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## Regulatory choices in global financial markets: restoring the role of aggregate utility in the shaping of market supervision

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Peik Granlund

# Regulatory choices in global financial markets – restoring the role of aggregate utility in the shaping of market supervision



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## **Regulatory choices in global financial markets – restoring the role of aggregate utility in the shaping of market supervision**

The views expressed in this paper are those of the author and do not necessarily reflect the views of the Bank of Finland.

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# Regulatory choices in global financial markets – restoring the role of aggregate utility in the shaping of market supervision

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## Abstract

In financial market studies, public supervision has rarely been found to have any effects on financial market development. This is true, even though the primary objective of supervisory legislation is the limitation of market failures and externalities. Studies conducted by eg the World Bank and La Porta & al imply that whereas private enforcement contributes to financial market development, there is limited evidence that public supervision does the same.

The objective of the paper is to empirically investigate the relation between public supervision and financial market development. This is done by focusing on major legislative features directing the supervisor and hence affecting market participant activities. The markets investigated comprise banks, investment firms, investment fund companies and listed companies in the United States, United Kingdom, Sweden, Finland, Poland and Estonia for the years 1996 to 2005.

The results suggest that certain features of public supervision correlate with financial market development. Strong legal obligations for the supervisor to develop legislation correlate significantly with higher company market values. Emphasizing economic aspects in the formulation of supervisory objectives corresponds with higher market profitability. Furthermore, severe monetary sanctions applicable to company directors correlate negatively with market growth. Unexpectedly, the same is true for a high degree of supervisory independence.

The results imply links between public supervision and financial market development in a manner not always in line with previous research. Why this is the case, requires further investigation. One possible explanation may be methodological, based on the fact that in the present study legislative features are perceived in a conceptual rather than a technical manner.

Keywords: financial institution, regulation, supervision, utility

JEL classification numbers: G28, K23, O16

# Sääntelyn ominaispiirteitä globaaleilla rahoitusmarkkinoilla – kokonaishyödyn merkityksen kasvattamisesta valvonnassa

Suomen Pankin keskustelualoitteita 1/2008

Peik Granlund  
Rahapolitiikka- ja tutkimusosasto

## Tiivistelmä

Rahoitusmarkkinatutkimuksissa julkisella valvonnalla on harvoin todettu olevan vaikutuksia rahoitusmarkkinoiden kehitykseen, vaikka valvontalainsäädännön ensisijainen tavoite on markkinahäiriöiden ja nk. externaliteettien rajoittaminen. Monista tutkimuksista (esim. Maailmanpankki ja La Porta et al.) ilmenee, että siinä missä rahoitusmarkkinasektorin oma sääntely (private enforcement) edistää markkinoiden kehitystä, julkisen valvonnan myönteisistä vaikutuksista ei ole olemassa näyttöä.

Tässä selvityksessä oli tavoitteena tutkia julkisen valvonnan ja rahoitusmarkkinoiden kehityksen välistä suhdetta keskittymällä merkittäviin, valvojaa ja valvottavia ohjaaviin sääntelyn ominaispiirteisiin. Tutkimus kattaa pankkien, sijoituspalveluyritysten, rahastoyhtiöiden sekä listattujen yhtiöiden markkinat Yhdysvalloissa, Isossa-Britanniassa, Ruotsissa, Suomessa, Puolassa ja Virossa vuosina 1996–2005.

Tulokset osoittavat, että tietyt julkisen valvonnan ominaispiirteet korreloivat merkitsevästi rahoitusmarkkinoiden kehityksen kanssa. Vahvat valvojalle asetetut velvoitteet kehittää sääntelyä korreloivat valvottavien korkeampien arvostustasojen kanssa. Taloudellisten arvojen painottaminen valvojan tavoitteita määriteltäessä korreloi valvottavien paremman tuottavuuden kanssa. Lisäksi ankarat valvottavien johtoon sovellettavat rahalliset sanktiot korreloivat negatiivisesti markkinoiden kasvun kanssa. Yllättäen sama koskee myös valvojan itsenäisyyden astetta.

Tutkimuksen tulokset viittaavat julkisen valvonnan ja rahoitusmarkkinoiden kehityksen välisten suhteiden olemassaoloon aikaisemmista tuloksista poiketen. Yksi mahdollinen selitys tulosten poikkeavuuteen voi olla metodologinen ja perustua siihen, että tässä tutkimuksessa sääntelyä tarkastellaan kokonaisvaltaisesti, ei teknisesti.

Avainsanat: rahoituslaitos, sääntely, valvonta, hyöty

JEL-luokittelu: G28, K23, O16

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# 1 Introduction

In 1873, Bagehot wrote: ‘the distinctive feature of the banker, begins as long as he uses the money of others; as long as he uses his own money... he is only a capitalist’.<sup>1</sup> From a theoretical perspective, a statement like Bagehot’s may be considered to appeal to the public interest theory motivating regulation of markets. The statement reflects the core of financial intermediation and its perceived relation to the rest of society, emphasizing the concept of assets, ministering and societal concern in a manner still valid.

Generally, public interference in market conditions is justified by its impact in terms of elimination of market failures and externalities. As is well known, such negatively documented outcomes of unregulated market conditions, are seen as obstacles to the enhancement of societal utility (orig. Pigou, 1938). The failures and externalities may affect the parties entering into market contracts but may likewise generate utility reductions for third parties through their implications on the flow of information or the availability and transferability of resources. Perceiving public interference from an economic theory perspective raises three specific types of issues in financial market research, ie issues relating to the questions whether to regulate, how to regulate, and how to evaluate the rules introduced.<sup>2</sup>

Issues relating to the need and type of public interference have hitherto formed the focus of research. Economic growth as well as financial theory derived stability concerns, have directed economists’ discussions on whether and how to regulate. Also, in many studies, additional economic theory elements such as selfinterest and capturing have been touched upon. Rajan and Zingales (2003) discuss the necessity of government intervention as a precondition for financial development, at the same time schematising actual public interference as the outcome of a battle of diverging interests. More often, studies are comparative, contrasting private with public enforcement vis-a-vis financial market development or stability in an empirical, normative or even predictive manner (Barth, Caprio and Levine, 2004).<sup>3</sup>

Still, when it comes to empirical ex post assessment of public interference, a certain obscurity seems identifiable in today’s research. To begin with, legislative evaluation analyses are not frequent, though the number of such studies has increased rapidly from 2000 onwards. Second, economist and lawyer engagement

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<sup>1</sup> Bagehot, W (1873) ‘Lombard Street. A Description of the Money Market’.

<sup>2</sup> The tri-partite view on regulation in financial market research is easily identified in the introduction of La Porta et al (2006), whereas a corresponding general public economy perspective on regulation may be found in Polinsky and Shavell (2000) (the area of criminal law).

<sup>3</sup> Considering how public interference in financial markets could/should be brought about, studies conducted also deal with the distinction between the various branches of government, ie enforcement by the executive vs judiciary (Glaeser, Johnson and Shleifer, 2001).

in the specific methodological issues posed by legislation evaluation has been fairly limited. And finally, many studies seem to indicate that the law does not matter, or at least does not promote financial market development.<sup>4</sup>

The aim of this paper is to analyse the relation between public supervision and financial market development further by focusing on a number of major legislative features governing the supervisor's activities. In the study, aspects of the supervisor's mandate, qualities of the enforcement arsenal, the level of supervisory independence, as well as the degree of regulatory powers, are related to market conditions. Financial market development in turn is perceived as the level of market growth, profitability (RoE), market values (P/E) and risk (beta/volatility). Markets investigated using panel data, comprise banks, investment firms, investment fund companies and listed companies in the US, UK, Sweden, Finland, Poland and Estonia. The analysed period covers the years 1996 to 2005.<sup>5</sup>

Results of the study imply links between public supervision and financial market development in a manner contradictory to most former research. Results suggest that certain features of public supervision correlate with financial market development.<sup>6</sup> Strong legal obligations for the supervisor to develop legislation correlate with higher company market values (better future prospects). Also, emphasizing economic theory derived values in the legislation correlate with higher market profitability. Furthermore, severe monetary sanctions applicable to company directors significantly (albeit negatively) correlate with market growth. Unexpectedly, the outcome is the same for a high degree of supervisory independence.

The paper starts with an overview of recent studies by the World Bank, La Porta et al as well as the IMF, addressing the relationship between public supervision and financial market development. In the following section, the focus is on the quantification of supervisory legislation, also covering a comparison of formulated legislative indexes with already established ones. Continuing with results and conclusions, attention is finally given the possible reasons why the

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<sup>4</sup> For an example of such debates see Spamann (2006) 'On the Insignificance and/or Endogeneity of La Porta et al's 'Anti-Director Rights Index' Under Consistent Coding', revising ADRI results and introducing general guidelines for more consistent legislative coding.

<sup>5</sup> In the study, financial market development is viewed in a manner building on Rajan and Zingales (2003). Accordingly, the aspects of financial market development focused on link to 'the ease with which borrowers and savers are brought together, and the confidence that they have in each other'. From such a perspective, eg company market values may be seen to signal a certain degree of confidence, and hence are included in the notion of financial market development.

<sup>6</sup> The advantages of assessing legislation in relation to financial market development have also been acknowledged by eg Beck and Levine (2003): 'An increasing number of legal scholars are emphasising the importance of differences in legal traditions and structures in the form of investor protection laws, contract enforcement, and property rights when assessing financial development'. A similar development has appeared in the area of corporate law, resulting in a striving towards understanding of legislative features of economic (and financial) relevance (Djankov et al, 2001, and Kraakman et al, 2004).

study succeeds in identifying interlinkages between legislation and market conditions.

## 2 Previous empirical studies

Recent empirical financial market studies assessing public supervision in relation to market development, comprise Barth, Caprio and Levine (2004) 'Bank Regulation and Supervision: What Works Best?' (BCL), and Barth, Nolle, Phumiswasana and Yago (2002) 'A Cross-Country Analysis of the Bank Supervisory Framework and Bank Performance' (BNPY), La Porta, Lopez de Silanes and Shleifer (2006) 'What Works in Securities Laws?' (LLS), as well as Das, Quintyn and Chenard (2004) 'Does Regulatory Governance Matter for Financial System Stability? – an Empirical Analysis' (DQC).

Starting with BCL, this study covers banking markets in some 107 countries, mainly for the year 1999, and assesses 'the relationship between specific regulatory and supervisory practices and banking sector development, efficiency, and fragility'.<sup>7</sup> The study's focus is on available (formal) supervisory powers, rather than actual activity or actual routines. Instruments for directing market actor behavior (ie enforcement measures) as well as certain other supervisory characteristics are covered by the study, whilst supervisory input issues (such as means for information gathering) are analysed to a lesser extent. Supervisory objectives are seen as given (ie specified in the legislation), and hence automatically obeyed and fulfilled by the supervisor. In other words, the relation between legislation and authority action is viewed as coherent and nonproblematic.<sup>8</sup>

The interest is both in private-sector monitoring (self-regulation) as well as in actual public enforcement measures signalling more severe interference in market conditions.<sup>9</sup> Moreover, the variety of legislative elements assessed by the BCL is not limited to rules regarding how the supervisor can/should act, but also includes traditional restrictions on market participant (bank) activities, ie restrictions on market entry, rules on capital adequacy and accounting and deposit insurance system design features. As for the rules regarding how the supervisor can/should act, these comprise rules on supervisory focus, powers, independence and

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<sup>7</sup> For a review of the regime data see [www.worldbank.org/research/projects/bank\\_regulation.htm](http://www.worldbank.org/research/projects/bank_regulation.htm).

<sup>8</sup> In practice, this is not always the case. Eg the regulatory environment into which public enforcement measures are introduced, may affect how keenly supervisors are able to address their tasks. Such knowledge interests (linking to a broader understanding of issues analyzed) have been emphasised by a number of leading economists (Pagano and Volpin 'The Political Economy of Finance' (2001), p. 517).

<sup>9</sup> For an extensive overview of the relation between public and private enforcement in the financial sector see Litan, Pomerleano and Sundararajan (eds) (2002).

resources. In practice, BCL outlines the supervisory concept as twofold, differentiating between supervisory measures, and resources. Supervisory measures are seen as a combination of certain official supervisory powers and the right to supervisory forbearance when confronted with violations.

Supervisory regimes are quantified using indexes that are based on yes/no questions, every yes-answer aggregating the index-value by one. The inclusion of legislative regime elements in the indexes mainly expresses the elements' anticipated and independent causal contributions to selected endogenous variables (financial market development) rather than their function as parts of broader weighted aggregates. The relation between the legislative elements included is not the object of a separate analysis, though the questions underlying the indexes derive from the World Bank Guide. All regressions are carried out using larger index-entities. Financial market development is quantified by focusing on credit receivables (1997–1999), profitability figures (1997/1999) and the number of crises (late 1980s to 1999). No relationships between public enforcement and market outcomes are found.

Barth, Nolle, Phumiswasana and Yago (2002), BNPY, represents a similar evaluative and empirically-based approach to banking supervision. This study covers banking markets in some 55 countries with the ambition to analyse 'the appropriate structure, scope and degree of independence of banking supervision' in relation to bank profitability. The data covers the years 1996 to 1999.<sup>10</sup>

In many senses, BNPY corresponds to BCL. Still, BNPY is more restricted to rules and principles directing supervisory activity, not banking legislation in a broader sense. The focus is on supervisory structure, scope, independence, sanctions and discretion. As for the appropriate structure, the question is whether there should be one or multiple supervisory authorities, and whether the central bank should be involved in banking supervision, and for the scope of supervision – whether bank supervisory authorities should supervise other financial services industries, including securities and insurance. The issue of independence relates to the degree to which banking supervisors are subject to political pressure and influence.

The availability of formal sanctions and possibility to apply supervisory discretion are quantified using a four-grade scale, without further information on the variables. Nor is the internal relation between the regime features included in the indexes, discussed. Regressions cover all index-subparts, additionally and independently. Market, ie profitability, data covers the whole period in question.

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<sup>10</sup> For a review of the regime data see [www.worldbank.org/research/projects/bank\\_regulation.htm](http://www.worldbank.org/research/projects/bank_regulation.htm).

Similar to BCL, the study does not identify significant relationships between regime variables and bank profitability.<sup>11</sup>

La Porta, Lopez de Silanes and Shleifer (2006), LLS, deviates from the previous studies by ventilating securities market legislation and supervision, not banking markets. It narrowly focuses on one legal regime aspect, the regulation and supervision of initial public offerings (IPOs). Moreover, it links to public interest theory type of considerations on the overall need of public supervision and its relation to private enforcement. The study involves data from 49 countries.<sup>12</sup> As for conclusions, no evidence is found that public supervision benefits stock markets, but strong evidence shows that laws facilitating private enforcement through disclosure and liability rules benefit stock markets.

The detailed features of the legal regimes covered (limited to the year 2000) comprise disclosure requirements, burden of proof in (issuers') directors' civil liability cases, certain characteristics of the securities market supervisor, investigative powers of the supervisor, as well as sanctions applicable, indicating that the emphasis in how enforcement is perceived is on the formal powers and not the supervisor's actual actions. Focusing on supervisory characteristics, then, the appointment and dismissal of the supervisor's board members, the width of supervisory responsibility, and regulatory independence, receives attention (index scale 0–1/2–1). Investigative powers relate to the right to demand documents and subpoena witnesses when investigating violations of securities laws. As for sanctions, the existence of administrative stop and do-orders applicable to issuers, those assisting in the arrangement of the IPOs, and accountants, as well as criminal sanctions against issuer directors, assisting parties and accountants, constitute regime aspects analysed (corresponding index scale).

In LLS, financial market development is addressed in a more diversified manner relative the other studies. External market capitalization/GDP, number of companies/million citizens, number of IPOs/GDP, control block premia, a qualitative access to equity measure, ownership concentration and value of stock traded, constitute market variables (covering mostly the years 1996–2000). Regressions allow for conclusions vis-à-vis each subpart of regime indexes and each market variable. Overall, the set up of the study signals a more balanced concept of public enforcement, indicating an interest in the internal relation between the regime variables investigated. Still, no positive relationships between

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<sup>11</sup> In the comparison of public enforcement with bank profitability, BNPY builds on the work of Demirguc-Kunt and Huizinga (1999 and 2000). Bank profitability is measured as pre-tax profits divided by total assets and control variables include certain bank-level variables, macroeconomic variables, and other country-specific variables relating to financial structure, banking industry structure and deposit insurance.

<sup>12</sup> For a review of the data see [//post.economics.harvard.edu/faculty/shleifer/papers/securities/\\_data.xls](http://post.economics.harvard.edu/faculty/shleifer/papers/securities/_data.xls).

public supervision (contrary to private enforcement) and financial market development are identified.<sup>13</sup>

The last study to be assessed is Das, Quintyn and Chenard (2004), DQC. Building on the work by Das and Quintyn (2002), this study focuses on the period from 1999 onwards, covering the countries included in the IMF country-specific Financial Sector Assessment Program (FSAP). DQC first deals with supervision of the banking sector, but then extends its scope into other parts of financial markets. DQC only deals with public supervision.<sup>14</sup>

Here, the regime features investigated are more general than in previous studies, constituting a Regulatory Governance Index (RGI) covering four supervisory qualities, ie supervisory independence, accountability, transparency and integrity. The emphasis is on de facto conditions (not only formal rules), increasing the empirical validity of the study. As for independence, the regulatory agency should be insulated from improper influence from the political sphere and from supervised entities.<sup>15</sup> Effective independence, however, cannot be achieved without accountability. Accountability is essential for the agency to justify its actions against the background of the mandate given to it. Transparency, in turn, refers to an environment in which the agency's objectives, frameworks, decisions and their rationale, data and other information, as well as terms of accountability are provided to the public in a comprehensive, accessible, and timely manner. Finally, integrity refers to those mechanisms that ensure that agency staff can pursue institutional goals without compromising them due to their own behaviour, or self-interest.<sup>16</sup>

RGI is related to the Financial System Soundness Index (FSSI). FSSI is composed of two quantitative variables, the capital adequacy ratio (CAR) and a ratio signalling the quality of the financial institution's portfolio. Regression results indicate that regulatory governance has a significant influence on financial system soundness along with a number of other variables.

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<sup>13</sup> Of LLS financial market development variables, external market capitalisation is defined as the average ratio of stock market capitalization held by small shareholders (as specified in La Porta et al, 1999). Control block premia is calculated taking the difference between the price per share paid for a control block and the exchange price (for a more detailed description see Dyck and Zingales, 2004), whilst the qualitative access to equity measure is an index of the extent to which business executives find it easy to raise stock capital (Schwab et al, 1999). Ownership concentration corresponds to the degree of common shares not owned by the top three shareholders in the largest privately-owned domestic firms in a given country.

<sup>14</sup> DQC specify the finance sector environment, by distinguishing between the macroeconomic environment, the structure of the banking sector (ownership) and the institutional and governance environment. The institutional and governance environment cover more general variables compiled by the Country Risk Guide (ICRG), Freedom House, and Kaufmann, Kraay and Zoido-Lobaton (2003).

<sup>15</sup> See Quintyn and Taylor (2003) for an analysis of the various types of supervisory independence acknowledged.

<sup>16</sup> For additional views on accountability see Hupkes et al (2004).

Overall, DQC may be characterised by a network perception of the supervisory context, separating between three layers of governance, all constituting preconditions for a functioning supervisory context. The responsibilities (layers) in respect of good governance concern 1) the financial institutions themselves, bearing the ultimate responsibility for their own activities, 2) the regulatory agencies playing a key role in promoting and overseeing implementation of sound practices in the financial intermediaries, and generally 3) the public sector as a whole striving towards sound standards in terms of ethics, integrity, competition etc. Hence, the perception of public supervision appeals to an analytical framework, which may be linked to financial market development through acceptable/reasonable hypotheses, increasing the empirical validity of the study and the possibility of identifying relationships.

### 3 Quantifying public supervision

In this empirical study, four areas of public supervision are investigated. The four areas of public supervision focused on in the study are listed below. The reason for concentrating on these specific areas is their experienced significance among supervisors when governing financial markets. The areas dealt with are:

- legislatively formulated objectives for the supervisor,
- existing enforcement measures available to the supervisor,
- supervisory independence, as well as
- the width of the supervisor's regulatory powers.<sup>17</sup>

All areas investigated deal with formal supervisory legislation rather than how supervision *de facto* is carried out. In other words, the focus is on how the legislator (ie society overall) perceives financial market rules. The presupposition is that in all (developed) countries, the supervisor will act accordingly. One could assume that a certain societal perception of how financial markets are regulated by law may causally direct, *or* at least in a correlational sense, interact with how financial markets actually develop. In the latter case, certain values characterising society on a general level, are both seen to direct how financial markets are

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<sup>17</sup> For an underlying theoretical concept regarding links between legislative environment types and economic conditions see Ogus (1994) 'Regulation: Legal Form and Economic Theory'.



regulated through legislation and at the same time affect the way in which financial markets develop.<sup>18</sup>

Since all areas investigated constitute fundamental parts of the supervisory regimes, conditions for the formulation of eventual hypotheses on the relation between public supervision and financial market development are good. Eg broad regulatory powers given to the supervisor may fairly be seen to affect financial market development by increasing the speed with which the supervisor may adapt to changing market conditions (eg in the case of new products) improving the operational environment for the supervised. In markets with narrow regulatory mandates, regulatory/legislative changes may require parliamentary approval, a procedure that may last several years.<sup>19</sup>

Starting with legislatively formulated objectives for the supervisor in the US, UK, Swedish, Finnish, Polish and Estonian banking, investment firm, investment fund company and listed markets, the interest is first in the amount of normativity in the objectives formulated. The degree of normativity expresses *how strongly the supervisor's task of monitoring that supervised entities comply with the legislation shows in formulated objectives*. The testable hypothesis formulated for this empirical study linking normativity (NORMAT) to financial market development is the following:

- A strong FSA focus on market participants obeying the rules, is an expression of an environment where the development of other supervisory areas (such as the abolition of externalities and other hindrances for sectoral growth) are not considered central – implying negative correlation with market growth and positive correlation with market stability.

The next area relating to how objectives for the supervisor are formulated concerns the level of dynamism identifiable in the objectives. The level of dynamism equals the question *how strongly the law expressis verbis establishes obligations for the supervisor to promote that financial market rules correspond to changes in market conditions*.<sup>20</sup> In turn, the testable hypothesis for this study linking dynamism (DYNAM) to financial market development is the following:

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<sup>18</sup> Though the idea of perceiving legislation as an attribute for general societal interests is widely accepted, it is also widely criticized. Citing Posner (1974) p. 350 '... Turning to the empirical evidence bearing on the economic theory of regulation, there are a fair number of case studies... supporting the view that economic regulation is better explained as a product supplied by interest groups than as an expression of (more general) social interests.'

<sup>19</sup> Similar obligations given to the supervisor are eg found in the UK Financial Services and Markets Act 2000 (FSMA) that establishes as a duty for the Financial Services Authority to 'have regard to... the desirability of facilitating innovation... and the international character of financial services and markets and the desirability of maintaining the competitive position of the United Kingdom'.

<sup>20</sup> Eg in some countries the law may establish obligations for the supervisor to further develop existing market legislation in order to promote the introduction of new financial products.

- Establishing obligations for the FSA to develop legislation and promote that rules correspond with changes in the environment signals a market culture facilitating innovation and sectoral growth – implying positive correlation with market valuations and growth.

The last aspect linking to how supervisory objectives are formulated in the legislation concentrates on *the overall level of economic theory values expressed in the formulations of supervisory objectives*. The focus is on the extent to which ambitions towards market efficiency appear in the objectives. The testable hypothesis linking the level of economic theory values (ECON VAL) to financial market development is formulated as follows:

- Including values derived from economic theory in FSA task formulations is an attribute for a market environment concerned with efficiency, competition matters as well as conditions for market growth – implying positive correlation with market profitability and market growth.<sup>21</sup>

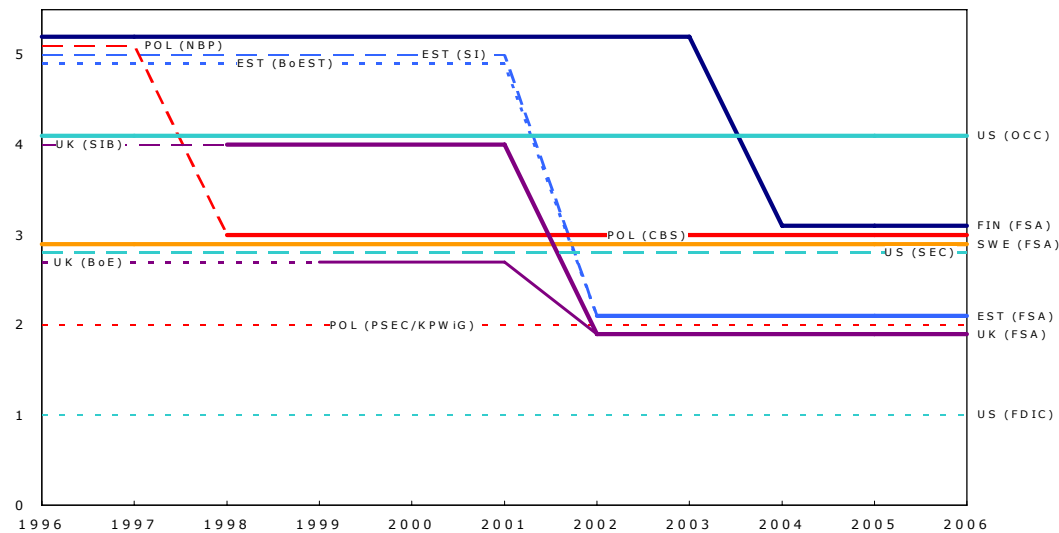
The legislatively formulated objectives for each market supervisor for the period from 1996 are analysed separately, but quantified and presented below on a yearly basis and on a cardinal (0–5) scale. – Starting with *the level of normativity (NORMAT)*, this variable is, as mentioned, an indicator of how strongly the aim of securing that supervised entities comply with the law appears in the legislative formulations of FSA objectives and tasks. The measure is relative, weighing the amount of normative elements with the amount of other objectives and tasks established in the respective national laws concerning the supervisors' activities. The picture below shows the overall trend of decreasing normativity in supervisory regimes analyzed. The establishment of the Commission for Banking Supervision in Poland in 1997, the merger of the Estonian supervisors in 2001, the new UK Financial Markets and Services Act in 2001 and the new Finnish

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<sup>21</sup> As for perceptions of public supervision in previous empirical research, *BCL*, focusing on the relationship between specific regulatory and supervisory practices and banking sector development, efficiency and fragility, does not discuss the formulation of supervisory objectives in a principal, value-appealing manner. The approach is more concrete, concentrating on the eventual existence of multiple supervisors and their area of responsibility. – Continuing with *BNPY*, this study similarly views the question of supervisory tasks on a concrete level. In addition to the question on multiple supervisors, the involvement of the central bank in banking supervision and the scope of the banking supervisor vis-a-vis the securities and insurance market is covered. – The interest in the formulation of objectives is also limited in *LLS*'s treatment of IPOs, focusing on the scope of the supervisor as to the banking and securities markets. – Also, *DQC* does not deal directly with the issue of FSA objectives/tasks, but merely sees the issue as relating to transparency (for further details see appendix). – Neither *BCL*, *BNPY* nor *LLS* identifies any significant relationship between these aspects of public supervision and financial market conditions.

legislation regarding the FSA in 2003, all resulted in reforms decreasing the level of supervisory normativity. On the other hand, the degree of supervisory normativity as formulated in the legislation has not been touched upon in many financial markets during the period investigated. This is true for all US markets, Swedish markets and Polish capital markets.<sup>22</sup>

Figure 3.1 **Normativity in formulated FSA objectives (NORMAT)**

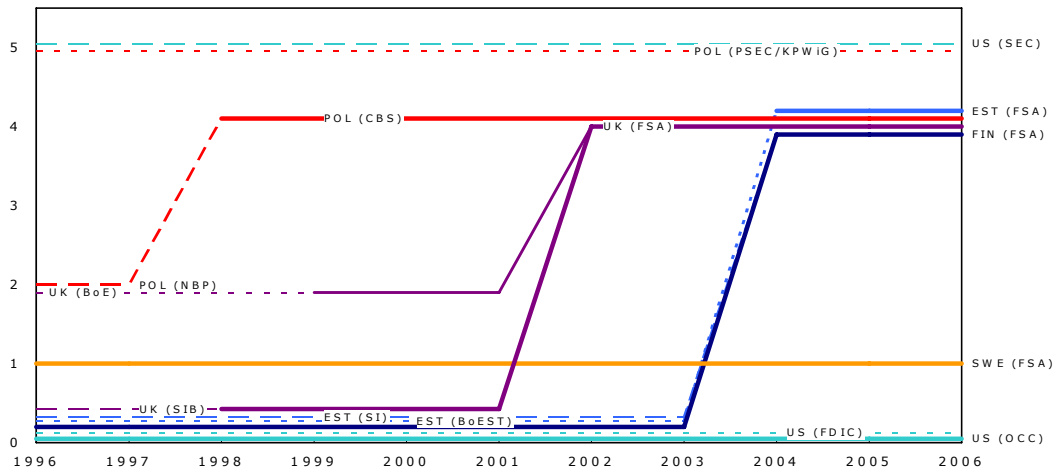


*Dynamism (DYNAM)* in turn, deals with provisions obliging the FSA to develop legislation and promote that rules correspond to changes in the market environment. Also here, the existence of the tasks in question is registered on a cardinal (0–5) scale. Depending on the width of the FSA’s regulatory mandate, these provisions may direct the FSA to reform its own rules, alternatively provide the adequate regulator (eg the Ministry of Finance) with initiatives or create preconditions for regulatory co-operation. Contrary to the degree of normativity, the level of (legislative) dynamism, seems to have increased significantly in many of the countries investigated. US and Polish capital markets initially signal a high degree of dynamism, the case with the Swedish markets and US banking markets being the opposite. For all the other markets, the emphasis on adaptability as to changes in market conditions has clearly increased during the period.

<sup>22</sup> Despite the cardinal scale applied for the figures, calculations are carried out using an ordinal approach, ie Spearman Ordinal Correlation Analysis, in order to guarantee a higher degree of empirical correspondance.

Figure 3.2

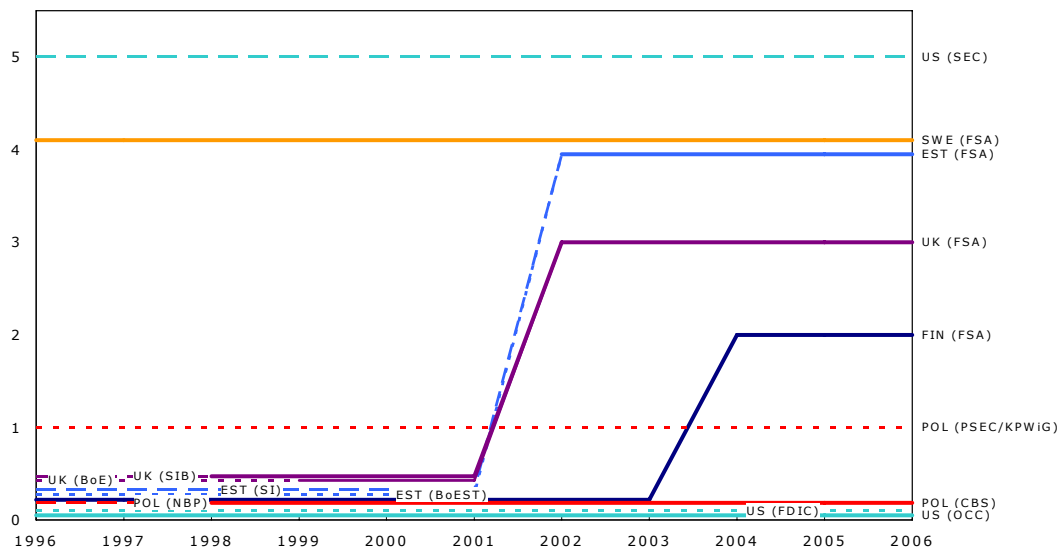
### Dynamism in formulated FSA objectives (DYNAM)



As for the level of economic theory values (*ECON VAL*) the approach is similar. Economic theory values deal with efficiency in the form of competition issues and the abolishment of adverse selection issues (informational aspects between the companies and their customers). The number of such aims in formulated FSA objectives and tasks (relative other markets) is registered on a corresponding scale. Similarly to normativity and dynamism, all changes in the level of economic theory values expressed during the years 1996–2005 in the markets investigated, are in one direction, implying an increase whenever reforms have been made. This is true for Estonian, UK, and Finnish banking, investment firm, investment fund and listed markets. Markets characterised by status quo (but high levels of economic theory values) eg comprise US securities and Swedish markets.

Figure 3.3

### Economic theory values in formulated FSA objectives (ECON VAL)



The following area to be analysed covers the characteristics of the supervisor's enforcement arsenal. Contrary to the cases above, the relation between enforcement measures and financial market development has been addressed in several studies.<sup>23</sup> Hence, the quantification of enforcement measures has generated a number of indexations.<sup>24</sup> In this study, enforcement measures are further specified by focusing on the width of the measures available as well as the

<sup>23</sup> Often, in financial market studies, public enforcement is perceived in a traditional and secure manner such as in Berger, Kyle and Scalise in Mishkin (ed.) (2001) where the view on public enforcement builds on the existing, widely acknowledged concept of the composite CAMELS-rating system.

<sup>24</sup> In *BCL*, enforcement is quantified through *the Official Supervisory Power Index (OSPI)* based on certain World Bank Guide questions on the FSA's relation to auditors, management and shareholders, *the Prompt Corrective Power Index (PCPI)* determining whether the law establishes conditions that force automatic actions, such as interventions, in the case of solvency deterioration, while other indexes eg cover bank reorganisation and insolvency situations. *The Supervisory Forbearance Discretion Index (SFDI)* concentrates on the question of authorities engaging in forbearance when confronted with violations of laws and regulations or other imprudent behaviour. Areas concerned link to the position and obligations of auditors, management and shareholders. – In *BNPY*, public enforcement is narrowly defined as general banking sector forbearance discretion, on a 0–4 scale, whilst LLS enforcement separates between investigative powers, administrative sanctions and criminal sanctions. Investigative powers are quantified by *the Investigative Powers Index (IPI)* equalling the arithmetic mean of *the Document Index (DI)* and *the Witness Index (WI)*. The DI quantifies the right of the FSA to command documents in specific cases whereas the WI deals with the right to subpoena the testimony of witnesses when investigating violations of securities laws. In the area of sanctions the approach is similarly bicentric. The starting point for *the Orders Index (OI)* is the applicability of enforcement powers in the form of stop and do-orders to issuers, distributors and accountants. The second index, *the Criminal Index (CI)* focuses on criminal sanctions applicable in cases when prospectuses omit material information. Potential addressees are directors and key officers of the issuer, the distributor or his/its officers, and the accountant or his/its officers (for details see appendix).

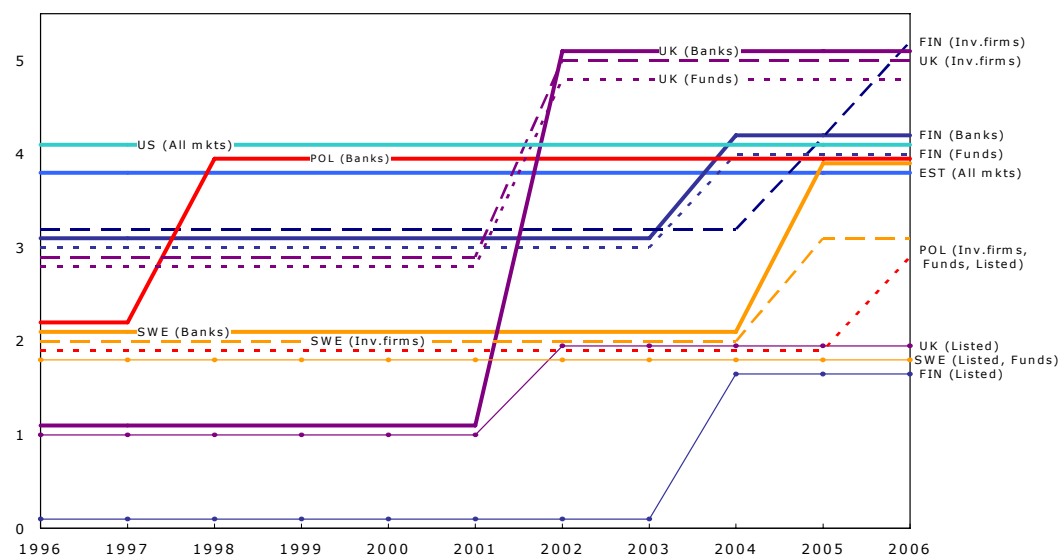
severity of existing means. Both these dimensions are covered by separate testable hypotheses:

- A high variety of FSA enforcement powers enables interference at an early stage when confronted with violations of existing rules by the supervised, and hence enhances the confidence in and stability of the markets – implying positive correlation with company market values and stability.
- Severe administrative monetary sanctions that may be imposed on companies/company directors for the violation of existing rules promote the confidence in and stability of the markets but may also restrict engagement in business activities – implying positive correlation with market values and stability and negative correlation with market growth.

*The width of enforcement measures (ENF WIDTH)* takes account of the variety of legislative enforcement means provided by the respective supervisory regimes. Administrative monetary sanctions, prohibitions/injunctions, and publicity based informational sanctions constitute the arsenal here recognised. As for administrative monetary sanctions, conditional fines are also included in the data. The scope of application is considered, in that the imposition of a type of measure on company vs company individuals is viewed as two measures. The picture shows that in most countries/markets, the width of enforcement measures has increased significantly. Eg the introduction of the UK Financial Services and Markets Act in 2001 clearly boosted the enforcement arsenal applicable to UK banks.

Figure 3.4

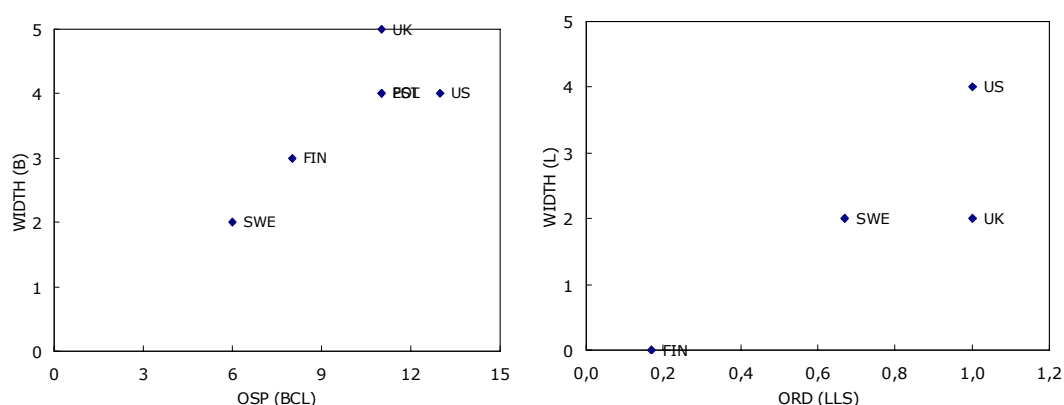
### Width of FSA enforcement measures (ENF WIDTH)



Turning the attention towards the other previously discussed studies in order to assess *ENF WIDTH*, then BCL and LLS comprise elements of a corresponding character. The BCL Official Supervisory Power Index (OSPI), related graphically to *ENF WIDTH* below, constitute the sum of certain World Bank Guide questions on the FSA's relation to bank auditors, management and shareholders, simultaneously considering the width of enforcement means. BCL data covers the period 1998–2001 and *ENF WIDTH* is diachronically matched in the comparison below. The picture expresses a high degree of resemblance between the OSPI, the coverage of which is analysed in more detail in appendix, and *ENF WIDTH* (B, banks). – LLS Orders Index (ORDI) in turn, focuses on administrative sanctions applicable to issuers, their distributors and accountants, does not include Poland or Estonia, and also signals a fair degree of congruence with *ENF WIDTH*. The period investigated covers the year 2000, and seems to take into account the new UK Financial Services and Markets Act. Hence, *ENF WIDTH* data is calibrated to match diachronically and in terms of markets (ie L, listed companies).<sup>25</sup>

Figure 3.5

### Graphical comparison of enforcement indexes (enforcement width)



In this study, *the severity of monetary sanctions (SEV COMP/IND)* is analysed as two separate variables, one for sanctions applicable to companies and the other for sanctions applicable to company individuals. The focus is on the legislatively determined maximum size of administrative monetary sanctions, except for countries where such legislative limits are absent, and thus a rough estimate of the actual level of sanctions imposed is made. The special function of conditional fines (ie their conditionality) has resulted in them not being considered in the data.

<sup>25</sup> The comparison signals a substantial amount of congruence despite the differences in calibration as to substance areas, indicating that internal relationships between legislative regime features exist.

Both pictures show a substantial variation and a mostly increasing overall trend in the markets analysed.

Figure 3.6 **Severity of monetary sanctions applicable to companies (SEV COMP)**

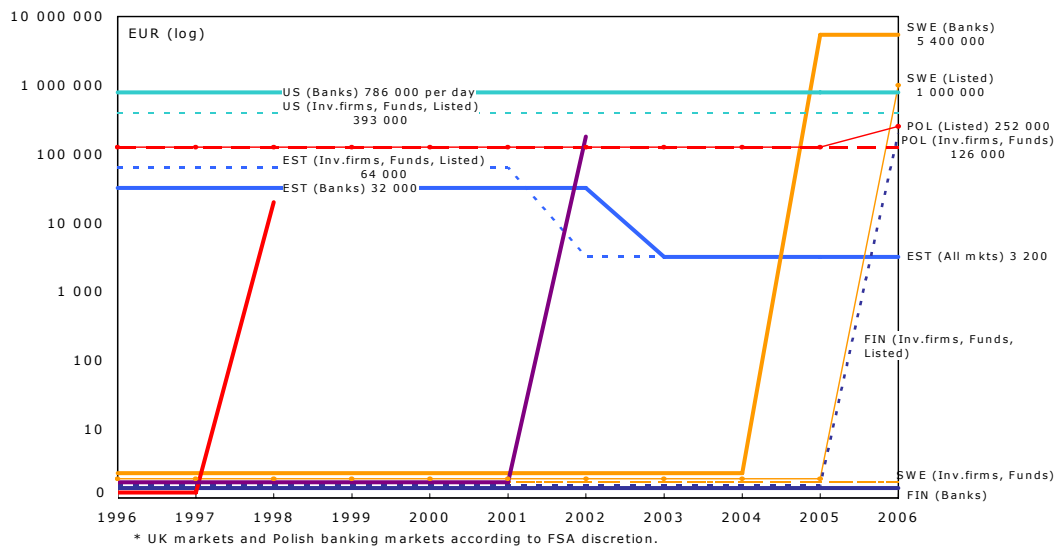
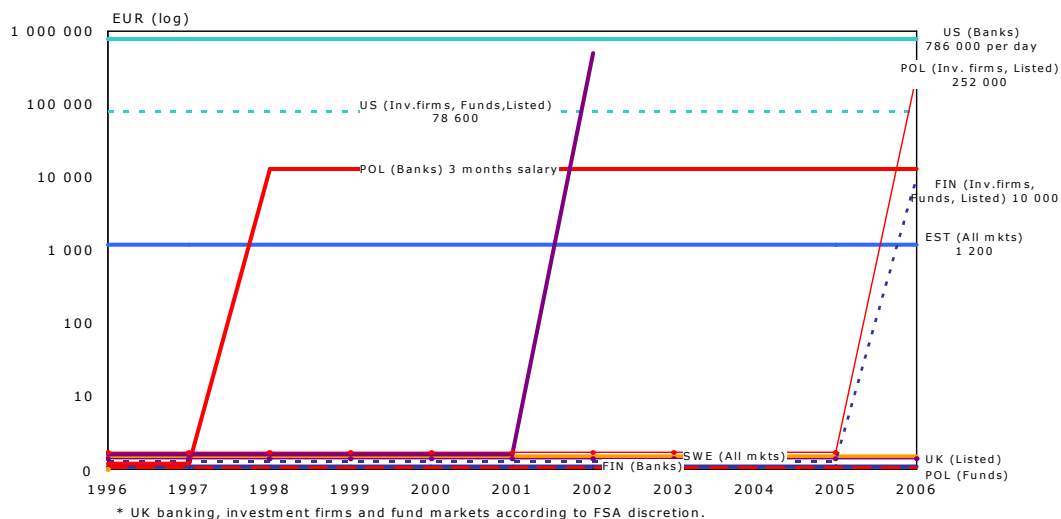


Figure 3.7 **Severity of monetary sanctions applicable to individual company representatives (SEV IND)**



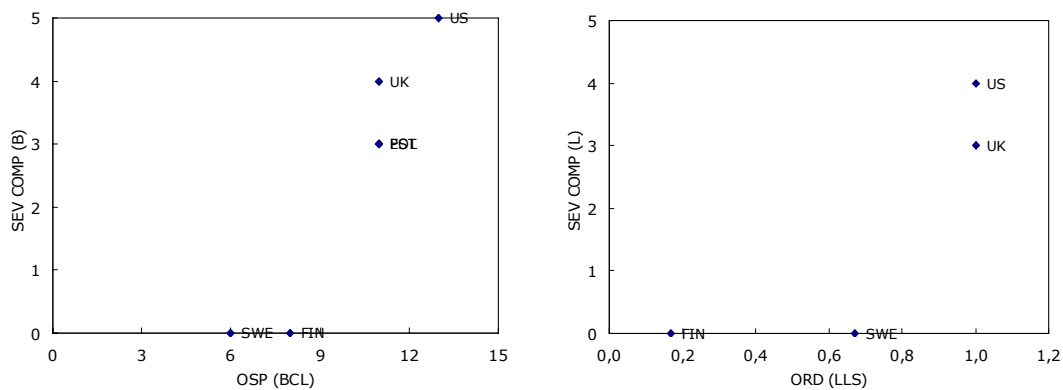
Comparing SEV COMP with existing indexes in order to validate it, some correspondence is also to this extent identifiable in relation to the established BCL OSPI and the LLS ORDİ. In addition to OSPI and ORDİ taking account of the width of enforcement means, the severity of means applicable to companies (though not restricted to monetary sanctions) partly appears in the OSPI and



ORDI perceptions of public enforcement as shown in appendix and the specification of the indexes at [www.worldbank.org/research](http://www.worldbank.org/research) and [post.economics.harvard.edu](http://post.economics.harvard.edu). The data is matched diachronically and regarding markets.

Figure 3.8

### Graphical comparison of enforcement indexes (severity of enforcement)



The following legislative features focused on comprise the degree of supervisory independence as well as the width of the supervisor's regulatory mandate.<sup>26</sup> The inclusion of these aspects in the analysis is motivated by the following two testable hypotheses:

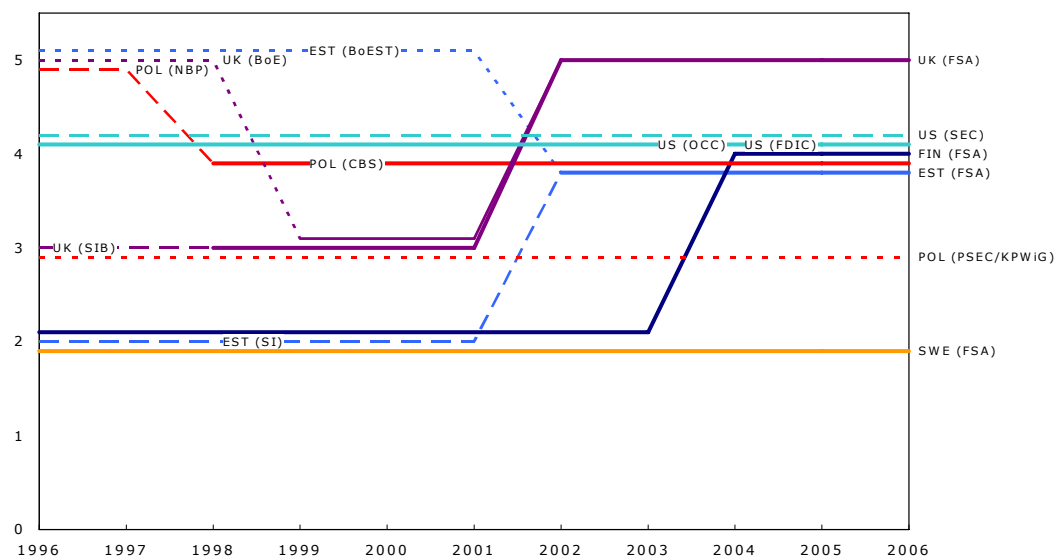
- Granting the FSA a high degree of independence vis-à-vis politics is a sign of a market environment concerned with the enhancement of market stability, confidence and development – implying positive correlation with market stability, company market values, market size and growth.
- An FSA possessing a wide regulatory mandate may speedily adjust to changes in the environment and emerging needs, expressing a supportive market culture as to innovation, market growth and market stability – implying positive correlation with market values, size, growth and stability.

*Supervisory independence (SUP INDEP)*, as here quantified, is defined as the distance between the FSA and politics. Such a perspective on independence may be characterised as institutional. The term politics covers both the governmental and parliamentary branches of government. Also, the focus is on the (formal) legislative structures, assuming that the differences as to actual practices are not considerable. Supervisory independence is quantified by focusing on its three

<sup>26</sup> The supervisory literature reflects a keen interest in independence issues, eg Quintyn and Taylor (2003) identifies four dimensions of FSA independence, ie regulatory, supervisory, institutional and budgetary.

dimensions, the organisational allocation of the FSA (ie in terms of subordination and reporting), nomination of board members and head (localisation of appointment powers), and removal of board members and head (provisions on criteria). All dimensions have equal weight. According to the picture, both increases and decreases in supervisory independence are identifiable in many of the markets for the time-period investigated, exceptions comprising US and Swedish markets as well as Polish securities markets.<sup>27</sup>

Figure 3.9 **Degree of FSA supervisory independence (SUP INDEP)**

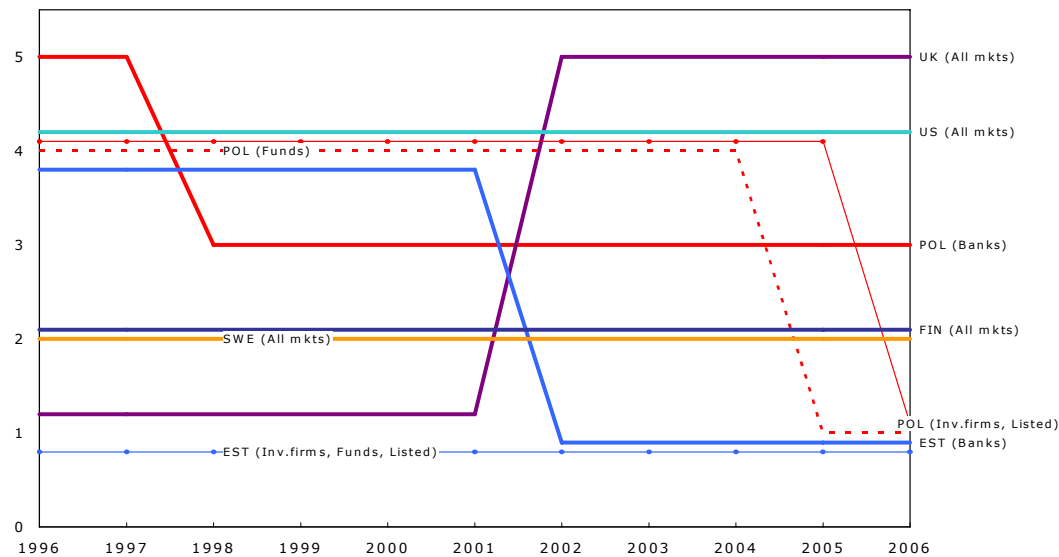


Finally, the width of *the supervisor's regulatory mandate (REG MAND)* is made operational according to similar standards. National regimes are classified into five categories. The categories identified comprise; 'unlimited' regulatory powers, general powers, specific but broad, specific and narrow, and no powers. Regimes represent a significant variation in this respect, both in terms of markets and over time. According to the picture, changes in both directions are identifiable,

<sup>27</sup> BCL, BNPY and LLS focus on supervisory independence and LLS on the existence of rule-making powers. BCL considers the issue of operational independence for the supervisor as one official supervisory resource variable. FSA operational independence is defined as independence from political influence. In BNPY, the view on independence is similar to the one of BCL. As for independence, LLS concentrates on the appointment and dismissal of the majority of the supervisor's board members (for further details see appendix).

implying that the allocation of regulative powers as to financial market activities continues to be a subject of debate.<sup>28</sup>

Figure 3.10 **Width of FSA regulatory mandate (REG MAND)**



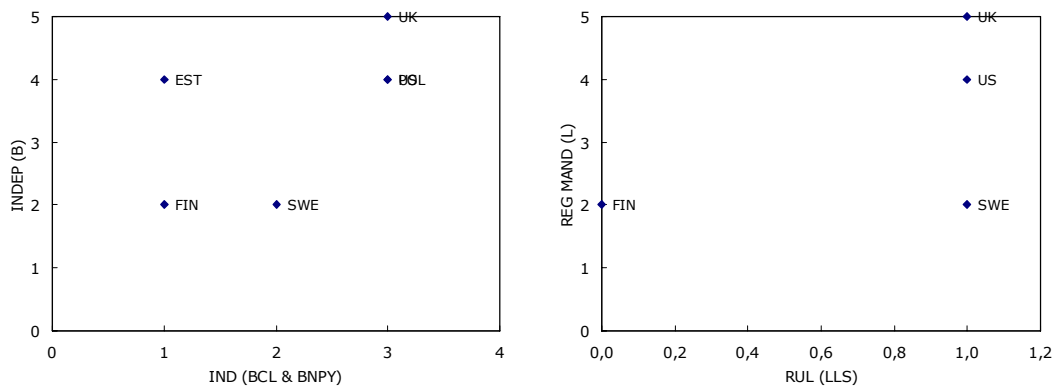
Analysing BCL, BNPY and LLS views on supervisory independence, the specification of supervisory independence in this study (see above) corresponds to these views on independence. As mentioned, BCL and BNPY define independence in relation to potential political influence, ie primarily World Bank Guide questions on FSA accountability and appointment and removal of FSA head and board members. LLS only concentrates on the appointment and dismissal of board members. In the case of rule-making powers, LLS focuses on conditions for issuing IPO regulations. Below these indexations are compared graphically to INDEP and REG MAND, indicating some significant differences.<sup>29</sup>

<sup>28</sup> LLS acknowledges this regulatory issue under the Supervisor Characteristics Index (SCI), distinguishing between the situation where the supervisor generally can issue IPO regulations without approval of other agencies, with approval and not even with approval. As for rule-making powers, BCL and BNPY leave the width of the regulatory mandate untouched. DQC emphasizes the overall need of regulatory independence and a sufficiently broad mandate, as well as transparency as to regulatory policy and operations (for details see appendix).

<sup>29</sup> Though expressing a fair deal of congruence, the comparison shows significant differences in the view on supervisory independence in Estonian banking markets and on the width of the Swedish supervisor's regulatory mandate – the reason for these differences being the deviations in the coverage and operational specifications of the notions.

Figure 3.11

### Graphical comparison of supervisory independence and rulemaking power indexes



## 4 Calculations and results

As initially specified, the aim of the study is to analyse the relationship between the above listed eight legislative features of the supervisory regimes in the US, UK, Sweden, Finland, Poland and Estonia and national financial market development. Financial market development is perceived as financial market growth, profitability (RoE), company market values (P/E) and risk (beta/volatility). The study covers the years 1996–2005. Financial markets investigated comprise banks, investment firms (ie brokers/dealers and investment management companies), investment fund companies (open-ended) and listed companies in each country.

The variables concretising financial market development have been included in the analysis as a result of their varying degree of sensitivity, assuming eg that differences in valuations may emerge more easily than differences in profitability, the latter in turn eventually preceding changes in market growth. The market data for the variables included is originally yearly. Some of the variables cover the markets as a whole, whilst other variables are sample-based.<sup>30</sup>

Bank and investment firm market growth is perceived both as the change in the number of institutions and in the aggregate of balance sheet end sums, ie sectoral capitalization (OECD-, central bank-, regulator-, industry association data). For investment fund (companies) and listed markets, the corresponding measures are the number of funds/listed companies and their capitalization (ICI, World Federation of Exchanges). Samples (randomization in case of large sectors)

<sup>30</sup> In all correlation-analyses, supervisory regime aspects and financial market development are quantified as period averages. The reason for this approach is the assumption that the relation between the supervisory regime aspects and financial market development is mostly value-based/cultural. These values are not apt to change quickly. To the extent investigated, results are substantially coherent with an approach based on yearly observations.

are used in the determination of average levels of profitability (RoE), market values (P/E) and risk (beta/volatility). The judicial domicile of the parent/holding company is decisive as for the nationality of the groups, though some of them may have significant activities abroad.

In terms of samples, US markets are represented by 11 commercial banks, 25 investment banks/brokerage firms/investment management companies, 9 investment fund companies. UK markets include 10 commercial banks, 18 investment firms, and 8 investment fund companies. Swedish markets comprise 6 commercial banks, Finnish markets 4 commercial banks, Polish markets 5 commercial banks and 6 investment banks/investment firms, and Estonian markets 2 commercial banks (Bloomberg sectoral data). The average RoE and P/E for the listed markets is based on Bloomberg data (SPX, ASX, SAX, HEX, WIG, TALSE). Stability figures for the listed markets are artificial beta-comparable attributes for diachronic volatility (Bloomberg).

Calculations are carried out using Spearman Ordinal Correlation Analysis. The motive for using an ordinal approach is the fact that preconditions for the comparison of supervisory regimes in a nominal sense are limited. Assessing if eg UK FSA regulatory powers are broader than corresponding Swedish ones, is more easily done than determining how much they diverge. Hence, the ordinal approach promotes the analysis' empirical validity by allowing for any gradation. Below, the results of the correlation analysis are listed in matrix form.

Table 4.1 **Correlation matrix (sign. correlations underlined, at least 5% insign. level)**

	NORMAT	DYNAM	ECON VAL	ENF WIDTH	SEV COMP	SEV IND	INDEP	REG MAND
P/E	-0,2627	<u>0,4236</u>	0,2405	-0,1104	0,2198	0,1904	0,0454	0,3576
RoE	0,1855	0,1130	<u>0,4737</u>	0,3333	-0,0206	0,3751	0,1767	-0,1006
Beta/Vol	-0,3009	0,2833	0,2312	-0,1579	0,2629	0,1151	0,1930	0,3906
N:o of instit., % ch	0,1970	-0,2690	-0,1196	-0,3496	-0,3631	<u>-0,5254</u>	<u>-0,5773</u>	-0,3785
Bal. sheet, % ch	0,0539	0,2377	-0,1886	0,0295	0,0909	-0,0506	-0,1159	-0,1477

Overall, results imply four clearly significant relationships of a total of 40 relationships. Three of four relationships support existing hypotheses. The significant relationships concern:

- FSA obligations to develop legislation and secure that the legislation corresponds to changing market conditions (DYNAM)/company market values (P/E),
- The level of economic theory values expressed in FSA objectives (ECON VAL)/market profitability (RoE),

- The severity of sanctions applicable to company individuals (SEV IND)/market growth (% change in n:o), and
- The level of FSA independence (INDEP)/market growth (% change in n:o).

A quick look on the other correlations and their signs, imply that market values and volatility may be lower in markets where the FSA's mandate focuses on securing that companies obey the law. Also more generally, different and severe enforcement measures could link with limited increases in the number of market participants. Finally, wide FSA regulatory powers could link with higher company values and risk levels, as well as slower market growth.<sup>31</sup>

Comparing legislatively formulated FSA objectives with financial market development in accordance with the hypotheses listed above, results indicate that DYNAM is significantly and positively correlated with the way that markets value supervised entities ( $r=0,4236$ ).<sup>32</sup> Results imply that in markets characterized by FSA rules emphasizing the need of developing legislation and promoting that legislation corresponds to changes in the environment, companies are more highly valued. Results do not illuminate the reasons for the correlation. In theory, there may be several reasons. The fact that obligations for the FSA to develop legislation and promote that rules correspond to changes in the environment correlate with company market values may be seen as an expression of a certain value atmosphere, affecting both how legislation is formulated and how markets develop. Another explanation could be purely causal, building on the fact that an active supervisor that considers changes in the environment, promotes the operational conditions for the supervised companies, thus improving their future prospects.

The following significant relationship identified is the one between ECON VAL and market profitability, indicating strong positive correlation ( $r=0,4737$ ). Accordingly, there is evidence that the amount of economic theory derived values in FSA task formulations is linked with market sector RoEs. Economic theory values deal with market efficiency, both competition issues as well as adverse selection issues (informational aspects between the companies and their customers). Similarly to the relation between DYNAM and company market

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<sup>31</sup> A potential explanation for the link between FSA regulatory powers and market values could be that supervisors with 'own' rule-making powers are more dynamic, ie apt or expeditious in adapting to changes in the market environment, eg product innovations, implying better future prospects and higher market values for companies. In markets with narrow FSA regulatory mandates and national constitutions imposing requirements on regulation to be in the form of (parliamentary) legislation, the process of adapting to changes in the market environment may last several years.

<sup>32</sup> BCL, BNPY, LLS or DQC do not view market values as aspects of market development. Still, perceiving financial market development in a manner building on Rajan and Zingales (2003), higher market values may be seen as attributes for the mutual confidence between borrowers and savers.

values, the reasons behind the existing correlation may be of various types. An overall interest in economic aspects in society may eg show up in the legislation as well as in financial market figures.

As for enforcement measures relative to financial market development, one relationship turns out significant. This result clearly deviates from previous BCL, BNPY and LLS results. These previous studies did not find any relationships between public enforcement measures and financial market conditions.<sup>33</sup> The strongest relationship appears between the severity of monetary sanctions applicable to company individuals (SEV IND) and financial market growth (in the form of change in the number of institutions,  $r=-0,5254$ ). The relationship being strongly significant and negative, implies that severe sanctions addressed to directors may restrict the appetite of establishing financial sector enterprises alternatively enhance incentives to close down existing ones. Relating SEV IND to financial market growth in the form of change in sector capitalization, this relationship turns out insignificant (albeit negative), indicating that sector capital is not affected to the same degree as the number of institutions.

The last of the clearly significant relationships is the one between INDEP and market growth (in the form of change in the number of institutions), signalling strong negative correlation ( $r=-0,5773$ ). The outcome does not support the initial hypothesis of a high degree of FSA independence enhancing market growth.<sup>34</sup>

## 5 Conclusions

As for the empirical results of the study, the message is that certain legislative features governing the supervisor's activities correlate with financial market development. FSA obligations to develop legislation and secure that the legislation corresponds with changing market conditions (DYNAM) significantly and positively correlate with company market values. The level of economic theory values expressed in FSA objectives (ECON VAL) similarly links to market profitability, whilst the severity of sanctions applicable to company directors (SEV IND) represent a negative relationship with market growth in terms of correlation. The latter is true also for FSA independence (INDEP). Of these four significant relationships, the first three support existing hypotheses.

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<sup>33</sup> As initially mentioned, only DQC regression results provide empirical evidence on the relationship between accountability as an integral part of any enforcement activity (IMF Financial Sector Assessment Program Data) and indices of financial system soundness.

<sup>34</sup> Focusing on supervisory independence in BCL, BNPY and LLS, and on rule-making powers in LLS, no significant relationships as to financial market development are found. In DQC, there is correlation between the Regulatory Governance Index (RGI, which among other things includes supervisory independence), and the financial system stability index (FSSI).

Though the study does not enlighten the reasons behind the correlations, the results may be interpreted as an indication that in legal evaluation studies methodology matters. By perceiving supervisory regime aspects as

- values,
- power-relations, or
- expressions of fundamental structural conditions,

possibilities of finding relationships seem to improve. Hitherto, legal evaluation studies dealing with financial market issues have perceived legislation mostly in a technical manner, making the formulation of adequate, defensible hypotheses more difficult.<sup>35</sup>

Perceiving legal provisions as attributes for certain values, legislative features may be indexed (ie picked or combined) in a way expressing the close link between the law and the values. In other words, any legislative features focused on should reflect the value in question. Also, values chosen should be significant, ie as to the relationship between the law and market conditions. Such values may eg comprise legislative a) restrictivity-permissibility, b) compulsiveness-supportiveness, c) statism-dynamism, d) utility orientation-risk aversiveness and e) directivity-adaptability.<sup>36</sup>

Viewing supervision as a power relation, such an approach directs the focus towards the two categories of persons involved, ie the supervisor and the supervised and hence, the balance of power.<sup>37</sup> By looking at legal provisions as power issues, the possibilities of finding relationships as to market development increase fairly. Concentrating on public enforcement as a power-relation, the question arises as to how this relation could be perceived in a more detailed manner. Consequently, the relation between the parties could eg be viewed as a) the degree of power-balance biasedness, b) the overall number of enforcement and accountability measures, c) the level of freedom in the application of supervisory measures (discretion/forbearance) as well as d) in respect of various types of enforcement/accountability means.

Finally, supervision may be viewed as an expression of fundamental structural conditions. Here, the question is not about values or power-relations, but merely about other fundamental societal features. These features may be more

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<sup>35</sup> For examples see Carlin and Mayer (2003) defining structural country variables, as well as Djankov, McLiesh and Ramalho (2005), though the approach in this latter study may be motivated by the fact that the features recognised have received broader support in quality rankings.

<sup>36</sup> Though often difficult to identify in absolute terms, these values generally emerge as differences between judicial regimes, enabling at least ordinal comparison.

<sup>37</sup> The question regarding the power balance links to a broader concept. To what extent should the relation between the parties be balanced or would a strongly biased relationship be preferable eg from the perspective of market stability? What is the optimal power balance between the parties in terms of conditions for market growth?



concrete/immediate and easily identified in supervisory arrangements, or may be general (ie environmental), and have a broader impact on the shaping of supervision. Parts of the judicial culture, structural aspects of the market or behavioral patterns constitute examples of such general features. An Anglo-Saxon legal system could eg be seen to have certain implications on market actor practices and hence market development relative a continental European or Scandinavian system.<sup>38</sup> The same is true eg for the structure or the financing of supervision.

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<sup>38</sup> Eg Pistor (2000), analysing changes in the legal protection of shareholder and creditor rights, conclude that countries with German legal heritage favour creditor over shareholder protection and display substantially better creditor protection than other economies.

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# Appendix

## Comparison of regime variables (1)

### FSA mandate

	<u>STUDY</u> (all mkts, av. 1996–2005)			<u>BCL</u> (banks, 1999) MULT SUP <sup>4</sup>	<u>BNPY</u> (banks, 1999+)		<u>LLS</u> (ipos, 2000) FOCUS <sup>8</sup>
	NORMAT <sup>1</sup> B/IF/F/L	REF SENS <sup>2</sup> B/IF/F/L	ECON VAL <sup>3</sup> B/IF/F/L		MULT SUP <sup>5</sup>	CENT B <sup>6</sup>	
US	4&11/3/3/3	0&0/5/5/5	0&0/5/5/5	1	0	1	1
UK	2,6/3,2/3,2/3,2	2,8/1,6/1,6/1,6	1,6/1,6/1,6/1,6	1	1	0	0
SWE	3/3/3/3	1/1/1/1	4/4/4/4	0	1	0	0
FIN	4,6/4,6/4,6/4,6	0,8/0,8/0,8/0,8	0,4/0,4/0,4/0,4	0	1	0	0
POL	3,4/2/2/2	3,6/5/5/5	0/1/1/1	1	0	1	n.a.
EST	3,8/3,8/3,8/3,8	0,8/0,8/0,8/0,8	1,6/1,6/1,6/1,6	0	1	0	n.a.

<sup>1</sup> Amount of normative elements in legislatively formulated FSA objectives. Scale 0–5.

<sup>2</sup> Legislative reformation sensitivity expressed in formulated FSA objectives. Scale 0–5.

<sup>3</sup> Level of economic theory values identifiable in formulated FSA objectives. Scale 0–5.

<sup>4</sup> This variable indicates whether there is a single official regulatory of banks, or whether multiple supervisors share responsibility for supervising the nation's banks. This variable is assigned a value of 1 if there is more than one supervisor and 0 otherwise. (BCL p 226).

<sup>5</sup> Is there more than one supervisory body? Yes=0, No=1 (BNPY p. 56).

<sup>6</sup> Is the central bank one of the supervisory bodies? Yes=1, No=0 (BNPY p. 56).

<sup>7</sup> Does the banking regulator regulate insurance or securities firms? Yes=1, No=0 (BNPY p. 56).

<sup>8</sup> Equals one if separate government agencies or official authorities are in charge of supervising commercial banks and stock exchanges, equals zero otherwise. (LLS p. 7).

## Comparison of regime variables (2)

### FSA enforcement

	<u>STUDY</u> (all mkts, av. 1996–2005)				<u>BCL</u> (banks, 1999) <u>BNPY</u> (banks, 1999+)			<u>LLS</u> (ipos, 2000)											
	WIDTH <sup>1</sup> B/IF/E/L	SEV COMP <sup>2</sup> B/IF/E/L	SEV IND <sup>3</sup> B/IF/E/L	DISCR <sup>4</sup>	OSP <sup>5</sup>	PCP <sup>6</sup>	DISCR <sup>7</sup>	DOC <sup>8</sup>	WIT <sup>9</sup>	IP <sup>10</sup>	ISS <sup>11</sup>	DIS <sup>12</sup>	ACC <sup>13</sup>	ORD <sup>14</sup>	DIR <sup>15</sup>	DIS <sup>16</sup>	ACC <sup>17</sup>	CRI <sup>18</sup>	
US	4/4/4/4	4/3/3/3	4/3/3/3	5/5/5/5	13	5	1	1	1	1	1	1	1	1	0,5	0,5	0,5	0,5	0,5
UK	2,6/3,8/3,8/1,4	1,2/1,2/1,2/1,2	1,2/1,2/1,2/0	5/5/5/5	11	0	2	1	1	1	1	1	1	1	0,25	0,5	0,5	0,5	0,42
SWE	2,2/2,1/2/2	0,5/0/0/0	0/0/0/0	5/n.a./n.a./n.a.	6	0	2	0,5	0	0,25	1	1	0	0,67	0,75	0,5	0,5	0,5	0,58
FIN	3,2/3,1/3,2/0,4	0/0/0/0	0/0/0/0	n.a./n.a./n.a./n.a.	8	0	1	0,5	0	0,25	0	0,5	0	0,17	0,5	0,5	0,5	0,5	0,5
POL	3,6/2/2/2	0/3/3/3	1,6/0/0/0	5/5/5/5	11	0	2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EST	4/4/4/4	1,7/1,6/1,6/1,6	1/1/1/1	1,4/1/1,2/1	11	5	1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

<sup>1</sup> Width of enforcement measures, analysed by distinguishing between administrative monetary sanctions, prohibitions/injunctions and publicity based informational sanctions applicable to companies/individuals as company representatives. Scale 0–5.

<sup>2</sup> Severity of monetary sanctions applicable to companies. Scale 0–5.

<sup>3</sup> Severity of monetary sanctions applicable to individuals as company representatives. Scale 0–5.

<sup>4</sup> Degree of FSA discretion in the application of monetary sanctions. Scale 0–5.

<sup>5</sup> Official Supervisory Power Index, the sum of World Bank Guide questions 5.5, 5.6, 5.7, 6.1, 10.4, 11.2, 11.3.1, 11.3.2, 11.3.3, 11.6, 11.7, 11.9.1, 11.9.2, 11.9.3 on the FSA's relation to auditors, management and shareholders. Yes=1, No=0. Higher values indicating greater power. (BCL p. 223f)

<sup>6</sup> Prompt Corrective Power Index, the total of World Bank Guide questions 11.8x(11.1+11.2+11.3.1+11.3.2+11.3.3+6.1) on the FSA's relation to management in the case of solvency deterioration. Yes=1, No=0. Higher values indicating greater power. (BCL p. 224).

<sup>7</sup> Supervisory forbearance discretion, the total of World Bank questions 11.9.4+(12.10–1)x(–1)+(11.8–1)x(–1)+(12.11–1)x(–1) on forbearance rights, reporting obligations, action in the case of solvency deterioration and principles for mandatory actions. Yes=1, No=0. Higher values indicating greater discretion. (BCL p. 225, BNPY p. 55)

<sup>8</sup> An index of the power of the FSA to command documents when investigating a violation of securities laws. Scale 0–0,5–1. (LLS p. 8)

<sup>9</sup> An index of the power of the FSA to subpoena the testimony of witnesses when investigating a violation of securities laws. Scale 0–0,5–1. (LLS p. 8)

<sup>10</sup> The index of investigative powers (IP) equals the arithmetic mean of: (1)DOC and (2)WIT.

<sup>11</sup> An index aggregating stop and do orders that may be directed at the issuer in case of a defective prospectus. Scale 0–0,5–1 (LLS p. 8)

<sup>12</sup> An index aggregating stop and do orders that may be directed at the distributor in case of a defective prospectus. Scale 0–0,5–1 (LLS p. 8)

<sup>13</sup> An index aggregating stop and do orders that may be directed at the accountant in case of a defective prospectus. Scale 0–0,5–1 (LLS p. 8)

<sup>14</sup> The orders index (ORD) equals the arithmetic mean of: (1)ISS, (2)DIS and (3)ACC.

<sup>15</sup> An index of criminal sanctions applicable to the issuer's directors when the prospectus omits material information. Scale 0–0,5–1 (LLS p. 8)

<sup>16</sup> An index of criminal sanctions applicable to the distributor (or its officers) when the prospectus omits material information. Scale 0–0,5–1 (LLS p. 9)

<sup>17</sup> An index of criminal sanctions applicable to the accountant (or its officers) when the prospectus omits material information. Scale 0–0,5–1 (LLS p. 9)

<sup>18</sup> The criminal index (CRI) equals the arithmetic mean of: (1)DIR, (2)DIS and (3)ACC.

### Comparison of regime variables (3)

#### FSA independence & regulatory powers

	<u>STUDY</u> (all mkts. av. 1996–2005)		<u>BCL</u> (banks, 1999)& <u>BNPY</u> (banks, 1999+)	<u>LLS</u> (ipos, 2000)		
	INDEP <sup>1</sup>	REG MAND <sup>2</sup>	IND <sup>3</sup>	APP <sup>4</sup>	TEN <sup>5</sup>	RUL <sup>6</sup>
US	4/4/4/4	4/4/4/4	3	1	1	1
UK	4,2/3,8/3,8/3,8	2/2/2/2	3	0	0	1
SWE	2/2/2/2	2/2/2/2	2	0	0	1
FIN	2,4/2,4/2,4/2,4	2/2/2/2	1	1	1	0
POL	4,2/3/3/3	3,4/4/3,7/4	3	n.a.	n.a.	n.a.
EST	4,6/2,8/2,8/2,8	2,4/0/0/0	1	n.a.	n.a.	n.a.

#### Other related indexes

**LLS characteristics of supervisor index<sup>7</sup>** equals the arithmetic mean of: (1)APP, (2)TEN, (3)FOCUS & (4)RUL = (US 1, UK 0,25, SWE 0,25, FIN 0,5, POL n.a., EST n.a.)

**LLS public enforcement index<sup>8</sup>** equals the arithmetic mean of: (1)characteristics of supervisor index, (2)IP, (3)ORD & (4)CRI = (US 0,87, UK 0,67, SWE 0,44, FIN 0,36, POL n.a., EST n.a.)

<sup>1</sup> Degree of FSA operational independence in relation to politics. Scale 0–5.

<sup>2</sup> Width of FSA regulatory mandate. Scale 0–5.

<sup>3</sup> The degree to which the supervisory authority is independent within the government from political influence, constituting the sum of World Bank Guide questions 12.2, 12.2.1, 12.2.2 on the direction of FSA accountability, appointment and removal of FSA head and board members, plus additional communications with regulatory authorities. Scale 1–3, with higher rankings indicating higher independence. (BCL p. 226, BNPY p. 56)

<sup>4</sup> Equals one if a majority of the members of the FSA are unilaterally appointed by the executive branch of government, equals zero otherwise. (LLS p. 7)

<sup>5</sup> Equals one if members of the FSA cannot be dismissed at the will of the appointing authority, equals zero otherwise (ie tenure). (LLS p. 7)

<sup>6</sup> Equals one if the FSA can generally issue regulations regarding primary offerings and/or listing rules on stock exchanges, without prior approval of other authorities. Equals one-half if the FSA can generally issue regulations regarding primary offerings and/or listing rules on stock exchanges only with the prior approval of other governmental authorities. Equals zero otherwise. (LLS p. 7)

<sup>7</sup> LLS p. 7.

<sup>8</sup> LLS p. 9.

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