

## RESEARCH ARTICLE

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## RESEARCH ARTICLE

# Corporate governance ratings as a means to reduce asymmetric information

Claus Holm<sup>1\*</sup>, Morten Balling<sup>1</sup> and Thomas Poulsen<sup>2</sup>

**Abstract:** Can corporate governance ratings reduce problems of asymmetric information between companies and investors? To answer this question, we set out to examine the information basis for providing such ratings by reviewing corporate governance attributes that are required or recommended in laws, accounting standards and codes, respectively. After that, we scrutinize and organize the publicly available information on the methodologies actually used by rating providers. However, important details of these methodologies are treated as confidential property, thus we approach the evaluation of corporate governance ratings as a means to reduce asymmetric information in a more general manner. We propose that the rating process may be seen as consisting of two general activities, namely a data reduction phase, and a data weighting, aggregation and classification phase. Findings based on a Danish data-set suggest that rating providers by selecting relevant attributes in an intelligent way can improve the screening of companies according to governance quality. In contrast, it seems questionable that weighting, aggregation and classification of corporate governance attributes considerably improve discrimination according to governance quality.

**Keywords:** corporate governance, ratings, asymmetric information, disclosure requirements, investor information needs

**JEL classifications:** G34, M40, C43

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### PUBLIC INTEREST STATEMENT

In this study we examine the information basis for providing corporate governance ratings. We review corporate governance attributes that are required or recommended and examine different rating methodologies used by rating providers. Important details of the rating methodologies are treated as confidential property, thus we approach the evaluation of corporate governance ratings as a means to reduce asymmetric information in a more general manner. We propose that the rating process may be seen as consisting of two general activities, namely a data reduction phase, and a data weighting, aggregation and classification phase. Our findings suggest that (1) rating providers by selecting relevant attributes in an intelligent way can improve the screening of companies according to governance quality, and (2) in distinguishing between different companies' reported governance quality only little additional value will be added through the rating providers' efforts to weight, aggregate and classify corporate governance attributes.

## 1. Introduction

The flow of investor relevant information from security issuing companies is vast. It is almost impossible for private investors to keep up to date with information flows from these companies. Even for institutional investors, it is demanding to collect and analyze this information. The discrepancy between the size and complexity of the information flow and the investors' capability to handle this flow explains the huge market for investor services; see for example Healy and Palepu (2001) on the role of information intermediaries.

Standard & Poor's, Moody's, Fitch Ratings, Dow Jones, FTSE, Institutional Shareholder Services (ISS) and other investor services collect and analyze information from security issuing companies and summarize their results in ratings. Some of these services have published credit ratings for many years. Bond investors use these ratings globally. In recent years, the spectrum of ratings has been broadened to include transparency and disclosure and most recently corporate governance ratings. A number of recent corporate scandals have demonstrated that financial performance depends on the appropriateness of the corporate governance arrangement (Grandmont, Grant, & Silva, 2004).

It is, however, time-consuming to procure company and industry data, accounting information, and provisions in company charters etc. with implications for corporate governance and to analyze and combine this information so that it can form the basis for an evaluation of the efficiency of a company's ownership and management structure. For that reason, many investors are prepared to pay a service firm a fee for doing this work (Healy & Palepu, 2001). The fee can either be paid directly to the service firm (e.g. pay-per-view or subscription) or be internalized as a cost of capital, hence providing a seemingly free service to the investors (Mishkin, 1999).

The rating-providers try to strike a delicate balance between openness concerning the criteria and weighting structure they apply in the construction of ratings on the one hand and confidentiality on the other. We will refer to this as the trade-off between criteria-transparency and method-confidentiality. Investors should know so much about the criteria that they are convinced of the relevance to their decision-making of the corporate governance ratings they are about to buy. However, the methodologies used in collecting and analyzing information represent the main part of the intellectual capital of the rating provider and should not be given away to potential competitors.

The aim of this paper is to analyze the usefulness of corporate governance ratings (CG-ratings) to investors. Our point of departure is that perfect information concerning the content of corporate governance arrangements and their implications for company performance does not exist in practice. In other words, we assume that asymmetric information cannot be removed completely by tightening disclosure requirements concerning governance structures. Accordingly, it seems justified to question the information value of the services provided to investors by rating firms. The appropriateness of disclosed information concerning corporate governance quality should therefore be evaluated by asking: can corporate governance ratings reduce problems of asymmetric information between companies and investors? To answer this question, we set out to examine the information basis for providing such ratings by reviewing corporate governance attributes that are required or recommended in laws, accounting standards and codes, respectively. After that, we scrutinize and organize the publicly available information on the methodologies actually used by rating providers. However, important details of these methodologies are treated as confidential property, thus we approach the evaluation of corporate governance ratings as a means to reduce asymmetric information in a more general manner. We propose that the rating process may be seen as consisting of two general activities, namely a data reduction phase, and a data weighting, aggregation and classification phase.

Throughout the paper, the relevance of information is evaluated from the point of view of an investor who is not an insider in the company and who wants to form an opinion on the quality of the corporate governance arrangement of the company. In the finance literature, such relationships are

often discussed in terms of shared sets of information and the impact of analyst activity on information asymmetry (Frankel & Li, 2004). In the present context, it seems appropriate to distinguish between the following information sets:

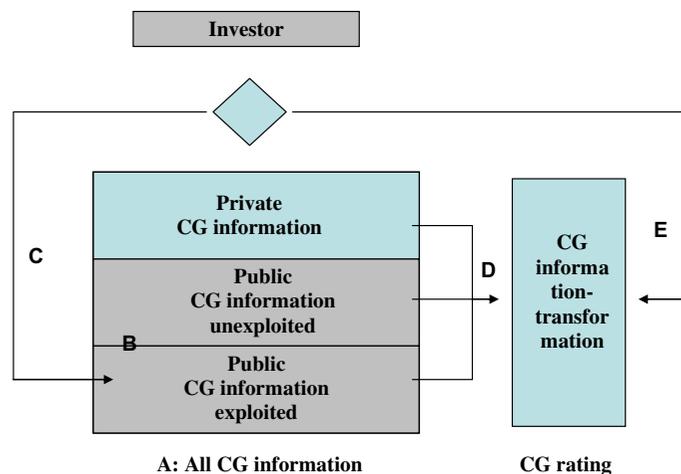
- (A) All existing relevant CG-information.
- (B) All publicly disclosed relevant CG-information.
- (C) All publicly disclosed relevant CG-information exploited by the investor.
- (D) All relevant CG-information on which a CG-rating is based.
- (E) All relevant CG-information, which is left in the CG-rating after the information transformation.

Part of information set A is only available to company insiders and unobtainable to the investor, see Figure 1. Besides, it is almost impossible for investors to procure and analyze all publicly disclosed relevant CG-information (information set B). The amount of information actually collected and used by the investor (information set C) is therefore only a subset of information set B. Rating agencies must make a finite list of corporate governance attributes on which to base the rating. In most cases, information set D is a subset of information set B. In the process of transforming some CG-relevant attributes into scores or ratings, information is lost. Information set E is therefore smaller than information set D, but it happens that the rating-provider interacts with the rated companies and therefore sometimes have access to pieces of inside information. In terms of the information sets defined here, the focus of this paper is on the implications for the investor of moving from information set C to information set E. Since the investor's investment-research capacity is always limited, the manageability of using E may offset the potential loss of information implied by a move from C to E. The decision box in Figure 1 shows how the investor is supposed to choose between publicly CG-relevant information and a CG-rating as foundation for investment decisions.

Rating-providers should improve the ability of investors to discriminate between companies according to their governance quality. Consequently, we propose to divide the methodical activity of rating-providers into two phases:

- (1) The CG-data reduction phase.
- (2) The CG-data weighting, aggregation and classification phase.

Figure 1. Information sets.



First, CG-attributes are selected and data on these attributes is collected. Phase 1 produces information set D. Phase 1 rejects attributes that are considered by the rating-provider to be unimportant or too closely correlated with other attributes to be included in the further rating-calculation procedure. Second, the CG-attributes from phase 1 are weighted, aggregated, and classified. Phase 2 produces information set E. The distinction between these two phases allows us to formulate two propositions:

*Proposition 1:* Phase 1 activity – CG-data reduction – does not result in a loss of information that reduces the ability of the rating providers to discriminate between companies with strong governance and companies with weak governance.

*Proposition 2:* Phase 2 activity – CG-data weighting, aggregation and classification – improves the ability of the rating providers to discriminate between companies according to corporate governance quality.

The rest of this paper is organized as follows. Section 2 introduces the information basis for CG-ratings by reviewing corporate governance attributes that are required or recommended in laws, accounting standards and the OECD principles of corporate governance (i.e. requirements or recommendations concerning information sets A and B). After that, we scrutinize and organize the publicly available information on the methodologies actually used by leading rating-providers (i.e. methodologies concerning information set E). However, important details of these methodologies are treated as confidential property, thus we approach the evaluation of corporate governance ratings as a means to reduce asymmetric information in a more general manner. In Section 3, we examine the two phases of the rating process and the usefulness of ratings as a substitute for the full information set in more detail (i.e. the substitutability between information sets C and E). Propositions 1 and 2 are tested by means of principal component analysis and simulation techniques on a Danish data-set. Section 4 concludes.

## **2. Rules, Methodology, and Measurement Problems**

Politicians as well as business managers and investors have recognized the economic importance of corporate governance for many years. The interest from parliaments, governments and the business community is reflected in laws and regulations (hard law) and codes (soft law), which provide a framework of rules concerning governance to market participants.<sup>1</sup> Rating agencies have established investor services because they find it profitable to develop methodologies that (ideally) bridge the information gap between companies and investment managers. Finally, academics interested in corporate governance and the functioning of financial markets want to clarify problems related to measurement of corporate governance quality and the potential of ratings for reducing asymmetric information.

### **2.1. CG-attributes According to Principles, Codes and Regulation**

OECD ministers endorsed the OECD principles of corporate governance in 1999. In the following years, the principles became an international benchmark for parliaments, supervisory authorities, stock exchanges, investors, companies and other stakeholders worldwide. In 2004, OECD published a revised version of the principles based upon a wide range of experiences from countries around the world. The 2004 version is organized into six sections with the following headlines: (I) Ensuring the Basis for an Effective Corporate Governance Framework, (II) the Rights of Shareholders and Key Ownership Functions, (III) the Equitable Treatment of Shareholders, (IV) the Role of Stakeholders in Corporate Governance, (V) Disclosure and Transparency, and (VI) the Responsibilities of the Board. The principles are non-binding and seek to identify objectives and suggest various means for achieving them. All sections list company attributes that might potentially affect the efficiency of the corporate governance arrangement. They may therefore serve as a checklist of company characteristics for inclusion in a corporate governance score. Several rating firms state in their marketing material that their ratings are constructed with a view to the attributes mentioned in the OECD principles. In the present context, where we focus on the potential reduction in asymmetric information, it is the suggested provisions concerning disclosure and transparency in section V that are most relevant.

The aim of the framework is to ensure that timely and accurate disclosure is made on all material matters regarding the corporation, including the financial situation, performance, ownership and governance of the company. According to section V of the principles, a strong disclosure regime that promotes real transparency is a pivotal feature of market-based monitoring of companies and is central to shareholders' ability to exercise their ownership rights on an informed basis. It is stressed that investors should have access to regular, reliable and comparable information in sufficient detail for them to assess the stewardship of management.

Disclosure should include, but not be limited to, material information on the financial and operating results of the company, company objectives, major share-ownership and voting rights, remuneration policy for board and management, related party transactions, foreseeable risk factors, issues regarding employees and other stakeholders, and governance structure and policies. Information should be in accordance with high quality standards of accounting, financial, and non-financial disclosure. There should be equal, timely and cost-efficient access to relevant information by users.

Rating-agencies are explicitly mentioned in section V, F of the principles. The corporate governance framework should be complemented by an effective approach that addresses and promotes provision of analyses and advice by analysts, brokers, rating-agencies and others. The information should be relevant to decisions by investors and free from material conflicts of interest that might compromise the integrity of their analyses or advice. According to the OECD, rating agencies and other independent suppliers of analyses can play an important role in providing incentives for company boards to follow good corporate governance practices. Integrity and independence of suppliers of ratings and stock market research analysts are highly relevant dimensions in the disclosure and transparency process.

In December 2004, the International Organization of Securities Commissions (IOSCO) published a *Code of Conduct Fundamentals for Credit Rating Agencies* that describes provisions that rating agencies should incorporate into their own codes of conduct to deal with conflicts of interest, to improve the transparency of the rating process, and to protect their integrity and independence (IOSCO, 2004). The formulations in the IOSCO and OECD documents are not identical, but both organizations stress the importance of integrity and independence and underline the role that rating-agencies can play in helping investors to deal with and to compare company disclosure including information on corporate governance arrangements.

Disclosure requirements in accounting laws aim at improving the ability of investors to evaluate the performance of companies. In principle, the aim is to reduce the degree of asymmetry of information between company insiders and outsiders. The aims of accounting laws and corporate governance ratings are therefore very similar. In recent years, corporate reporting regulation has primarily been driven by international considerations. A strong move toward international trade and international movement of capital increases the demand for common requirements on corporate reporting. In open markets, the need for comparability among companies becomes obvious at several levels (EU Commission, 2003). Important elements include the harmonization of accounting practices as well as the wish to gain insight into the strength of internal controls and the effectiveness of other supervisory mechanisms (Hermanson, 2000). Examples of such supervisory mechanisms are the role of the supervisory board and the roles of internal and external auditors. In countries with a one-stringed governance structure (such as the UK), a central part of the corporate governance debate has focused on problems relating to independence issues (e.g. the review of the role and effectiveness of non-executive directors presented in Higgs [2003]).

The recommendations in corporate governance codes are supplemental to the information items identified in the regulation of financial reporting. As such, many companies have adopted their reporting on CG issues as an integrated part of the annual report (see e.g. the Shell annual report [2004, pp. 115–120]). In annual reports without a section formally identifying the company's standing on corporate governance issues, some subset of the required information items might still be available. However, the ease of access to corporate information is also at stake, thus the evaluation of the corporate

governance system of a particular company also has to reflect the level of openness and transparency. Hence, the level of disclosure on corporate governance issues is an intricate part of the qualification as good corporate governance; see the Discussion Paper on the Financial Reporting and Auditing Aspects of Corporate Governance of the Fédération des Experts Comptables Européens (FEE, 2003, p. 13).

The availability and credibility of information items required by accounting rules are summarized in the mandatory declarations in the annual report. First, the governance body (and executive management) in the company is obliged to issue an opinion on the fairness of the financial statements. Second, the external auditor issues an opinion on the fairness of the correspondence of the information examined through the audit with the criteria of the accounting framework as well as compliance with other legal requirements and terms determined in company bylaws (FEE, 2003, p. 68). Through the availability of these declarations, a large number of relevant information items are reduced to relatively few (but potentially crucial).

The logic is that the quality of financial information in the annual report is assessed by identifying the use of a prescribed accounting framework and the compliance of the information with the framework. From a comparability viewpoint, the framework used in the international accounting standards may be preferable, but from a relevance viewpoint this may not be of higher quality than the national frameworks that are able to cater for special institutional issues. In addition, the quality of financial information is assessed indirectly by identifying governance structures supporting reporting of higher quality, e.g. the competence of management, the availability of internal controls, internal audit structures, independent audit committees, the choice of qualified auditors etc.

## **2.2. Rating Methodologies in Practice**

In this section, we try to provide an overview of the actual composition of information set D in Figure 1. The number of rating agencies providing metrics that rate corporate governance structures and practices and sell their services to investment managers is increasing. At the same time, the acquisition by ISS of Deminor in May 2005 illustrates that structural changes in the industry are under way. Below, we compare the rating methods applied by market leaders. Table 1 presents a comparison of characteristics.

## **2.3. Standard & Poor's**

Standard & Poor's (S&P) provides Corporate governance rankings using two different approaches.<sup>2</sup> S&P applies 98 disclosure items in their Transparency and Disclosure (T&D) studies, while their CG Scores (CGS) are based on 80–100 factors (Standard & Poor's, 2004). S&P explains that the methodology used in the T&D studies, which is a ranking based on simple summation of binary attributes, is by no means comparable to the CGS rankings. They argue that “interactive corporate governance scoring service is a much more detailed in-depth analysis of the corporate governance practices of companies” (Standard & Poor's, 2003, p. 4). In the T&D studies, the analysts of Standard and Poor's thoroughly scrutinize annual reports and use a checklist of 98 possible information items and attributes. These are grouped into three categories: (1) ownership structure and investor relations, (2) financial transparency and information disclosure, and (3) board and management structure and process.

Their flagship product is the *Standard and Poor's Corporate Governance Score*. It is the result of a calculation based on detailed analyses of annual reports and other company documents including interviews with key company persons. S&P discloses a score for the following four components in addition to the overall CGS: (1) ownership structure and external influences, (2) shareholder rights and stakeholder relations, (3) transparency, disclosure and audit, and (4) board structure and effectiveness. A score is constructed either on a confidential basis for intended use only by the company or for use externally, allowing the company to show their governance standards to a wider audience.

## **2.4. Institutional Shareholder Services**

For several years, ISS has provided research and advisory services to institutional investors.<sup>3</sup> The agency has developed a tool for monitoring and comparing corporate governance structures.

**Table 1. Comparison of Rating Agency Methodologies and Data Sets**

	S&P T&D	S&P CGS	ISS CGQ	ISS CGQ 3.0	ISS FTSE	GMI
<i>Basis for Ratings</i>						
Refer to OECD principles	Y and N	Y	Y	Y	Y	Y
Refer to other CG codes	Y	Y	Y	Y	Y	Y
<i>Sources mentioned</i>						
Annual reports	Y	Y	Y	Y	Y	Y
Company documents	N	Y	N	N	N	N
Websites	N	N	Y	Y	Y	Y
Press releases	N	Y	Y	Y	Y	Y
Corrections possible by rated company	N	Interactive data collection	Y	Y	Y	Y
<i>Data reduction</i>						
Number of CG attributes	98	80-100	61 (US) 55 (non-US)	63 (US)	61 (US) 55 (non-US)	"Hundreds"
Number of categories/subcategories	3/12	4/13	8	4/8	5	6
Number of scores	4	5	2	6	6	14
Discretionary options by data collector	N	Y	N	N	N	N
<i>Data weighting, aggregation and classification</i>						
Discretionary options by data collector	N	Y	N	N	N	N
Information on weighting	Unweighted binary	N	N	Weights determined by correlation with performance measures	Weights based on "level of impact"	Each individual metric has a numerical value and each sub-section and research category is weighted according to "investor interest".
Information on aggregation and classification	Simple sum	N	N	Different weights to each category as part of aggregation	Responses are normalized to give a single score for each theme. The combination of theme scores is normalized to give a single score.	Uses asymmetric geometric scoring which magnifies the record of outliers according to "investor interest".
Score range	1-10	1-10	1-100	1-100 and 1-5 for each category	1-5	1.0-10.0 (0.5 steps)
Benchmarks	Overall S&P index + Score for 3 CG categories	Overall S&P index + Score for 4 CG categories	CGQ index ranking + CGQ industry ranking	CGQ index ranking + CGQ industry ranking + Score for each category	Overall CGI (index) rating + Score for each theme	Overall global rating + Score for each research category Overall home market rating + Score for each research category
Score as ranking or rating	Ranking	Ranking	Ranking	Ranking	Ranking	Rating

The core topics included in the ISS CGQ™ ratings are: (1) board structure and composition, (2) audit issues, (3) charter and bylaw provisions, (4) laws of the state of incorporation, (5) executive and director compensation, (6) qualitative factors, (7) director and officer stock ownership, and (8) director education.

The score for each core topic reflects a set of key governance variables. There are presently 61 sub-issues. The CGQ ratings are computed relative to peer companies (using index and industry as benchmarks). ISS gathers data from various publicly available documents. In addition, the companies are invited to provide ISS with corrections and updates that may give ISS occasion to recalculate the rating. ISS has established a CGQ subscription service that allows the companies to get the ISS data before the ratings are published. Under the subscription conditions, the companies also have the opportunity to compare their own rating with the rating of peer companies. ISS currently provides profiles and relative ratings for more than 7,500 companies worldwide. ISS delivers proxy analyses of listed companies to their institutional customers. In these analyses, details on the key factors driving the ratings are published. The main idea is to make it easier for institutional investors to take the corporate governance structures of the companies into consideration when making investment decisions.

In September 2005, ISS has released an updated version (version 3.0) of its CGQ rating methodology. Based on statistical tests on ISS governance data from 2002 through 2004 against 16 performance measures, the weights applied in the construction of CG ratings have been modified (Institutional Shareholder Services, 2005 and Institutional Shareholder Services, 2003). CG attributes with a high correlation with specific performance measures have been given a relatively higher weight. Several CG attributes have been added, modified or removed because their relevance has changed in the US after the enactment of the Sarbanes Oxley Act. After the 2005 revision, ISS applies 63 attributes.

ISS has launched a combined rating and indexing initiative together with FTSE. The idea behind the FTSE ISS Corporate Governance Indexes is that by combining their respective expertise on corporate governance and indexing, it is possible to offer investors and asset managers a service that can support their everyday assessment of listed companies and their corporate governance practices. At the beginning of 2005, the governance practices of almost 2,200 companies were followed by ISS. Subscribing investors can use these analyses to manage the level of corporate governance risk by adjusting the structure of portfolios.

The ISS Corporate Governance Quotient System has been modified slightly with a view to its application in the FTSE ISS Corporate Governance Indexes. As opposed to the eight categories of attributes above, there are only five. They apply data on (1) compensation systems, (2) stock ownership, (3) equity structure, (4) board structure, and (5) independence and integrity of the audit process in order to rank the companies and create the indexes. Responses are normalized to give a single score for each category between one and five. A “five” indicates that a company is in the top quintile, while a “one” indicates that it is in the bottom quintile. In the last step in the procedure, where the scores from each of the five categories are combined, a further normalization gives a single score between one and five for each company.

### **2.5. GovernanceMetrics International**

GovernanceMetrics International (GMI) provides *Accountability Ratings* to customers, which include institutional investors, law and accounting firms, insurance underwriters and regulators.<sup>4</sup> GMI rates companies based on their inclusion in a well-known market index. Companies whose shares are included in stock indices published by Morgan Stanley Capital International and Standard and Poor's are normally followed by GMI. The rating reports include a summary of the company's overall governance profile and detailed information on each of the six categories applied by GMI: (1) board accountability, (2) financial disclosure and internal controls, (3) shareholder rights, (4) executive compensation, (5) market for control and ownership base, and (6) corporate behavior and corporate social responsibility issues.

Companies are assigned an overall GMI rating plus separate ratings for each of the six categories. These categories are divided into sub-sections. Each individual metric has a numerical value and each category and sub-section is weighted according to investor-interest. The rating reports provide summary statistics for the board of directors, including average age, tenure, and number of other public company board seats held by directors.

Rating criteria is based on securities regulations, stock exchange listing requirements and corporate governance codes and principles (GMI, 2003 and GMI, 2004). In order to limit the degree of subjectivity, GMI structure their metrics in a manner that can only produce three answers: yes, no, or not disclosed. GMI collects public data from regulatory filings, company websites, news services and other specialized websites. Data entry reports are sent by GMI to each company in their research universe for a final accuracy check before the ratings are published. Companies score on a scale from 1.0 to 10.0 and always score relative to other companies in the research universe. Companies are assigned 14 ratings in total. GMI applies asymmetric geometric scoring which magnifies the record of outliers. Every six months, all companies are re-rated based on updated information.

### **2.6. Comparison of Methods**

Rating providers seem to agree on one point: the quality of a firm's corporate governance arrangement matters. The theoretical foundation concerning which company attributes are most important in an evaluation of the governance quality is, however, relatively weak. There is room for diversity in the selection of attributes and in the choice of calculation method. Although rating-providers cannot be expected to fully agree on the construction of CG ratings, there are many similarities (see Table 1). They are all inspired by disclosure requirements in accounting laws and stock exchange regulations and by corporate governance codes and principles. The agencies seem to share the view that ratings should be based on ownership structure, rights of shareholders, board structure and composition, disclosure and transparency. However, their approaches in data collection and scoring and weighting are different. In the next section, we will try to analyze the implications of such differences.

### **3. Exploring the Rating Process**

We have proposed that the rating process is divided into two phases. First, a finite number of relevant attributes has to be collected from the seemingly infinite set of possible corporate governance related information attributes. Second, weights are assigned, weighted attributes are aggregated, and companies are classified. To assess the robustness of this process and the measurement system behind a corporate governance rating, we seek to mimic this process by means of a Danish data-set (the UFB data-set) that has not (yet) been used for rating purposes, but which is fully comparable. The problems presented are either general in nature reflecting concerns common to the agencies or reflecting differences in methodology.

The data-set contains 120 corporate governance related attributes in 100 Danish companies listed on the Copenhagen Stock Exchange.<sup>5</sup> Data derives mainly from information in the 2003 annual reports, articles of association, and company websites. ISS and European Corporate Governance Service as well as the Danish corporate governance code have inspired the selection of attributes.<sup>6</sup> In an effort to reduce errors and misunderstandings, the sample companies have been asked to read the tables with their own data and to point out incorrect information. This validation procedure is comparable to the accuracy check used by GMI. In the present context, 92 of the 100 companies responded to this task, hence increasing the credibility of the data-set.

The claim by the agencies is that a corporate governance rating provides the investor with a better basis for making investment decisions by having access to information set E rather than information set C. Under normal circumstances, it seems reasonable to assume that information set D (from which information set E derives) is larger than information set C. Hence corporate governance ratings have the potential to reduce the asymmetric information and add value to the investment decision. To the investor, the main issue must be how much information is excluded when moving

from information set D to information set E. Not having access to the actual methodologies or data sets used by the agencies, we offer an alternative approach to demonstrate the potential information loss due to data reduction mechanisms and the effects of weighting, aggregation and classification.

### **3.1. The CG-data Reduction Phase**

It could be argued that rating agencies provide informational value by performing a necessary reduction of the almost infinite number of attributes when deciding on the finite number of attributes to be considered. The counter-argument is that (valuable) information is potentially excluded by reducing the full information set to a more limited number of attributes. In this section, we seek to examine the validity of Proposition 1, i.e. that rating providers can be assumed to select CG-attributes in a way that improves the ability to discriminate according to the quality of corporate governance.

An appropriate way to examine the scope of excluded information is to apply a principal component analysis to a comparable data-set such as the UFB data-set. Two insights can be drawn from such an analysis. First, it draws attention to the correlation between attributes. If there are high correlations, some of the attributes are likely to measure the same latent characteristics. Second, by implication it produces a measure of how much information is excluded in the data reduction process.

In order to apply the principal component analysis, we assume that the 120 corporate governance attributes in the UFB data-set represent the complete information set on which the finite list of attributes should be chosen, i.e. they represent information set A or B depending on the availability of private information. We map out 10 underlying components of the data, and within each component, we record the five attributes with the highest loadings. This results in 50 attributes. Because some attributes repeat themselves in different categories, the actual number of attributes in the finite list is 40. This procedure is a proxy for the first phase in the information transformation process. Ten categories are chosen based on the scree plot. Alternatively, the number of categories could have been chosen based on the number of eigenvalues larger than one. This would give us 34 categories. However, from the scree plot, we see that beyond ten factors, the marginal contribution of additional components is very small. Our results show that approximately 50% of the initial information is excluded in the transformation from information set A or B to information set D, see Table 2.

By moving from 120 attributes to 40 attributes, the findings suggest that some information is of course excluded, but we argue that this need not reduce the ability to discriminate between companies with strong corporate governance and companies with weak corporate governance as long as the CG-data is reduced in an intelligent way. Thus, in the study based on the Danish data-set we find some support of Proposition 1.

### **3.2. The CG-data Weighting, Aggregation and Classification Phase**

In this section, we examine the validity of Proposition 2, i.e. that weighting, aggregation and classification can be assumed to improve the ability of the rating providers to discriminate between companies according to corporate governance quality.

For the investor, a crude measure of corporate governance quality from information set C should not be too difficult to establish. Companies could be classified as high quality companies, medium quality companies, or low quality companies simply from their level of compliance. To reduce asymmetric information, the transformation process must provide additional value in terms of ability to distinguish even subtle differences between companies. In addition to a careful construction of the finite list of attributes, this reduction can be done by effective use of the extracted information.

The transformation of the information in information set D involves a number of measurement issues that may have implications for the usefulness of ratings as a substitute for the full information set. In this section, we examine some of the problems related to weighting, aggregation and

**Table 2. Categories Derived from Principal Component Analysis**

Panel A: characterization of categories

Component	Description
1	Board and management structure, process and compensation
2	Disclosure and compliance with codes
3	Information on management compensation
4	General policy of transparency and information disclosure
5	Management and board share-ownership
6	Degree of concentration of ownership and voting power
7	Institutional share ownership of the company
8	Role of lawyers in the company and on the board
9	Size and type of auditor compensation
10	Presence and contents of a management bonus system

Panel B: variance captured by the extracted components

Component	% of variance	Cumulative %
1	8.40	8.40
2	7.47	15.88
3	6.53	22.40
4	6.40	28.80
5	4.57	33.37
6	4.26	37.63
7	4.19	41.82
8	3.08	44.90
9	2.87	47.76
10	2.86	50.62

Notes: Analysis based on the UFB data-set. Rotation method is varimax.

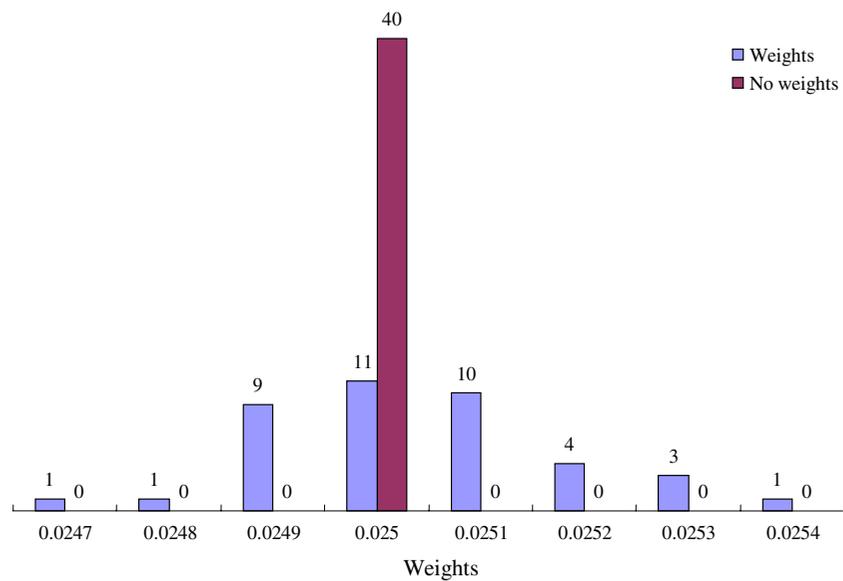
classification. The attributes in information set D are mainly binary attributes that record whether a particular corporate governance related attribute is disclosed or not.

There are two different ways to approach the attributes: assignment of weights or no assignment of weights. The latter approach, however, implicitly assigns the same weight to all attributes, thus generating an aggregation measure that is arithmetic in nature, whereas the former approach by assigning individual weights generates an aggregation measure that is geometric in nature. In the process of assigning weights to attributes, we expect informational value (better use of information).

To examine the effect of assigning weights to attributes, we look at the variation of attribute values with and without weights, see Figure 2. Of course, there is no variation in attribute values when no weights are assigned. Using 40 attributes, the weight implicitly assigned to each attribute is constant at 0.025. When random weights are assigned,<sup>7</sup> we see that values are approximately normal distributed. Assigning weights explicitly recognizes that some attributes should have a larger impact on the aggregation measure than others. The new distribution of weights is expected to change the outcome of the subsequent score calculation. Since the random selection of weights is a “stupid” proxy procedure, the effect is most likely larger in practice.

The next step in the transformation of information is aggregation. Attributes are typically aggregated at overall level alone or first at category level and then overall level, thus producing the final

**Figure 2. Distribution of weights.**

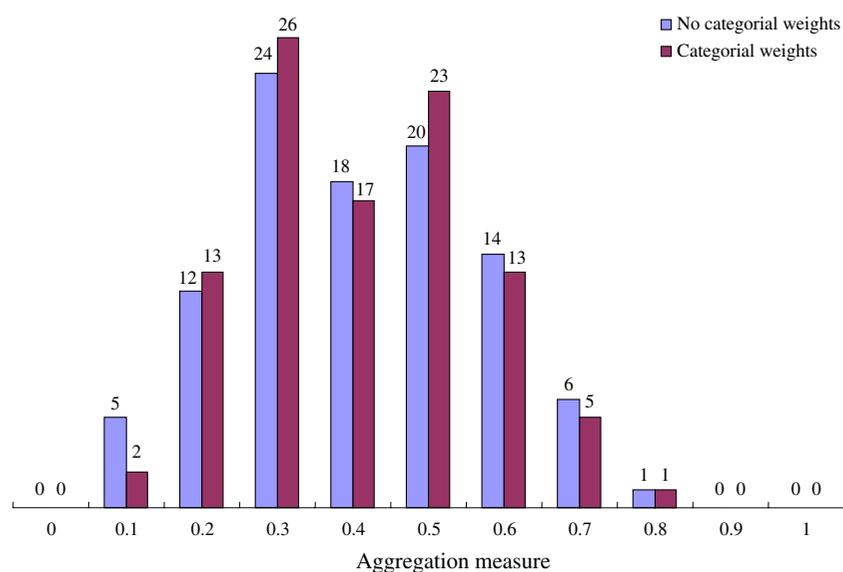


score. Starting the aggregation at category level is either simply to disclose information that is more detailed or to assign weights to each category in order to convey features that make better use of information.

To examine the effect of these different procedures, we construct five categories from the 10 components extracted from the data-set in the first phase of the process, and assign weights to each category based on their relative contribution to the variance retained in the principal component analysis.<sup>8</sup> Our aggregation measure is similar to the one used in the S&P T&D studies. In Figure 3, we find only small differences in terms of distribution of aggregates between the two aggregation procedures.

The last step in the transformation of information from information set D to information set E is the classification of scores. There are several ways to combine the different ways of weighting and aggregation described above, but common to all the ranking procedures applied in practice is a transformation of scores into a deciles or quintiles distribution, i.e. they create a scale that ranks

**Figure 3. Distribution of aggregates to be used for classification.**



each company relatively from 1 to 10 or from 1 to 5. In principle, all companies could have very high disclosure standards, but due to the forced distribution, the worst of the best is ranked poorly.

Using the ranking procedures just described, we examine the effect of different forced distributions by registering in how many cases the two approaches disagree. This is done for three different score measures, see Table 3. Comparing a ranking based on overall aggregation of attributes respectively with and without weights, we find that the two methods disagree on the classification of 18 companies when deciles are used. In line with expectation, this reduces to a smaller number equal to 6 when quintiles are used. As a robustness check, we double the variance in the weight distribution to allow for larger differences. The resulting classification of companies does not change notably.<sup>9</sup> Comparing a ranking based on overall aggregation of attributes respectively without weights and category (weighted) aggregation of attributes without weights, we find that the two methods disagree in the classification of 26 companies when deciles are used and 12 companies when quintiles are used.

These findings suggest that there is practically no difference between the classification of companies based on weighting and classification based on a simple counting of the presence or absence of attributes. Accordingly, the analyses based on the UFB-data-set indicate that Proposition 2 should be rejected.

#### 4. Conclusion

In this paper, we have tried to answer the question: can corporate governance ratings reduce problems of asymmetric information between companies and investors? The information basis for providing CG ratings was presented in Section 2. Rating-providers seem to agree that the quality of a firm’s corporate governance arrangement matters and depends on ownership structure, rights of shareholders, board structure and composition, disclosure and transparency. However, their approaches in data collection and scoring and weighting are different however. Since the theoretical basis concerning which company attributes that are most important in an evaluation of governance quality is relatively weak, there is room for diversity in the selection of attributes and in the choice of calculation methods.

In Section 3, we examined the two propositions on the Danish UFB-data-set. Rating-providers can be assumed to select CG attributes according to their expected impact on the quality of corporate governance. Although we have some information concerning the way in which the rating-providers

**Table 3. Disagreement in Classification**

Benchmark relative to							
Overall aggregation with weights				Categorical (weighted) aggregation			
Deciles		Quintiles		Deciles		Quintiles	
10	1	10	0	10	1	10	3
9	1	8	0	9	4	8	4
8	1	6	1	8	4	6	2
7	1	4	3	7	2	4	2
6	1	2	2	6	3	2	1
5	2			5	3		
4	3			4	3		
3	4			3	3		
2	3			2	2		
1	1			1	1		
Σ	18		6		26		12

Note: The benchmark is distribution based on overall aggregation of attributes without weights.

carry out data reduction in order to arrive at information set D, our knowledge is incomplete. Since we do not know precisely how rating-providers undertake data reduction in practice, we have chosen a principal component analysis as a proxy process for phase 1 activity. For each of the ten components, the five attributes with the highest positive loadings have been included. We find that intelligent CG-data reduction need not reduce the ability to discriminate between companies with strong corporate governance and companies with weak corporate governance. Thus, in the study based on the Danish data-set, we find some support of Proposition 1.

We do not know the weights or aggregation method applied in practice by the rating-providers. These are subject to method confidentiality. Proposition 2 was therefore examined by means of a simulation procedure, which was in fact a proxy procedure for phase 2 activity. The resulting average weights were used to classify the sample companies into deciles and quintiles according to level of corporate governance quality. The next step was to compare the distribution on deciles and quintiles based on this weighting with a distribution in which only the presence or absence of the 40 attributes in the sample of companies were counted. We find that there is practically no difference between the classification of companies based on weighting and the classification based on a simple counting of the presence or absence of attributes. Accordingly, the analysis based on the UFB-data-set indicates that Proposition 2 should be rejected.

The implication of the findings is that asymmetric information can be reduced by an intelligent use of corporate governance ratings. The investor's decision to substitute information set C (public CG information) with information set E (CG-rating) relies on the appropriateness of the methodologies by the rating-agencies, both in the CG-data reduction phase and in the CG-data weighting, aggregation and classification phase. Due to the method confidentiality, the appropriateness of the methodologies used is, however, hard to assess for the investor.

The suitability of replacing the rating providers' actual phase 1 and phase 2 activities by proxy processes, and of using the Danish UFB-data-set to carry out the two proxy processes, relies on the basic assumption that the variation patterns in the UFB-data-set have sufficient similarities with the variation patterns in the research universe in which the rating-providers operate. In addition, the very idea of replacing rating procedures founded on the rating-providers' considerable knowledge of and experience with regard to relevant measures with an impact on corporate governance quality with two almost mechanical proxy processes can of course be questioned. We look forward to critical reactions from analysts employed by the rating-providers who are capable of evaluating the appropriateness of the assumptions made here, because they are involved in actual CG-data reduction and CG-data weighting, aggregation and classification activities.

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#### Notes

1. The European Corporate Governance Institute lists CG codes from 49 countries in addition to the OECD Principles of Corporate Governance, see [www.ecgi.org](http://www.ecgi.org).
2. Information on methodology and data sets of S&P is available on [www2.standardpoors.com](http://www2.standardpoors.com).
3. Information on methodology and data sets of ISS is available on [www.iscsg.com/abouttheratings.htm](http://www.iscsg.com/abouttheratings.htm).
4. Information on methodology and data sets of GMI is available on [www.gmiratings.com](http://www.gmiratings.com).
5. We thank Morten W. Langer and Ugebrev for Bestyrelser for providing us with this data. The data was originally collected to map out the extent to which Danish companies comply with domestic and international corporate governance standards. We will refer to this data-set as the UFB data-set. A full list of attributes in the data-set is available upon request to the authors.
6. This is "The Nørby Committee's report on Corporate Governance in Denmark—recommendations for good corporate governance in Denmark". Download is possible from [www.corporategovernance.dk](http://www.corporategovernance.dk).

7. Weights for each attribute are drawn randomly between 0 and 1 and then rescaled in order to sum to unity. Drawing from 0 to 1, we assume that all attributes contribute positively to the score. For each of the 100 companies in the data-set, 1000 paths of the list of finite attributes are simulated. Our results are based on averages of these 1000 weighted scores.
8. These five categories are (1) Board and management structure (16.59%), (2) Compensation (18.55%), (3) Disclosure (27.39%), (4) Ownership (25.72%), and (5) Auditors and lawyers (11.75%). Numbers in parenthesis are weights assigned to each category.
9. More precisely, we set the sum of the randomly drawn weights to two instead of one. On average, this corresponds to doubling-up the variance. The implication for the range of weights is a shift from {0.0247–0.0254} to {0.0493–0.0508}. The number of disagreements between the benchmark method and an overall aggregation is 22 companies (versus 18 companies when weights sum to one) when deciles are used and 10 companies (versus 6 companies when weights sum to one) when quintiles are used.

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