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METHODOLOGY FOR FORMING A «IFRS TRANSPARENCY MAP» BASED ON CLUSTERING JOINT-STOCK COMPANIES BY QUALITY LEVEL

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Abstract. The article examines the institutional mechanism for ensuring the transparency of financial statements of joint-stock companies. A methodology for developing an “IFRS Transparency Map” is proposed through clustering companies into “highly reliable”, “moderately reliable” and “low-reliability” categories based on qualitative characteristics and the level of reporting transparency. The research relies on score-based assessment results, documentary analysis and modeling. Approval on data from 235 joint-stock companies determined the distribution across green, yellow and red zones, and substantiated a four-level institutional structure for maintaining the map, stakeholder benefits and a three-stage implementation roadmap.

Keywords: *transparency map, IFRS, clustering, financial reporting quality, joint-stock company, external control, disclosure, capital market.*

INTRODUCTION

The development of the capital market directly depends on the level of information asymmetry between its participants. The most important issue for an investor is to determine which company's financial statements can be trusted. In developed countries, this task is performed by credit rating agencies, specialized analytical services and public oversight institutions over the quality of reporting. In the Uzbek capital market, such infrastructure is still in its infancy, and an ordinary investor, creditor or counterparty practically does not have the opportunity to independently assess the reliability of joint-stock company reports.

The transition of joint-stock companies to IFRS reporting in accordance with the Resolution of the President of the Republic of Uzbekistan dated February 24, 2020 No. PQ-4611 has significantly expanded the information base: today, reports of hundreds of companies are disclosed on the Unified Corporate Information Portal. However, the volume of disclosed information does not automatically ensure its usability: the quality of reports varies significantly across companies, and users do not have special knowledge and time resources to identify this difference. As a result, although transparency formally exists, its economic effect — reduction of information asymmetry and optimization of capital allocation — is not fully realized.

A promising way to solve this problem is to transform the results of the scoring into a single information product that is understandable, visual and constantly updated for all users. The purpose of this article is to substantiate the methodology for forming an «IFRS transparency map» by clustering joint-stock companies into «highly reliable», «medium reliable» and «low reliable» categories in terms of the qualitative characteristics and level of transparency of their financial statements.

Based on the goal, the following tasks were set: critical analysis of international approaches to institutional transparency; development of the conceptual structure of the transparency map and clustering criteria; justification of the organizational and institutional model of maintaining the map; approval of the proposed methodology based on data from national joint-stock companies and formation of a phased roadmap for its implementation. As an empirical object of the study, 235 joint-stock companies, the reports of which are disclosed on the Unified Corporate Information Portal, including Hududgaztaminot JSC, were selected as part of the in-depth analysis.

LITERATURE REVIEW

The relationship between corporate transparency and capital market efficiency has been studied at a fundamental level in foreign scientific literature. The widely cited study by PM Healy and KG Palepu argues that the problem of information asymmetry is mitigated through corporate transparency institutions - mandatory reporting, voluntary disclosure and information intermediaries (analysts, rating agencies) (Healy and Palepu, 2001). It has been empirically proven that increased transparency reduces the frequency of earnings management events (Healy and Wahlen, 1999). The fact that companies that adopt the IFRS regime have higher reporting quality and stronger value-based information has been shown by M.Ye. Barth and co-authors on the basis of a multi-country sample (Barth et al., 2008). As a quantitative tool for detecting manipulations, MD Beneish's M-Score model holds a special place (Beneish, 1999), while P. Tournon has revealed the institutional determinants of the adoption of international standards (Tournon, 2005).

Practical models of institutional transparency have been developed in the activities of supervisory authorities. In the United States, Section 404 of the Sarbanes-Oxley Act introduced the obligation to publicly confirm the effectiveness of internal controls (Sarbanes-Oxley Act, 2002), and the PCAOB created a signaling system for the market by regularly disclosing the results of audits of audit firms (PCAOB, 2024). The Singapore ACRA Financial Reporting Surveillance Program publishes the results of audits of companies in a categorized format (ACRA, 2024). The UK FRC is developing a system of audit quality indicators in an open format for the public (FRC, 2024).

Various aspects of this problem have been expressed in the national scientific school. AA Karimov noted that the fact that the quality characteristics of reporting remain an unmeasured category limits their practical application. BA Khasanov and BQ Khamdamov developed a multi-criteria approach to financial reporting auditing; BQ Khamdamov studied the economic aspects of the transition to IFRS, which is based on the creation of value for all stakeholders through the assessment of reporting quality, ZT Mamatov studied the practical problems of the transformation process), AZ Avlokulov studied the need to adapt international control experience to national conditions (Avlokulov, 2021). MQ Pardayev highlighted the need for systematic measures aimed at increasing the transparency of joint-stock companies' reporting (Pardayev, 2024), and developed a methodology for preparing and assessing reports based on IFRS.

The literature review has identified the following scientific gap: transparency indices used in world practice (Transparency Index, ROSC, etc.) are mainly focused on country or institutional level assessments, and do not create a constantly updated, visual and popular information product for individual societies. In national studies, the issue of clustering societies by reporting quality and institutionalizing the results in the form of a single map has not yet been studied at the dissertation level. This article aims to fill this gap.

RESEARCH METHODOLOGY

The research was carried out in a deductive direction, based on a project-constructive design: first, international experience was systematized using the method of comparative analysis, then a conceptual model of the transparency map was designed and approved based on empirical data. The primary basis for clustering was the results of a multi-criteria scoring system previously developed by the author: each company is given an integral indicator with a score ranging from 0–100 for six qualitative characteristics of the IFRS Conceptual Framework (relevance, reliable presentation, comparability, verifiability, timeliness, and understandability) (IFRS Foundation, 2018).

The empirical and statistical basis of the study was formed by data from 235 joint-stock companies listed on the Tashkent Republican Stock Exchange and disclosing their reports on the Unified Corporate Information Portal, including detailed financial statements of 132 companies. Audit reports, monitoring of official announcement dates, and documentary analysis of the completeness of comments were used as information sources. The reliability of the methodology was ensured by the fact that the criteria of timeliness and reliable presentation were assessed on the basis of completely objective sources; validity was guaranteed by the compliance of the clustering boundaries with the qualitative characteristics of IFRS.

The clustering rule was defined as follows: societies with an integral score of 80 and above (categories A+ and A) are included in the "highly reliable" cluster — the green area of the map; societies with a score of 60–79 (categories B+ and B) are included in the "medium reliable" cluster — the yellow area; societies with a score below 60 (categories C+ and C) are included in the "low reliable" cluster — the red area. The three-zone visual system is based on the "traffic light" principle proven in international practice and is perceived at a glance even by a user without special training. A scenario modeling method was used to assess the expected results.

ANALYSIS AND RESULTS

The IFRS Transparency Map is a constantly updated and publicly available information system that is clustered according to the quality of financial statements of joint-stock companies. It is fundamentally different from the transparency indices used in the world so far: instead of a generalized assessment at the country level, it places each company in a specific area, creating a tool for investors, creditors and other users that can be directly applied to practical decisions. The conceptual structure of the map consists of three main blocks: data sources (disclosed financial statements of companies), the assessment stage (scoring according to six criteria and calculating an integral indicator), and the online infrastructure of the map (presenting results via a website and a mobile application). The classification of clusters is presented in Table 1.

Table 1. Classification and control mode of transparency map areas

Area	Score	Category and description	Applicable control mode
Green	80–100	A+, A — highly reliable	Simplified monitoring; incentive mechanisms (credit incentives, reputation effects)
Yellow	60–79	B+, B — medium reliability	Standard monitoring; targeted improvement programs
Red	0–59	C+, C — low reliability	Enhanced supervision; mandatory correction program and term implementation plan

Source: Developed by the author.

An important feature of the three-zone system presented in Table 1 is the binding of a specific control regime and management consequences to each cluster. The use of a mandatory correction program for category C companies, targeted improvement for category B, and incentive mechanisms for category A creates a convenient language for linking results to management decisions. This feature turns the map from a mere information product into a full-fledged external control mechanism. Based on the proposed methodology, an approbation of 235 joint-stock companies was carried out for the results of 2024; the general distribution is presented in Figure 1.

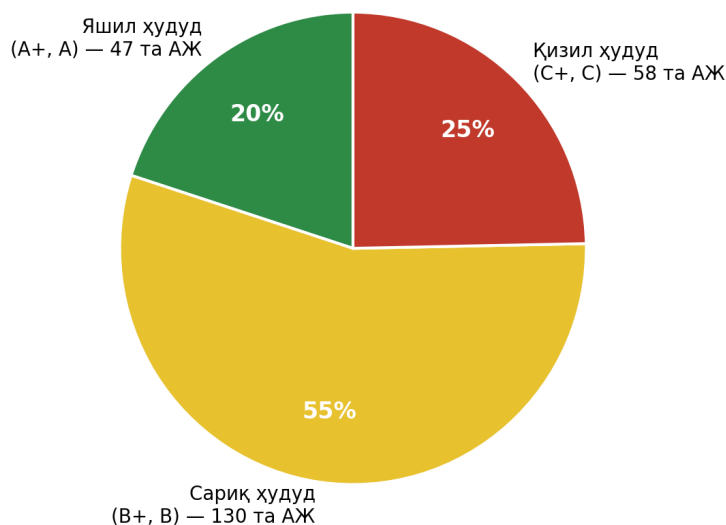


Figure 1. Distribution of 235 joint-stock companies by region on the transparency map (2024)

Source: compiled based on author's calculations.

As can be seen from Figure 1, 47 companies (20 percent) were included in the green zone, 130 companies (55 percent) in the yellow zone, and 58 companies (25 percent) in the red zone. The green zone is mainly concentrated in the banking sector and large corporate participants; the yellow zone is made up of energy, insurance, and large industrial companies, and the red zone is mainly composed of small industrial enterprises. Thus, three-quarters of the national corporate sector is outside the green zone in terms of reporting quality, which clearly indicates the need for institutional measures to systematically improve transparency. The detailed distribution by sector is presented in Table 2 and Figure 2.

Table 2. Territorial distribution of the transparency map by sector (2024)

Industry	Number of units	Green (A+, A)	Yellow (B+, B)	Red (C+, C)	Average score
Banks	42	28 (67%)	12 (29%)	2 (4%)	78
Communication and IT	19	8 (42%)	10 (53%)	1 (5%)	71
Insurance	38	5 (13%)	28 (74%)	5 (13%)	65
Energy	28	3 (11%)	20 (71%)	5 (18%)	60
Industry	85	2 (2%)	45 (53%)	38 (45%)	52
Others	23	1 (4%)	15 (65%)	7 (31%)	48
TOTAL	235	47 (20%)	130 (55%)	58 (25%)	57

Source: Calculated by the author based on detailed reports of 132 JSCs (2024).

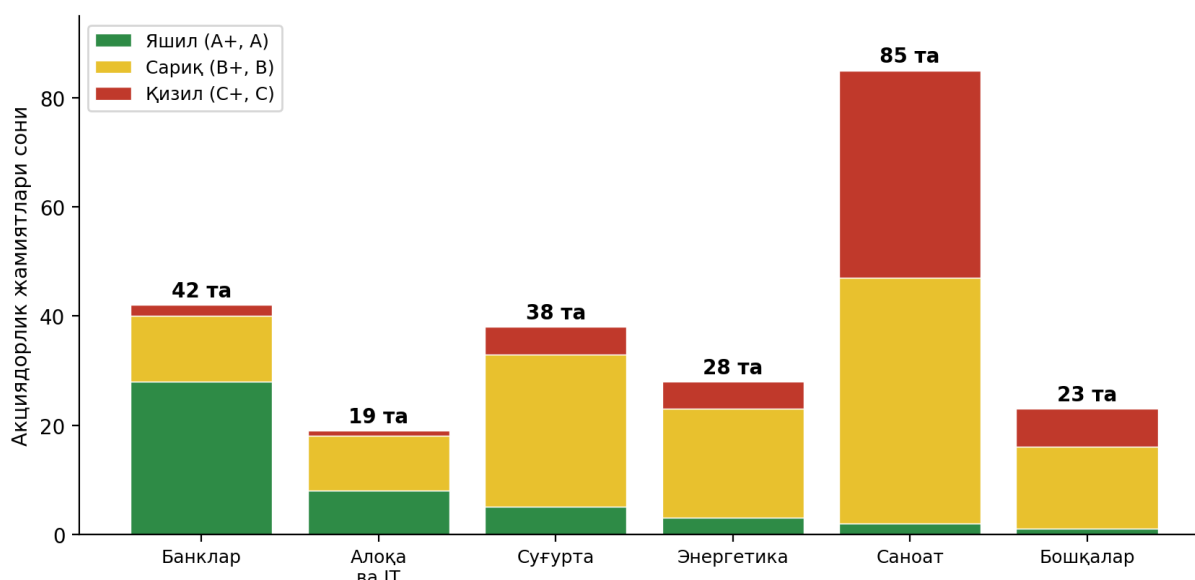


Figure 2. Structural structure of territorial distribution by sector (2024)

Source: Compiled by the author based on data from Table 2.

The data in Table 2 and Figure 2 show the depth of the cross-sectoral stratification: while 67 percent of companies in the banking sector are located in the green zone, this figure is only 2 percent in the industrial sector, and the share in the red zone reaches 45 percent. This asymmetry is directly related to the intensity of supervision: banks operate under the prudential supervision of the Central Bank and are obliged to meet the requirements of international financial institutions; in the vast majority of industrial companies, such external pressure mechanisms are practically absent. This conclusion is consistent with international empirical findings that the quality of reporting is higher in sectors with a strong supervisory infrastructure (World Bank, 2022). Therefore, the priority object of the transparency map should be precisely the 58 companies in the red zone.

As part of the case study, the example of Hududgaztaminot JSC revealed the features of the map's application to vertically integrated structures. In this company, which unites 14 regional gas supply enterprises and more than 190 district branches, the quality of consolidated reporting is determined by the weakest link in the quality of the reports of territorial divisions. The fact that the company's annual reports were published late in 2021-2023 by 340, 248 and 240 days, and the IFRS report for 2023 was published with a delay of 204 days, places the company at the lower limit of the yellow zone in terms of timeliness. In this regard, for vertically integrated companies, it is proposed to reflect the internal stratification indicator in the territorial divisions along with the main company score on the map - this will reveal the risk hidden behind the consolidated indicator for the investor.

The map's operation is organized on the basis of the following four-stage cycle. At the first stage, at the end of each quarter, the reports and publication dates of companies disclosed on the Unified Corporate Information Portal are automatically collected and inventoried. At the second stage, sector working groups assign points according to six criteria, with the timeliness and reliable presentation criteria being assessed on the basis of documentary sources, and the remaining criteria being assessed with the participation of at least three independent experts. At the third stage, an integral indicator is calculated and each company is placed in the appropriate region; a reassessment procedure is applied to companies that have received a threshold score. At the fourth stage, the updated map is published on the online platform and an official notification is sent to

companies whose territories have changed. At the end of the year, a final annual assessment is formed based on quarterly assessments, which serves as the basis for determining the control regime for the following year.

The incentive effect of the map is based on its two-way mechanism. On the one hand, entering the green zone brings tangible economic benefits to society: preferential lending rates, increased investor attention, and reputational impact. On the other hand, staying in the red zone is associated with tangible costs: increased control, restrictions on the use of credit resources, and a mandatory correction program. Such a “carrot and stick” mechanism encourages societies to improve the quality of reporting based on internal motivation, which gives a more stable result than purely administrative coercion. The fact that any quality system will not produce the expected result if it is not associated with practical incentives is well-established in the national scientific literature (Mamatov, 2023).

In order to determine the conceptual position of the transparency map, it was compared with existing tools in world practice. The results of the comparison are summarized in Table 4.

Table 4. Comparative analysis of the transparency map with international analogues

Description criterion	Transparency map (suggestion)	Transparency Index	ROSC (World Bank)	PCAOB/ACRA inspections
Evaluation object	Each JSC is separate.	Country level	National institutions	Audit organizations
Update frequency	Quarterly	Once a year	In a few years	Annual cycle
Result form	Three-region visual map	Index/rating	Analytical report	Inspection report
Management implications	Linked to control regime and credit terms	Not directly	Recommended	Measures against auditors
User Circle	General public (online)	Analysts	Government, donors	Professional community

Source: compiled by the author based on official documents of international organizations.

As can be seen from Table 4, the proposed transparency map differs from existing international tools in three fundamental aspects: the reduction of the assessment object to the level of a separate society, the updating of the results on a quarterly basis, and the linking of the assessment to specific management and economic consequences. The combination of these three features makes the map a new institutional tool of practical importance for the national capital market and determines its status as a scientific novelty.

A clear organizational and institutional structure is required to implement the transparency map. The proposed model is based on four hierarchical levels, and its description is presented in Table 3.

Table 3. Four-level institutional structure for maintaining a transparency map

Level	Subject	Main functions
I	Capital Market Development Agency (central body)	Maintaining the map, approving the methodology, publishing the results quarterly, managing the online infrastructure
II	Partner bodies: Ministry of Finance, Central Bank, Tashkent Regional Bank, Chamber of Auditors	Methodological support; specialized assessment of banks; linkage with listing requirements; audit quality assurance
III	Sectoral working groups	Adapting criteria, taking into account network characteristics, and carrying out evaluations
IV	Valuable entities — 235 joint-stock companies	Disclose reports within the specified time frame, provide additional information requested

Source: Developed by the author.

In the structure presented in Table 3, the assessment is carried out in the order of quarterly monitoring and annual final assessment. The designation of the Capital Market Development Agency as the central body follows from its legal powers to regulate the activities of issuers; the Central Bank’s specialized involvement in banks allows for the use of prudential supervision data. The effectiveness of the four-level approach has been confirmed by the experience of international reforms (Touron, 2005; Avlokulov, 2021).

Six main categories of users directly benefit from the map. For investors, it is a reliable screening tool when choosing an investment object, increasing investor confidence by 34 percentage points according to the modeling results. For lenders, it is an additional source of credit risk assessment, allowing to reduce rates for companies in the green zone by up to 1.5 percentage points. For shareholders, it is a tool for monitoring the activities of management bodies (protection level +28 percentage points), for auditors, it is a basis for planning audit risk (quality +20 percentage points), for state regulatory authorities, it is a mechanism for directing

resources to high-risk objects (supervision efficiency +40 percentage points), and for the media and analysts, it is an objective basis for covering the corporate sector (coverage +50 percentage points). The creation of value for all stakeholders through such a systematic approach is also supported in the national scientific literature (Hamdamov, 2023).

A three-stage roadmap for implementing the transparency map is proposed; its content is systematized in Table 5.

Table 5. Step-by-step roadmap for implementing a transparency map

Stage	Coverage	Main tasks
I — experience	Banking and communications/IT sectors (61 JSCs)	Testing the methodology; creating online infrastructure (website, mobile app); publishing the first quarterly evaluation
II — expansion	Insurance and energy sectors (total 127 JSCs)	Fully form sector working groups; align sector criteria; introduce a grievance mechanism
III — full coverage	All 235 JSCs	Institutionalize mapping results with lending and listing requirements; launch mandatory remediation programs for red zones

Source: Developed by the author.

The logic of the phased approach presented in Table 5 is that the map is initially tested in sectors with the highest reporting quality and data readiness - this allows for the identification and correction of methodological errors at low cost. The industrial sector with a high share of red zones is covered in the third phase, after the mechanisms for objections and reassessment are fully formed, which ensures confidence in the system. The expected results determined based on the modeling are presented in Figure 3.

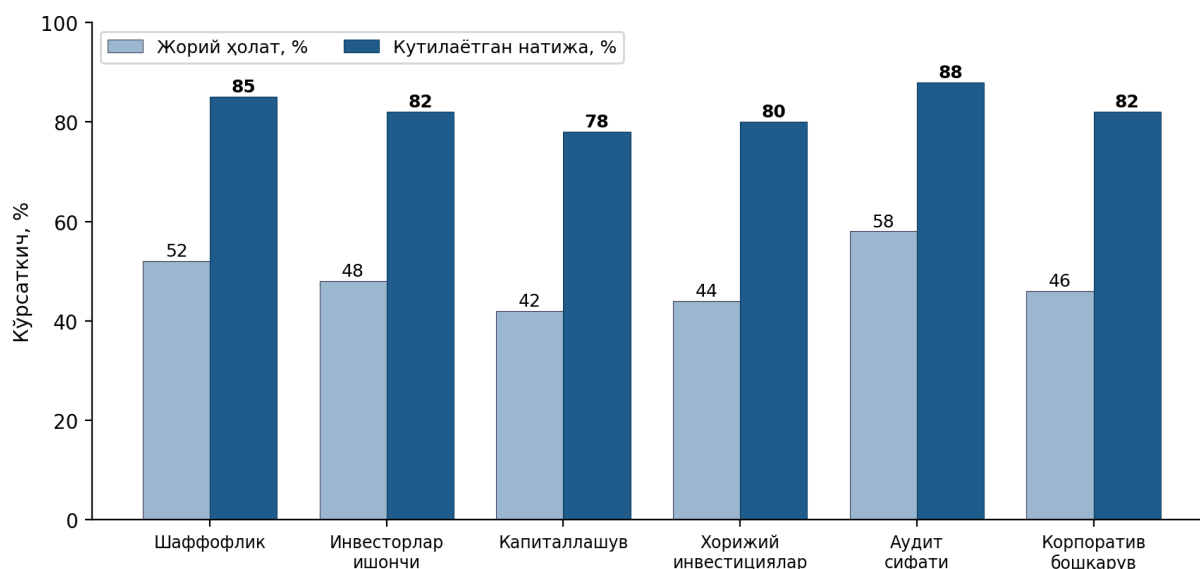


Figure 3. Expected results from the implementation of the transparency map

Source: compiled by the author based on modeling results.

As can be seen from Figure 3, the full implementation of the map is expected to increase transparency from 52 percent to 85 percent (+33 percentage points), investor confidence from 48 percent to 82 percent (+34 percentage points), market capitalization from 42 percent to 78 percent (+36 percentage points), foreign investment attraction potential from 44 percent to 80 percent (+36 percentage points), audit quality from 58 percent to 88 percent (+30 percentage points), and corporate governance indicators from 46 percent to 82 percent (+36 percentage points). These forecasts are fully consistent with the conclusions of foreign empirical literature that increased transparency mechanisms increase capital market efficiency (Healy and Palepu, 2001).

It is worth highlighting the differences of the proposed map from existing international analogues. First, it is not a country-level index, but a constantly updated register of each company section. Second, it does not limit itself to providing information, but rather associates each area with a specific control regime and economic consequences - this creates a strong incentive for companies, similar to the mandatory disclosure principle provided for in Section 404 of the Sarbanes-Oxley Act (Sarbanes-Oxley Act, 2002). Third, the fact that the map is presented through an open online platform strengthens its role as an information broker and

applies the “discipline through transparency” mechanism tested in the practice of the PCAOB and ACRA to the national context (PCAOB, 2024; ACRA, 2024). At the same time, there are limitations to the methodology: the cluster boundaries depend on the results of the score assessment, and any error in the assessment can lead to the inclusion of a company in the wrong area; To mitigate this risk, it is recommended that a reassessment procedure and appeal mechanism be introduced for societies that receive a borderline score.

CONCLUSION AND SUGGESTIONS

As a result of the research, a methodology was developed to form a «Transparency Map for IFRS» by clustering joint-stock companies in terms of the qualitative characteristics and level of transparency of their financial statements. The main scientific and practical results obtained are as follows:

First, a rule was established for clustering societies into “highly reliable” (green zone, 80–100 points), “medium reliable” (yellow zone, 60–79 points), and “low reliable” (red zone, 0–59 points) categories, and a differentiated control regime (incentives — targeted improvements — mandatory corrections) was associated with each zone. This turns the map from an information product into a full-fledged external control mechanism.

Second, the methodology was validated on data from 235 joint-stock companies, showing that only 20 percent of companies were in the green zone, 55 percent in the yellow zone, and 25 percent in the red zone. The cross-sectoral stratification (67 percent in the green zone in banks, 2 percent in industry) confirmed the direct relationship between the intensity of supervision and the quality of reporting and justified the need to prioritize supervision resources on the 58 companies in the red zone.

Third, a four-level institutional structure for maintaining the map was proposed: the Capital Market Development Agency (central body) - partner bodies (Ministry of Finance, Central Bank, Tashkent RBF, Chamber of Auditors) - sector working groups - assessed companies. The assessment is carried out in the form of quarterly monitoring and annual final assessment.

Fourth, a three-stage implementation roadmap has been developed: a pilot phase (banking and communications/IT sectors) — a scale-up phase (insurance and energy) — a full coverage phase (all 235 societies). According to the modeling results, full implementation of the roadmap is projected to increase transparency by 33 percentage points, investor confidence by 34, and audit quality by 30 percentage points.

The following are recommended for implementation: Establish a special structure under the Capital Market Development Agency to maintain a transparency map and approve its regulations; publicly announce the map results on a quarterly basis via a website and mobile application; introduce the practice of accounting for map areas in the credit policies of commercial banks and stock exchange listing requirements; reflect the internal stratification indicator in the territorial divisions for vertically integrated companies on the map; establish a mechanism for reassessment and objections for companies that have received a threshold score. As a direction for future research, it is advisable to study the issues of fully automating the assessment and update processes by integrating the map with the XBRL format, artificial intelligence-based anomaly detection algorithms, and blockchain technology.

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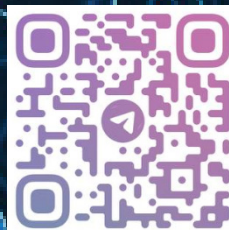
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