the grades received by the index* for the various financial centres. In this respect, the BCRI gives the aspects listed above an equal weight. In other words, the aspects receive a grade of 0–5 and the sum of the three grades received constitutes the BCRI-grade. – Starting with *the existence of certain reorganisation provisions*, the US procedure for bank reorganisation is given the value of **5**. This derives from the fact that the US bank exit regime does not recognise any reorganisation procedures that would cut creditor claims without affecting shareholders. Reorganisation of US banks is carried out through conservatorship (or receivership) and the powers given to the conservator are considerable. Still, shareholder responsibility for the bank failure is emphasised in all situations. – The procedures for the reorganisation of UK banks assessed from the banks' creditors' perspective is given the grade of **0**. This implies that the UK jurisdiction comprises measures whereby creditor claims are cut. Various bank stakeholders may initiate a court-directed reorganisation procedure. Measures taken are subject to creditor/shareholder-voting or/and court approval. In the UK, there is no specific reorganisation procedure for banks.

[20] For viewpoints on all these legal features of the financial centre bank exit regimes see Granlund 2002.

Procedures apply to all companies. – Reorganisation in accordance with German laws is given the grade of **2.5**. The grade reflects uncertainty whether reorganisation provisions apply. The German Banking Act does not comprise actual reorganisation measures. In principle, reorganisation is possible in accordance with the Insolvency Act. The Insolvency Act provides for a procedure through which creditor claims are cut. Still, the extent to which this act applies to failed banks is not specified. The preceding insolvency acts (ie before 1998) recognised two composition procedures based on creditor voting whereby creditor claims were cut. – The possibility to reorganise Finnish banks has changed since the beginning of the 1990's. Seen from the creditors' perspective, the current situation may be numbered **0**. The situation before 2002 is given a grade of **5**. In 2002, the scope of the general Law concerning Reorganisation of Companies was extended to cover banks. This resulted in the possibility that creditor claims were cut in order to promote the re-development of the bank. In comparison with other financial centres, the conditions for cutting claims are more stringent. Until the end of 2001, no such reorganisation procedure for banks existed. – Japanese bank reorganisation relative to bank creditors is marked **0**. In theory, the Japanese legislation provides for both a reorganisation scheme and a composition scheme that may be used to cut creditors' claims. Creditors vote on both schemes. Though the Japanese banking sector has been characterised by several ailing banks, the banks have been dealt with differently. Assisted mergers have constituted the measure most frequently used.[21]

Concerning *the judicial possibility for bank creditors to start bankruptcy proceedings*, the US bank exit rules are given a grade of **0**. The US bank exit regime does not give creditors any rights to initiate the liquidation (ie receivership) of a bank. Authorities make all the decisions. On the other hand, the "Prompt Corrective Action" (PCA) scheme introduces a detailed procedure focusing on capital adequacy that entitles/obliges authorities to initiate compulsory liquidation. – The grade that the UK jurisdiction receives when discussing creditor rights in the initiation of bank bankruptcy is numbered **5**. On this point, the fact that general laws apply to UK bank liquidation, opens up the possibility for creditors to initiate bankruptcy proceedings against banks as one type of compulsory winding up. A bank's inability to pay its debts is the judicial criteria for the commencement of bankruptcy in the UK. In addition, courts may wind up any bank if this is considered just and equitable. – In Germany, bank creditors are not able to initiate bankruptcy proceedings against banks. As a result, the German jurisdiction receives a grade of **0**. The Banking Act states that the only party entitled to initiate liquidation proceedings on insolvency grounds

[21] The current trend in the formulation of bank exit regulation seems to be the replacement of composition with broader authority-administered reorganisation. Both in Frankfurt and in Helsinki such amendments have been made to the national legislation.

against German banks is the Financial Supervisory Authority (FSA). There are two types of insolvency criteria that may be used as financial grounds for compulsory liquidation according to the German Banking Act, ie insolvency and over-indebtedness. The terms are not further specified. – In case of the matter discussed, the liquidation rules of the Finnish bank exit regime receive a grade of **5**. In principle, creditors have been able to initiate bankruptcy proceedings for Finnish banks also before the bank exit reform of 2002. In 2002, the legislation more clearly set out creditor-initiated liquidation (ie bankruptcy) as an alternative for the termination of bank activities. General bankruptcy procedures apply. The main criteria for the initiation of bankruptcy proceedings against Finnish banks is defined in the Bankruptcy Code as other than temporary inability to pay one's debts. Financial grounds for compulsory liquidation of banks are not included in the Finnish 2002 legislation. On the other hand, insufficient capital adequacy entitles the authorities to withdraw the banking license. This will result in the liquidation of the bank. – The powers of Japanese bank creditors to initiate bank bankruptcy in accordance with the Japanese bank exit regime receive a grade of **5**. Theoretically, bank creditors may initiate bankruptcy in accordance with the general Japanese bankruptcy laws. Authorities received the right to initiate compulsory liquidation proceedings in 1996. Criteria for the commencement of bankruptcy comprise the debtor's inability to pay his debts, suspension of debt payments and debtor liabilities exceeding assets. In 1998, the "Prompt Corrective Action" (PCA) scheme was established for Japanese banks. This scheme provided for capital adequacy-oriented, objective criteria for action against banks. Though formal bankruptcy and liquidation procedures exist, they are seldom used. Failing banks (especially larger ones) have been dealt with through assisted mergers.

What comes to *the subordination of ordinary creditor claims in relation to depositor claims*, the US bank exit rules receive a grade of **0**. The number indicates that the position of ordinary US bank creditors is weak on this point. In the liquidation of US banks, ordinary creditor claims are subordinated in relation to depositor claims. Similarly, depositor claims transferred to the Federal Deposit Insurance Corporation (FDIC) as a result of paying off depositors are in priority in the realisation of bank assets. Before the amendments of the legislation in mid 1990's, ordinary creditor claims were not subordinated relative to depositor claims. – The bank exit regimes of all the other financial centres are given the grade of **5**. The grade signals that the position of ordinary bank creditors is strong. Ordinary bank creditor claims are not subordinated in relation to depositor claims.

Table 3.2 **Financial centre grades according to the Bank-Creditor Rights Index (BCRI)**

	1999	2000	2001	2002	MEAN
New York regime, total	5	5	5	5	5/15
– elimination of claims	5	5	5	5	
– initiation of bankruptcy	0	0	0	0	
– subordination of claims	0	0	0	0	
London regime, total	10	10	10	10	10/15
– elimination of claims	0	0	0	0	
– initiation of bankruptcy	5	5	5	5	
– subordination of claims	5	5	5	5	
Frankfurt regime, total	7.5	7.5	7.5	7.5	7.5/15
– elimination of claims	2.5	2.5	2.5	2.5	
– initiation of bankruptcy	0	0	0	0	
– subordination of claims	5	5	5	5	
Tokyo regime, total	10	10	10	10	10/15
– elimination of claims	0	0	0	0	
– initiation of bankruptcy	5	5	5	5	
– subordination of claims	5	5	5	5	

3.2 Identification and grading of features of the bank exit regimes relevant to bank shareholders – the case of the BSRI

Similarly to the previous section, the aim of this section (3.2) is to identify and grade bank exit regimes. Still, some differences exist in relation to the previous section. In this latter section, the perspective is on features significant to bank shareholders. Consequently, features considered relate to shareholder security and powers in the reorganisation and liquidation of banks. Deviant to the previous section, the focus in this latter section is on bank exit rules only. The reason for such an approach is the fact that the probability for financial assistance is the most important area where bank exit practice deviates from bank exit rules and this area has already been dealt with in the previous section. – The features of the bank exit rules looked into comprise a) the existence of provisions that require that *shareholder-value will be cut if/when public funds are injected* into the bank, b) the existence of provisions, resulting in *an eventual elimination of creditor claims without affecting shareholder position* in the reorganisation of a bank and c) *the amount of discretionary powers given to the provisional administrator* during compulsory (ie authority-initiated) reorganisation. These features of the law constitute the format of the Bank-Shareholder Rights Index (BSRI). Regarding the grading of the BSRI, each feature of the law receives a grade

between 0–5 in terms of its contribution to strengthen shareholder position. Since all features of the law have the same weight in the index, the sum of the grades corresponds to the grade of the index for the various financial centre bank exit regimes. In order to grade the BSRI, the bank exit regimes are analysed below in the following order, ie New York (USA), London (UK/EU), Frankfurt (Germany/EU), Helsinki (Finland/EU) and Tokyo (Japan).[22]

Analysing the bank exit regime applicable to **New York banks**, the above-mentioned features of the law are covered. To begin with, the US bank exit regime does not comprise any separate provisions that would require that shareholder value would be cut when public funds are injected into the bank. Still, this fact is partly misleading. In the US, capital injections into problem banks follow the legislation concerning FDIC activities. Pursuant to these regulations, capital injections into problem banks may not be done in a way that would benefit bank shareholders. Only, in extreme cases (ie in the case of systemic implications) the authorities may deviate from the rules. Actual bank failures have also been characterised by a dilution of shareholder investments. Consequently, the US bank exit regime receives a grade of 0/5 on this point. – When it comes to the existence of reorganisation provisions enabling an elimination of creditor claims without affecting shareholder position, the US bank exit regime is also given a grade of 0/5. The US rules provide for no means through which bank creditor claims may be cut without affecting shareholder position. Since shareholders are considered responsible for the bank's problems, they should be first to bear the bank's losses. – Finally, a few words may be said about the powers of the provisional administrator during compulsory (ie authority-initiated) reorganisation. In case of US conservatorship (or receivership), the powers that the bank exit regime provide the Federal Deposit Insurance Corporation (FDIC) are considerable. US bank exit provisions state that the FDIC shall succeed to all rights of bank shareholders during reorganisation. The statement constitutes FDIC administering and contractual powers. Administering powers comprise FDIC's right to carry out the activities of and represent the insured bank. Contractual powers reflect the right for the FDIC to make agreements with (eg buy assets from) the bank. The fact that US bank exit provisions (not only bank exit practice) recognises the right for the FDIC to make direct agreements with (ie buy assets from) the ailing bank

[22] Granlund 2002 constitutes the analysis of the financial centre bank exit legislation used as a base for the following short presentations of shareholder rights.

distinguishes US from many European rules. The legal feature in question is here given a grade of 0/5.[23]

The position for **London bank shareholders** regarding the various features of the bank exit regimes is quite deviating relative to the position of US bank shareholders. Analysing the existence of provisions that require that shareholder value should be cut when public funds are injected into the bank, no such provisions are included in the Memorandum of Understanding (MoU) or elsewhere in the UK jurisdiction. In practice, public funds injected into the bank may be made conditional on whatever grounds. In accordance, this feature of the bank exit regime is given the grade of 5/5 for the UK since no provisions exist. – The following feature concerns the existence of provisions enabling creditor claims to be cut during bank reorganisation. In addition, the cut should not affect the position of bank shareholders. For the shareholders of a failed bank, such reorganisation constitutes a valuable option. If the bank would be liquidated, shareholders would loose their capital. When creditor claims are cut, bank shareholders are given a second chance. The UK bank exit regime provides for two procedures by which creditor claims may be cut without affecting shareholder position. Both procedures are based on voting and court decision. Accordingly, the UK bank exit rules are given a number of 5/5. – The last listed feature included in the BSRI deals with the powers of the provisional administrator during compulsory (ie authority-initiated) reorganisation. For the UK, the powers of the provisional administrator receive the grade of 4/5. This corresponds with a strong shareholder position. The UK jurisdiction does not comprise any bank-specific reorganisation means. Bank reorganisation is only possible due to the general reorganisation provisions in the insolvency and company laws. Though the authorities may initiate certain reorganisation measures, the provisional administrator appointed is bound by the decisions of the creditors' meeting or/and the court.[24]

The next financial centre bank exit regime to be specified and quantified according to a shareholder perspective is the one of **Frankfurt**. On a general level, the German bank exit regime is characterised by extensive shareholder powers. Starting with the first feature of bank exit provisions analysed, Frankfurt receives a number of 5/5. This is a result of the fact that in the German jurisdiction there are no regulations that require that old shareholder value should be cut if/when public funds are injected into the bank. Similarly, concerning the

[23] Surprisingly, the US grade for the BSRI is 0/15. Accordingly, the position of US bank shareholders in the reorganisation and liquidation of banks is weak. Former analyses made on the implications of legal structures on corporate markets usually consider the US regime as a benchmark, signalling extensive shareholder rights and powers. This is also the case in La Porta, Lopez-de-Silanes, Shleifer and Vishny 1997 characterising the anti-director rights index as an attribute of aggregated shareholder rights.

[24] For an economic evaluation of UK insolvency procedures see Webb 1991.

Voluntary Deposit Protection Scheme, there are no requirements as for bank shareholders, when/if financial assistance is given to an ailing bank. – Other aspects of the German bank exit regime of interest to bank shareholders relate to the eventual elimination of creditor claims (without affecting shareholders) in the reorganisation of banks. On this point, the German regulations receive a grade of 2.5/5. The German banking laws do not provide for any reorganisation measures, whereby creditor claims would be cut. As in the UK, the German general insolvency legislation comprises reorganisation procedures whereby creditor claims are cut without affecting shareholder position. The procedures are based on creditor voting and court decision. Still, there is uncertainty to what extent these procedures apply to banks as specific types of debtors. The grade given expresses a 50%/50% (uncertain) outcome. – As for the powers of the provisional administrator during compulsory (ie authority-initiated) bank reorganisation, the grade received by the German jurisdiction is 3/5. In other words, German bank shareholders are fairly well protected during compulsory reorganisation. The German banking legislation provides for a provisional administrator in charge of the reorganisation of banks. Under certain conditions, the proper court appoints necessary persons to manage and represent the bank, ie act as provisional administrators. The powers of these persons are limited to the execution of the measures necessary to avert insolvency proceedings and protect creditors. Only in the case the appropriate governing bodies of the bank extend their powers, they may exceed the limitation mentioned above.[25]

As for **Helsinki bank shareholders**, the Finnish legislation is characterised by two existing channels to support banks. The voluntary guarantee fund system, aiming to secure the stable activities of member banks was introduced in 1998. Banks are not obliged to take part in the system, but membership enables them to receive financial assistance also in the form subsidies. The second channel comprises the Government's Guarantee Fund. The fund is entitled to assist individual banks (eg through subsidies) only in order to protect the stability of financial markets. The Governments Guarantee Fund was introduced in early 1990's. Regarding shareholder position under public financial assistance (ie through the Government's Guarantee Fund) the 2002 amendments of the Finnish bank exit regime changed the situation drastically. In the banking crisis in the beginning of the 1990's large amounts of public funds were injected into the Finnish banks. Part of the capital was in the form of subsidies, benefiting old shareholders. As a result of the 2002 amendments, the current legislation requires that old share capital will be used to cover old losses before assistance is given.

[25] In addition, the German insolvency legislation directs creditor appointment of a trustee to reorganise the bank as an alternative to liquidation. The trustee should present a plan for the reorganisation of the bank to the creditors. Shareholders are not negatively affected by these measures.

Alternatively, banks may be nationalised by paying old shareholders in full. Consequently, the current situation is numbered 0/5. The period before 2002 is given a grade of 5/5. – The elimination of bank creditor claims, without implications for bank-shareholders, is possible according to the Finnish jurisdiction. Creditor voting and court decision directs these measures. On this point the Finnish bank exit regime receives a grade of 5/5. Until the end of 2001, no such measures existed for Finnish banks (0/5). – The last question concerns the powers of the provisional administrator in compulsory (ie authority-initiated) bank reorganisation. The grade received by Finnish law provisions is 4/5. The Finnish banking legislation does not acknowledge any installation of provisional administrators with significant powers to administer the bank's affairs. This was true for the former legislation (applicable until the end of 2001) also. Eg during an eventual suspension of bank activities, only the bank (ie management/ shareholders) may present a plan for how to improve the bank's situation.[26]

Shareholders of **Tokyo banks** have also been affected by recent amendments to the legislation. Traditionally, the position of Japanese bank shareholders has been fairly strong, but in late 1990's measures taken weakened the position of shareholders. Two aspects of the Japanese bank exit regime relate to the topic whether shareholder-value is cut when public funds are injected into banks. First, according to the main rule, subsidies to banks in order to arrange for mergers or acquisitions do not negatively affect the shareholders of any of the banks involved. In other words, subsidies do not automatically require the divestiture of shareholder rights pursuant to the law. Second, the 1998 amendments of the Japanese bank exit regime also provided for temporary nationalisation of failed banks. This option clearly weakened the position of Japanese bank shareholders. Authorities decided on the price payable to bank shareholders. Divestiture of old shareholder rights occurred. To sum up, the regulations provide the Japanese authorities with more than one alternative with varying implications for bank shareholders. Still, since provisions that enable the divestiture of shareholder rights exist, the grade received by the Japanese jurisdiction is 0/5. – Furthermore, the Japanese jurisdiction comprises procedures aiming to secure the continuance of bank activities by cutting bank creditor claims. The position of shareholders is not weakened by the measures. The procedures are based on creditor/shareholder-voting and court decision. Though the Japanese jurisdiction includes such means, these types of bank reorganisation means have never been used. Still, the Japanese bank exit regime is numbered (5/5). – By focusing on provisional administrator powers granted by the Japanese banking regulations, the position of Japanese

[26] From 2002 onwards, the legislation concerning compulsory (ie authority-initiated) bank reorganisation, requires that an administrator will be appointed by the court to direct the reorganisation and prepare decisions. Still, the independent powers of this administrator are not significant.

bank shareholders may also be estimated. On this point, Japanese law provisions are given a grade of 3/5. In 1998, a reorganisation administrator scheme was established to deal with failed banks or banks in danger of failing. The main duties of the publicly appointed administrator comprised the operation and management of assets of the bank. The powers of the administrator were limited to those of the president of the bank. In other words, the administrator had to co-operate with bank shareholders and creditors. Measures by the administrator should be taken within one year of the appointment of the administrator.[27]

Table 3.3 **Financial centre grades according to the Bank-Shareholder Index (BSRI)**

	1998	1999	2000	2001	2002	MEAN
New York regime, total	0	0	0	0	0	0.0/15
– divestiture of rights	0	0	0	0	0	
– elimination of creditor claims	0	0	0	0	0	
– power of administrator	0	0	0	0	0	
London regime, total	14	14	14	14	14	14.0/15
– divestiture of rights	5	5	5	5	5	
– elimination of creditor claims	5	5	5	5	5	
– power of administrator	4	4	4	4	4	
Frankfurt regime, total	10.5	10.5	10.5	10.5	10.5	10.5/15
– divestiture of rights	5	5	5	5	5	
– elimination of creditor claims	2.5	2.5	2.5	2.5	2.5	
– power of administrator	3	3	3	3	3	
Helsinki regime, total	9	9	9	9	9	9.0/15
– divestiture of rights	5	5	5	5	0	
– elimination of creditor claims	0	0	0	0	5	
– power of administrator	4	4	4	4	4	
Tokyo regime, total	8	8	8	8	8	8.0/15
– divestiture of rights	0	0	0	0	0	
– elimination of creditor claims	5	5	5	5	5	
– power of administrator	3	3	3	3	3	

[27] Earlier on, ie in 1996, the Deposit Insurance Corporation was also entitled to apply to the court for the initiation of reorganisation in accordance with the general Japanese reorganisation laws. In this case, the appointed provisional administrator did not have significant independent powers.

4 Selection of market attributes, collection of data and presentation of the results

4.1 Collecting data on attributes for prevailing market conditions

4.1.1 Bank bond spreads as market attributes for bank creditor interests

In order to evaluate the bank exit regimes specified and graded according to a bank-creditor perspective, an analysis of the actual market conditions under the regimes is called upon. The principles for such an analysis are presented below. To sum up, one may distinguish between principles for *the identification of market attributes* and principles for *the collection of data*. The actual market conditions focused on constitute market attributes. In other words, market attributes represent those features of the market that eventually are affected by the bank exit regimes. Since bank exit provisions and practice relevant to bank creditors are evaluated, chosen market attributes will also reflect creditor interests. Overall, the data collected on market attributes is characterised by both a cross-sectional and diachronic dimension. The cross-sectional dimension is generated by the fact that the analysis covers market conditions in four financial centres (New York/USA, London/UK/EU, Frankfurt/Germany/EU and Tokyo/ Japan). Below, principles for the analysis of market conditions are presented in more detail by concentrating on the following sub-areas. These are a) *the identification of market attributes*, b) *the structure of the data search*, c) *the collection of bank bond yield data* and d) *the collection of government bond yield data*.[28]

What comes to **the identification of market attributes**, there are several market attributes that both may be affected by the analysed features of the bank exit regimes and also reflect bank creditor interests. These include credit agreement terms, ratings carried out by third parties and even authority measures. In the analysis, the market attribute chosen is *the cost for capital provided by the bank creditor*. There are two main *motives* for choosing this attribute. The first one is the fact that the attribute is a *primary* source of information. Creditors and debtors agree on the cost of capital. Consequently, it may be considered as highly

[28] In the forthcoming regressions the search is for correlation between features of the bank exit regimes specified and graded relative to bank creditor interests (ie the Financial Assistance Index, FAI and the Bank-Creditor Rights Index, BCRI) and the market attributes chosen. If correlation is documented, it is probable that bank exit regimes affect market conditions to the extent investigated.

(empirically) valid. The second motive is that the cost of capital, in a causal theory sense, should be *relatively dependent* of the features of the bank exit regimes directing creditor security and powers. Since features of the bank exit regimes direct creditor security and powers relative to credit agreements, they also should affect the cost of creditor capital. – Other aspects of the market attribute chosen concern *the definition* of the attribute. The cost of creditor capital may be specified in three dimensions. *First*, creditor capital is considered to comprise traditional foreign capital in the form of senior debt. *Second*, the cost of creditor capital is reduced to a question concerning the spread of creditor capital. The spread of creditor capital is defined as the difference between creditor capital yields and the risk-free rate of return. The risk free-rate of return is considered to correspond with the yield of government bonds in each financial centre. *Third*, creditor capital considered, only include debt in the form of publicly issued and notified securities (ie bonds). Moreover, collateral or pledges should not secure the creditor capital in question.[29]

The structure of the data search constitutes another important stage in the empirical research process. The principal structure of the data search may be analysed as a question concerning *the type of data* and *source of data*. As mentioned above, the collection of data on market attributes for the evaluation of bank exit regimes is characterised both by a cross-sectional and a diachronic dimension. Consequently, there are two main *types of data*. The cross-sectional dimension of the data derives from the comparative aim of the study. Evaluating bank exit regimes in several financial centres implies that market conditions in each of the financial centres are covered and compared. The cross-sectional data represents market conditions in New York, London, Frankfurt and Tokyo. Reliable spread data on Helsinki banks were not available. The diachronic dimension of the data, creating a panel data set, is limited to the period 1999–2002. During this period certain changes to the bank exit regimes have been made in some of the financial centres. These amendments may (and should according to the hypothesis of the study) have influenced the market conditions of that financial centre. Also, the existence of a diachronic dimension in the data enables the gathering of a larger data set dispersed over time. Concentrating on *the*

[29] The argument for focusing on senior contrary to subordinated debt is the fact that senior debt should be most sensitive to changes in the banks' environment. In the realisation of the banks' assets, senior debt-holders may regain all their capital or loose all or some of the capital. For subordinated debt-holders this question is not as topical. It is rare that subordinated debt-holders will receive anything in the realisation of debtor-assets. – The reason for concentrating on spreads instead of yields eliminates a substantial amount of variation in the cost of capital and improves conditions for the drawing of conclusions based on regressions results. – By considering debt in the form of publicly traded bonds only, another type of sensitivity relating to market efficiency is introduced. According to economic theory, publicly traded bond prices should signal the ultimate knowledge (information) concerning the debtor and its environment.

sources of the data used to describe market conditions in the study, these include Bloomberg and Bankscope databases as well as Bankers magazine. To the extent market conditions comprise bond yields the Bloomberg database has been used. Other indicators on the condition of individual banks used were found in the Bankscope database and the Bankers magazine.

Another important area in the analysis of actual market conditions is the specific principles applied for **the collection of bank bond yield data**. Regarding the definition of financial centre *banks*, the criteria for including banks in the sample consists of the applicability of the bank exit regimes of the financial centres on banks. In this sense, the domicile of the banks is central. Banks analysed are commercially oriented, deposit-taking, retail banks in the form of limited liability-companies. If bond yield data on such banks is not found for a specific financial centre, other banks to which the identical bank exit regime apply are included in the sample. Moreover, *the judicial structure* of the banks analysed raises some questions. Banks may form independent entities or constitute subsidiaries to bank holding companies. In the first case, creditor capital is directly injected into the bank in the form of a separate judicial entity. If the bank is confronted with problems, an eventual bank exit will have direct implications on bank creditors. In the second case, creditor capital to the bank may be invested through the bank holding company. Such an approach is frequent and may be motivated on several grounds, eg fiscal grounds. The capital received by the bank holding company may be transferred to the subsidiary bank in any form. In this study, also the latter form of creditor capital is accepted as a market attribute. This derives from the fact that an eventual exit of a bank subsidiary will reflect in the value of the bank holding company. An eventual bank exit will have indirect implications on bank holding company creditors of the same type as it would have on bank creditors.[30] – The collection of bank bond yield data may be further illuminated by focusing on certain *characteristics of the bonds*. Firstly, as mentioned above, creditor capital should be in the form of senior, non-secured debt issued and notified publicly. Secondly, some restrictions on the currency of bonds apply. Bonds analysed are issued in the local currency of the financial centre (ie USD, GBP, DEM/EUR and JPY). Thirdly, the maturity of all bonds analysed is approximately three (3) years. It is assumed that such a maturity is sufficiently long and such bank bond yields will comprise information concerning the possibility of a bank exit. Yields of bonds with a very short maturity should

[30] Another area requiring some additional enlightening is the role of international banking groups in the study. International banking groups should not constitute a problem for the study in question. This derives from the fact that all banks considered in the analysis are separate judicial entities to which the local financial centre bank exit regime applies. In addition, in order to eliminate any bias in bank refinancing costs generating from parent company jurisdictions, all banks with an apparent foreign bank subsidiary-status have been excluded from the analysis.

reflect the possibility of bank exit to a lesser degree. At least this is the fact when banks analysed are relatively solvent.

Furthermore, the collection of bank bond yield data also involves *the measurement* of bank bond yields. The panel data used in the study is based on *quarterly observations* of bank bond yields during the period 1999 to 2002. In more detail, observations start on 27.7.1999 and end on 27.4.2002 (ie 12 measurement points). The data on bank bond yields cover both large and other than large banks, ie two separate groups. The original aim was to observe bank bond yields for three large and three other banks (a total of six banks) at each above-mentioned observation date. In practice, bond yield observations are fewer as a result of data availability. For all cross-sections and the whole period investigated the number of bond yield observations is 161. Of these observations 75 relate to large banks and 86 to other than large banks. – Regarding *the banks*, these are divided into two groups, large banks and other banks. Large banks are banks belonging to the top 3-group in each financial centre. Other banks are banks picked on a random basis from the remaining group of banks in that financial centre. During the period observed, a certain variation in the sample of banks may be recognised. Variation concerning large banks is due to the fact that there may be changes in the top 3-category. Since randomisation is repeatedly applied at each quarterly observation date for other banks, variation according to other banks will also occur. The number of banks (with bond yield observations) reaches 48. The reason for separating large banks from other banks is that separate analyses will be carried out for large banks. This is due to the fact that large banks may be dealt with differently in the case of bank failure.[31]

Finally, a few viewpoints may be made on **the collection of government bond yield data**. The question concerning government bond yield data in the study may be divided into sub-questions concerning a) the character of government bonds analysed, b) the principles applied for the observations and c) the final definition of bank refinancing spreads as the difference between bank bond yields and government bond yields. – As for *the character of government bonds* analysed, bonds constitute publicly issued and notified government papers. The bonds were issued by the governments in each financial centre and represent the above-mentioned currencies. – Regarding *principles for government bond yield observations,* government bonds are observed at the same quarterly observation dates as bank bonds. In theory, the aim is to identify a government bond of exactly the same maturity (approx. 3 years) as any bank bond observed. Yields of government bonds are seen as expressions of the current risk-free rate of return for the specific financial centres. As a result of the fact that the possibility for identification of government bonds of exactly the same maturity as bank bonds

[31] The criterion for the positioning into the top 3 category is the amount of total assets according to the bank's balance sheet. Balance sheet data are analysed on a yearly basis.

Table 4.1 **Bank bond spreads 1999–2002**

		1999	2000	2001	2002	1999–2002
All banks						
New York	Observations	7	15	18	10	50
	Number of banks	7	11	10	6	18
	Mean	92.61	113.27	113.57	91.27	105.22
	SD	(18.96)	(24.67)	(26.88)	(11.01)	(24.02)
London	Observations	1	9	9	2	21
	Number of banks	1	6	6	2	9
	Mean	85.20	94.31	64.43	77.73	79.54
	SD	(NA)	(20.18)	(25.72)	(0.09)	(23.99)
Frankfurt	Observations	5	15	19	9	48
	Number of banks	4	8	12	8	13
	Mean	26.53	33.01	35.84	34.53	33.64
	SD	(5.32)	(7.86)	(8.88)	(10.69)	(8.90)
Tokyo	Observations	3	13	15	11	42
	Number of banks	2	5	6	6	8
	Mean	70.58	57.70	42.58	57.56	54.24
	SD	(54.72)	(54.89)	(31.76)	(37.59)	(39.88)
Large banks						
New York	Observations	1	5	11	6	23
	Number of banks	1	2	3	3	3
	Mean	70.85	103.66	95.52	89.52	92.59
	SD	(NA)	(14.71)	(10.51)	(5.18)	(12.56)
London	Observations	0	3	3	0	6
	Number of banks	0	1	2	0	2
	Mean	NA	77.11	47.07	NA	57.08
	SD	(NA)	(NA)	(5.19)	(NA)	(17.73)
Frankfurt	Observations	3	7	7	3	20
	Number of banks	2	3	3	2	3
	Mean	30.30	39.98	44.30	33.22	37.99
	SD	(5.29)	(3.84)	(8.68)	(3.03)	(7.55)
Tokyo	Observations	2	9	9	6	26
	Number of banks	1	3	3	3	3
	Mean	31.89	17.63	22.43	40.42	27.33
	SD	(NA)	(2.16)	(7.67)	(26.03)	(16.23)
Other banks						
New York	Observations	6	10	7	4	27
	Number of banks	6	9	7	3	15
	Mean	96.24	115.41	121.31	93.02	109.77
	SD	(17.91)	(26.56)	(28.54)	(16.35)	(25.68)
London	Observations	1	6	6	2	15
	Number of banks	1	5	4	2	7
	Mean	85.20	97.75	73.10	77.73	85.15
	SD	(NA)	(20.50)	(28.14)	(0.09)	(22.44)
Frankfurt	Observations	2	8	12	6	28
	Number of banks	2	5	9	6	10
	Mean	22.76	28.83	33.02	34.97	31.67
	SD	(0.47)	(6.51)	(7.35)	(12.54)	(8.91)
Tokyo	Observations	1	4	6	5	16
	Number of banks	1	2	3	3	5
	Mean	109.27	117.80	62.72	74.70	84.13
	SD	(NA)	(1.25)	(35.29)	(44.43)	(37.05)

is small, *a model for estimation of hypothetical government bond yields* for bonds of exactly the same maturity as bank bonds is constructed. In the model, for each bank bond observation, two government bond observations are made. First, a government bond with a slightly shorter maturity than the bank bond is observed. Second, a government bond with a maturity slightly exceeding the maturity of the bank bond is observed. The hypothetical government bond is given a yield according to these two observations (ie a weighed average), based on the assumption that the yield curve is linear between the observations of different maturity. – Consequently, the exact market attributes of this study, ie *the bank bond spreads* may be defined more accurately. Bank bond spreads are bank bond yields reduced by the risk free rate of return, calculated as a hypothetical government bond yield with underlying assumptions concerning government bond yield curve linearity.[32]

4.1.2 Bank asset growth as a market indicator for bank shareholder interests

When evaluating bank exit regimes relevant to bank shareholders, an analysis of market conditions under the regimes is likewise required. As in the bank creditors' case, the analysis of market conditions comprises *the identification of market attributes* and *the collection of data*. Similarly to the previous case, market attributes constitute those features of the market that are affected by the bank exit regimes and also reflect shareholder interests. In the analysis, data on all five financial centres is included. To begin with, *the selection of market attributes* is discussed below. Then, *principles for the data collection* are presented. Lastly, *the gathering of data on changes in banks' total assets* (bank growth) is looked into in more detail.[33]

As for **the selection of market attributes**, *the alternatives* to choose from when searching for market attributes of bank shareholder interests are several. Theoretically, market attributes representing shareholder interests may be based on *company results* or *status* or reflect *market assumptions*. Another possibility is that market attributes constitute combinations of these features. Profits, dividend

[32] Sometimes, bank failures may be very costly to deal with. According to Milhaupt 1999 costs may rise to 20–50% of the affected country's GDP when bailing out troubled banks. In these cases, also government bond yields may be affected by bank failures. Then, spreads as attributes for individual bank condition are biased.

[33] The econometric evaluation of bank exit regimes according to bank shareholder interests follows the same principles as the evaluation of the regimes according to bank creditor interests. In the regressions carried out below, the search is for correlation between features of the bank exit regimes (identified and quantified according to a bank shareholder perspective) and selected market attributes.

yields, own funds, substance values, cash flows, total assets, share or market values and growth potential etc. may be used as indicators on shareholder position. The market attribute chosen in this study is the change in bank total assets (bank growth). *The main motives* for this choice are the following. "Total assets" is an empirically linked attribute without inductive influence. It is valid in a positivistic sense in relation to the state of the bank. "Total assets" as a measure, is fairly comprehensive in relation to shareholder interests. Moreover, data on bank total assets is easily available and quantitatively exact. It is also continuos and cumulative. Being more accurate, bank "total assets" is *defined* as the end sum of the banks' balance sheet. It is the total shown capital employed in the banks' business, including both foreign and own funds. There is especially *one characteristic of the market attribute* that may receive further attention. As a result of the attribute including foreign capital, the validity of the attribute in relation to shareholders interests is conditional. An increase in total assets may be due to an increase in foreign capital, decreasing the solvency and not affecting the value of the bank. Still, there are a number of reasons for choosing "total assets" as a market attribute in spite of this. In general, the development of banks' total assets does correlate with shareholder interests. Changes of bank solvency are also restricted by the rules on capital adequacy. Since the risk for the shareholders is limited to the capital inserted into the bank, a decrease in solvency is not necessarily negative. Especially in financial centres characterised by bailouts, excessive risk-taking may be appreciated by the shareholders.[34]

Another aspect in the study of the effects of bank exit rules on bank growth concerns the actual collection of data on bank growth. In this respect the characteristics of this study may be analysed as *similarities* and *differences* in relation to the previous (creditor) study. As mentioned above, one corresponding feature is the fact that the two studies are characterised by both a cross-sectional and diachronic dimension. The cross-sectional dimension in this study is wider than in the previous study and includes the financial centres of New York, London, Frankfurt, Helsinki and Tokyo. Helsinki was exluded from the previous study, since reliable spread data was not found. In other words, the growth data collected covers a sample of banks from all these financial centres. The diachronic dimension of the data is also slightly different from the previous study. Focusing on annual reports and balance sheet end sums of banks, the financial years analysed comprise the years 1997–2001. The sources for data on bank total assets consist of the Bankscope-database and Bankers magazine.

[34] Alternative attributes for bank growth used in the literature also comprise changes in equity and changes in the value of off-balance sheet business. Still, though these items may provide additional knowledge on bank growth, they are not focused on due to the reasons listed above.

Table 4.2 **Changes in bank total assets 1998–2001**

	Number of banks		1998	1999	2000	2001	1998–2001
All banks							
New York	19	Mean	45.89	17.65	26.64	10.18	25.09
		SD	(48.25)	(30.70)	(75.30)	(25.10)	(49.77)
London	15	Mean	16.84	25.91	19.83	15.69	19.87
		SD	(29.31)	(67.39)	(9.08)	(15.83)	(37.83)
Frankfurt	15	Mean	55.41	6.89	8.62	0.47	17.80
		SD	(136.75)	(18.38)	(17.23)	(8.59)	(70.48)
Tokyo	17	Mean	–4.81	–1.64	7.09	–9.79	–2.30
		SD	(6.50)	(7.40)	(18.55)	(12.28)	(14.58)
Helsinki	6	Mean	33.46	10.38	4.69	8.36	13.61
		SD	(42.59)	(16.23)	(18.57)	(25.42)	(27.19)
	72						
Large banks							
New York	4	Mean	93.57	5.91	25.87	2.56	31.97
		SD	(62.76)	(4.00)	(35.55)	(9.44)	(49.95)
London	5	Mean	3.82	11.15	21.83	22.44	14.41
		SD	(9.54)	(7.40)	(7.98)	(21.58)	(13.71)
Frankfurt	4	Mean	18.40	19.02	28.10	0.01	17.47
		SD	(23.13)	(23.41)	(19.16)	(4.11)	(20.29)
Tokyo	6	Mean	–2.67	–4.91	18.08	–1.38	2.47
		SD	(4.67)	(5.61)	(17.26)	(9.11)	(13.62)
Helsinki	3	Mean	34.34	6.78	–0.77	12.00	13.09
		SD	(60.20)	(21.09)	(20.83)	(35.13)	(35.07)
	22						
Other banks							
New York	15	Mean	33.18	20.78	26.84	12.22	23.26
		SD	(36.42)	(34.04)	(83.78)	(27.74)	(49.99)
London	10	Mean	24.07	34.10	18.84	11.19	22.91
		SD	(34.44)	(84.50)	(9.83)	(10.54)	(46.11)
Frankfurt	11	Mean	71.86	2.04	0.83	0.63	17.93
		SD	(163.90)	(14.62)	(8.39)	(9.86)	(82.62)
Tokyo	11	Mean	–7.49	1.63	2.09	–12.86	–4.52
		SD	(8.16)	(8.06)	(17.58)	(12.15)	(14.72)
Helsinki	3	Mean	32.15	13.97	10.14	2.90	14.24
		SD	(0.74)	(13.22)	(18.42)	(4.11)	(14.89)
	50						

As for **the detailed gathering of data on changes in banks' total assets**, a few features may also receive further attention. To begin with, in the shareholders' case, *the sample of banks* is not the same as in the creditors' case. The total number of banks analysed here reaches 72. Of these banks, 22 are large banks whereas 50 are other banks. All large banks that have belonged to the top 3-group in any centre during the investigated period are included in the sample (under the condition that data on changes in bank balance sheet end sums has been available). Other banks are randomly chosen banks. The fact that failures of large banks probably are dealt with in a deviating manner generates the distinction between large and other banks. Differences in the probability for financial assistance may namely affect bank growth (and bank risk level). Concerning the judicial form of the banks, banks both in the form of independent or bank holding companies are considered. The second type is accepted on the ground that a change in the size of a bank subsidiary (ie an actual bank) will show up in the total assets of its bank holding company. This should be true in most cases. – Relating to *the measurement* of data, bank balance sheet end sums are collected on a yearly basis for the period in question. In the measurement, effects of inflation are not removed from bank balance sheet end sums. This derives from the fact that these effects are considered marginal due to the short length of the period. Bank balance sheet end sums are transformed to USD according to the prevailing exchange rate at the end of the financial year in question. Bank growth is defined as the yearly change in bank balance sheet end sums. The data on changes in bank balance sheet end sums covers the period 1998–2001.[35]

4.2 The calculations and the results

The next stage in the research procedure, following a) the specification and quantification of bank exit regimes and b) the identification of market attributes and collection of data, is the actual calculations. In a sense, the presentation of the calculations in this section (4.2) is fairly mechanical. Implications of the results of the calculations on existing theoretical frameworks and previous empirical findings concerning spreads and bank growth are discussed in chapter 5. Below, the calculations are presented by distinguishing between three sub-areas. First, *the application and combination of indexes*, as the starting point for the calculations, are considered. Then, *the actual calculations* made are listed and discussed. Third, *the results of the calculations* are presented.

[35] In the collection of data on changes in bank balance sheet end sums, mergers, acquisitions or divisions are not controlled for. In other words, the aim is not to exclude eventual implications of bank exit regimes on merger etc behaviour.

In the calculations, **the indexes previously constructed are applied independently and in combination** (ie the Financial Assistance Index (FAI), the Bank-Creditor Rights Index (BCRI) and the Bank-Shareholder Rights Index (BSRI)).[36] *Combinations of indexes* are motivated by a number of reasons. There are four *types of reasons* for combining the indexes in the calculations made, ie reasons a) focusing on the relation between bank exit practice and law, b) relating to the improvement of the identification of eventual determinants of market conditions, c) linked to the sensitiveness of calculations and d) concentrating on the applicability of the regressions. – Reasons focusing on *the relation between bank exit practice and law* deal with the fact that combinations of practice/law indexes are motivated on the ground that markets do not distinguish between these items. Analysing market behaviour, features of the bank exit regimes should be structured in a way relevant to market actors. – As for reasons relating to *the improvement of the identification of eventual determinants of market conditions* the perspective is slightly different. In this case, the combination of indexes is motivated on the ground that it may give additional light on where to find new determinants of existing market conditions. Such a revelation must not be considered improbable, taken the complexity of factors that may affect eg bank bond spreads. – Reasons linked to *the sensitivity of calculations*, deal with the fact that indexes may be combined in a manner allowing for grade differences. By giving the indexes various aggregated internal weights, conditions are created to identify certain patterns in investigated market conditions and existing causal relations. – Finally, combinations of indexes may also improve *the applicability of certain established calculation-techniques* when searching for correlation between features of the law and features of the market. A frequent problem in comparative legal studies is that many legal indexes do not change over time (since amendments of the laws are few) and the law is equal for all individuals/companies in a given jurisdiction (ie country). Under such circumstances, conditions for the application of advanced methods (eg regression analyses) are not optimal, since no changes over time or cross-sections occur in the search for correlation. By combining legal indexes with indexes reflecting variation, the applicability of these methods is improved.[37]

In the calculations *indexes are applied and combined* in the following manner. Regarding calculations relating to *bank creditors*, these are first based only on the Financial Assistance Index (FAI). This corresponds to the code FAI c 100. In these calculations, correlation between the probability of financial

[36] For viewpoints on the structure and content of the indexes see sections 3.1–3.2.

[37] Considering combinations of indexes, an alternative is always to restructure the indexes themselves in order to improve their functionality. On the other hand, there may be reasons for not doing so. Eg an interest in the distinction of pure legal features from authority practice may motivate the existence of separate indexes.

assistance to ailing banks in various financial centres and bank bond spreads for banks in those centres is searched for. After the application of the pure FAI, combinations of indexes are considered in the calculations. The indexes combined are restricted to the Financial Assistance Index (FAI) and the Bank-Creditor Rights Index (BCRI). These indexes are connected in two ways. To begin with, the indexes are combined by giving both indexes equal weights. This combination corresponds with the code FAI c 50. Then, the indexes are linked by giving the FAI a weight of 25% and the BCRI a weight of 75%. In other words, in this latter case, pure legal features of the bank exit regime (constituting the BCRI) are given a larger weight than the probability for financial assistance to ailing banks. This latter case is coded FAI c 25. The reasons for combining indexes in these specific creditor calculations are several (compare the above-mentioned list). Still, the main reasons are that such approach a) enlightens the relation between bank exit practice (ie probability of financial assistance) and bank exit law provisions as determinants of bank bond spreads and b) improves conditions for the application of regression analyses. The second reason derives from the fact that FAI is characterised by changes over time (ie the probability of financial assistance varies) while diachronic changes in the BCRI are minor (no or few amendments of the legislation).[38]

Calculations involving *bank shareholders* resemble creditor calculations to a large extent. Calculations are based on the Financial Assistance Index (FAI) independently and in combination with the Bank-Shareholder Rights Index (BSRI). The BSRI focuses on pure legal features of the bank exit regimes significant to bank shareholders. Regarding this approach, there is one aspect that requires additional clarification. Namely, the Financial Assistance Index (FAI) was originally created with bank creditor interests in mind. Though it focuses on the overall probability of financial assistance to banks, it must at least in a critical scientific sense mainly be seen as an indicator of such assistance that would benefit bank creditors. In most cases, the assistance in question would be in priority in relation to bank shareholder claims against the bank or even limit or eliminate old shareholder-value when given. Still, the overall probability of assistance may correlate with bank growth as a market attribute for bank shareholder interests to some degree. As a result, in the shareholder-calculations, the FAI has the same role as in the creditor-calculations. Depending on how the two indexes are applied in the shareholder-calculations, one may distinguish between the codes FAI s 100, FAI s 50 and FAI s 25. In FAI s 100, correlation between the probability of financial assistance to ailing banks in various financial

[38] In the calculations, the grades of the FAI applied to large banks is different to the grades of the FAI applied to all banks (the grades of the BCRI are the same). Consequently these calculations are coded FAI c L 100, FAI c L 50 and FAI c L 25.

centres and the growth of banks in those centres is searched for. FAI s 50 and 25 also consider legal aspects significant to bank shareholders.[39]

The following topics to be addressed more closely relate to **the actual calculations.** These topics concern the applied methods for the calculations, the various categories of calculations made and viewpoints on control-variables. – As for *methods applied*, regression techniques are used in the search for correlation between the indexes (and the combinations of indexes) and the market attributes (spreads in the creditor case and bank growth in the shareholder case). The program used is E-Views. The relation between the exogenous and endogenous variables is assumed to be linear. The regression is a least square regression based on the standard OLS formula. – In total, there are six (6) *groups of regressions* made. Of these groups, four (4) relate to creditor-calculations and two (2) to shareholder-calculations. *Groups of creditor-regressions* may be further divided into two entities. In the first entity, two groups of regressions are made, one including spreads of all banks and another including spreads of only large banks. The reason for separating large banks to an independent entity is the fact that the probability of financial assistance is different (the FAI is graded differently) for large banks. This is due to eventual systemic implications of large bank failure. In both groups of regressions of this first entity, individual regressions according to the scheme FAI c (L) 100, FAI c (L) 50 and FAI c (L) 25 are carried out. The second entity of creditor regressions concentrates only on spreads of low-solvency banks. The reason for such a focus is the assumption that in case of low solvency, bank creditors should be more sensitive to whether they will experience a capital loss or not. Consequently, issues like bank creditor security and rights should become more central. In this second entity, a similar categorisation of groups of regressions is made. First, spreads of all low-solvency banks are analysed. Then, spreads of large low-solvency banks are looked into. In both groups of regressions, individual regressions following the concept of FAI c (L) 100, FAI c (L) 50 and FAI c (L) 25 are carried out.[40]

The number of *groups of shareholder-regressions* is clearly lower, since only two groups of shareholder-regressions are made. In the first group, the growth of all banks is focused on. In the second group, the growth only of large banks is investigated. The reason for the separation is the same as above. Large banks are dealt with differently due to eventual systemic implications of large bank failure. The concept for the individual regressions in the two groups is similar to that of

[39] Similarly to creditor calculations, the grades of the FAI are different for large banks in shareholder calculations (the grades of the BSRI are independent of bank size). The codes used for these calculations are FAI s L 100, FAI s L 50 and FAI s L 25.

[40] The criterion for the definition of a low-solvency bank is "less than mean solvency relative to all banks of a particular financial centre during a particular year". In other words, the group of low-solvency banks varies over time, ie on a yearly basis.

creditor-regressions. Individual regressions comprise FAI s (L) 100, FAI s (L) 50 and FAI s (L) 25 in both groups. – The last structural question relating to the calculations is that of *control-variables* used. In *creditor-regressions* the level of solvency and the size of banks are controlled for. The level of solvency is defined as equity to total assets. Size is measured as the balance sheet end sum in billion USD. The motive for controlling for solvency and size is the fact that these items may, according to theoretical considerations, affect the level of spreads. In *shareholder-regressions* the control-variables are the same as in creditor-regressions. Still, the motives partly differ. In shareholder regressions, the interest in solvency also enlightens the way that banks grow, given eg that the probability of financial assistance correlates with the growth rate. The role of bank size as a determinant of bank growth has also been a topic frequently considered in theoretical discussions.[41]

The final, and in many respects most important, topic is **the results of the calculations**. The exact results of the regressions are listed in table 4.3 for both creditor and shareholder regressions. Below, the results are presented in general terms. – For *creditor regressions*, there are a number of conclusions that can be drawn. To begin with, one may point out that the results of the regressions seem reasonable. The results support the initial assumption that bank exit regimes affect bank refinancing costs. The results are significant. The degree to which bank bond spreads are explained by the exogenous variables exceeds 50 percent in most cases. The relation between changes in the exogenous and endogenous variables in quantitative terms is acceptable. Eg a one (ie 1/15) unit change in the level of the FAI corresponds with a 7.20–24.43 unit change in spread basis points in various regressions. Furthermore, the signs of the correlation coefficients are in line with the theoretical considerations.[42]

Other conclusions that can be drawn from the regression results are the following. First, the probability of financial assistance (FAI) is more important than the legal features (BCRI) of the bank exit regimes in explaining the level of spreads for all banks and all low-solvency banks. This is not clearly the case for large banks and large low solvency banks. Second, bank exit regimes seem to be more important when explaining spreads of large banks than spreads of small banks. Third, the probability of assistance (FAI) and bank creditor rights (BCRI) seem to correlate negatively with the spreads. This is in line with initial assumptions. Fourth, solvency as a control variable, does not explain the level of

[41] Hameeteman and Scholtens 2000 and Wilson and Williams 2000 are examples of analyses enlightening the relation between bank size and bank growth.

[42] There is a small problem of serial correlation in the residuals since the Durbin-Watson statistic is between 0.33 and 0.77. This may depend on the fairly low number of spread observations for each quarter. It may also be a result of the fact that the underlying model is fairly static, though spread movements are dynamic.

spreads in general terms. Fifth, bank size as a control variable negatively correlates with the level of spreads in all regressions. On the other hand, the amount of correlation identified is marginal.

The results of *shareholder-regressions* are not of the same quality as the ones of creditor regressions. The results are insignificant. While the explanatory levels in the creditor regressions were above 50 percent in most cases, bank exit regimes do not seem to explain bank growth. Still, in all regressions indexes and combinations of indexes have some negative correlation with bank growth. Higher probability of financial assistance (FAI) and improved bank-shareholder rights (BSRI) link to slower growth. Also, the probability of financial assistance (FAI) more strongly correlates with bank growth than do pure legal features of the bank exit regimes (BSRI). Moreover, correlation is stronger for large banks than for other banks. Finally, control variable results (both for solvency and size) are not significant in shareholder regressions.

Table 4.3 **Regression results**

Creditor regression results – Endogenous variable (Env) – Level of bank bond spreads

All banks									Large banks								
FAI100			FAI50			FAI25			FAI_L100			FAI_L50			FAI_L25		
Exv	Corr	Stder	Exv	Corr	Stder	Exv	Corr	Stder	Exv	Corr	Stder	Exv	Corr	Stder	Exv	Corr	Stder
FAI100	–8.23	0.99	FAI50	–8.90	1.40	FAI25	–7.20	1.60	FAI_L100	–23.77	5.39	FAI_L50	–16.80	2.68	FAI_L25	–10.47	2.03
E/TA	–3.28	1.45	E/TA	–0.80	1.48	E/TA	1.95	1.42	E/TA	–3.57	4.08	E/TA	1.87	2.27	E/TA	6.23	2.01
SIZE	–0.04	0.01	SIZE	–0.05	0.01	SIZE	–0.05	0.01	SIZE	–0.01	0.01	SIZE	–0.02	0.01	SIZE	–0.02	0.01
	$R^2 = 0.57$			$R^2 = 0.49$			$R^2 = 0.42$			$R^2 = 0.67$			$R^2 = 0.74$			$R^2 = 0.70$	

All low-solvency banks									Large low-solvency banks								
FAI100			FAI50			FAI25			FAI_L100			FAI_L50			FAI_L25		
Exv	Corr	Stder	Exv	Corr	Stder	Exv	Corr	Stder	Exv	Corr	Stder	Exv	Corr	Stder	Exv	Corr	Stder
FAI100	–11.03	1.51	FAI50	–9.69	1.96	FAI25	–7.31	2.07	FAI_L100	–24.43	9.97	FAI_L50	–15.13	3.63	FAI_L25	–9.17	2.54
E/TA	–7.95	2.60	E/TA	–1.41	2.48	E/TA	2.73	2.27	E/TA	–5.13	8.94	E/TA	4.31	3.61	E/TA	9.28	3.03
SIZE	–0.03	0.01	SIZE	–0.04	0.01	SIZE	–0.04	0.01	SIZE	0.00	0.02	SIZE	–0.02	0.01	SIZE	–0.02	0.01
	$R^2 = 0.57$			$R^2 = 0.45$			$R^2 = 0.37$			$R^2 = 0.56$			$R^2 = 0.66$			$R^2 = 0.63$	

Shareholder regression results – Endogenous variable (Env) – Changes in bank balance sheet end sums

All banks									Large banks								
FAI100			FAI50			FAI25			FAI_L100			FAI_L50			FAI_L25		
Exv	Corr	Stder	Exv	Corr	Stder	Exv	Corr	Stder	Exv	Corr	Stder	Exv	Corr	Stder	Exv	Corr	Stder
FAI100	–1.48	0.97	FAI50	–0.38	0.86	FAI25	–0.00	0.72	FAI_L100	–4.94	3.61	FAI_L50	–2.28	1.71	FAI_L25	–1.32	1.17
E/TA	0.78	1.60	E/TA	2.18	1.54	E/TA	2.71	1.42	E/TA	–0.07	2.76	E/TA	0.50	2.52	E/TA	1.12	2.37
SIZE	0.01	0.01	SIZE	0.01	0.01	SIZE	0.01	0.01	SIZE	0.01	0.01	SIZE	0.00	0.01	SIZE	0.00	0.01
	$R^2 = 0.04$			$R^2 = 0.03$			$R^2 = 0.03$			$R^2 = 0.06$			$R^2 = 0.06$			$R^2 = 0.05$	

FAI100–25 – indexes and combinations of indexes applicable to all banks. $FAI_L100–25$ – indexes and combinations of indexes applicable to large banks. Exv – exogenous variable. E/TA – equity to total assets (balance sheet end sum). SIZE – balance sheet end sum in billion USD. R^2 – fraction of variance of Env explained by Exv.

5 Theoretical implications of the results of the analyses

5.1 Creditor-regression results in the light of theory and previous empirical findings on credit spread determinants

The existing theoretical framework on credit spread determinants currently comprises determinants of a wide variety. Eg structural models of default, the existence of embedded bond options in relation to interest rate volatility and the implications of the interest rate term structure are features considered in the theoretical discussions on credit spread determinants. In order to illuminate the variety of factors hitherto considered in the theoretical discussions (and in previous empirical studies), factors dealt with are analysed by distinguishing between determinants relating to market dynamics, company-specific (ie bank-specific) determinants and market structure-oriented determinants. *Determinants relating to market dynamics* include the business cycle, the interest rate level, interest rate volatility and the term structure of the yield curve. *Company-specific (ie bank-specific) credit spread determinants* are in turn analysed by separating between determinants relating to the leverage of the debtor-company and other determinants relating to the value of the debtor-company. In principle, there is also the possibility of a theoretical debate concerning the eventual differences between bank spreads and other company spreads. Still, contributions in the area of such a bank-specific credit spread debate have been few. Moreover, *market structure-oriented determinants* are here considered a distinct group of market-related determinants. The research on market structure-oriented determinants of credit spreads is the area to which this legally focused study contributes. Previous research done in the area in question is limited.[43]

When it comes to credit spread **determinants relating to market dynamics**, one of the most frequently discussed determinants is *the general business cycle*. Implications of the business cycle on credit spreads are considered in the Quality spread theory. The Quality spread theory focuses on the relation between company and government bonds as features of separate sectors of the bond market during varied economic times. Pursuant to this theory, earnings and cash flows of debt providers are reduced during *difficult economic times*. This is also true for debtor-companies. Asset values that form eventual collateral for debt issued are likely to deteriorate. In this situation, rational investors demand an increasing risk-

[43] For relating examples concerning the implications of the market structure on bank performance see Chakravarty and Molyneux 1996, Allen and Rai 1996 and Dewenter and Hess 1998.

premium to accept high-risk non-government (ie company) bonds. Conversely, in *a strong economic situation*, earnings and cash flows of debt providers and debtor-companies increase and asset values continue to grow. In this converse situation, rational investors accept also risky non-government bonds. As the demand of bonds increases, the risk-premiums provided by the debtor-companies to debt providers decrease.[44] – Another determinant of credit spreads that classifies as related to market dynamics is *the interest rate level*. Usually, discussions concerning the interest rate level as a market-related bond spread determinant have focused on the yield ratio. According to the Yield ratio (or Relative yield) theory, it is not *the difference* between company and government bond yields (ie spreads) that provides for the highest informative value. The Yield ratio theory suggests that *the ratio of non-government bond yields to government bond yields* will be more stable and more useful to observe than absolute yield spreads. The underlying idea of the Yield ratio theory is quite contrary to that of the Quality spread theory. The Yield ratio theory builds on the assumption that times of high interest rate levels are characterised by wide spreads and times of low levels by narrow spreads. In other words, the Yield ratio theory emphasises proportionality to a very high extent. To assess the yield ratio theory, one has to consider the role of spreads/yield ratios as a market attribute for each analysis separately.[45]

Closely related to the level of interest rates as a determinant of credit spreads is *interest rate volatility*. The effects of volatility on bond spreads may be analysed in three dimensions. Firstly, interest rate volatility may have *direct effects* on spreads by actualising embedded options in the debt contracts. Regarding embedded options, many corporate bonds may have cash call, refunding or put provisions. In combination with such terms, interest rate volatility creates uncertainty concerning returns of existing bonds. Consequently, investors require higher yields to compensate for the increased bond risks, leading to a decrease in bond price. The effects of bond terms on bond yields and bond prices vary depending on the specific character of the bond terms. Various bond terms generate various conditions for debtor action. In some situations *a documented change in market conditions* is needed eg in order to legitimate optional measures by the debtor. In other situations, the legal terms may give the debtor *independent options* without regard to market conditions. In these latter situations, increasing volatility implies an even higher degree of uncertainty since optional measures may be taken on whatever grounds. – Secondly, interest rate volatility may relate to, ie cause changes in or derive from, the general business

[44] Eg Fama and French 1989 discuss the relation between business conditions and expected returns on bonds and find that credit spreads widen when economic conditions weaken.

[45] For more detailed viewpoints on the yield ratio as an alternative market attribute see Dialynas and Edington 1992.

cycle, implying *indirect effects* on or correlation with spread movements. Changes in interest rates impair the ability of companies to make investment decisions and the consumers to consume. High interest rate volatility often precedes periods of economic stagnation or contraction. During such times rational investors demand an increasing risk-premium in order to accept corporate bonds as an alternative to government bonds.[46] – Thirdly, when estimating the effects of interest rate volatility on corporate bond spreads, the relative liquidity of bond markets should be taken into account. Comparing corporate bond markets with government bond markets, corporate bonds are usually less liquid than government bonds. In such markets, the bid-ask spread is wider than in well-functioning markets. Consequently, the variation in yields (and spreads) agreed upon is higher than in well-functioning markets. This variation classifies as a specific type of market-bound interest volatility.[47]

The second group of theoretical spread determinants is **the company-specific (ie bank-specific) ones**. As a result of the fact that the so-called structural models of default for identifying determinants of credit spread changes concentrate on the level of debt outstanding, company-specific determinants that relate to the level of debt are analysed first. Later on, other determinants linked to the character of the debtor-company are considered. – As for company-specific *determinants focusing on leverage*, these may be viewed from two angles. In the first case, the view on debt in relation to own funds follows *a balance-sheet logic*. Determinants deal directly with the amount or proportion of debt in relation to own funds. Large amounts of debt are considered problematic, since own funds may not be sufficient to cover debts in the event of default. In order to cover for the risk that investors bear in companies with large amounts of debt, investors demand a wider spread. The second angle, from which determinants focusing on leverage may be viewed, follows *a profit/loss account logic*. In this situation, it is not the amount of debt in itself that affects the spreads – it is the cost generated by the debt as a function of the amount of debt and the level of interest rates. According to this perspective, the interest rate level in combination with the amount of debt is a crucial determinant of the observed spreads. For a profitable company the spreads may narrow, since cash flow is sufficient to cover for the interest paid and

[46] Closely related to this question are considerations concerning local supply and demand shocks as major determinants of the level of spreads. In some studies, this concept has been introduced as a complementary explanation for existing spread levels, since other significant determinants have not been identified.

[47] Credit spreads of corporate bonds may also be affected by *the term structure of the yield curve*. These viewpoints suggest that bond spreads are influenced by the shape of the yield curve, independent of the general level of interest rates. Spreads are assumed to decrease when the yield curve has a sharply positive slope and increase when the yield curve is flat or inverted. More often, viewpoints on the term structure of the yield curve in relation to the level of credit spreads are seen as expressions of the Quality spread theory. This is also the perspective in this analysis.

decrease the amount of outstanding debt. Still, worth remembering is that a simplified view on the amount of debt and the level of interest rates may be misleading. The construction of spread determinants focusing on leverage also actualises the maturity structure of company debt and future liquidity needs. In other words, the spot (interest) rate is not necessarily a determinant of the costs generated by the debt. For many companies the major part of existing debt is fixed-rate and long-term. Such costs of debt are not affected by the spot (interest) rate. Companies with unexpected capital outflows (ie liquidity needs) are the ones most influenced by changes in the spot (interest) rate.[48]

Other determinants linked to the character of the debtor-company include determinants of a wide range. In the theoretical debate, these determinants mainly relate to the value of the debtor-company and changes in the company's business climate. As for the case with company leverage, when estimating the potential effects of these determinants on credit spreads one should consider the question of transparency. In a theoretical, economic climate characterised by free, instant information flow, disclosure of company data is not problematic. In the empirical world, it is often problematic and may be crucial. – For determinants focusing on *the value of the debtor-company*, the underlying theoretical assumptions are that an increase in debtor-company value should generate lower spreads and a decrease in value should reflect higher spreads. This derives from the fact that the higher company-value constitutes a guarantee for the capital invested by company-creditors. Still, the exact procedures for how changes in company-value generate changes in credit spreads are not documented. – Another group of determinants for credit spreads linked to the debtor-company are the ones focusing on *changes in the company's business climate*. Very often changes in the company's business climate are reflected in the value of the company. Theoretically, improvements of the business climate are anticipated to generate narrower spreads and deterioration of the business climate wider spreads.[49]

Apart from these theoretical considerations, empirical research on bank bond spreads has also turned the attention to other features with possible implications on spreads. In these studies, **aspects of the market structure**, ie country specific features, have been found to contribute when explaining the level of spreads. In other words, signs of underlying systematic factors affecting the levels of spreads have been identified in comparative studies but there has still been uncertainty to

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[48] Initially, Merton 1974 introduced the structural models of default. Since then, the empirical validity of the models has been discussed. Eg Brown 2000 has found evidence supporting the opposite view that credit spread changes are due to non-credit-risk factors.

[49] Eg Bryis and de Varenne 1997 speak in favour of models focusing on firm value in the estimation and explanation of credit spread levels. – The regression results of *this study* indicate that other factors than firm value direct the level of spreads. Similarly, based on this analysis, company size does not seem to affect the level of spreads very much.

what these factors represent.[50] In principle, the character of country-specific and market structure-oriented determinants has been seen as twofold in studies made on bank performance. Determinants have been associated with *the role of banks* in various financial systems but also directly with *features of the regulatory system*. Traditionally, a distinction between relationship and transactional banks has been made in the studies, signalling regional differences in the functions between German-related and Anglo-Saxon banks. Furthermore, when focusing on regulatory systems, the emphasis has been on investor protection provided by the banking legislation. In this sense, this study clearly contributes to an area not yet investigated. This study clearly indicates that certain features of the regulatory system (ie bank exit regimes) direct the level of bank bond spreads.[51]

5.2 Shareholder-regression results and existing views on bank growth

In order to link the results of this analysis to a broader discussion on bank growth, the current debate on determinants and types of bank growth is analysed below. Bank growth, as a phenomenon, is not characterised by a large number of scientific studies. Most frequently discussed *bank growth determinants* are market growth speed, company size and company profitability. The market structure, ie the roles of banks and implications of regulatory systems, has also been considered to some extent in the studies made. *Bank growth types* primarily comprise branching, product expansion and mergers & acquisitions. Overall, conclusions drawn on the implications of various growth determinants on the type of bank growth are few. Still, some results have been presented.[52]

As mentioned above, regarding **bank growth determinants**, one potential determinant is banking market growth speed. When estimating the implications of *banking market growth speed* on individual bank growth, there are some aspects that require closer examination. – One important feature when examining the relation between banking market growth speed and bank growth is *definitional*. In other words, it concerns the correlation between changes in banking market growth and changes in bank growth. On both a theoretical and empirical level, this correlation is seen as significant. Slowly growing banking markets correspond

[50] Collin-Dufresne, Goldstein and Martin 2001.

[51] See Allen and Rai 1996, Dewenter and Hess 1998. See also La Porta, Lopez-de-Silanes, Schleifer and Vishny 1997, 1998 and 1999.

[52] Studies identifying determinants of bank growth include eg Goddard, Molyneux and Wilson 1997 and Hameeteman and Scholtens 2000. Rose 1987 considered the implications of the regulatory system on the structure of the US banking system. Cyree, Wansley and Boehm 2000 have focused on various determinants of bank growth choice (ie types of bank growth).

with slow individual bank growth and rapidly growing banking markets with rapid individual bank growth. Still, there are a few factors stirring this simplified scheme. Firstly, in slowly growing markets, banks are fairly apt to move to other markets or close down. Secondly, rapidly growing markets are usually characterised by newcomers in the form of newly established companies or competitors from abroad. In addition, banks may merge or divide on various grounds.[53] – Aiming to understand the relation between banking market growth speed and bank growth, there is also a need to identify alternative *sources of market growth*. Depending on the source of market growth, the conditions for bank growth differ. The applied criterion for distinguishing between the sources is the localisation of the initiative of market growth. To sum up, there are two types of sources of market growth that are relevant when estimating the implications of market growth on bank growth. The types of sources are market supply-oriented and market demand-oriented sources. – Sources of market growth that classify as *market supply oriented* are actions taken by the banks. Potential actions implying market growth may be described by concentrating on three principal dimensions in the relation between the bank and its customers. First, banks may provide for bank and market growth by introducing new or further-developing old products. In other words, banks focus on product characteristics in this particular case. Second, product price discounts are another path that may lead to both bank and market growth. Market growth will occur if the product in question conquers markets of higher priced substitutes. Third, actions taken by the banks may also relate to the information on products passed to bank customers. In principle, there are two kinds of information, ie "pure" information and value-related (marketing) signals. Such action may result in both bank and market growth. – The effects of *changes in market demand* on bank growth have to be analysed separately for decreases and increases in demand. In case of decreases of market demand the conditions for bank growth are small. In this situation, the options for the individual bank with ambitions to expand are either a) to conquer competitor market shares or b) manipulate market demand. Since manipulating market demand in times of decreasing demand is a costly activity, decreasing demand will most certainly result in increasing competition between banks. In case of increases in market demand, the individual bank is confronted with a new alternative for expansion. As before, bank growth may derive from a) conquering competitor market shares or b) manipulation of the market demand. The conditions for the manipulation of market demand have improved. But moreover,

[53] There are two reasons for presenting these viewpoints. First, banking market growth is a conditional determinant of individual bank growth parallel to eg the regulatory system. Second, these viewpoints are important if expanding the conclusions drawn in the regressions on individual bank growth to a market level.

bank growth may stem directly from c) the independent increase in demand, ie from demand-lead market growth.[54]

Another central determinant of bank growth dealt with in theoretical discussions and empirical investigations is *bank size*. Bank size as a determinant of bank growth may be considered in many ways. The approach chosen here is to analyse the relation between bank size and bank growth from two separate angles. Pursuant to the first angle, certain motives introduced in the theoretical debate for dependency between the two items are further looked into. After that, according to the second angle, "the Law of Proportionate Effect" (LPE) as an expression of assumed randomness in growth is presented.[55] – As for *certain theoretical motives introduced for existing dependency* between bank size and bank growth, these focus on one dimension in the relationship. In this dimension, the interest is in large banks. Large banks are anticipated to grow faster than average, ie faster than small banks. In these theoretical discussions, the interest in small banks has clearly been secondary. The first motive for assuming that a dependency between large banks and a high growth rate exists is the thoughts on economies of scale. According to this logic, large companies have an advantage since the level of their expenditures is lower in relation to total assets compared with smaller companies. This thought derives from the fact that expenditures are assumed to consist of both a constant and relative part. Since the constant part of expenditures applies to all companies independent of size, large companies will benefit. The following motive for assuming that a dependency exists is the expected disposition of large banks to acquire or merge with other banks. Looking into this feature more deeply, it is difficult to find other theoretical arguments supporting these thoughts than ideas on the variability of growth types for banks of different size. According to these ideas, smaller banks are apt to grow by establishing new branches while larger banks grow in alternative ways. The last motives sustaining the hypothesis concerning the exceptional growth rate of large banks are large banks' market entry deterring activities and the existence of regulations manipulating the market. As for market entry deterring activities these comprise any actions taken by the banks or their representatives in order to hinder competition. By protecting markets in total or in part, growth rates for already established companies are secured. Usually, large banks are in a better position (having more advanced devices for societal influence) to deter market entry than small banks. In many countries, regulations may affect the growth possibilities for different-sized banks.

[54] The figures on mean growth and variance in growth for the samples of individual banks in various financial centres (table 4.2) illuminates the development of specific banking markets. Still, as the samples comprise a limited number of individually picked banks and banks picked on stochastic grounds, these figures can not be seen as attributes of overall market growth.

[55] Relating to the measurement of bank size/growth, frequently used units are balance sheet end sums, total equity and total on and off balance sheet items. – Originally, the Law of Proportionate Effect was introduced by Gibrat in his work "Les Inequalites Economiques" Paris, 1931.

Sometimes, different rules may apply to banks that fall short of or exceed certain quantitative measures. These rules may strongly affect growth opportunities.[56]

The following topic describing the relation between bank size and bank growth concentrates on *"the Law of Proportionate Effect"* (LPE). The question whether company growth is random or not has generated the law. This law deals with the fact that company growth is stochastic and will create a certain market structure of different-sized companies. In other words, the law is characterised by a general assumption of company growth randomness. The informative value of such an assumption may be analysed as follows. To begin with, the law comprises a cross-sectional element. It states that growth should be independent of a-priori classifications of companies. Growth randomness should apply to large and small companies, companies in various industries, old and new companies, private and public companies etc. Moreover, the assumption reflects the idea that also the growth of a specific company should be stochastic over time. In this sense, the law has a clear diachronic dimension. Another aspect of the law relates to the operationalisation of the law in empirical research. To this extent studies usually deal with mean growth and variability of growth for groups of companies or individual companies. Also on this point, the randomness of growth implies growth without patterns. In addition, the law implies that the outcome of a stochastic growth process over time is a skewed distribution of companies of different size. The skewed size distribution comprises a few large firms, rather more medium-sized firms and a large "tail" of small firms. The law has received attention since the theoretically predicted outcome of growth randomness (ie the skewed distribution) corresponds with identifiable empirical data, ie current market conditions. But still, in most studies, no clear evidence supporting or rejecting the underlying assumptions on growth randomness has been found. Though size itself seldom has explained growth, evidence of company growth rates being related through time has been presented. Moreover, the question whether the empirically identifiable concentration of banking markets is a result of the law or other market features has not yet been answered.[57]

When it comes to *bank profitability* as a determinant for bank growth, the relation between the two items may be characterised as *highly conditional*. This

[56] As for theoretical considerations concerning higher relative growth rates for large banks, such considerations have seldom received unconditional empirical support. Molyneux, Gardener and Altunbas 1996 and Berger, Demsetz and Strahan 1999 have presented evidence suggesting that economies of scale are available to banks. Eg Rhoades and Yeats 1974, Tschoegl 1983 and Wilson and Williams 2000 have not found any evidence linking large banks to higher relative growth rates.

[57] See Kumar 1985 and Hameeteman and Scholtens 2000 (on growth rates being related through time) and Goddard, Molyneux and Wilson 1997 (on the law (LPE) as a determinant of market concentration). – Analysing the results of the regressions made in *this study*, no evidence is found that bank size would affect bank growth rates.

stems from the fact that there are several reasons for why individual bank growth is not a consequence of increased individual bank profitability. Reasons apply to any individual bank and may also be used to explain the relationship between profitability and growth of banking markets. – The first aspect to consider when analysing the conditional character of the relation is the decisional quality of bank growth. Though a bank may be profitable, this does not necessarily correspond with growth since capital may be removed from the bank. Only in the case the bank is directed to grow it will grow. Given this, the bank's decision to grow is affected by several types of features, eg shareholder needs and taxation. – One such group of features affecting decisions on bank growth is the value-oriented features. In this case, the focus is on decision-maker values. Analysing banking markets over recent years, there is a clear trend in emphasising shareholder value on behalf of bank growth in decision-making. This has not always been the case in the financial centres investigated.

Furthermore, bank growth decisions are affected by the bank's business environment. If future growth possibilities are scarce, capital may be removed from the bank by paying back debts or paying profits to shareholders. On the other hand, if future bank profitability is assumed to be low, there may be a need to secure future activities by preserving a sufficient amount of own funds. – Another feature affecting decisions on bank growth relate to decision-maker capacity. Decision-maker capacity may be analysed in two dimensions, ie by concentrating on costs and risk. Bank shareholders with large deficits may require high returns on invested bank capital restricting bank growth. Similarly, the risk structure of bank owners may hinder bank engagements in certain areas. Bank capital adequacy requirements also affect bank growth since expansion should be partly covered by own funds. – Finally, taxation may initiate or direct ambitions to expand. Profits reinvested in bank activities may be taxed differently compared to capital paid back to bank stakeholders.[58]

The role of *the market structure* on *bank growth* is an area that has received some attention in the literature. Still, one has to conclude that this area has been in the shadow of examining the effects of market structure on *bank profitability*. Presumably, bank growth as a conditional attribute for bank success has contributed to this situation. Analyses of the profitability of banks in various financial systems (ie mainly German relationship banking vs Anglo-Saxon transactional banking) and implications of various regulatory systems on bank values classify as studies on the effects of market structures on bank

[58] Considering empirical studies that link bank profitability to bank growth, most studies focus on a) the profitability of various-sized banks and b) the profitability of banks over time. – The (insignificant) results of the regressions of *this study* signal that the solvency level of banks do not explain the level of bank growth. Since profitability often correlates with solvency, regression results indicate that profitability does not explain bank growth.

profitability.[59] In studies directly considering the impact of the market structure on bank growth, ie US studies, several features have been recognised to constitute the market structure. Also here, the role of banks in the financial system, law provisions as barriers of banking business or bank growth and governmental agency decisions have been dealt with. In many cases, the studies have documented significant effects of these variables on bank growth. Still, most of these studies have been characterised by the absence of a solid theoretical framework to build on.[60]

Lastly, a number of points on the relation between various determinants of bank growth and **different types of growth** may be made. Though no actual theoretical contributions may be identified in this area, a few interesting empirical results are found. Branching, mergers & acquisitions and product expansion constitute growth alternatives. According to the results, larger banks and multi-bank holding companies are most likely to grow through *mergers & acquisitions* independent of the level of profitability. Regarding *branching*, there is some evidence that profitable banks are more likely to branch than less profitable banks. Moreover, banks in highly competitive markets are documented more likely to grow through *product expansion*. Also, regulatory systems comprise restrictions on various types of bank business, creating acceptable channels for bank growth. Still, this does not mean that the regulatory systems initiate the actual bank growth.[61]

6 Conclusions

Finally, a number of conclusions on financial centre competitiveness can be drawn based on the results of the analyses. Regarding the evaluation of features of the bank exit regimes relevant to **bank creditors**, the results of the analysis imply that bank exit regimes affect *bank refinancing costs*. Banks receive a competitive advantage in the form of lower spreads if situated in financial centres with regimes providing bank creditors with higher grades of security and better rights in the case of bank failure. Traditional determinants of spread levels usually considered in theoretical discussions, in this case solvency and size, did either not or marginally correlate with spread levels. Moreover, as for different features of the bank exit regimes, the probability of financial assistance (here defined as the

[59] See Dewenter and Hess 1998 and Allen and Rai 1996, respectively.

[60] Eg Cyree, Wansley and Boehm 2000, Bhargava and Fraser 1998.

[61] See Cheng, Gup and Wall 1989 and Cyree, Wansley and Boehm 2000. – *This study* provides no significant evidence on a correlation between features of the bank exit regimes and the growth of banks. In other words, the results are not consistent with conclusions drawn in previous articles on the correlation between investor rights and the size of financial markets.

FAIndex) was more successful than legal bank creditor rights (here defined as the BCRIndex) in explaining the level of spreads for other than large banks. This was not clearly the case for large banks. A separate question concerns the implications of the fact that spread levels vary under different bank exit regimes. One could assume that banks strive to compensate for the higher refinancing costs through various arrangements. This is an area still to be investigated. – As for the second analysis, ie the evaluation of bank exit regimes from **a shareholder perspective**, the results of the analysis are not as good. Features of the bank exit regimes do not explain *bank growth*, since regression results are insignificant. Still, in all shareholder-regressions there is some negative correlation between features of the bank exit regimes and bank growth. Also in the regressions, the probability of financial assistance (the FAIndex) more strongly correlates with the (absence of) growth than do legal bank shareholder rights (the BSRIndex). Overall, the correlation is stronger for large banks. Since results are insignificant, eventual hypotheses concerning the effects of bank exit regimes on banking market structures receive no support. No evidence on financial centre bank exit legislation and practice affecting market structures is found.

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