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Analysis of the Relation between the Book-Tax Differences and Firm Performance Indicators: Conceptual Foundations and Implementation Prospects

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REFERENCES TO THE NORMATIVE DOCUMENTS

The present dissertation refers to the following normative documents:

National Development Plan 2029 of the Republic of Kazakhstan

Resolution of the Government of the Republic of Kazakhstan 'On the Approval of the Comprehensive Action Plan to Counter the Shadow Economy for 2023–2025 and the Repeal of Certain Resolutions of the Government of the Republic of Kazakhstan' dated July 14, 2023;

Financial Sector Development Concept of the of the Republic of Kazakhstan until 2030;

Tax Code of the Republic of Kazakhstan “On Taxes and Other Obligatory Payments to the Budget (Tax Code)” dated 25th of December, 2017;

The Law of the Republic of Kazakhstan N 122-VI “On Enactment of the Code of the Republic of Kazakhstan "On Taxes and Other Mandatory Payments to the Budget" 25th of December, 2017;

"Law of the Republic of Kazakhstan No. 100-IV 'On the Enactment of the Code of the Republic of Kazakhstan "On Taxes and Other Mandatory Payments to the Budget"' dated December 10, 2008.

Law of the Republic of Kazakhstan No. 562 'On Amendments and Additions to Certain Legislative Acts on Accounting and Financial Reporting' dated June 11, 2004

Tax Code of the Russian Federation Part One N 146-ФЗ dated 31st of July, 1998;

Tax Code of the Russian Federation Part Two N 117—ФЗ dated 05th of August, 2000;

Federal Law of the Russian Federation No. 208-FZ On Consolidated Financial Statements date 27th of July, 2010;

Resolution No.107 of the Government of the Russian Federation “Approval of Regulations Governing the Endorsement of International Financial Reporting Standards and Interpretations of International Financial Reporting Standards with a view to their application in the Russian Federation” dated 25th of February, 2011;

Tax Code of the Republic of Kazakhstan “On Taxes and Other Obligatory Payments to the Budget (Tax Code)” dated 10th of December, 2008;

The Law of the Republic of Kazakhstan N 100-IV “On Enactment of the Code of the Republic of Kazakhstan "On Taxes and Other Mandatory Payments to the Budget" dated 10th of December, 2008.

The Law of the Republic of Kazakhstan N 562 On Amendments and Addition to Certain Legislative Acts on Accounting and Financial Reporting Issues dated 11th of June, 2004.

DEFINITIONS

The present dissertation applies the following definitions:

BT differences	Book-tax differences are the differences between the pre-tax income reported in financial statements and tax reports. This difference appears due to varying objects and principles guiding financial and tax reporting.
Taxable income	Amount of income subject to taxation by tax authorities, after accounting for allowable deductions, exemptions, and adjustments as defined by tax laws.
Implied taxable income	The estimated size of taxable income, defined as income tax expense divided by the official corporate income tax rate applicable for the year under consideration.
Tax avoidance	Firms' activities directed at the reduction of tax liabilities
Effective tax rate	The ratio of income tax expense to earnings before taxes
Earnings management	Firms' manipulations of the reported in the financial reports earnings
Discretionary accruals	A portion of earnings that management has discretion over in reporting, through choices in accounting methods and judgments over the estimates and timings.
Information asymmetry	The difference in the quantity and quality of information available to insiders and outsiders of a firm, leads to an imbalance in power and potentially unfair advantages.
Firm value	The market value of a firm's total assets
Market capitalization	The market price of a firm's shares multiplied by the total number of shares outstanding
Stakeholder	An individual or group of individuals that have an interest in a company, have an impact on a company, or can be affected by a company's activities
Dividend payout	The portion of a company's earnings distributed to its shareholders as dividends, expressed as a percentage of the net income.
Tobin's Q	The ratio of the market value of a firm's total assets to the assets' replacement cost.
Cash generating unit	A company division that is relatively autonomous in generating cash flows

ABBREVIATIONS USED IN THE TEXT

(in alphabetical order)

ADRs	American Depository Receipts
APT	Arbitrage Pricing Theory
BT	Book-tax (differences)
BOD	Board of directors
CAPM	Capital Asset Pricing Theory
CEO	Chief executive officer
cETR	Cash effective tax rate
CGU	Cash generating unit
CSR	Corporate social responsibility
DACC	Discretionary accruals
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, depreciation, and amortization
EBT	Earnings before taxes
ETR	Effective tax rate
f.e.	Fixed effects
FYO	Firm-year observations
GMM	Generalized method of moments
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
MNCs	Multinational corporations
OCF	Operating cash flows (cash flows from operating activities)
OLS	Ordinary least squares (regression)
PAT	Positive Accounting Theory
PPE	Property, plant, and equipment
ROA	Return on assets
ROE	Return on equity
ROS	Return on sales
sGMM	System Generalized Method of Moments
SME	Small and medium enterprises
TA	Total assets
TACC	Total accruals
U.K.	The United Kingdom
U.S.	The United States of America

INTRODUCTION

Research topic relevance

The relevance of the topic is justified by several factors. According to the World Bank[1], the share of the tax revenue in GDP of Kazakhstan has been decreasing starting from 2015. Various assessments of the shadow economy share in Kazakhstan vary from 17,5% to 32.1% of GDP[2]. One of the priority goals of economic reforms in Kazakhstan, according to the National Development Plan of the Republic of Kazakhstan until 2029, is a gradual decrease of the share of shadow economy in GDP to 15%. To address the problem, the goals of the government are to improve the tax administration efficiency, assess the existing tax incentives efficiency and their impact on companies' performance and expand preventive measures restraining firms' tax avoidance.

Another key priority of the government of Kazakhstan is to create a dynamic and transparent entrepreneurship. One of the critical issues in achieving this goal is promoting high standards of financial reporting. Importance of the accounting and tax reporting quality for the economy development is reflected in the Comprehensive Action Plan to Counter the Shadow Economy for 2023–2025. A key role in this process belongs to accounting, which ensures the transparency and reliability of financial information, enabling informed investment decisions. As outlined in the "Business Roadmap 2025" and "Digital Kazakhstan" state programs, high-quality accounting is expected to reduce informational risks and contribute to the improvement of the investment climate. Accounting, audit and tax consulting are recognized as priority sectors of the economy.

The Financial Sector Development Concept of the Republic of Kazakhstan until 2030 underscores the importance of financial reporting quality and highlights the importance of financial sectors specialists' qualifications in this context. The Kazakhstani government's plans for initial public offerings of state-owned enterprises, outlined in the Complex Privatization Plan of 2021-2025, make the results of the presented study particularly relevant. This study examines the economic implications of tax avoidance while focusing on earnings management. It emphasizes the significance of high-quality financial reporting in determining a company's

[1] Source: https://data.worldbank.org/indicator/GC.TAX.TOTL.GD.ZS?view=chart&locations=1W

[2] World Economics assesses the size of shadow economy of Kazakhstan at a level of 32.8% of GDP in 2024 (source: https://www.worldeconomics.com/Informal-Economy/), the World bank assesses the level at 35.5% in 2020 (latest available data as of Nov. 2024; source: https://www.worldbank.org/en/research/brief/informal-economy-database). According to the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, the size of shadow economy decreased from 20,23% of GDP in 2020 to 17,52% in 2023. (source: https://stat.gov.kz/ru/industries/economy/national-accounts/dynamic-tables/?period=year).

transparency, which, in turn, influences firm performance and firm market value. As such, the selected topic is highly pertinent.

Over the past few years, Kazakhstani investors' interest in firms located in the Russian Federation has grown, as reported by the National Bank of Kazakhstan[3]. These investments require diligent risk assessment, including an evaluation of the risks associated with the quality of financial reporting. One section of this dissertation focuses on a study of Russian public companies. It makes the current study relevant for the business community of Kazakhstan and other countries interested in investing in Russian firms.

The publication of leaked data by WikiLeaks and Panama Papers has heightened the global interest in tax avoidance among both the public and research community [1], [2]. According to [3], the implications of tax avoidance are affected by the level of corporate governance development. High levels of corruption can skew perceptions of tax administration as an unfair system, influencing firms' financial reporting policy choices [4]. Therefore, studying tax avoidance in developing markets is of paramount importance for policymakers and regulating authorities.

The topic development in the literature.

The question about how BT differences relate to firm performance is still open due to the inconclusive findings in previous research. Most of the studies focus on the market-value based indicators of firm performance. In this regard, the traditional view considers taxes as a significant source of costs, which can be reduced through tax planning activities [5]. Lev & Nissim [6], Chi, Pincus, & Theoh [7] illustrate the importance of tax-related disclosures and elaborate on the discussion of how the quality of reported earnings influences the relation between tax avoidance and stock market returns.

Desai & Dharmapala [8] support the agency theory view on tax avoidance. They suggests that tax avoidance can lead to information opacity and provides opportunities for managers' self-dealing. Higher agency costs negatively impact a firm's value. Herron and Nahata [9] demonstrate that the coefficient on tax avoidance changes from positive to negative and attribute this finding to agency theory, emphasizing the importance of corporate governance. The study of Tang [10] investigates the relation in several countries and reports a positive relation in some countries but statistically insignificant relation in other countriesю She explains the difference among the countries by the varying quality of corporate governance.

The above studies connect agency theory to tax avoidance by focusing on external governance mechanisms. This dissertation applies another indicator of

[3] Gross outflow of direct investment of Kazakhstani direct investors. Source: National Bank of the Republic of Kazakhstan. Available at https://nationalbank.kz/en/news/pryamye-investicii-po-napravleniyu-vlozheniya

agency problems, managers' manipulative practices applied to financial reporting, following Frank [11], Gul, Chen, & Tsui [12], who argue that discretionary accruals are connected to managers' opportunistic behavior. The chosen context of the study involves countries with low governance, poor investor interest protection, and high corruption indices. By choosing such a context, I explore whether firms and investors operating under poor investor protection may benefit from refraining from tax avoidance and accounting practices of manipulating the reported earnings.

Tax accounting of companies in Kazakhstan has been studied in the works of Barysheva S.K., Dosayeva A. Zh., Khuanysh L., Chakeyeva M.M., Sultanova B.B., Auesbekova A.A., Dosmanbetova A.s., Nurasheva N.S., Baisheva E.D., Kaipova G.S. These studies analyze and provide recommendations within the normative accounting theory. The researchers point out to the need for the development of the theoretical basis and methodological recommendations in the area of tax accounting. They also point to the need to explore how tax accounting indicators relate to firm performance in Kazakhstan.

Justification of the study contexts. Since 2005, when Kazakhstan adopted the IFRS, sufficient data is accumulated on Kazakhstani public companies. These observations are sufficient to apply statistical methods in the study. However, a deeper analysis on the factors influencing the relation between BT differences and financial indicators of firm performance requires larger samples. Qualitative studies on this matter are difficult to conduct since firms usually refrain from revealing the information on their tax planning since such information may be used by competitors or tax authorities and cause the reputational risks. Therefore, it was decided to study the research questions in the context outside of Kazakhstan with a similar level of the institutional development, strict tax administration, high state presence in economy and high corruption level[4].

Objectives and goals of the study

The present dissertation is devoted to studying the relationship between book-tax differences (BT differences) and firm performance in Kazakhstan and the Russian Federation. It also explores the factors influencing this relation. To achieve the research objectives, the following tasks were defined:

[4] In this regard, Russia presents a similar to Kazakhstan context. The World Bank Index of Predictable Enforcement, which represents the development of legal institutions, is less than 0.4 for both countries in most of the years over the period covered by the present study and lower than the world median. The Russian Federation is in the lowest 20-percentile rank of the World Bank Rule of Law Index, and Kazakhstan's percentile rank of the index is below 30%. Both countries are in the lowest quartile of the Corruption Perception Index, although Kazakhstan has shown substantial improvement since 2019. Kalyuzhnova & Nygaard [292] report the intense state intervention in both countries' economies. The index of direct state control over enterprises in Kazakhstan was 2.6 in 2018 , much higher than the world median value of 1.8. This index is not available for Russia. Gomez & Mironov [293] describe Russia as an interesting context for studying firms' tax policies due to its especially strong tax enforcement under the presidency of Putin.

- To study the conceptual and theoretical foundations relevant to the relation between BT differences and firm performance;
- To analyze the relation between BT differences and firm performance indicators in the context of public firms in Kazakhstan;
- To develop a model that describes a relation between the components of BT differences and financial indicators of firm value with decomposition of BT differences into the parts related and not related to earnings management, in the context of public firms in Kazakhstan;
- To analyze the relation between BT differences and firm market value in the context of public firms of the Russian Federation;
- To develop the recommendations on how to control the negative effect of BT differences on firms' market value, using dividend policy as an example;
- To assess the role of financial reporting prepared in accordance with the International Financial Reporting Standards (IFRS) in evaluating the relation between BT differences and firm market value.

The object of the study is public firms of Kazakhstan and Russia. ***The subject of the study*** is the relations between BT differences, financial reporting quality and firm performance.

The theoretical foundations of the study are agency theory, information asymmetry theory and stakeholder agency theory. Previous studies show that BT differences reflect both tax avoidance and earnings management, resulting in higher information asymmetry around a firm. Tax avoidance often justifies opaque financial reporting, as it typically requires concealing financial information from tax authorities. This opacity creates opportunities for managerial self-dealing, which can negatively impact firm performance. As a result, firms with large BT differences are discounted by investors. Signaling theory suggests that firms utilize dividend payout helps firms to counteract the negative implications of tax avoidance on the market value. In this context, the information provided in IFRS-compliant financial statements is more informative and underpins the significance of the observed relations.

Methodology of the study is grounded in general scientific methods of analysis and synthesis. The research includes a literature review aimed at systematizing theories, identifying gaps, developing testable hypotheses, and constructing economic models. Empirical analysis is based on archival data from public companies in Kazakhstan and Russia, obtained from the LSEG Workspace data. Panel data analysis is conducted using descriptive statistical analysis, correlation matrix analysis, and regression analysis methods, including ordinary least squares (OLS) and two-stage least squares (2SLS) regression methods. The generalized method of moments (GMM) and the jackknife procedure are applied as robustness tests. The statistical analysis was conducted using Stata 17.0 software.

Scientific novelty of the study lies in the following key findings summarized below:

1) The study identifies the key conceptual and theoretical foundations defining the relation between BT differences and firm performance;
2) For the first time, the relation between BT differences and firm performance indicators is analyzed in the context of public firms in Kazakhstan;
3) A model is developed to describe a relation between the components of BT differences and financial indicators of firm value, incorporating the decomposition of BT differences into the components related and unrelated to earnings management, in the context of public firms in Kazakhstan;
4) The relation between BT differences and firm market value is analyzed in the context of public firms in the Russian Federation;
5) Based on the model revealing the role of dividend policy in mitigating the negative effect of BT differences on firms' market value, recommendations on controlling the relation are developed;
6) The study concludes on the role of financial reporting prepared in accordance with the International Financial Reporting Standards (IFRS) in examining the relation between BT differences and firm market value.

Major provisions submitted for defense are as follows:

1) The relation between BT differences and firm performance is determined by information asymmetry and agency problems, which impact the interests of multiple stakeholders;
2) Firms with larger BT differences tend to exhibit poorer performance;
3) Inferior firm performance of firms with large BT differences is attributed to aggravation of information asymmetry problem, as BT differences are associated with earnings management practices;
4) Investors consider firms with large BT differences as high risk and incorporate this risk into share prices;
5) Higher dividend payouts mitigate the negative relation between BT differences and firms' market value. Investors positively interpret the information conveyed through dividends, which enhances firms' market value;
6) Financial reporting prepared in under International Financial Reporting Standards (IFRS) improves he financial information transfer. In the pre-IFRS period, the evidence on the relation between BT differences and firm value, as well as on the moderating role of dividends in this relation was not observed.

Theoretical contribution of the study lies in the addition to positive accounting theory. First, the study expands the understanding of the role of BT differences as an indicator of earnings quality within the framework of the theories of information asymmetry, agency theory, and stakeholder theory. Second, the study expands the application of accounting information in the financial analysis of firms

and shows the importance of the information contained in tax expenses. Third, the study focuses on the relation between firm-level tax planning and the quality of financial reporting. Fourth, the study adds to the knowledge of the application of accounting data for the valuation of the market value of firms in the context of developing markets. Furthermore, the study is the first one that presents evidence of a moderating role of dividend payout in the relation between BT differences and firm value. Finally, the study presents new evidence on the role of IFRS adoption in the context of developing markets with autocratic regimes. Taking into consideration the importance of accounting information for improving the investment climate of Kazakhstan and its capital market development, studying the above-mentioned questions presents paramount importance for Kazakhstan.

The practical contribution of the study is driven by the application of book-tax difference as an indicator of tax avoidance connected to earnings management, for performance measurement. The results of the study represent the possibilities for practical implications for numerous stakeholders. In particular, the study develops specific recommendations on adjustments to cash flow projections when valuing assets, company divisions, or goodwill. Besides, the results are important for regulatory authorities, government, and non-government organizations when developing economic development programs and reforms. The obtained results are recommended for inclusion in the curricula of Bachelor-level programs specializing in Accounting and Audit in courses, such as *Cases in Accounting*, *New Trends in Accounting*, as well as in Master-level courses like *Modern Trend in Corporate Reporting*, and *Current Issues in Accounting*.

Personal input of the author. The author participated in selecting the research concept and object of the study, determining the objectives and goals, data collection, choice of methodological approaches, statistical analysis, and formulating the study results.

Publications. The results of the empirical study on firms in Russia were published in a peer-reviewed Scopus and Web of Science-indexed academic journal with the CiteScore exceeding 90% (Q1) as of 2024. The findings of the study on Kazakhstan were reported at international scientific research conferences. Besides, one study was published in an international peer-reviewed academic journal with a CiteScore of 48% (Q3) as of 2024.

Structure of the dissertation. The dissertation is completed in compliance with the principles required for dissertation works, as prescribed by the Rules for Awarding Degrees by the Ministry of Education of the Republic of Kazakhstan. The dissertation includes an introduction, main body, conclusion, list of references, and appendices.

1 CONCEPTUAL AND THEORETICAL FOUNDATIONS OF THE RELATION BETWEEN BOOK-TAX DIFFERENCES AND FIRM PERFORMANCE

1.1 Information asymmetry as a key concept in agency theory and stakeholder theory

Information asymmetry theory is a cornerstone in management and accounting research [13]. The theory arises from the concept of private information. Private information exists because of privileged access of one with large ownership, legal protection, and the specific character of assets or expertise. When private information is unavailable for decision-makers, information asymmetry arises [14]. When different information is available to numerous groups of people, better-quality decision-making requires access to all relevant information. Thus, private information becomes a source of private gains and competitive advantage.

Information asymmetry exists because not all information is publicly available. Perfect information is what makes markets efficient. Therefore, information asymmetry causes market imperfections. Informationally advantaged players act differently from those without exposure to private information. Information asymmetry leads to opportunistic behavior beforehand (adverse selection problem) or *ex-post* (moral hazard problem) [15]. Imperfect information distorts the process of fair price determination since it affects the expected payoffs to buyers at a given level of risk. A greater information asymmetry induces the costs of information search, bonding, and monitoring costs, thereby increasing transaction costs [16].

Shareholders require certain information to be disclosed by companies and aspire for transparency to prevent value-destroying decisions of managers. However, efficient monitoring may be too costly. Creating motivational stimuli for managers and remunerations for positive results substitute continuous monitoring. Besides, certain actions may be used as signals to convey some information to external players. Examples are reputational signals, earnings, and dividend smoothing. Opportunistic managers may be interested in expanding information asymmetry if such actions promise personal gains. For instance, shareholders of tax-avoiding firms willingly accept lower levels of transparency to mitigate the possibility of being exposed to tax authorities. Firms also exploit information asymmetry by manipulating earnings upward. Decoupling is another practice contributing to information asymmetry. Decoupling involves a formal adoption of regulations but without contributing to achieving the goals of this regulation. Overall, information asymmetry is often applied as an assumption in theoretical reasoning that is often taken for granted.

Agency theory is widely used to explain various issues in accounting literature. The central concept in agency theory is the separation of the function of control over

a company's operations from owners. The conflict of interest arising between the principal (owner) and agents (e.g., company executives) is called **principal-agent conflict**. A firm is considered to be a set of contracts [17]. Managers are driven by utility maximization, which includes remuneration, power, job security, leisure, or empire building, and that may be detrimental to firm value. On the contrary, shareholders are value maximizers. Utility maximization goal implies the growth of firm size, while value maximization requires increasing the efficiency of an organization. Likewise, the risk appetite and planning horizons of managers may differ from the accepted by shareholders' levels of risk and the planning time frames. Hence, managers' decisions may provide returns to shareholders that do not correspond to the risk levels acceptable by shareholders or may pursue short-term instead of long-term goals. When ownership is dispersed, as observed in common-law countries, owners of small stakes lack the incentives to exert efficient control over managers. Lack of monitoring provides opportunities for managers to prioritize their own interests compromising those of shareholders.

Cross-country studies [18], [19] point out that dispersed ownership is not as prevalent in civil law countries. In Germany, Japan, and most of the developing markets, large shareholders (families or the state) are controlling owners, and ownership is highly concentrated. Shareholders with large stakes have more incentives to exert efficient monitoring resulting in greater convergence of managers' and owners' interests. However, large shareholders who control the decision-making within a firm, may abuse their power and undermine the interests of minority owners [20]. Majority of owners are interested in retaining the earnings within the firm to invest in future projects. Cutting the payouts diminishes the returns to minority owners. Minority owners do not possess sufficient resources to protect their interests and wealth [21]. The resulting conflict due to the misalignment of interests of the shareholders with different statuses is called **principal-principal conflict** within the agency framework.

Another type of agency problem is a **principal-debtholder conflict** that arises between shareholders and bondholders due to the investing and financing decisions of shareholders. Shareholders' accepted level of risk differs from that of debtholders. Shareholders invest in risky projects and expect higher returns. Excessive risk of assets negatively affects the risk-adjusted value of creditors' claims. If a firm's risky projects succeed, shareholders enjoy the growth in their returns. However, debtholders' claims are limited to the pre-agreed interest and initial investments. Furthermore, a shareholder may increase dividend payout to excessive levels, thus neglecting the interests of other providers of funds [22].

The divergent interests require the parties to adopt the mechanisms that guarantee the protection of their respective interests. Parties involved in agency relations possess private information leading to information asymmetry. For instance,

firm managers have access to insider information on the firm's projects, which is not available to outsiders. Controlling shareholders hold the information not available to minority owners and debtholders. Such information asymmetry requires devoting resources to costly information search. Agency theory considers a firm as a collection of contract-based relations between fund providers and firm's management. The principal has to ensure that the contractual obligations are met and to safeguard their interests. Monitoring the agent's decision and performance is required, leading to monitoring costs. On the other hand, agents incur bonding costs to ensure they are chosen to manage the resources. The potential risk arising from agency problems is incorporated into the risk premium by principals in the assessment of their holdings.

Corporate governance is a complex combination of mechanisms, policies, and procedures inside and outside of a firm that ensures the efficient monitoring of managers. As summarized in Hill & Jones [23, p. 132], agency theory suggests addressing the agency conflict through the mechanisms that converge the interests of owners with managers' interests. Such mechanisms include establishing proper corporate governance through incentives for managers, monitoring by boards of directors, institutional investors, external monitoring by capital markets, law enforcement and institutional development.

Asymmetric information contributes to the aggravation of agency problems. Managers control the internal operations in their firms, have superior to shareholders knowledge over the firm's assets, or may distort the information released to owners to conceal the managers' opportunistic behavior. Accounting information facilitates the communication between shareholders and managers. In this regard, the quality of financial reporting becomes an important issue. Manipulated earnings create noise around the true performance of firms. Investors need to employ incremental resources to obtain additional information and require extra premiums in the information asymmetry environments [24]. The inferior quality of accounting information further contributes to the augmentation of the asymmetry in the information available to corporate insiders and outsiders [25].

Stakeholder theory by Freeman [26] expands the list of the parties considered legitimate beyond the shareholder-manager and majority-minority shareholders relations. As Freeman defines it, stakeholders are a various groups of interested parties with legitimate claims on a firm. Employees, subcontractors, suppliers, clients, the local community, and the general public define the very existence of a firm, are influenced by its operations, and expect that their interests are considered and upheld in the process of resource exchange. The legitimacy of stakeholders' claims is determined by the economic exchange relationship, whereby stakeholders provide a firm with economic resources and expect to receive some payback [27].

The firm-stakeholder nexus is driven by the power differentials in their exchange of resources. [28] demonstrate that different stakeholder groups have differential impacts on a firm, which is determined by the structural nature of the organization/stakeholder relation described by the features of compatibility and necessity, as well as the available institutional support. They emphasize that the nature of implicit and explicit contractual relations between the organization and stakeholders determines the influence that a particular group of stakeholders has on an organization. In this regard, stakeholder theory offers a wider than agency theory grasp of the relationships that form an organization. Law enforcement, the threat of exit, and voice are the main mechanisms applied by stakeholders to safeguard their interests.

The role of management, according to stakeholder theory, is not merely maximizing the wealth of shareholders, but balancing the interests of stakeholder groups to achieve a cooperative solution. According to [29], any firm has a 'moral obligation' to serve the interests of multiple stakeholders. Jensen [30] responds that the value maximization goal does not contrast with the stakeholder theory and that ethical considerations are possible to pursue together with the goal of shareholders' wealth maximization. Porter & Kramer [31] suggest that the traditional role of a firm of shareholders' value maximization should be replaced with the joint creation of value for all stakeholders involved.

Hill and Jones combine the views of stakeholder theory with the postulates of agency theory in their stakeholder agency theory. Similar to the agency theory, stakeholder agency theory considers a manager as an agent and stakeholders as principals. These relationships between an agent and multiple principals are regulated by explicit and implicit contracts. Nevertheless, most of the contracts are implicit. Many stakeholders do not hire managers, do not pay any remuneration to them, and are not considered principals. Still, managers are expected to take into consideration the interests of the stakeholders when managing the firms. The purpose of the explicit and implicit contracts is to reconcile the divergent interests of the stakeholders. Therefore, the role of managers is to balance those interests to achieve optimum performance.

Despite the similarities with the agency theory, there are important differences between the theory of Hill and Jones from the agency view. First, Hill and Jones point out that the agency theory considers the inefficiencies to be short-term. Both agent and principal have the freedom to choose whether to enter or exit from the relationship in efficient markets. Stakeholder agency theory does not exclude a possibility for a longer-term disequilibrium to sustain in the markets. Such medium to long-term frictions are supported by the barriers to entry and organizational inertia. Free entry and exit from the contractual relations may be unavailable in cases of a shortage of agents or principals and because of a lack of alternative contracting

opportunities. Established routines, the substitution of norms by precedents, and sunk costs decelerate the return to equilibrium.

Like in agency theory, conflict of interests between managers and stakeholders is the central concept of stakeholder agency theory. Stakeholder agency theory considers a wider spectrum of conflicts between stakeholders and managers. Since stakeholders provide economic resources, they have their claims on the firms. The interests of stakeholders require a firm to allocate some of the firm's resources for the satisfaction of their claims, which contradicts the managers' pursuit of a firm's growth.

Interest alignment notion from agency theory is expanded to the stakeholder-manager relationships in stakeholder agency theory. For instance, offering tax incentives to decrease environmental pollution converges the interests of managers with those of the community. *Ex-ante* inclusion of warranties in contractual relations with customers is an example of bonding mechanisms that demonstrate managers' commitment to meeting customers' claims. The monitoring structures, which represent an *ex-post* alignment mechanism, are of an institutional nature in the stakeholder agency theory. Institutions have an advantage in information collection and processing and help to economize on information search and processing. The existence of some institutions is promoted by legislation. For instance, the law requires firms to follow accounting standards and apply the IFRS or follow the General Reporting Initiative guidelines. Institutions gain a certain power sufficient to exert efficient monitoring of managers (e.g., labor unions). Hill and Jones outline the major enforcement mechanisms, such as law, exit, and voice. As they argue, voice is the most effective and the least costly enforcement mechanism, which turns out to be of special importance with the nowadays social media's growing role in forming a firm's reputation.

Table 1 - Comparison of agency theory, stakeholder theory, and stakeholder agency theory

	Agency theory	**Stakeholder theory**	**Stakeholder agency theory**
Normative/positive	Positive	Normative	Positive
View on manager	Self-interested manager	Enlightened self-interested manager	Enlightened self-interested manager
Role of manager	Agent of shareholders	Balancing the interests of multiple stakeholders	Agent of multiple ranked stakeholders
Manager's duty	Maximization of shareholders' wealth	Balancing the interests and claims of multiple stakeholders	Balancing the interests and claims of multiple stakeholders

Table 1 - continued

Criteria for effectiveness	Efficiency is a key to the survival of a firm	Fairness determines the survival of a firm	Inefficient firms can survive although the most inefficient are selected out by the markets
Nature of the relation between agent and principal(s)	Economic	Moral reasoning	Economic and moral
The relation between agent and principle(s) is governed by	Explicit and implicit contracts between shareholders and manager	Explicit and implicit contracts (but mostly implicit contracts between stakeholders and managers	Both explicit and implicit contracts between resource holders
Major assumptions about the market	Information asymmetry between managers and owners. Short-term nature pf market inefficiencies and quick market adjustment through free entry and exit	Information asymmetry between managers and stakeholders. Stakeholders may contribute to market efficiency. Stakeholder relationships are mutually reinforcing	Information asymmetry between managers and stakeholders. Market inefficiencies may remain long-term due to barriers to entry to and exit from contractual relationships, unavailable alternative contracts, and organizational inertia.
Sources of costs	Agency problems cause agency costs arising from information search, monitoring, bonding costs, and residual loss.	Lack of trust leads to higher transaction costs due to the need to: - Enforce contracts - Elaborate safeguards that require monitoring	Conflict of interests among stakeholders leads to contracting costs, which include utility loss costs.

Note: compiled by the author based on studying [23]

The stakeholder theory framework expands the concept of opportunistic behavior of managers to the relationships between managers and stakeholders. Information asymmetry exists between firm insiders and outsiders and among stakeholders of different stakes in the firm. Accounting information serves the public interest in broader meaning expanded to investors of all kinds of economic resources. Stakeholder theory has expanded to the various areas of management research and is used in several accounting and finance studies as a theoretical framework.

The recent rethinking of the role of accounting and the emphasis on public service in defining the role of an accountant is closely linked to stakeholder theory. Given the societal focus of taxation, the role of accountants in shaping a company's tax policy becomes especially important. Accounting information serves the interests of society in a broad sense, encompassing investors of all types of economic resources. Stakeholder theory extends to various areas of management and is used in a number of studies in accounting and finance as a theoretical foundation. Parmar *et*

al. [32] note that "the accounting profession as a whole is becoming more stakeholder-oriented."

Financial and tax reporting play a crucial role in the exchange of information between a firm and its stakeholders. Financial reporting provides details on the redistribution of the investment flows and other resources between a company and its owners. Tax reporting includes information relevant to the redistribution of wealth among economic subjects to be performed by the state through taxation.

1.2 The impact of information asymmetry on book-tax differences and firm performance from the point of view of agency theory and stakeholder theory

The Concept of Book-Tax Differences in Academic Literature

The different purposes and rules applied when calculating the income in tax and book reporting lead to the appearance of BT differences. The standards used for compiling financial reports are set by the local or international accounting boards. The procedures for taxable income calculation are prescribed by countries' tax authorities, who pursue goals, which may differ from those of accounting-setters. Due to different treatment of transactions in tax and book reporting, either permanent or temporary BT differences arise [6, p. 1040], [33].

Permanent BT differences appear when revenues or expenses have an impact on only accounting or taxable income [34]. For instance, non-deductible expenses are not counted when calculating taxable income but are expensed when calculating book income. Countries often limit the deductibility of charitable contributions, some items in operating expenses, and employee benefit plans. Tax exemptions of certain revenue items, such as interest or dividends received from tax-exempt securities, are another source of permanent BT differences. Also, firms may get certain deductions, such as domestic production activities deductions, which contribute to permanent BT differences.

Temporary BT differences appear when revenues and expenses are recognized in different periods. IFRS prescribes that temporary BT differences arise because tax-related assets and liabilities are recognized in different periods [34, p. 876]. For instance, depreciation expense in accounting reporting may differ from the depreciation expense reported for tax purposes because of the difference in depreciation rates and the values of fixed assets. Differential timing of bad debt expense recognition is another source of temporary BT differences. Limitations on interest expense deductibility may result in either permanent or temporary BT differences. For example, interest expense is deductible only within amounts paid to banks in Kazakhstan, leading to temporary BT differences. In the U.S., temporary BT differences may appear because interest expenses are allowed for tax deductions

only within the amounts not exceeding the reported interest income. Similarly, excess of the interest expense above the market rate is not deductible In China. Such limitations imposed by the tax codes cause permanent BT differences.

The International Accounting Standard (IAS) 12: Income Taxes[5] prescribes how income tax-related information must be reflected in financial reporting. First, IAS 12 requires recognition of current and prior periods' tax assets and liabilities based on the expected tax payments or recoveries. Current tax is usually recognized as an expense item and show in profit and loss account. An alternative to the recognition of current tax in income statements is to recognize income tax on certain items directly in equity or in other comprehensive income. IAS 12 prescribes that the deferred tax assets or liabilities be estimated using the statutory tax rate anticipated the point of settling the asset or liability. IAS 12 also recommends reconciliation between earnings before taxes and taxable income and disclosure of the sources of the BT differences.

The U.S. GAAP regulation of tax accounting prescribed by ASC 740 (Accounting Standards Codification 740) «Income Taxes» is analogous to IAS 12 to a certain extent. This standard outlines the rules for recognition, assessment and disclosure of the information related to income tax in financial reporting. Similarly to IAS 12, ASC 740 also recommends to disclose how current and deferred tax expense are reflected in the amounts of deferred tax assets/liabilities. Besides, ASC 740 requires companies to evaluate, recognize, measure and disclose uncertainties in the amounts of tax to be paid, in their financial statements. It mandates that a company assesses the likelihood that a tax position will be sustained upon examination by tax authorities and recognize the corresponding tax liabilities if the probability of uncertain position is less than 50% (more likely than not). Similarly, the International Accounting Standards Board (IASB) issued *IFRIC 23 «Uncertainty over Income Tax Treatments»*, which complements IAS 12 and establishes the requirements to recording of tax-related uncertainties, although IFRS does not provide any quantitative definition of the tax related uncertainty and is of recommendatory nature.

The recommendations on the application of IAS 12 for Kazakhstani companies in line with the national chart of accounts were developed in [35], [36], [37]. The most frequent causes of deferred tax assets and deferred tax liabilities in Kazakhstan are differences in calculation of depreciation and amortization in book and tax reporting, as well as the size of losses carried forward from prior periods. According to the Tax Code of the Republic of Kazakhstan, companies are allowed to carry losses forward over a ten-year period. However, the subjective assessment by accountants and

[5] Available in https://www.ifrs.org/issued-standards/list-of-standards/ias-12-income-taxes/

managers of the loss amounts to be carried forward contributes to BT differences. Furthermore, [38] addresses issues related to the Tax Code's requirement to advance remittances of the income tax upon achieving the profit thresholds. Additionally, the Tax Code imposes a penalty for the deviations of actual profit by more than 20% from the pre-reported taxable income. This requirement may incentivize companies to distort the reported income, including under-reporting of book income. An example of tax-related disclosures in financial reports is provided in Appendix A.

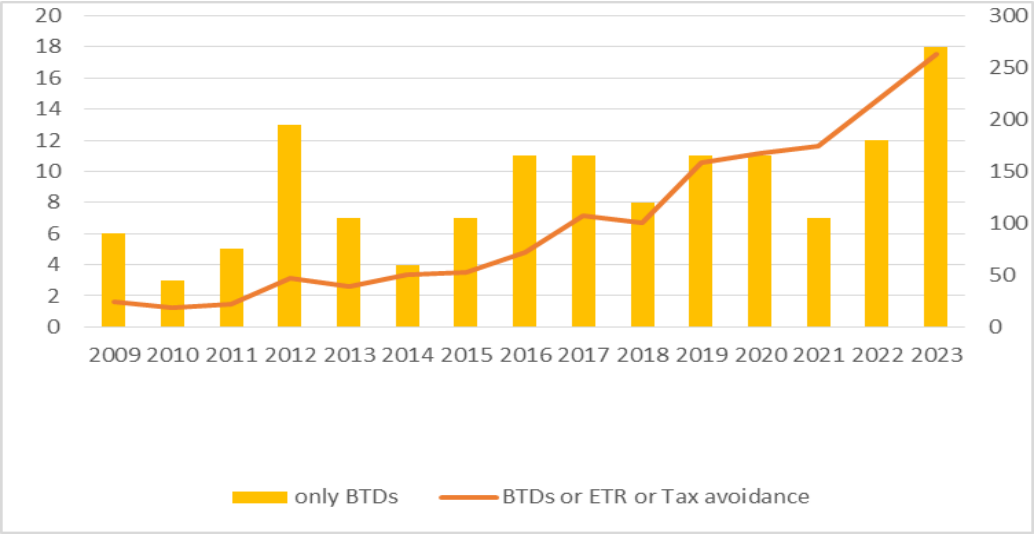
In the analysis of the sources of discrepancies between the information related to income tax in accounting reports and the income reported for taxation purposes by U.S. firms, Hanlon [39] points out several sources of discrepancies between income tax expense in the income statement and a current period's tax liability in tax reports. Among such reasons are: (1) financial and tax reports are not prepared simultaneously; (2) income tax may be reported in the income statement and comprehensive income statement; (3) some transactions are reported net of tax in financial reports and the corresponding tax expenses are excluded from the income tax expense; (4) tax laws and financial reporting use different ownership thresholds for consolidation. These discrepancies may distort the estimates of implied taxable income when gauging BT differences and assessing a firm's tax avoidance. However, several studies [40], [41] compare the data from accounting reports and actual tax returns and report a strong correlation between the two estimates.

Since the rules governing tax reporting differ from those in financial reporting in many countries, regardless of a country's adoption of IFRS or its national GAAP, BT differences are observed globally. For instance, [10] analyzes BT differences of firms in 46 countries over 2001-2010 and interprets BT differences as an indicator of tax avoidance. The list of countries in her study includes 22 countries from the European Union, 16 countries from Asia and Oceania, 6 countries from the Americas (both Southern and Northern) and 2 countries from the African continent. Therefore, studying the economic implications of BT differences is important for any country regardless of the country's adoption of IFRS.

BT differences appear not only because of the different procedures followed when calculating book and taxable income but also due to firms' tax avoidance practices [42]. *Tax avoidance* is a broad concept and covers any activities that lead to the reduction of tax liabilities [43], [44]. Tax-avoiding policies can be characterized by different levels of aggressiveness, from investments in tax-exempt securities to leveraging the differences in the tax laws of different jurisdictions and structuring transactions in such a way that tax expenses are contracted or eliminated. [45] use a definition of tax avoidance that covers a range of strategies characterized by different levels of risk, where 'tax management' refers to the least aggressive activities and 'tax sheltering' and 'tax evasion' describe the most aggressive strategies.

BT differences increase when tax-avoiding firms understate their taxable income. [46] point out that deferred tax expenses are an important component of accruals and show that BT differences indicate tax avoidance. [47] provide evidence that firms with large BT differences are called for the tax audits by the Internal Revenue Service more often than firms with small BT differences. [48] reveal that that large BT differences are associated positively with future restatements of income resulting from Internal Revenue Service audits and show that the size of BT differences may indicate aggressive tax policies. Wilson [49] documents that firms reported to be engaged in tax sheltering have higher values of BT differences than firms not engaged in aggressive tax planning activities. These studies contributed to the justification of using BT differences as a proxy for firms' tax avoidance, in line with other proxies, such as book effective tax rates (ETR) and cash effective tax rates (cETR).[6]

A bibliographic analysis demonstrates that the rising interest to studying BT differences and related tax avoidance has risen since the crisis of 2008-2009, as shown in Figure 1. Scopus search with the key words "book-tax difference", or "BTD", or "ETR", or "tax avoidance" reveals 1516 articles published in academic journals in 2009 - 2023. Out of them, 254 articles have "BTD" or "book-tax difference" as the key words.

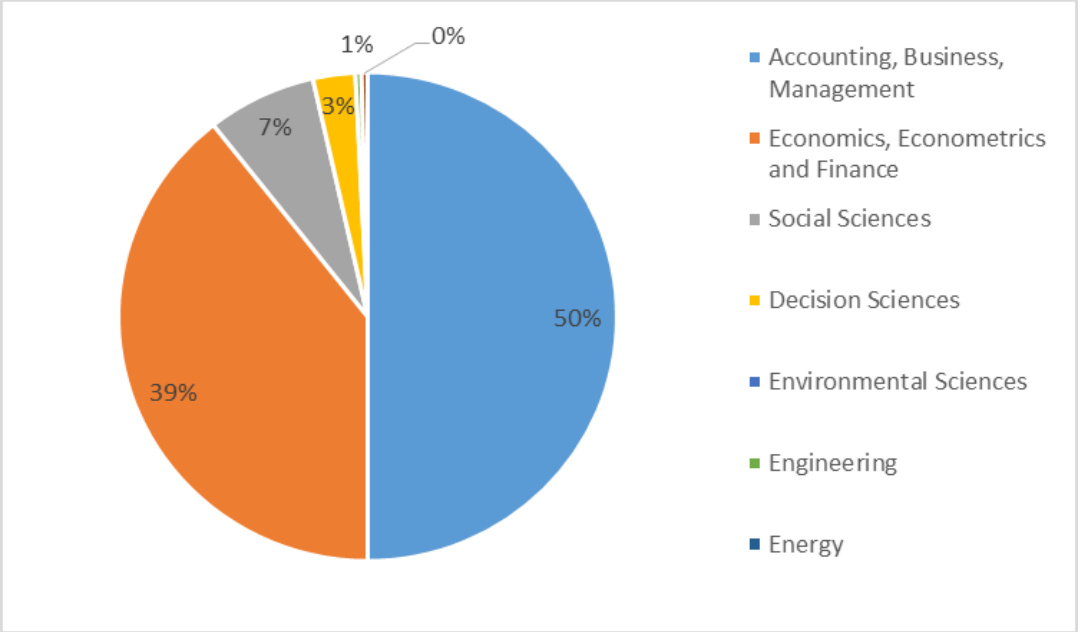


The left-side axis refers to the data labeled with bars. The right-side axis refers to the data labeled with the line. The figure is developed using the analysis of sources in Scopus.

Figure 1 – The number of academic articles with the key words 'ETR', 'BTDs', or 'tax avoidance'.

[6] Effective tax rate is the reported income tax expense divided by earnings before taxes from the income statement. Cash effective tax rate is determined as income tax cash payments from the statement of cash flows divided by earnings before taxes.

The bibliometric analysis shows that 50% of the articles that 'book-tax difference' or 'BTD' as a key word specialize in accounting, management and business. 30% of the articles specialize in economics, econometrics and finance, as shown in figure 2.



Source: www.scopus.com

Figure 2 – Distribution of journals that contain articles with 'book-tax difference' or 'BTD' in key words, according to journal specialization

To sum up, the analysis of literature shows that the studies of BT differences involve several areas of economic and management science, including accounting. The studies on tax accounting discuss economic issues of tax avoidance and BT differences are used as a key indicator of tax planning in microeconomic studies.

Theoretical foundations for Research on Book-Tax Differences

The utilization of agency theory and corporate governance as a ground for tax research has long been neglected. Modigliani and Miller [50] consider taxes as a source of market imperfection that affects decisions of a firm on its capital structure and its dividend policy. Classical financial literature assumes the primacy of shareholder interests and prescribes that financial management has a primary goal of shareholder wealth maximization [51]. In such a shareholder-manager relationship, tax avoidance is viewed as a release of additional cash flows that becomes available to shareholders. In this vein, [52] compare firms involved and not involved in litigations connected to tax sheltering. They suggest that tax sheltering activities are an alternative to firms' increasing the debt in their capital structure for tax

deductibility reasons. Hence, tax avoidance may be considered as "one of the available investment opportunities" [53].

[54, p. 170] note that the utilization of off-shore facilities and the diversion of cash from firms' operations by managers can be technologically complementary under weak governance. Tax sheltering and tax avoidance in general may justify the need to decrease the transparency of information available to shareholders to obscure tax-avoiding practices from tax authorities. The resulting opaque accounting information facilitates managers' opportunistic behavior. Under such conditions, managerial incentives directed to converge the interests of managers with those of owners may result in mitigating tax avoidance, which, otherwise, could have been beneficial for shareholders. As Desai and Dharmapala discuss in [8, p. 546], "tax avoidance and managerial efforts to divert value from shareholders may be intertwined". They report that corporate governance, proxied by institutional ownership, positively moderates the detrimental impact of tax avoidance on firm value.

Ownership structure is an important characteristic in corporate governance literature. As Badertscher *et al* [48, p. 241] note, firms with more concentrated ownership demonstrate lower levels of tax avoidance. Dual class ownership, which is associated with weaker monitoring over management, is observed together with lower tax avoidance [55]. [56] observe that the direction of the link between ownership concentration and the levels of tax avoidance follows a quadratic pattern. Lower tax avoidance levels are observed in firms with family ownership, compared to other firms [57]. However, tax avoidance increases with the increase in family ownership [58]. [59] explores how tax avoidance relates to state ownership and finds evidence in support of a negative relation. The evidence of state-owned firms being more inclined to tax avoidance practices when managers' compensation is tied to after-tax performance [60]. The role of institutional investors is also discussed in [61], and the results indicate a diminishing strength of the connection of institutional owners to the firms' tax avoidance.

Control exerted by capital markets is an important external corporate governance mechanism. However, as shown in [62], firms' tax avoidance increases after firms are added to the stock market indices, targeted by hedge funds [63], or after non-tradeable shares become tradeable [64]. [65] report that corporate tax avoidance is higher in firms whose shares are less liquid.

Desai & Dharmapala [66, p. 248] emphasize that "corporate tax makes governments (and by extension society at large) one of the principals of a corporation". A firm's stakeholders may have a differential appetite for risk in terms of tax avoidance. The distribution of power between stakeholders assigned to them through the external and internal governance mechanisms defines a firm's choice related to tax avoidance. The internal corporate governance mechanisms involve

incentive alignment and monitoring by the board of directors. The external governance mechanisms include ownership structure, capital market pressure, independent audit, law enforcement, and community voice in imposing pressure from stakeholders on management. Nevertheless, Desai & Dharmapala [66, p. 270] caution that the stakeholder view may "permit the use of a corporate tax to limit corporate resources". They argue that such a view may lead to situations when managers undertake actions not in the best interests of shareholders and rationalize their actions by acting in the interests of other groups of stakeholders. Thus, the caution is that the potential problems must be weighed against the potential benefits to the societies from the stakeholder view on corporations.

In support of the stakeholder agency view on tax avoidance, [67] discover that firms identified by the U.S. Securities and Exchange Commission as having fraudulent financial statements pay significant amounts of taxes on the overstated income. This finding illustrates that earnings management firms believe that the risk of being audited by tax is greater than the risk posed by investors. In a related vein, [68] present evidence of the lower levels of firms' cost of debt in firms with a higher probability of the tax authorities' audit. These findings suggest that tax authorities can be an effective monitor of firms' reporting decisions.

To summarize, the literature analysis demonstrates that BT differences are reflected in financial reporting and their recognition is regulated under IFRS. BT differences are widely used as an indicator of companies' tax avoidance associated with the increase of information asymmetry.

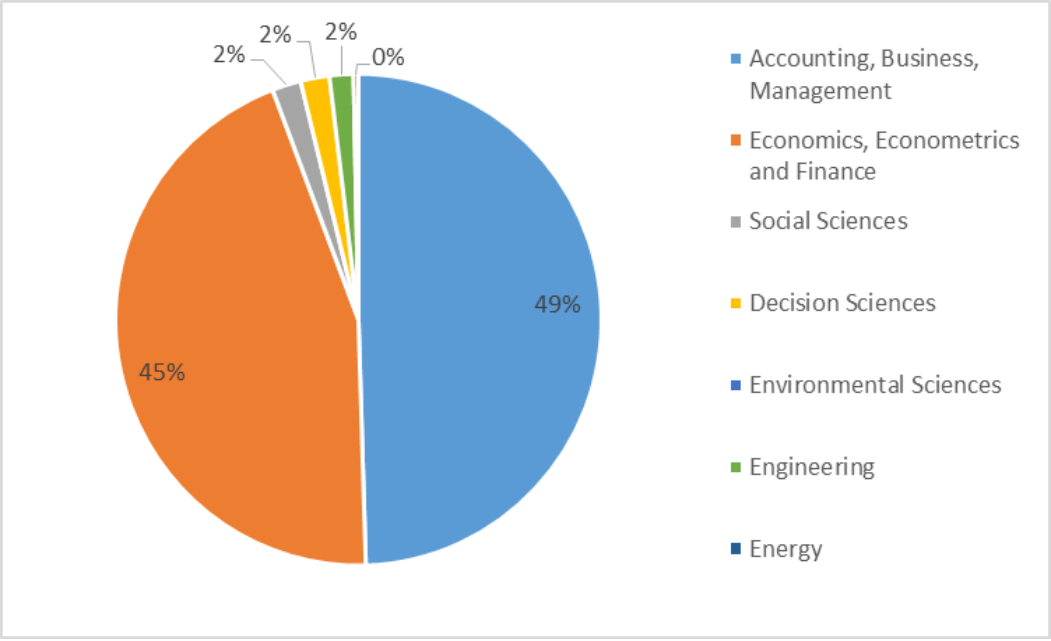
The Relation Between BT Differences and Earnings Management as a Source of Information Asymmetry

A survey of tax and financial audit professionals [69] confirms that both enhanced book earnings and diminished taxable income may be accountable for BT differences. Earnings management refers to the practices when management intentionally distorts financial reporting to achieve specific objectives. The goal of these actions is often either to inflate or deflate reported earnings. These objectives are commonly achieved within the requirements of IFRS through the use of discretionary accruals. Manipulations of the accounting information distorts the information used by investors in their decision-making, as well as by the boards of directors for company monitoring. Consequently, earnings management is assumed as a deterioration of reporting quality.

The study of Jones [70] offers a tool that makes it possible to estimate the extent of earnings management. The model regresses total accruals by the items from the balance sheet and income statement and estimates accruals not explained by the related economic factors. It is supposed that the error terms from the regression reflect the accruals resulting from managers' discretion on reporting. The

fundamental accounting principle of matching prescribes that revenues and expenses are recorded in accounting books not in the period when cash is received or paid, but at the time when they are earned or incurred. The appearing differences are recorded as accruals. A firm that intends to over-report its income has no choice but to overstate its revenues or understate the expenses. Since such activities do not end up with the corresponding inflow or outflow of cash; manipulations with earnings result in an increase in total accruals. Total accruals that correlate with the size of property, plant, and equipment and with the revenue growth are treated as non-discretionary. The residuals are discretionary accruals and represent the earnings management of firms. The model was further modified by Kothari *et al.* [71] and is widely used in accounting literature.

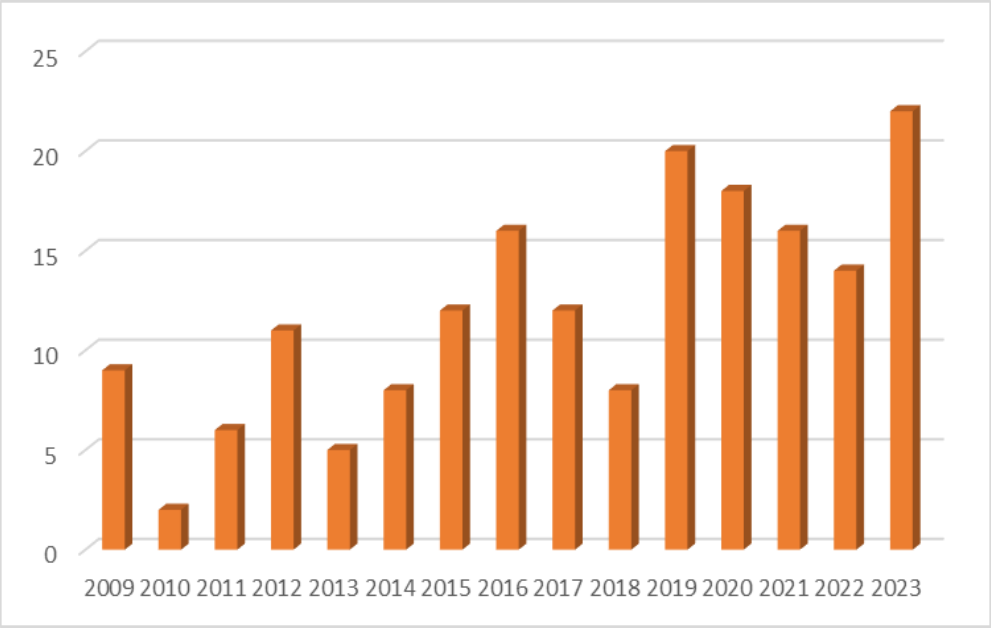
Analysis using a Scopus search engine reveals 179 articles published in academic journals during 2009–2023, where "book-tax difference" (or "BTD") and "earnings" are identified as the key words. As shown in Figure 3, in almost 50% of cases, the articles with the above key words are published in journals specializing in accounting, management, and business. In 45% of cases, the journals specialize in econometrics and finance. It must be noted that one journal may specialize in both areas. Nevertheless, the source analysis points out the multi-dimensionality of the studies that touch upon the issues of accounting for BT differences.



Data source: Scopus (http:\www.scopus.com)

Figure 3 – Specialization of journals that published articles, where "book-tax difference" or "BTD" and "earnings" are labeled as key words

Figure 4 demonstrates how the number of articles where BT differences are studied in the context of earnings quality changed over time. The analysis reveals a steady growth of the number such articles starting from 2009. It reflects the growing interest of accounting researchers to tax accounting issues.



Data source: Scopus (http:\www.scopus.com)

Figure 4 – Number of articles with the key words "book-tax difference" or "BTD" and "earnings", by year

Managers' engagement in earnings management is a result of complex issues connected to ownership separation and conflicting interests [72]. DeAngelo [73] points out that the assessment of managers' efficiency and their compensation is frequently linked to the reported earnings or share price performance. As a consequence, managers are inclined to misreport the reported earnings to maximize their compensation or ensure their job security. The evidence of a manager's involvement in earnings management is well documented in prior literature. [74], [75] report executives' downward earnings management when their bonuses achieve the maximum levels. When approaching the last years of their employment, CEOs heighten the reported earnings by cutting research and development spending [76]. Upward earnings management is documented prior to initial public offerings [77], mergers [78], stock splits [79], suggesting that capital markets exert pressure on management who eventually choose to get involved in earnings management. Large shareholders may impose pressure on managers [80] and neglect the interests of minority shareholders, thereby leading to larger discretionary accruals [81] and earnings smoothing [82]. Several studies suggest that countries with strong protection of investor interests demonstrate a smaller scale of involvement in earnings management than poor investor protection countries [83], [84].

Earnings management is not necessarily detrimental. Managers may convey their insider knowledge of firm performance through managed earnings, thereby diminishing the information asymmetry and improving communication between firm insiders and outside investors. Subramanyam [85] provides evidence that discretionary accruals are instrumental in forecasting cash flows. [86] show that governance quality and discretionary accruals have an inverse relation in Korea. [87] distinguish between predictive and opportunistic earnings management and provide evidence of higher levels of managers' compensation in firms with predictive earnings management, in support of the informational role of discretionary accruals.

The stewardship role of accounting requires greater levels of financial information transparency and disclosure. Community disclosures [58] and social disclosure [88] are gaining significance nowadays. According to [89], empirical studies demonstrate the two-directional relationships between accounting and stakeholders. Stakeholders impose certain requirements on firms regarding the reporting [90], [91]. Voluntary adoption of more transparent reporting standards demonstrates firms' commitment to serve the interests of the various groups of stakeholders. Since increasing disclosures involves substantial investment in specific resources, firms bond themselves into the exchange relationship with the community. [92] show that investors put a value on firms' sustainability reporting. This fact demonstrates that financial reporting and commitment to follow certain standards bind management and prevent firms' exits from the contractual relationship with stakeholders.

Several studies explore whether tax-related accounts are used for earnings manipulations [93], [94], [95], [96]. However, [45, p. 134] points out the extent of firms' utilization of any particular account for earnings management changes as new regulations related to these accounts arise. A large body of accounting literature focuses on a broader definition of earnings quality, without focusing on any particular account; and several studies explore whether BT differences are suggestive of earnings management.

Table 2 summarizes key papers in accounting literature that explore the connection of BT differences with earnings quality. Badertscher *et al.* [97] show that BT differences are suggestive of the probability of financial reporting restatements of the income tax expense. Several studies focus on earnings persistence, another important and widely used characteristic of earnings quality. Earnings persistence contains the information relevant to valuation [98]. [99] finds that firms with large positive BT differences have less persistent earnings. [100] further explore how earnings management is linked to the size of BT differences and report that firms with large positive BT differences tend to exhibit less persistent earnings and accruals if BT differences are driven by earnings management. Zhou [101] confirms an inverse association between temporary BT differences and earnings persistence.

They also point out that the relation is moderated by the size of the reported unrecognized BT differences (UTBs) disclosed under FIN48.

Table 2 - Summary of the empirical literature on the link between book-tax differences and earnings quality[7]

Author(s) and year of publication	Sample	BT differences measures	Earnings quality measures	Major findings related to the connection between BT differences and earnings management
(1)	(2)	(3)	(4)	(5)
Frank *et al.* [102]	49,886 FYOs of 8100 firms (p.475)	Permanent, total, discretionary BT differences (p.473)	Discretionary accruals	Aggressive tax reporting and aggressive financial reporting are positively linked (p. 493)
Badertscher *et al.* [97]	214 U.S. firms with restated financial statements (p.75)	BT difference (p.93)	Dummy variable of restatement of tax expense in financial reporting (p.93)	BT differences indicate a higher probability of restatement of income tax expense in financial statements (p. 85)
Hanlon [99]	Compustat 1994-2000, 14106 FYO of 4,048 firms (p. 144)	Temporary BT differences (p.141)	Earnings persistence (p.145)	Large positive BT differences are associated with lower earnings persistence (pp. 163-164)
Blaylock, Shevlin, Wilson [100]	Compustat 1993-2005, 21,043 firm-year observations (pp.97-98)	Large positive BT differences dummy (p.98)	Earnings persistence, accruals persistence (pp.98,100)	Earnings management affects the nexus between BT differences and earnings persistence and between BT differences and accruals persistence. (pp.103-104)
Zhou [101]	2,470 FYOs of 430 firms that disclose unrecognized tax benefits over 2007-2011 (p.70-71)	Dummy indicating large positive temporary BT differences (highest quintile rank) (p.70)	Earnings persistence (p.70)	Firms with large temporary BT differences have low earnings persistence. This relation is moderated by the size of the reported unrecognized tax benefits (UTBs) disclosed under FIN48 (pp.71-74)
Heltzer [103]	36,165 FYOs over 1994-2003 (p. 475)	Total BT differences (p.470)	Basu, [108] conditional and unconditional accounting conservatism (p. 472-474)	Large *positive* BT differences are associated with conditional and unconditional conservatism in *tax* reports but do not relate to conservatism in financial statements. Large *negative* BT differences are associated with unconditional conservatism in financial reports and with both conditional and unconditional conservatism in tax reports.

[7] Page numbers of the corresponding articles indicate the parts of the articles that refer to a particular issue and are presented in brackets.

Table 2 - continued

Kim and Li [104]	4897 FYOs of firms with headquarters in off-shore jurisdictions and 6,128 FYOs of the U.S. and U.K. firms with subsidiaries in off-shore jurisdictions (p.50)	Total BT differences (p.53)	Jones discretionary accruals' absolute value (p.53)	BT differences and discretionary accruals are used as the predictor variables of sheltering tax avoidance activities following Wilson [33]. The predicted probability positively relates to firms' actual engagement in off-shore activities (p.81)
Benkraiem *et al.* [105]	76219 FYO from 39 countries, over 2010-2016, (p. 1717)	Difference between the estimated and accrual income tax expense (p. 1717)	Accruals quality, earnings volatility (p.1718)	Accruals quality and earnings volatility are negatively related to tax avoidance. Legal institutions' development strengthens this relation (p.1728).
Sánchez-Ballesta, Yagüe [106]	42761 firm-year observations of SME in Spain over 2006-2014 (pp.1415-1416	The difference between the statutory and effective income tax rates (p.1413)	Discretionary accruals (pp.8-9), real Roychowdhury, 2006 [117] earnings management (pp.1411-1412)	Incentives to report higher earnings moderate the relation between earnings management and tax avoidance. When the incentives to report higher earnings are absent, tax avoidance and income-decreasing earnings management are positively associated. (p.1431)
Abdullaev and Park [107]	3,755 FYOs from Korea over 2011-2015 (p.18)	Dummy variable indicating large positive or large negative temporary BT differences (p.19)	Discretionary accruals (p.19)	The dummy variables of large positive and large negative temporary BT differences have positive coefficients in the regression with the discretionary accruals as the dependent variable (p.24) Earnings persistence is negatively related to large positive and large negative temporary BT differences (p.25)
Machdar [108]	1,368 FYOs of 152 Indonesian firms over 2011-2019 (pp.130-131)	BT differences not attributable to discretionary accruals	Abnormal discretionary expenses and cash flows (pp.131-132)	BT differences and abnormal discretionary cash flows / discretionary expenses are positively related (p.144)

Note: The table is compiled by the author based on the analysis of the shown in the first column sources. Page numbers in parentheses refer to the corresponding sources shown in column 1.

Heltzer [103] studies the link between BT differences and another indicator of earnings quality, and defined by Basu [109] conditional and unconditional conservatism. Accounting conservatism involves recognizing losses or liabilities when they are probable while recognizing revenues that are certain to be earned.

Conditional conservatism considers specific conditions that trigger applying conservative accounting practices. Unconditional conservatism applies across all situations and is often considered susceptible to representing earnings management. Heltzer finds that large *positive* BT differences are indicative of conditional and unconditional conservatism in tax reports but do not relate to conservatism in financial statements. However, large *negative* BT differences relate to conservatism in both book and taxable incomes.

Frank *et al.* [102] report that BT differences are related to the size of discretionary accruals positively. Kim & Li [104] focus on BT differences and discretionary accruals of multinational corporations that have either headquarters or subsidiaries registered in off-shore jurisdictions. They use BT differences and discretionary accruals as the predictor variables of tax sheltering policies and confirm that the predicted probability of engagement in off-shore operations positively relates to firms' actual engagement in off-shore activities. The findings of Kim and Li are in line with [110], who show that off-shore firms' financial reporting quality is lower than that of firms that do not have operations in off-shore jurisdictions. [49, p. 988] confirm that discretionary accruals and the tax avoidance status of firms have a positive relation.

Several studies underscore that the relations between BT differences and financial reporting aggressiveness are defined by specific contexts characteristics. [105] draw attention to the role of legal institutions at a country level in defining the link between tax avoidance and book reporting quality using the 39 countries' data. Results in [111, p. 760] demonstrate that large BT differences are inversely related to the probability of manipulative accounting practices employed in the U.S., a country with high level of institutional development. Nevertheless, high BT differences and discretionary accruals are simultaneously observed in the contexts with low corporate governance. For instance, in small and medium enterprises in Spain when managers' incentives are tied to the results reported in financial statements [106], in Korea [107], Indonesia [108], large BT differences are positively related with earnings management. Results in [112] demonstrate that managers' remuneration tied to share prices is positively related to tax avoidance, but the coefficient on the component of BT differences explained by discretionary accruals, is negative.

To summarize, most of the studies indicate that earnings management and tax reporting aggressiveness are positively related. Companies with large BT differences are ore likely to participate in earnings management. Earning management deteriorates the problem of information asymmetry. Therefore, BT differences associated with earnings management evidence on aggravation of information asymmetry of firms.

Methodological Issues Related to the Concept of Firm Performance

Firm performance is rather a complex concept in management literature. [113] have identified 239 theories explaining firm performance from difference angles. They combine them into several meta-theoretical constructs at the individual and company levels. At the firm level, the concept of firm performance is defined as a system of three meta-theoretical constructs: capacity, structure, and transactions. This dissertation grounds on the theories grouped under the meta-theoretical construct of 'transactions'. The economic meaning of performance determines firm performance as a firm's capability to manage limited resources efficiently to maximize the wealth of shareholders. Companies develop strategies to create competitive advantage that allows them to maximize the created value. Firm performance is reflected in the ability of managers to maximize profits for enhancement of wealth of investors and numerous stakeholders.

Many researchers commented on problems in conceptual definition and measurement associated with firm performance. Miller *et al.* [114] assert that firm performance "continues to be a difficult concept to apply in a scientifically rigorous way". They highlight the problems with firm performance conceptualization observed in management studies. They criticize the approach whereby firm performance is treated in abstract terms in theory development but is measured with specific variables in the empirical part of the same studies. Miller *et al.* underscore consistency in treating firm performance in the theoretical and empirical parts of their studies. The general guidance provided is to follow the separate construct approach both when building and testing a theory.

There are three main approaches to measuring corporate financial performance: market-based, accounting-based indicators, and perception-based performance measurement. The latter is mainly used in the survey research and represents respondents' perceptions of performance. Market based and book indicators of firm performance are considered to be less subjective in measurement.

From the point of view of classic theory of finance defined by Irwin Fisher, fair price of a company is defined by the market value of its assets. The assets' market value is determined by their future cash generating ability. To evaluate a fair value of an asset, the future cash flows are discounted by the required rate of return, which, in turn, is subject to investors' risk levels. Market price of shares reflects the company's ability to efficiently manage resources for creating economic value.

The application of the value-based indicators of performance is grounded in efficient markets theory, according to which markets incorporate publicly available information on firms in stock prices. Market prices are formed in the trades in the stock markets and it is assumed by all information is publicly available and is reflected in market prices of shares. The efficient capital markets hypothesis implies that all information is publicly available, and the accounting information is irrelevant to firm

value. Accounting information refers to past data and should already be incorporated into the stock price by the time of its publishing. Barth *et al.* [115] outline the discussion on the importance of accounting data for stock valuation. Beaver [116] examines the association between accounting data and security price and concludes that investors refer to accounting data when pricing stocks. The pioneering work of Ball and Brown [117, p. 169]shows that abnormal returns have a significant relation to errors in earnings forecasts and the way firms choose to present earnings. Positive accounting theory [118] underscores the importance of accounting information for informed decision making and serves as a justification for including book performance indicators.

This dissertation is built on the informational component of firm performance. We view firm performance as companies' ability to create economic value. Taking into consideration the difficulties in measuring firm performance, both market and book indicators of firm performance are considered.

Dividend policy as a factor affecting information asymmetry

Dividends are payments to shareholders that represent a distribution of a portion of a firm's income to owners. Dividends and capital gain from the share price change are two parts of the total return on shareholders' investments in a firm. Portions of the income remaining with a firm as retained earnings are reinvested into the firm's operations. According to IAS 32 *Financial Instruments: Presentation,* dividend payments that relate to outlays to equity instruments holders are considered as distribution of net income. Companies disclose the information on the beginning and ending balances and changes on the dividend accounts. Declaring dividends leads to the emergence of liabilities on paying dividends from the net income or directly from owners' equity. As a result, dividends are accrued based on the profits of previous periods, but the liabilities on their payments appear in the period when the decision of dividend payments was taken and declared, according to IAS 10 *Events After the Reporting Period.* In case if the tax rates on dividends and taxable corporate income differ, a company must recognize the corresponding tax assets or tax liabilities for the tax rates differences, according to IAS 12 *Income Tax*.

Payment of dividends is reflected in cash flows statements. IAS 7 *Cash Flow Statement* provides a certain flexibility in treating dividend payments as cash outflow from financing or operating activities. To reflect the economic meaning, dividend payments are recognized as a financing activity's cash outflow when they represent the payments to companies' owners, who provide the company with sources of financing. However, IAS 7 allows recognition of dividend payments as cash flows from operating activities to reflect a company's ability to handle dividend payments out of operating cash flows. It is possible in cases of hybrid securities that contain both the components of debt and equity.

Several theories attempt to describe why firms pay dividends and how dividends affect firm value and the debate on the dividend puzzle is still ongoing. As Baker & Weigand [119, p. 140] note, "all of the pieces of this [dividend] puzzle still do not fit into a coherent whole". The ongoing debate around dividend policy produced a high volume of studies summarized in several literature overviews. The most recent ones are [119], [120], [121], [122].

The review of Bhattacharyya [120] pinpoints the major theories that explain why firms pay dividends. The theories in this review are grouped into (1) dividend irrelevance and tax clientele, (2) informational asymmetry and signaling, (3) free cash flow hypothesis and agency theory. Baker & Weigand overview the published literature surveys on dividend policy, give their assessment of the major theories used for explaining dividend policy and provide a major framework for analysis based on market imperfections: information asymmetry, taxes, agency costs, and behavioral issues. They conclude that "among the three big imperfections, agency costs and (signaling) explanations appear to have more convincing empirical support than the tax preference explanation" [119, p. 137], but admit that behavioral considerations, life-cycle, and catering theories provide mixed results and provide useful insights.

Booth & Zhou [121] attribute the findings on the influence of taxation on dividend payment to the specifics of the context of the studies, both geographically and timewise. Their review pays special attention to the information asymmetry literature of dividends. Al Najjar *et al.* [122, p. 205] mainly follow the framework of Baker & Weigand around market imperfections and contribute by summarizing the studies on dividend policies in emerging markets. They point out that the ownership structure, law enforcement, and corporate governance in emerging markets are different from those observed in developed markets and support the earlier conclusions of the context-specific nature of factors influencing firms' dividend policies.

Many theories consider dividends and the market value of shares positively related. According to Gordon's [123] valuation model, dividends are a stream of cash flows to shareholders and therefore contribute to higher stock prices. Dividend increases reflect permanent changes in cash flows and market responses are favorable to announcements of dividend increases [124], [125]. Dividend reductions lead to significant declines in stock returns [126], [127]. As a result, managers are hesitant to reduce dividend payments, foreseeing the possible negative market reaction [128]. Sustaining dividend payout at a certain predetermined level is an example of companies' readiness to take certain liabilities on obligations on disbursements to shareholders. Since such an obligation is long-term in nature, paying dividends sends signals to investors about the company's confidence in its ability to generate sufficient cash flows.

In this study, dividend policy is considered a source of information for investors. Since a reduction in dividend payments is perceived very negatively by the markets, it is assumed that companies increase dividend payments to mitigate investor risks associated with information asymmetry. By paying dividends and increasing their amounts, companies demonstrate confidence in their ability to generate stable cash flows for investors in the future. This has a corresponding positive effect on the valuation of companies.

IFRS as a factor affecting information asymmetry

Bringing transparency, accountability, and efficiency to capital markets in the global economy is a major goal of IFRS adoption and is a stated mission of the IFRS Foundation[8]. It is assumed that transparency is achieved through the additional information in financial reporting. High transparency and standardization of financial reporting make efficient comparison of firms from different countries possible [129]. It leads to better-quality investments, which are based on thorough analysis of financial information. Bergh *et al*. [130] underscores transparency as a major means of decreasing information asymmetry. Adopting IFRS before it becomes mandatory is an example of firms' attempt to diminish information asymmetry by disclosing additional information. Firms demonstrate their interest in a contract that ensures the information exchange between the firm and the users of financial information. [131] emphasize the importance of IFRS adoption for the development of capital markets.

Nevertheless, the question of the role of IFRS in ensuring the quality of financial information is still open. [132] demonstrate that the quality of financial information and the levels of information asymmetry differ before and after mandatory IFRS adoption. [133] contend that the adoption of IFRS enhances the quality of financial reporting and diminishes the levels of information asymmetry. However, [134] reveal that IFRS adoption in China has led to diminishing accuracy of analysts' forecasts on firms' performance. IFRS adoption by Russian firms did not impact the value relevance of earnings [135]. Tang [136] investigates the influence of IFRS adoption on the nexus between BT conformity and firm value and does not produce any evidence in support of the relation.

In general, IFRS is an international institution that enables a certain quality of financial information. The standards developed and set by the IFRS Council are recognized by the regulatory authorities in most countries. The IFRS Council ensures a continuous process of improving the standards in response to changes in the economic environment and the requirements of society. IFRS represents a stable

[8] https://www.ifrs.org/about-us/who-we-are/

and predictable paradigm that improves investment activity. The principles promoted by the IFRS follow the ethical norms and the principles of integrity in business.

1.3 Theoretical concepts and methodological rationale development

Book-Tax Differences and Firm Performance Indicators

The presented study grounds on two major theories reviewed in the section 1.1: stakeholder theory and agency theory. According to stakeholder theory [26], managers can positively affect firm performance by balancing the interests of multiple stakeholders. In this regard, managers' ability to rationally coordinate the diverted interests of stakeholders becomes a key skill in enhancing the economic efficiency of firms. Regarding the tax policy of firms, the interests of shareholders may divert from those of other stakeholders, such as the state and the general public.

According to agency theory, the conflicting interests of managers and shareholders may result in managers prioritizing their welfare over the goal of shareholders' wealth maximization [137]. Shareholders are interested in tax optimization since paying taxes contracts the cash flows available for the company's growth and diminishes returns to shareholders. However, if tax avoidance schemes are revealed, the managers' job security may be threatened. Nevertheless, an opportunistic manager, who strives to redirect the firm's resources, has to trade off transparency to conceal the tax avoidance. Shareholders may accept a certain degree of transparency reduction in exchange for the benefits from tax avoidance, to ensure that tax avoidance is more difficult to reveal. As a result, acting in their own interest managers may exploit tax avoidance without raising the concerns of shareholders. The acceptance of lower transparency by shareholders in exchange for tax avoidance incepts the problems with deterioration of monitoring with the consequent problems in firm efficiency.

Previous studies explored the connection between tax avoidance and the opportunistic behavior of managers. For instance, [138] demonstrate that tax-avoiding practices require more complicated organizational structures, which potentially decrease the efficiency of tax administration by the states. [139] report that tax avoidance relates to empire building, an example of managerial opportunism. [140] provide evidence of wealth-destroying acquisitions by tax-avoiding firms. They argue that managerial opportunism in firms announcing wealth-destroying acquisitions is a primary cause of tax avoidance.

[141] find that the relation between tax avoidance and the investment efficiency of firms is conditional on managerial ability and corporate governance. Managers' choice of the levels of tax avoidance is affected by corporate governance quality and efficiency of monitoring. For instance, [142] report that tax avoidance of firms from countries with poor corporate governance and weak investor protection

declined after the cross-listing in the U.S., suggesting that a stronger institutional environment mitigates tax avoidance. [53, p. 2] show that corporate governance mechanisms relate to tax avoidance significantly at the high levels of tax avoidance and have no significant connection at the low tax avoidance levels. Kovermann & Velte [3, p. 19] explain the non-monotonic relation between corporate governance and tax avoidance by the relative power of different stakeholders that defines the benefits and costs of tax avoidance.

Agency theory prescribes that corporate governance affects firm performance. [143] report a positive association between corporate governance level and firm performance measured by the accounting return on equity for the sample of firms in the U.K. in the post-COVID-2019 and post-Brexit periods. [144] conclude that the sensitivity of executives' compensation to firm performance is stronger in firms with institutional shareholders present in boards of directors, suggesting that institutional directors in BODs restrict managers' opportunism. [145] find that firms with lower values of the corporate governance composite index (G-Index) have lower firm market value levels, as well as other performance indicators, such as profitability and sales growth. Several studies point out that different governance mechanisms have differential associations with firm performance indicators. [146] highlight the multi-dimensionality of the G-index and report a negative association of some governance dimensions to firm value for U.S. firms. They report that while board independence is related positively, executive compensation, CEO duality, number of committee meetings relate negatively to ROA. Overall, better-governed firms are expected to show enhanced levels of performance indicators.

To summarize, managers' choice of tax avoidance level is predicated upon the monitoring enabled by corporate governance mechanisms. Corporate governance limits managerial opportunism. Conversely, tax avoidance has a relation to corporate governance and is shown to be connected to managerial rent extraction. We hypothesize that BT differences, which serve as the measure of both tax avoidance and earnings management [100, pp. 103–104], affect financial performance negatively, especially in low governance environments like those observed in Kazakhstan. An inverse association between BT differences and financial performance indicators is predicted in Hypothesis 1 as follows:

Hypothesis 1. There is an inverse association between BT differences and accounting performance indicators of firms listed on the Kazakhstan Stock Exchange.

Book-tax differences associated with earnings management and firm performance indicators (hypothesis 2)

Both tax avoidance and earnings management involve information asymmetry, which facilitates the opportunistic behavior of managers. [147] demonstrate that the positive association between tax avoidance and the inefficiency of firms' investments is moderated by the readability and comparability of financial statements. [148] provide examples demonstrating that concealing tax avoidance activities requires manipulations with financial reporting. They argue that the need to conceal tax avoidance inevitably leads to earnings management. For this reason, firms with affiliates in off-shore countries exhibit diminished financial reporting quality [110, p. 686]. The review of the literature on income tax in accounting [149] discusses the presence of accounting choices of managers on income tax reporting.

[97, p. 86] show that BT differences are suggestive of the probability of the financial reporting restatements of the income tax expense in their first stage of the two-step regression analysis. However, not all studies confirm it. For instance, [111] explore the extreme cases of financial reporting aggressiveness that result in the revealed cases of accounting fraud and investigate them in connection with BT differences. They compare ETRs and BT differences between the sub-samples with and without the reported accounting fraud. The reported evidence shows that firms with larger sizes of BT differences have a smaller likelihood of being associated with accounting fraud. Most likely, firms engaged in accounting fraud diminish their risks of tax audits from tax authorities.

An attempt to extract BT differences associated with earnings management is performed by Tang & Firth in [150], with BT differences divided into 'normal' and 'abnormal'. Normal BT differences result from the differential treatment of revenues and expenses in tax and book reporting, while abnormal BT differences appear as a result of earnings manipulations and tax avoidance. To measure 'normal' BT differences, the authors regress total BT differences on the sales growth, gross PPE and intangible assets not related to goodwill, and net operating losses. The predicted by the regression values of BT differences are defined as normal BT differences and the error terms from the regression represent abnormal BT differences. In the empirical part, Tang and Firth show that abnormal BT differences are related to incentives that stimulate manipulations with financial statements, while normal BT differences are not.

[151] corroborate that tax avoidance has a positive association with earnings management in the absence of robust corporate governance mechanisms. On the other hand, accounting discretion has a significant association with weak governance [152]. We suppose that tax avoidance associated with earnings management reflects weak corporate governance and a probability of managerial opportunism. Therefore, the portion of BT differences attributable to earnings management is expected to have an adverse impact on firm performance. Conversely, tax avoidance not related to earnings management may have a differential impact on firm performance,

depending on whether the advantages from additional cash retained within a firm are effectively utilized. The next hypothesis is formulated as follows:

Hypothesis 2. The parts of BT differences associated and not associated with discretionary accruals have different relation to firm performance measures.

Book-tax differences and firm market value

Managers' choices to pursue tax avoidance practices are determined by weighing the potential benefits and costs for themselves [33, p. 392] and for their firms [153]. Managers' performance is often assessed by the after-tax performance of the firms and cutting the reported tax expenses may affect the managers' remuneration. The released cash resulting from tax optimization can be invested in positive-NPV projects could enhance the firm value. However, if the tax avoidance measures are not supported by tax authorities, penalties may lead to substantial costs [47, p. 343], [154], increasing risk levels and potentially reducing the firm value. Therefore, it is paramount to understand what shapes the size of BT differences and the relation between BT differences and firm market value.

The present study builds on the concept of information asymmetry in predicting that higher values of BT differences are associated with lower firm market values. Tax avoidance requires concealing the information from tax authorities. [155] affirm that tax avoidance makes financial reporting less transparent and increases the costs related to the processing and analysis of information. It is shown that firms use tax accounts, such as deferred tax assets and tax liabilities, for earnings management [95, p. 579], [156]. The probability of a firm's involvement in tax evasion schemes increases with greater financial reporting aggressiveness and a larger size of BT differences [157].

Information asymmetry opens the possibility for managers to distort accounting and tax reports since external investors may be unaware of the manipulations. Companies that engage in more aggressive earnings management get involved in more aggressive tax avoidance [11, p. 43], [61]. A higher risk of firms with large BT differences is reflected in higher charges by audit companies [158], [159].

BT differences turn out to be a source of uncertainty and risk for investors, thereby negatively affecting investors' assessments. For instance, analysts' forecasts on the performance of firms with large BT differences are more divert as compared to firms with small BT differences [160]. Similarly, firms with fewer analysts following engage in more aggressive tax avoidance [161]. Bradshaw *et al.* [59] confirm the previous conclusion and show that analyst following negatively relates to the ETR standard deviation, the proxy of tax risk. The risk associated with tax avoidance

makes firms less attractive to analysts to follow. Chi *et al.* [10, p. 540] conclude that investors ignore the complicated tax-related information, which explains the reported mispricing of BT differences.

Information asymmetry observed in increasing BT differences implies higher levels of risk to investors. [162] suggest that the reversibility of temporary cuts in tax expenses is a source of future cash flow fluctuations that enhance the risk to investors. Investors require a larger risk premium when investing in firms with higher levels of uncertainty. [163] provide evidence that rating agencies consider the information in BT differences when estimating firms' credit risk and report a higher probability of downgrading for firms with significant BT differences. Investors charge higher rates and apply larger spreads on the debt of firms with larger BT differences, as compared to their counterparts with smaller BT differences [164]. Banks charge higher interest, require collaterals on loans, and issue loans with shorter maturities to firms with larger BT differences, as compared to firms with small BT differences [165]. Large values of positive or negative BT differences are observed together with high loan loss provisions in Taiwanese banks [166]. Furthermore, BT differences are linked to greater levels of business risk [165, p. 469]. Abnormal fluctuations in BT differences are observed simultaneously with a heightened risk of bankruptcy and prove to be useful for predicting financial distress [167]. [168] report a positive impact of tax avoidance on stock price crash risk.

In summary, BT differences indicate the presence of information asymmetry between insiders and outsiders of firms. Investors face uncertainty about the return on their investments and require higher risk premiums [169], [170]. The increased costs of financing in firms with high levels of BT differences result in a decline in firm value. The analysis of prior literature leads to the formulation of the following hypothesis:

Hypothesis 3. ***The size of book-tax differences is inversely related to firm market value.***

Determinants of the relation between book-tax differences and firm market value: the moderating role of dividend payout

Various mechanisms could influence how dividends affect the relation between BT differences and firm market value. Previous studies show that firms' dividend policy conveys information on the future performance of firms. The ***information asymmetry theory*** of dividends [120, p. 530], [171], [172] explains the role of dividends in shaping the informational landscape of a firm. The theory suggests that announcing private information on firms' future performance can be costly. If a public announcement is not supported by the firm's subsequent performance, the outcomes for the firm and its managers are negative. To secure

their positions, managers choose less costly channels of transmitting private knowledge about their firms, one of which is dividends.

The announcements about the beginning and omission of dividends are associated with changes in future earnings [173]. Reducing dividends indicates restructuring efforts and might lead to a favorable effect on stock prices [174]. The subsequent changes are of a long-term nature, as reported in [175]. By smoothing dividends, companies convey signals on the ability of firms to generate stable cash flows [176], [177]. According to the 'compliment' hypothesis of dividends [350], dividends strengthen the information signals sent to investors via alternative communication means. Baker & Weigand [119, p. 137] conclude that "signaling explanations appear to have more convincing empirical support than the tax preference explanation". It is reported that dividend-paying firms tend to have a higher-quality informational environment, as they are less likely to engage in aggressive earnings management practices [178]. Additionally, companies with larger dividend payouts are reported to experience lower insider returns compared to those with smaller dividend payouts [179].

Dividends are particularly effective in conveying signals, especially when the information asymmetry is high [180], [181], [182]. Multinational corporations apply dividends to signal information from emerging and developed markets, associated with greater information asymmetry [183], [184], [185]. [186] describe the cases of dividend hikes by multinational companies when the economic policy uncertainty index increased in 2012. The cases described in [187] demonstrate that Russian public firms strengthened the signals of their firms' strong financial positions by increasing dividends, after the major economies imposed the sanctions against the citizens and companies in Russia in 2014, following the conflict between Russia and Ukraine. The international evidence from 31 countries demonstrates a U-shaped relation between the quality of the information in disclosures to financial statements and dividend payout [188]. Firms distribute high dividends to build a strong reputation when the disclosure level is low and distribute excess cash when the disclosure level is high.

Aside from their informational role, the positive impact of dividends on a company's market value may be explained by an increase in companies' efficiency. Dividends discipline managers [189], [190]. According to the 'free cash flows hypothesis, dividend payments decrease the free cash flows, leaving less cash for inefficient investments, thereby disciplining managers. Furthermore, dividend payouts are associated with a higher level of investors' interest protection and with a lower risk for minority shareholders, according to the 'outcome' hypothesis [19, p. 5], [191], [192], [193].

Nevertheless, the impact of dividends on the market value of firms is not as straightforward. It is suggested that dividends may be a less costly alternative for

building corporate governance mechanisms, the 'substitution' hypothesis [19, p. 7], [194], [195]. Building robust corporate governance is a non-trivial task and involves high costs, while dividends may compensate for inefficient governance. The studies in China observe that majority shareholders in China use cash dividends to divert cash to shareholders, despite the harmful effect on the firms' ability to invest in productive projects [196]. The evidence of tunneling dividends was obtained in weakly governed firms in the U.S. [197], as well as in the MNCS of 51 countries [198]. Tunneling dividends are negatively valued by capital markets [199].

To summarize, agency theory sheds light on how dividend policy leads to the diminishing information asymmetry. The 'outcome', 'compliment', and 'substitution' hypotheses of dividends address various agency issues to provide insight into why firms pay dividends. However, they all converge in their conclusions that dividends help to mitigate the agency problems between different parties. Firms opt to distribute cash dividends as a facility to reduce agency costs and address the asymmetry in information availability to firm insiders and outside investors. On the other hand, greater BT differences are suggestive of higher levels of information asymmetry, which, in turn, negatively affects firm value. Thus, the negative impact of information asymmetry indicated by high BT differences may be diminished when firms pay dividends. Given the aforementioned rationale, the second hypothesis is stated as follows:

Hypothesis 4. ***Dividend policy mitigates the inverse association between the size of BT differences and firm market value***

Determinants of the relation between book-tax differences and firm market value: role of IFRS

Since information asymmetry plays a key role in determining the relation between BT differences and firm market value, the standards followed by firms when preparing financial reporting are important. [200] summarize the descriptions of the reasons outlined in the financial reports. They conclude that firms refer to the major accounting principles when explaining why they chose to adopt IFRS, which are relevance, comparability, understandability, and faithful presentation of financial information.

We contend that information asymmetry may reduce after IFRS adoption due to the recommendations of higher disclosure. For instance, IAS 12 prescribes certain disclosures on income tax and tax-related assets and liabilities. [201] demonstrate that IFRS promotes transparent and systematic disclosures and these disclosures enable investors to distinguish firms with aggressive tax policies from those which follow legitimate tax planning policies. [135] find that the adoption of IFRS enhances earnings quality and reduces the extent of asymmetric information. Disclosure of

tax-related information is of paramount importance to investors due to its complexity and variability of tax rules across countries.

An addition to increased transparency, IFRS enables a better comparability of financial information across different jurisdictions and markets. [202] report that accounting data become more useful for comparing firms' performance in the post-mandatory IFRS adoption and explain it by higher information quality provided by IFRS-compliant reports. [203] show that an increase in accounting comparability prevents managers from engagement with tax avoidance activities. [204] explore the direction of the relation between tax avoidance and accounting comparability and report that tax avoidance decreases accounting comparability. We consider IFRS as a driver of improvement of information quality in financial reports that may potentially reveal tax avoidance, its relation to earnings management for investors. Comparing the tax-related information enables investors to make informative decisions. Since tax avoidance involves earnings management, the inverse relation between BT differences and firm value is significant in the post-IFRS period.

Several studies emphasize the importance of the context in determining the impact of IFRS of financial reporting quality. [205] show that the effect of mandatory IFRS adoption is more pronounced in countries with strict enforcement regimes and jurisdictions where the national accounting standards have a wider difference from the IFRS. [206] report that voluntary IFRS adoption by Russian firms during 2009-2011 enhances value relevance. Therefore, it is hypothesized that mandatory IFRS adoption in Russia has a positive impact on firms' market value. Financial reporting becomes more meaningful and the relation between many indicators, including those related to tax expense, becomes more understandable is reflected in firms' market values.

Based on the above, it is suggested that the value of the information in financial reporting before IFRS must be lower than that in the post-IFRS period. Therefore, the next hypothesis is:

Hypothesis 5. ***The relation between BT differences and firm value, as well as the positive moderating role of dividends on this relation, is significant in the post-IFRS period***

Theoretical models development and justification of the methodology

The following model is used for testing hypotheses 1 and 2:

$$Perform_{i,t} = \beta_0 + \beta_1 btd_total_{i,t} + \sum \beta_n controls_{n,i,t} + \sum \gamma_j Year\ Fixed\ Effects + \varepsilon_{i,t} \quad (1)$$

where *Perform* — is one of the four proxies of firm performance, *btd_total* is BT difference or its components, *control* is control variables and $\varepsilon_{,t}$ is the standard error estimated for firm *i* in period *t.* To reveal whether tax avoidance component leads the relation, *btd_total* is further substituted with alternative measures of tax avoidance as the main explanatory variables. Statistically significant coefficients on such measures would suggest that the tax avoidance component is significant in explaining the relation between the size of BT differences and the performance indicators. Statistically insignificant coefficients would suggest no evidence of the impact of the tax avoidance component of BT differences on the performance indicators.

To test Hypothesis 4, the same model (1) is applied, but instead of *btd_total*, the explanatory variable is either *btd_dacc* or *btd_error*. *btd_hat* and *btd_error* represent the components of BT differences related and not related to earnings management, respectively.

To test hypothesis 3 on the relation between firm market value and BT differences, the following model is applied:

$$Firm_Value_{i,t} = \beta_0 + \beta_1 btd_total_{i,t} + \beta_2 divpayout_{i,t} + \sum \beta_n controls_{n,i,t}\ \beta_n + \sum \gamma_j Year\ Fixed\ Effects + \sum \varphi_j Industry\ Fixed\ Effects + \varepsilon_{i,t} \quad (2)$$

Similar to the regression (1), model (2) above denotes a firm with the index *i*, and *t* denotes the year. *Firm_Value* is the market value of a firm and *controls* are the control variables defined below, $\boldsymbol{\varepsilon}$ is the error term of the regression. It is expected that $\beta 1$ is significant and negative in both models.

Hypothesis 4 predicts a mitigating role of dividends in the relation between *btd_total* and *Firm_Value*. This hypothesis is tested using the following model:

$$Firm_Value_{i,t} = \beta_0 + \beta_1 btd_total_{i,t} + \beta_2 dividend_{i,t} + \beta_3 btd_total * dividend_{i,t} + \sum \beta_n controls_{n,i,t} + \sum \gamma_j Year\ Fixed\ Effects + \sum \varphi_j Industry\ Fixed\ Effects + \varepsilon_{i,t} \quad (3)$$

In the above model (3), *dividend* is represented by one of the variables *divpayout*, *divdummy* or *div_5*. The interaction variable *btd_total*dividend* is a multiple of *btd_total* with each of the proxies of dividend policy. It is expected that the coefficient $\beta 3$ is significant and positive if dividend payout softens the negative relation between *btd_total* and *Firm_value.* The control variables are the same as in model (2) and are justified below. $\boldsymbol{\varepsilon_{i,t}}$ is the error term. To address the effect of outliers,

the winsorization of all continuous variables is performed at 1% and 99%. Similar to model (2) and as justified below, model (3) contains the industry and year fixed effects.

Hypothesis 5 on the role of IFRS in determining the significance of the relation between BT differences and firm value is tested using a modification of model (2). First, we test whether IFRS adoption has an impact on firm value by introducing the indicative variable *IFRS*. *IFRS* equals one for the observations after 2011 and zero for the observations before 2012. A statistically significant coefficient before *IFRS* will indicate that IFRS adoption has an impact on firms' market values. Models (2) and (3) are tested separately on the subsamples that include only the observations in the pre- and post-IFRS period. The impact of IFRS in determining the moderating role of dividend payout is tested in a similar vein in the two subsamples.

Variables definition: dependent variables

The choice of accounting firm performance indicators is justified for the following reasons. We rely on previous studies' results that show that investors use accounting information when making investment decisions. [207] argue that analyst forecasts are relevant for firm valuation. [117] show that firm performance indicators based on the book values relate to the returns on shares, a widely used market value-based performance indicator. The real options model prescribes using book value data when evaluating investment decisions of firms. [208] show that such decisions are related to the required returns on shares. Book value data are especially useful for the valuation of firms and their assets in contexts with low capital market development levels [209].

Many researchers apply both market and book indicators of firm performance. For instance, [210] use the market-value-based Tobin's Q and the book return on assets (ROA) as the indicators of performance. [211] employ book indicators of firm performance in line with the total return on shares and price-to-earnings ratio in their study of the nexus between the levels of institutional ownership and firm performance. [212] use book (ROA) and market indicators of return on shares as the measure of firm efficiency in their study of corporate governance The importance of various book indicators of firm performance is investigated in [209, pp. 775–778]. It is concluded that the significance of various measures of performance must be related to the research questions and must be justified by attributes important for investors.

The present dissertation contains two empirical studies. The first one focuses on book indicators of firm performance and employs the context of firms in Kazakhstan. A relatively small number of observations with market value data in Kazakhstan imposes certain limitations on employing market value-based indicators. The second study focuses on the capital market of Russia, with more data available due to higher market liquidity observed within the studied period.

The variables used in the presented studies are summarized in Table 3.

Table 3. Summary of the variables used in the empirical studies

Variable label	Formulae and definitions	Used in study 1 or 2*
Book-value performance indicators:		
CFO_lasset	The coefficient of cash flows from operations to the beginning-of-period total assets	1
CFO_linvcap	The coefficient of cash flows from operations to the beginning-of-period invested capital. Invested capital is defined as the sum of the book value of total equity, debt, and minority capital	1
EBITDA_lasset	The coefficient of EBITDA (earnings before interest, tax, depreciation, and amortization) to the beginning-of-period total assets	1
EBITDA_linvcap	The coefficient of EBITDA to the beginning-of-period invested capital	1
Market-value performance indicators:		
tobin	Tobin's Q calculated as the sum of the book value of total assets, market capitalization less the book value of equity, all divided by the book value of equity	2
tobin_ind	The difference between *tobin* and the median value of *tobin* across a given industry in a given year	2
Main explanatory variables:		
btd_total	(Earnings before taxes – corporate income tax expense)/average book value of assets	1, 2
divpayout	Dividend payout = cash dividends / net income	2
divdummy	The indicator variable is equal to one if a company pays cash dividends and zero otherwise	2
div_5	The quintile rank of dividend payout, defined for each industry in a given year	2
Control variables:		
Big4	The indicator variable is equal to one if a company the external auditor is one of the Big Four audit firms and zero otherwise	1, 2
lnsize	The natural logarithm of the book value of total assets	1.2
booklev	The ratio of the book value of total debt to the book value of equity	1.2
sales_growth	Annual sales growth	1.2

Table 3 - continued

roa	Return on assets is calculated as the net income divided by the average book value of total assets	1.2
asset_turn	The ratio of the sales revenue over the average book value of total assets	2
lnage	The natural logarithm of a firm's age plus one. A firm's age is the number of years since the registration with the state. The data is taken from https://opi.dfo.kz/ for firms in Kazakhstan and from www.e-disclosure.ru for firms in the Russian Federation	1, 2
IFRS	The indicator variable is applied in the analysis of firms in the Russian Federation. It is equal to one if the year is after 2011 and zero otherwise	2
daccrual	Discretionary accruals are defined as the error terms in the regression model following Jones [70, p. 211]	1, 2
btd_dacc	BT differences related to earnings management. It is defined as the predicted by regressing the total BT differences on discretionary accruals	1, 2
btd_error	The standard errors, obtained by regressing the total BT differences on discretionary accruals, represent the component of BT differences not related to discretionary accruals	1, 2

*Study 1 is the study on firms in Kazakhstan, study 2 is the study on firms in the Russian Federation.

The study of firms in Kazakhstan employs four *accounting indicators of firm performance*. Since both cash flows and book earnings are important in defining firm performance, we use two cash flow-based indicators (*CFO_lasset* and *CFO_linvcap*) and two book earnings-based ratios *(EBIT_lasset* and *EBITDA_linvcap*). The cash flow-based indicators are included in the analysis and are the preferred choice since cash flows are more difficult to manipulate than earnings-based indicators [213]. For instance, [214] report that operating cash flows have higher value relevance during periods of financial difficulties. Nevertheless, accounting earnings are also widely used by investors for company valuation and are shown in [215] to be effective for predicting stock returns.

CFO_lasset is the ratio of operating cash flows divided by the beginning-of-period total assets, following [216]. *CFO_linvcap* is the cash flow from operating activities over the beginning-of-period invested capital. Invested capital is

defined as the sum of total equity, total debt, and the value invested by minority shareholders. *EBITDA_lasset* is the ratio of earnings before interest, tax, depreciation, and amortization (EBITDA) to the beginning-of-period total assets, as in [217]. *EBITDA_linvcap* is EBITDA divided by the invested capital at the beginning of the period.

The choice of the denominators in the above ratios is justified by viewing firm performance from the point of view of multiple stakeholders, not limiting them to shareholders. The direction of cash among stakeholders may be defined by the differences in the relative power of the stakeholders, in particular, majority and minority shareholders, debtholders, and the state. For instance, public firms in Kazakhstan rely on loans as an important source of financing due to the low development of the stock market [218]. The exclusion of debt financing from the denominator of firm performance indicators could bias their measurement. Therefore, we use the indicators that measure firm performance from the point of view of all stakeholders and do not employ the return on equity.

Market value-based firm performance, *Firm_Value*, is proxied by two measurements, *tobin* and *tobin_ind*. The first measure, *tobin*, developed by [219], is defined as the ratio of the market value of equity and debt divided by the replacement value of total assets. Tobin's Q is a widely used measure of firm value in accounting literature. The advantage of Tobin's Q above accounting measures of firm performance is its forward-looking nature. The market value in the nominator of Tobin's Q reflects the future cash flows of a firm as opposed to the accounting performance measures, which are based on historical cost. Tobin's Q is valid for between-firm comparison without the need to adjust for risk, as is the case when firm performance is measured using stock price and stock returns. [220] demonstrates the positive association between Tobin's Q and the competitive advantages of firms. The major criticism of Tobin's Q relates to the approximation of the replacement cost of a firm's assets to its book value of total assets since the accounting treatment of total assets does not reflect the value of intangibles, whereas intangibles determine a firm's ability to sustain its competitive advantage. Nevertheless, [221] uses Tobin's Q as one of the measures of intangibility and shows that it positively moderates the earnings persistence coefficient, used as a proxy of a firm's sustainability of competitive advantage. Several researchers point out that the difference between the market and book value of firms' assets is an indication of investments in intangibles [222], [223].

The present study follows the measurement approach applied in [224], where Tobin's Q is calculated as follows:

$$tobin = \frac{market\ capitalization + total\ assets - book\ value\ of\ equity}{book\ value\ of\ assets} \quad (4)$$

The second measure of Tobin's Q is the industry-adjusted Tobin's Q used to address the industry effect. *tobin_ind* is measured following [219, p. 1250], [225]. The first step is to gauge the industry-year median value of Tobin's Q. Then *tobin_ind* is calculated in the second step as a deviation of the value from the defined in the first step industry-year median.

Main explanatory variables

The main explanatory variable is the total BT differences denoted *btd_total.* It is calculated using the approach of [226] as follows:

$$btd_total = \frac{earnings\ before\ tax - \frac{tax\ expense}{statutory\ tax\ rate}}{average\ total\ assets} \quad (5)$$

The statutory tax rates for each year are taken from the data provided by Tax Foundation[9], the non-commercial organization that provides data and research on tax policies of different countries. The statutory corporate income tax in Kazakhstan used for calculating *btd_total*, was 30% from 2005 until 2008 and was cut down to 20% starting from 2009, the year of the new Tax Code introduction. The federal income tax rate in the Russian Federation was 35% in 2000-2001 and was first decreased to 24% in 2002 and then to 20% starting from 2009. Since 2009, the tax rates in the two countries were equal, as seen in figure 5:



Note: Prepared by the author based on the data in https://taxfoundation.org.

Figure 5 – Changes in the corporate income tax in Kazakhstan and Russian since 2000

[9] https://taxfoundation.org

Since BT differences appear as a result of both tax avoidance and earnings management, two alternative measures of tax avoidance are employed in the analysis when testing hypothesis 1: *btd_total* (*ETR*) and *desai*. In case if the relation between BT differences and firm performance indicators is explained by tax avoidance, then the coefficients on *ETR* and *desai* will be statistically significant. Insignificant coefficients on *ETR* and *desai* would indicate that the negative relation between *btd_total* and firm performance is more likely to be determined not by tax avoidance but by earnings management and the resulting deterioration of financial reporting quality.

ETR is defined as the ratio of the reported tax expense over the earnings before taxes. The variable *desai* is another proxy of tax avoidance developed by [54, p. 178], calculated as the error term from the regression of the total BT differences by total accruals.

$$btd_total_{i,t} = \beta_0 + \beta_1 TACC_{i,t} + \sum \beta_j Controls_{i,t} + \sum \beta_k Year_{i,t} + \varepsilon_{i,t} \quad (6),$$

Total accruals $TACC_{i,t}$ in regression (6) are defined as the sum of net income before extraordinary items, before depreciation and amortization, less the operating cash flows, following [227]. $\varepsilon_{i,t}$ is the error term in regression (6), which represents the discretionary BT differences and is used as a measure of tax avoidance. This variable is denoted *desai.*

To test hypothesis 2, the following procedure is applied to define the explanatory variables. First, discretionary accruals are determined following the Jones (1991) model is shown in model (7):

$$TACC_{i,t} = \alpha_1 \frac{1}{TA} + \alpha_2 dSales + \alpha_3 PPE_{i,t} + \delta_{i,t} \quad (7)$$

In (7), *TACC* represents the change in total current accruals. The term *1/TA* represents the inverse of the balance value of total assets. *dSales* is the annual growth of sales, *PPE* is the net value of fixed assets. Sales growth and PPE are dividend by the beginning-of-period total assets. The error term in regression (7) represents the discretionary accruals denoted *daccrual* in further analysis.

Then *btd_total* is decomposed into the components related and not related to discretionary accruals using model (8):

$$btd_total_{i,t} = \beta_0 + \beta_1 daccrual_{i,t} + \sum \delta_j controls + \sum \gamma_k \text{year fixed effects} + \sum \varphi_l \text{industry fixed effects} + error_{i,t} \quad (8)$$

where *daccrual* denotes discretionary accruals calculated in (7). The values of BT differences predicted by the model (8) represent the component explained by discretionary accruals and are denoted *btdhat1*. The error term in model (8) represents the component of BT differences not related to discretionary accruals and is denoted *error1*.

In the robustness test, an alternative specification of the model (8) is used, where *daccruals* is substituted with an indicator variable *emdown*. This variable takes a value of one if a firm underreports its earnings. A firm is considered to underreport earnings if *daccrual* is in the lowest tercile of its distribution. Similarly, the values of BT differences predicted by the model represent the component explained by discretionary accruals, denoted *btdhat2*. The error term is the component not explained by discretionary accruals and is labeled *error2*.

Dividend policy. The variables of dividend policy are represented by:

- dividend payout (*divpayout*), defined as the ratio of cash dividends to net income after tax. This is a typical ratio applied for characterizing the dividend policies of firms;

- indicative variable *divdummy*, defined similar to [228] and equal one if the firm pays dividends and zero otherwise;

- quintile tank of *divpayout (div_5)* defined for each industry each year. This specification of the variable is used to address a possible impact of outliers on the parameters assessment and is often used in non-parametric analysis.

Justification of employing control variables

Control variables are introduced into the models for accounting for their impact on the dependent variables to avoid biases in estimations due to omitted variables. Below is the justification for using the control variables employed in the presented studies.

The first control variable is financial leverage *booklev* calculated as a standard ratio of the book value of total debt to equity [229]. The meta-analysis [230] reports that the majority of article published in the period 1998-2017 show that firms with higher levels of financial leverage demonstrate lower performance, some articles report an inverse relation and about of the quarter of articles report no significant relation. Book leverage is used as a control variable, following [231] who note that tax deductibility of interest may affect the firm value.

Prior studies report that larger companies may exploit economies of scale and have access to higher-quality resources than smaller companies. [232] document that documents that firm market value correlates with the book value of total assets. The control variable *lnsize* is defined as the natural logarithm of the book value of total assets, following [233].

An indicator variable *big4* is included as a proxy for the quality of corporate governance [234]. The variable equals one if a firm's financial reports are audited by a Big Four auditor firm, similar to [218]. This variable is widely used as an indicator of a higher quality of audit. [235]. [236] note that large audit firms enjoy access to better resources, have better expertise and are able to provide higher-quality audit services to their clients. The quality of audit reflects higher levels of corporate governance, and corporate governance has a positive impact on firm performance [237]. [238] show that firm value assessments of companies audited by Big Four firms are more precise.

Firm age is included as a control variable since it closely relates to firm performance [239] and firm market value [240]. The variable *lnage* is calculated as the natural logarithm of firm age plus one. One is added to avoid zero age to avoid losing data. Firm age is defined starting from the firm's registration with the state. The data on firm registration in Kazakhstan is taken from the Depository of Financial Information of the Ministry of Finance of the Republic of Kazakhstan[10]. The data on the state registration of firms in Russia are taken from the Center of Information Disclosure Interfax[11]**.** It should be noted that many firms got registered with the state following the privatization in 1991 and firm age, therefore, does not represent the true age of firms established before 1991. Nevertheless, the date of the state registration is a valid proxy since it reflects the number of years a firm operated under the conditions of market economy and private ownership.

Additional control variables are included when testing the relation between BT differences and firm market value. The list of the control variables includes *sales_growth* following [241], who show that firms experiencing greater sales growth tend to be valued higher. Return on assets is a textbook profitability ratio and is gauged as the net income after tax over the average total assets at the beginning and end of each year and is labeled *roa*. This profitability ratio is included in the model since more profitable firms are valued higher. ROA is one of the major performance indicators that catches firm profitability and efficiency of operations [242]. Operational efficiency contributes to a higher market value of firms and, hence, the model controls for firm efficiency measured by the total assets turnover (*asset_turn*) [243]. The total assets turnover ratio equals the revenue from sales divided by the average value of beginning and ending total assets.

[10] Available at https://opi.dfo.kz/
[11] Available at https://www.e-disclosure.ru/

In the analysis of the role of IFRS adoption, an indicator variable *IFRS* is used. Its value equals one for the Russian firms' sample in the years after 2012, and zero otherwise, similar to [244]. 2012 is the first year of mandatory IFRS adoption in Russia. In Kazakhstan, IFRS-compliant financial statements became mandatory starting in 2005. Since the sample period covers only the post-IFRS period, *IFRS* is not included in the analysis when testing the hypotheses using the sample from Kazakhstan.

The list of all variables and their description is presented in Appendix A. To address the parameter estimation bias caused by extreme values, all continuous variables are winsorized at the levels of 1% and 99%.

Justification of the Models' Specification

Many studies that explore the implications of BT differences employ panel data for their analysis. The advantages of using panel data are that it provides more data for analysis, captures both time series and time-invariant variables, and decreases the likelihood of omitted variable issues [245]. Using OLS standard errors with panel data can be problematic due to cross-sectional and serial correlation among the variables. For instance, events in one period may affect variable values in all firms causing cross-sectional correlation. The values of a variable of a firm may be affected by the variable's values of the preceding period, resulting in serial correlation. Such dependencies violate the assumptions of independent and homoscedastic error terms, leading to the biased estimation of OLS parameters. Therefore, applying OLS models with standard error terms could be problematic due to cross-sectional and serial correlation between variables,

A common approach used in the analysis of panel data is to choose between a fixed effect or a random effect model using the results of the Hausman specification test [246]. The random effect model assumes the absence of a correlation between fixed effects and independent variables. The fixed effect model focuses on the variability within a firm and fails to adequately account for the between-firm variation. Applying a fixed effect model leads to omitting time-invariant variables, such as *lnage*. Failure to measure the impact of time-invariant control variables control variables is a major drawback of the fixed-effect model specification. Therefore, the random effect model is preferred to the fixed effect model in the present study to avoid losing the impact of *lnage,* which directly correlates with time dummies.

[247] suggest that clustering of error terms at a firm level may substantially influence the results obtained in a regression analysis. Empirical evidence shows that the inclusion of the firm fixed effect, the parameters estimated through OLS regression may be biased. However, clustering standard errors at the firm level is found to decrease the bias in the obtained parameters [248]. In the presence of time

effect, clustering of standard errors by year ensures unbiased standard errors and appropriately sized confidence intervals. [249] recommends introducing the period dummy variables into a regression and clustering standard errors at the firm level when both firm- and time-fixed effects are present. [250] demonstrates that utilizing two-way cluster-robust standard errors can effectively tackle both cross-sectional and serial correlation issues in panel data analysis. The technique has been widely used in economics since the 1980s [251] and is applied in the current study.

Sample characteristics determine the model specifications applied in the analysis. The sample of Kazakhstani firms is objectively smaller than the sample size of Russian firms. Since some industries are represented by a small number of firms in Kazakhstan, clustering the errors at the firm level covers the industry effects. Therefore, industry dummy variables are not included in the models that test the hypotheses using the sample of Kazakhstani firms. The sample of Russian firms is larger with several firms representing one industry. Controlling for the possible impact of industry-wide factors is important and the error clustering at the firm level is not sufficient. Therefore, the models used for the analysis of Russian firms' sample control for the industry fixed effects by introducing the industry dummy variables.

Addressing endogeneity issues in the additional analysis

In the robustness testing of the study of Kazakhstani firms, the following model specifications are used.

1) ***dynamic panel data analysis***. Dynamic panel data analysis is used to address the issues of serial correlation and the potential problem of endogeneity of the predictor variables, following the recommendations in [252]. One-period lag of the outcome variable is added as a predictor variable to the regression (1). It allows controlling for the previous period's performance influence on the current period's performance. Dynamic panel data analysis is applied since it mitigates the possibility that the obtained results represent only a specific period and improves the generalizability of the results.

2) ***jackknife specification procedure*** originally offered in [253], [254]. The jackknife procedure presents a resampling technique without replacement, where the subsets of the original sample are randomly deleted and the regression parameters are re-estimated. [255] recommends using the jackknife procedure for the testing regression results replicability. [256] characterizes the jackknife resampling procedure as a valid instrument for the assessment of the stability of significance of the results without requiring a large sample. Due to the small sample, the jackknife re-sampling procedure is expected to be a useful technique for testing whether the obtained results are robust.

3) ***Generalized Method of Moments.*** Including a lagged explanatory variable while using the standard estimators also raises concerns over the possible serial

correlation. This problem is addressed by applying the system generalized method of moments (sGMM) [257], [258]. [259] suggest using this method to measure the parameters under the presence of autocorrelation, heterogeneity, and endogeneity issues as potential problems in dynamic panel data analysis. sGMM is reported to have advantages over the difference GMM [260]. System GMM is one of the model specifications used in the robustness check, with the lagged dependent variables treated as endogenous.

As noted in [261], two problems appear when applying GMM analysis: serial autocorrelation of error terms and over-identification of instruments that appear due to the creation of instruments both in difference and levels. The problem of over-identification imposes the limitations of using short panel data with a relatively large number of subjects (firms) over a relatively short period. GMM requires that the number of the created instruments should not exceed the number of groups (firms in this study). The sample used in the study of Kazakhstani firms covers a relatively small number of firms (42) over 17 years, whereas [262] recommends having samples consisting of observations on more than 100 firms over a period not exceeding 15 years. To avoid the problem of over-identification, the year-fixed effects are substituted by the indicators of periods defined as described below.

First, [263] argue that firms' perception of aggressive tax avoidance changed during the periods of financial crises and present evidence of increased tax avoidance during the financial crisis of 2008-2009. Besides, the statutory income tax rate in Kazakhstan decreased from 30% to 20%. Therefore, the periods identified in sGMM analysis are separated by the year 2008 into pre- and post-2008. Second, [264] inform of the growth in tax avoidance during COVID-19. To account for the potential impact of COVID-19 on firms' tax avoidance, the post-COVID-19 years are separated into a separate period. The three periods: pre-2008, 2008-2019, and 2020-2022, - are labeled by the corresponding indicator variables, which substitute the year fixed effects and are used as instrument variables in the sGMM analysis.

In the robustness test of the relation between BT differences and the firm value of Russian firms, the ***2-stage least squares (2SLS) analysis*** is applied. Since both Tobin's Q, the proxy of firm value, and BT differences are affected by the same factors, an endogeneity problem may arise. [265, p. 538] highlight the endogeneity concerns associated with tax avoidance measurement: "firms that are performing worse for exogenous reasons may be more likely to engage in tax avoidance". To tackle this problem, a two-stage least squares analysis using instrumental variables is applied. This method is akin to the methodology used by Desai & Dharmapala [266, p. 159]. In their study, Desai & Dharmapala utilize the tax avoidance metric constructed by regressing BT differences on the Kothari *et al.* [71, p. 174] model. They define the error terms from the regression of BT differences on discretionary accruals as their tax avoidance measure. They then regress firm value on the

obtained measure of tax avoidance. The present study also follows this approach but employs the Jones [70, p. 212] model for the estimation of discretionary accruals. In the robustness check, Kothari *et al.* [71, p. 174] model is applied.

The application of discretionary accruals as an instrument variable is grounded on the results reported in prior studies, as summarized in Table 2 above. Discretionary accruals have been considered a suitable choice for an instrumental variable since previous research [6, p. 1043], [8, p. 540] claim that the size of BT differences may indicate earnings manipulations and can function as a proxy for manipulative earnings. On the other hand, Discretionary accruals do not directly influence the market value of a firm [74, pp. 108–109]. The tight connection between BT differences and earnings management induced researchers to extract the component of BT differences explained by earnings management. [266] decompose BT differences into the component related to tax avoidance and the component explained by earnings management using model (5) above. Regression (3) is repeated in the second stage of 2OLS analysis, but *btd_total* is substituted by *btd_dacc* and *btd_error* in models (9a) and (9b), respectively. All model specifications are the same as those in the model (1).

$$Firm_Value_{i,t} = \beta_0 + \beta_1 btd_dacc_{i,t} + \beta_2 divpayout_{i,t} + \sum \beta_n controls_{n,i,t}\ \beta_n + \sum \gamma_j Year\ Fixed\ Effects + \sum \varphi_j Industry\ Fixed\ Effects + \varepsilon_{i,t} \quad (9a)$$

$$Firm_Value_{i,t} = \beta_0 + \beta_1 btd_error_{i,t} + \beta_2 divpayout_{i,t} + \sum \beta_n controls_{n,i,t}\ \beta_n + \sum \gamma_j Year\ Fixed\ Effects + \sum \varphi_j Industry\ Fixed\ Effects + \varepsilon_{i,t} \quad (9b)$$

Conclusion of the section

This section presents the conceptual and theoretical foundation of studying the relation between BT differences and measures of firm performance. The concepts of BT differences, earnings management, and firm performance were introduced. Information asymmetry is the central theory that connects these concepts. On the one hand, earnings management and tax avoidance become possible when information asymmetry is present. On the other hand, tax avoidance forces firms to distort their financial reporting. The deteriorated quality of financial reporting, in turn, leads to the aggravation of information asymmetry.

Information asymmetry is a key concept in agency theory, stakeholder theory and stakeholder agency theory. Agency problems lead to opportunistic behavior of managers directed at their firms' resource diversion for their own benefit. Besides, the multiple stakeholders' interests may be in conflict, and shareholders could be

interested in the declining transparency of the firms. As a result, information asymmetry has a negative impact on the quality of monitoring and firm performance.

The above rationale is used for the development of the testable hypotheses. Based on the assumption that information asymmetry has a negative impact on firm performance, we hypothesize that the size of BT differences is inversely related to firm performance indicators. We justify the negative relation between BT differences and firm performance by extracting the component of BT differences explained by earnings management. Earnings management is represented by discretionary accruals, a widely used indicator of manipulative accounting practices. Testing whether the components of BT differences, explained and unexplained by discretionary accruals, have a differential relation to firm performance indicators will show whether the information asymmetry plays a role in the relation. We follow this rationale when studying the relation of BT differences both to book and market-value-based indicators of firm performance. The analysis of the relation of BT differences to book performance indicators is to be conducted in the context of Kazakhstan, while the analysis of its relation to the market value of firms will be conducted in the context of public firms in the Russian Federation.

To prevent discounting of share price, managers may exploit some tools to signal the internal information to outsiders. Such tools include dividend policy and IFRS-compliant financial statements. Dividend payouts signal a company's ability to generate stable cash flows to shareholders. International reporting standards contribute to the improvement of the quality of financial reporting and enable comparing firms versus their competitors. These two factors are tested in the context of public firms in Russia. The analysis results are presented in the following section.

To study the testable hypotheses, panel data regression models were developed and model specifications were justified. In particular, we employ the random effect model with the inclusion of the year and industry fixed effects and standard errors clustered at the firm level to mitigate parameters bias. The choice of the robustness checks is defined by the characteristics of the samples of the empirical studies. Due to a relatively small sample in the study on Kazakhstani firms, a battery of additional tests is chosen: dynamic panel data analysis, jackknife specification procedure, system Generalized Method of Moments. For the study of Russian firms, 2-stage least squares analysis is proposed as a robustness check. Next section presents the results of the statistical analysis.

2 ANALYSIS OF THE RELATION BETWEEN BOOK-TAX DIFFERENCES AND MEASURES OF FIRM PERFORMANCE

2.1 Relation between book-tax differences and book measures of firm performance

To test the hypotheses on the relation between BT differences and book firm performance measures, the data of public firms in Kazakhstan were used. Below is the results of the statistical analysis used for testing hypotheses 1 and 2.

Data and sample selection

The data on Kazakhstani firms are extracted from LSEG Workspace (earlier known as Thomson Reuters Refinitiv Eikon) [267] for the period between 2005 and 2022. The sample starts with 2005, the first year when public firms are obliged to provide IFRS-compliant financial reports. Furthermore, several studies explore the changes in firm performance following the IFRS adoption. [268] reports that the adoption of the IFRS in the U.K. had a beneficial influence on firm profitability but that the profitability growth observed after IFRS adoption does not result in stock price growth. Similar results were obtained by [269] for firms in Finland. [270] explore the consequences of IFRS mandatory adoption in European countries and find a statistically significant growth in the reported profitability.

Table 4 describes the sample selection process for testing hypotheses 1 and 2. The initial sample contains 634 observations of 50 non-financial sector firms between 2005 and 2020. The sample excludes firms in the financial sector since the financial reporting structure is different from that of other sectors of the economy. Excluding the observations with missing or negative values of owners' equity, total assets, and total sales revenue reduced the sample to 546 observations on 49 firms. 37 observations are eliminated due to missing data on income tax expenses. 26 observations are excluded due to unavailable data on operating cash flows that make the calculation CFO_*lasset* and CFO_*linvcap* impossible. 81 observations with the negative values of income tax expense are deleted. The final sample for testing hypothesis 1 is 402 observations on 43 firms. 19 observations do not have data on property, plant, and equipment (PPE), which results in missing discretionary accruals. Therefore, the sample for testing hypothesis 2, which requires discretionary accruals contains 388 observations.

Table 4 – Sample selection procedures

Selection criteria	**Number of excluded observations due to missing data**	**Number of available observations**	**Sum of total sales**	**% of the initial sample's total sales**
Initial sample		634/50	3.35*10^11	100%
Less: FYOs with missing or negative values of owners' equity, total assets, revenue	88	546/49	3.35*10^11	
Less: FYOs with missing data on income tax expense	37	509/46	3.35*10^11	
Less: FYOs with missing data on CFO_*lasset*, CFO_*linvcap*	26	483/46	3.12 *10^11	
Less: FYOs with negative values of income tax expense	81	402/43	3.02*10^11	90.1%
Less: FYOs with missing data on *daccrual* due to missing data on PPE	19	388/43	2.95*10^11	88.9%
Justification for not including market-based measures of firm performance: number of observations with missing values of market capitalization	164	224/36	1.18*10^11	35.2%

Note: The sample selection procedure is conducted by the author. Data source: LSEG Workspace

The final sample for the main is representative since the total value of the revenue from sales comprises 90% of the total sum of the revenue from sales in the initial sample. Exclusion of the observations due to the absence of discretionary accruals data does not lead to deterioration of the sample representativeness since the sum of the total value of sales comprises 88.9% of that of the initial sample. Table 4 also shows that only 224 observations contain the data on market capitalization, needed for calculating Tobin's Q. The total sum of the revenue from sales of these 224 observations is only 35% of that of the initial sample. This fact justifies the non-usage of the market-based indicators to measure performance in this study

By-industry sample decomposition is presented in Table 5. 31% of the sample is represented by the energy sector (TRBC code 50), followed by the basic materials sector (TRBC code 51, 20%), the technology sector (TRBC code 57, 15.7%) and utilities (TRBC code 59, 10,4%). By-industry decomposition of the sample reflects the importance of the sectors in the economy of Kazakhstan.

Table 5 – By-industry sample distribution

TRBC code	Industry	Number of observations for testing hypothesis 1	Number of observations for testing hypothesis 2
50	energy	127	125
51	basic materials	80	75
52	industrials	16	16
53	consumer cyclicals	4	3
54	consumer non-cyclicals	57	52
57	technology	63	62
59	utilities	42	42
60	real estate	13	13
	Total	402	388

Note: developed by the author using data extracted from LSEG Workspace.

Descriptive statistics

The descriptive statistics of the main variables are in Table 6. The average value and the median value of cash return on assets *CFO_asset* are 0.1375 and 0.11267 correspondingly, which is significantly higher than the data reported for U.S. firms in [271] (mean = 0.0349 and median = 0.0311) and in [263] (mean = 0.0498 and median = 0.0532). The average and median values of *CFO_linvcap* equal 0.1946 and 0.1634, correspondingly. The average values of *EBITDA_lasset* and *EBITDA_linvcap* (24.05% and 34.02% correspondingly) are lower than the median values of these ratios (16.66% and 21.16% correspondingly), which points out to the leftward bias of the frequency distribution.

Table 6 – Descriptive statistics

	count	mean	sd	min	max	p25	p50	p75
CFO_lasset	402	0.1375	0.2699	-2.7598	0.8014	0.0406	0.1267	0.2345
CFO_linvcap	402	0.1946	0.3865	-2.2953	1.9417	0.0523	0.1634	0.2957
EBITDA_lasset	402	0.2405	0.2100	-0.1988	1.1006	0.1143	0.1666	0.3294
EBITDA_linvcap	402	0.3402	0.3695	-0.2836	2.3603	0.1456	0.2116	0.4056
btd_total	402	-0.0563	0.1581	-0.9249	0.2685	-0.0501	-0.0129	0.0016
ETR	402	0.2616	0.2714	-0.8179	2.7805	0.1894	0.2232	0.3154
desai	393	-0.0137	0.1537	-0.7235	0.2194	-0.0268	0.0245	0.0570
NegNI	402	0.0672	0.2506	0.0000	1.0000	0.0000	0.0000	0.0000
big4	402	0.6567	0.4754	0.0000	1.0000	0.0000	1.0000	1.0000
booklev	402	1.9661	4.2726	0.0088	38.0705	0.3540	0.8797	1.8783
size	402	19.2265	1.7517	14.8994	24.3203	18.0992	18.8974	20.2671
lnage	402	3.1003	0.4673	1.7918	4.6821	2.9444	3.0445	3.2189

Table 6 – continued

daccrual	388	-0.0062	0.1453	-0.6525	0.5984	-0.0671	-0.0015	0.0544
emdown	388	0.2938	0.4561	0.0000	1.0000	0.0000	0.0000	1.0000
btdhat1	388	-0.0564	0.0641	-0.3328	0.1911	-0.0911	-0.0551	-0.0190
btdhat2	388	-0.0564	0.0667	-0.2592	0.0688	-0.1125	-0.0369	-0.0062
error1	388	0.0000	0.1389	-0.7726	0.2720	-0.0226	0.0215	0.0688
error2	388	0.0000	0.1376	-0.7484	0.2780	-0.0276	0.0117	0.0653

Note: developed by the author using the statistics software Stata 17.0. Data source: LSEG Workspace for Students.

The average and median BT differences (*btd_total*) are negative -5.6% and -1.3% respectively. Further analysis shows that 73% of observations are negative, which is close to the results reported on Russian firms below and in [272]. Firms pay 26.2% of their pre-tax profits in income tax on average, with a median value of effective tax rate (*ETR*) equal to 22.32%. The rate is higher than the statutory rate of 20% since 49 observations cover the period before 2009 when the rate was 30%. The average and median values of *ETR* are 34.3% and 32%, respectively, in the pre-2009 period and 18.4% and 22.4%, respectively, in the post-2008 period. The median values of ETR are higher than the statutory tax rates, which corresponds to the negative median values of BT differences. The average of *desai* is negative (-0.0137), but the median is positive (0.0245), reflecting the negatively skewed distribution.

According to the descriptive statistics in Table 6, the negative net income is reported in 6.72% of observations. In 65.7% of observations, the financial reports are audited by Big Four audit firms. The average value of the book leverage ratio is close to 2, with a median value of 0.9. This ratio varies in the range between 0.0088 and 38.0705, and the 75th percentile of the winsorized ratio (1.8783) is lower than its average value (1.9661). This observation reveals the existence of a few observations with extremely high values of financial leverage. The average value of *size*, which is calculated as the natural logarithm of total assets, is equal to 19.2, which corresponds to the total assets of 1.66*10^9 USD. The median value of *size* is close to the average and equals 18.9. The average and median values of the logarithm of firm age *lnage* are equal to 3.1 and 3.4, respectively.

Two alternative measures of discretionary accruals are used: *daccrual* and *emdown*. The average value of *daccrual* is -0.62% of total assets, and downward earnings management is observed in 29.4% of observations. The median value of *daccrual* (-0.15%) is close to its average value but points to the positive skewness. Regressing *btd_total* on these two measures of discretionary accruals gives two measures of predicted values of BT differences, *btdhat1* and *btdhat2*, with the average values of -0.0564 and the medians equal to -0.0551 and -0.0369, respectively. The average values of the component of BT differences not explained by discretionary

accruals, *error1* and *error2*, equal zero by construction, with the medians 0.215 and 0.0117, respectively.

Table 7 reports the Spearman correlation coefficients between the pairs of variables above the diagonal of the matrix and the Pearson correlation coefficients below the diagonal.

Table 7 – Correlation matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1)	*CFO_lasset*	**1**	**0.9908**	**0.7618**	**0.7288**	**-0.1273**	**0.128**	0.0912	**-0.2755**	**0.315**
(2)	*CFO_linvcap*	**0.9328**	**1**	**0.7633**	**0.7477**	**-0.1376**	**0.1352**	0.0799	**-0.2729**	**0.3071**
(3)	*EBITDA_lassset*	**0.6064**	**0.6981**	**1**	**0.9823**	**-0.1943**	**0.1864**	**-0.1647**	**-0.3751**	**0.2838**
(4)	*EBITDA_ linvcap*	**0.5651**	**0.7421**	**0.9314**	**1**	**-0.2047**	**0.2071**	**-0.1859**	**-0.376**	**0.2543**
(5)	*btd_total*	**-0.2608**	**-0.3483**	**-0.5031**	**-0.5312**	**1**	**-0.6716**	**0.7751**	**-0.2618**	**-0.1892**
(6)	*ETR*	0.0354	0.0275	**0.1037**	0.0967	**-0.3044**	**1**	**-0.4956**	**-0.2448**	**0.1547**
(7)	*desai*	-0.068	**-0.1773**	**-0.4945**	**-0.5171**	**0.9516**	**-0.2946**	**1**	**-0.223**	-0.0582
(8)	*NegNI*	**-0.1622**	**-0.1651**	**-0.2831**	**-0.2296**	**-0.1254**	**-0.1279**	**-0.1028**	**1**	-0.0266
(9)	*big4*	**0.3042**	**0.312**	**0.262**	**0.2327**	**-0.129**	0.098	-0.0841	-0.0266	**1**
(10)	*book lev*	-0.0394	-0.0333	-0.0248	-0.0107	-0.028	0.059	-0.0278	-0.0094	-0.0796
(11)	*size*	**0.1538**	**0.1528**	0.056	0.0509	-0.023	0.0315	0.0116	0.0644	**0.5074**
(12)	*lnage*	-0.0463	-0.0859	**-0.1278**	**-0.1559**	0.088	-0.004	0.0965	**-0.1224**	**0.1777**
(13)	*daccrual*	**-0.7334**	**-0.703**	**-0.3323**	**-0.3118**	**0.3293**	-0.0663	**0.1079**	0.0138	-0.0892
(14)	*emdown*	**0.4722**	**0.4885**	**0.4101**	**0.3846**	**-0.3458**	0.0597	**-0.2334**	-0.0430	0.0123
(15)	*btdhat1*	**-0.5437**	**-0.5539**	**-0.2818**	**-0.2837**	**0.4192**	-0.0912	**0.2149**	**-0.2991**	**-0.3078**
(16)	*btdhat2*	**-0.6322**	**-0.4045**	**-0.3367**	**-0.3336**	**0.4362**	-0.0921	**0.3164**	**-0.2875**	**-0.2958**
(17)	*error1*	-0.0362	**-0.1279**	**-0.424**	**-0.4541**	**0.9079**	**-0.2931**	**0.9489**	0	0
(18)	*error2*	**-0.1143**	**-0.1910**	**-0.3958**	**-0.4286**	**0.8999**	**-0.2936**	**0.9041**	0	0

		(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1)	*CFO_lasset*	-0.0892	**0.2112**	0.0106	**-0.6991**	**0.5720**	**-0.4706**	**-0.4171**	**0.1733**	**0.1515**
(2)	*CFO_linvcap*	-0.0508	**0.2128**	-0.0072	**-0.6854**	**0.5635**	**-0.4713**	**-0.4203**	**0.1654**	**0.1471**
(3)	*EBITDA_lassset*	-0.0524	0.0794	0.0256	**-0.3603**	**0.3370**	**-0.2027**	**-0.2150**	-0.0836	**-0.0807**
(4)	*EBITDA_ linvcap*	0.0191	0.0689	-0.0031	**-0.3376**	**0.3284**	**-0.1902**	**-0.2089**	**-0.1032**	**-0.0938**
(5)	*btd_total*	0.0066	-0.0854	**0.1296**	**0.1592**	**-0.2263**	**0.3185**	**0.3638**	**0.6091**	**0.5429**
(6)	*ETR*	**0.1194**	-0.0015	-0.008	**-0.1631**	**0.1593**	**-0.1206**	**-0.1430**	**-0.4594**	**-0.4540**
(7)	*desai*	-0.0119	0.026	**0.1823**	**-0.1386**	**-0.0071**	-0.0422	-0.0672	**0.8118**	**0.6982**
(8)	*NegNI*	-0.0348	0.027	**-0.1519**	0.0706	-0.0430	**-0.3128**	**-0.2752**	0.0228	0.0508
(9)	*big4*	**-0.1332**	**0.5588**	**0.1274**	-0.0344	0.0123	**-0.307**	**-0.3246**	**0.1094**	**0.1188**
(10)	*book lev*	**1**	-0.0254	**-0.2616**	-0.0169	0.0704	-0.0453	-0.0734	-0.0348	-0.0091
(11)	*size*	-0.0644	**1**	-0.0068	0.0256	-0.0220	-0.0711	-0.0909	0.0112	0.0213
(12)	*lnage*	**-0.1208**	0.0226	**1**	-0.081	-0.0373	**0.1393**	**0.1328**	0.0649	0.0537
(13)	*daccrual*	-0.0234	0.0134	0.016	**1**	**-0.7543**	**0.6816**	**0.5808**	**-0.2864**	**-0.2490**

Table 7 – continued

(14)	*emdown*	0.0138	-0.0644	**-0.1224**	**-0.6363**	**1**	**-0.5374**	**-0.7426**	**0.1029**	**0.3132**
(15)	*btdhat1*	-0.0668	-0.0548	**0.2099**	**0.7855**	**-0.5143**	**1**	**0.8541**	**-0.3946**	**-0.3461**
(16)	*btdhat2*	-0.0642	-0.0527	**0.2017**	**0.5379**	**-0.7928**	**0.7982**	**1**	**-0.2523**	**-0.4216**
(17)	*error1*	0	0	0	0	-0.1434	0	**0.1119**	**1**	**0.8866**
(18)	*error2*	0	0	0	0.4052	0	0.0790	0	**0.9547**	**1**

Note: developed by the author using the statistics software Stata 17.0. Data source: LSEG Workspace for Students.

As expected, all proxies for performance indicators used as the dependent variable in the main analysis (*CFO_lasset*, *CFO_linvcap*, *EBITDA_lasset*, *EBITDA_linvcap*), are highly correlated and have positive Pearson and Spearman correlation coefficients significant at the five percent level. Both Pearson and Spearman correlation coefficients between *btd_total* and *ETR* are negative and significant at five percent, as expected. Low values of effective tax rates (*ETR)* and high values of BT differences (*btd_total*) are associated with high levels of tax avoidance. Similar results are observed between *desai* and *ETR.* The variable *btd_total* shows negative Pearson and Spearman correlation coefficients with all four dependent variables, significant at five percent. However, *ETR*, the tax avoidance proxy, has statistically insignificant Pearson coefficients with three out of four dependent variables, suggesting that the negative correlation between *btd_total* and the used performance indicators is not solely due to the tax avoidance component of BT differences. Both measures of discretionary accruals (*daccrual* and *emdown*) are significantly correlated with earnings-based and cash-flows-based firm performance indicators. Firms with upward earnings management show lower operating cash flows, in line with the accrual principle in accounting. The negative correlation coefficients between discretionary accruals and EBITDA-based firm performance indicators point out that firms with higher levels of discretionary accruals may demonstrate lower firm performance.

Both *btdhat1* and *btdhat2,* which denote the predicted by discretionary accruals BT differences, have negative and significant at 5% level correlation coefficients with all performance indicators used in this study. The second component of BT, not explained by discretionary accruals, shows an insignificant negative Pearson correlation coefficient between *error1* and *CFO_lasset* and a significant but relatively small correlation coefficient with *CFO_linvcap* (-0.1279). The correlation coefficients between *error2* and CFO-based performance indicators are statistically significant at a 5% level, although it is relatively small. The correlation coefficients between both measures of unexplained by discretionary accruals BT differences (*error 1* and *error 2*) and all performance indicators are negative and significant. But the coefficients with CFO-based performance indicators are relatively smaller than

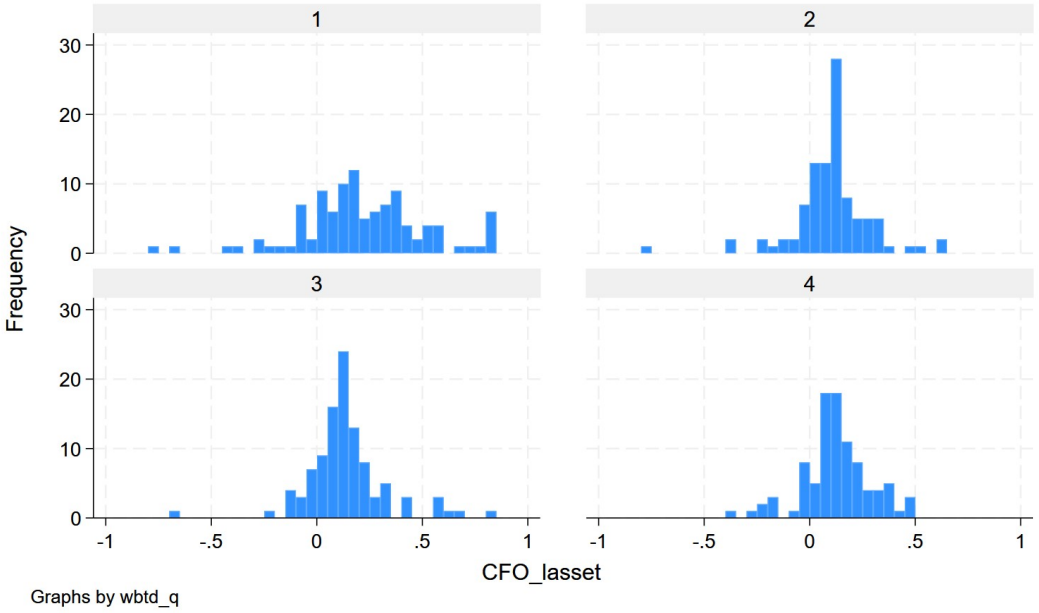
those based on EBITDA, which are close to -0.4. This fact may be indicative of the potential endogeneity in the regression between *btd_total* and EBITDA-based firm performance indicators, since earnings management may have an impact both on the size of BT differences and reported earnings.

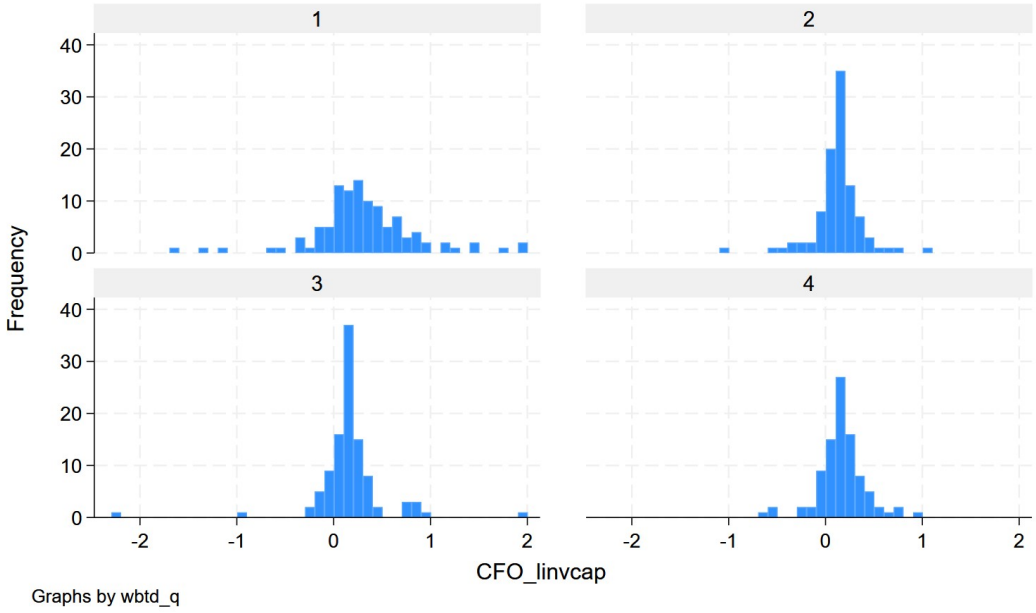
As for control variables, *booklev*, *size,* and *lnage* have either small or insignificant correlation coefficients with other variables, suggesting non-linear relations between these variables and firm performance. Relatively high values of correlation coefficients between *big4* and firm performance indicators might evidence that more successful firms can afford to purchase the audit services of Big Four firms, or that Big Four auditors transfer their knowledge on corporate governance and management, thereby promoting higher efficiency. High correlations between *big4* and *size* indicate that larger firms are more likely to purchase auditor services from Big Four.

Frequency distributions of *CFO_lasset* and *CFO_linvcap* by the quartiles of *btd_total* are presented in Figures 6. The histograms denoted '1', '2', '3', and '4', correspond to the quartiles of *btd_total*, where '1' represents the lowest *btd_total* quartile.

As shown in Figure 6, the histograms of the subsamples in the lower quartiles of *btd_total* (labeled '1'), in both panels are flatter and wider. The histograms of the distributions in the other quartiles of *btd_total* have pronounced skewness to the right, indicating that firms with larger BT differences tend to generate lower operating cash flows. Besides, the peaks of the distributions in the subsamples '2'-'4' fall to higher values of firm performance indicators. For instance, the peak in the first quartile of *btd_total* lies in the fourth tick to the right from zero, whereas it is in the third tick to the right from zero in the second and third quartiles. Analyzing the distributions of *EBITDA_lasset* and *EBITDA_linvcap* presented in Figure 7 lead to similar conclusions, although the picture is less pronounced in the case of *EBITDA_lasset*.

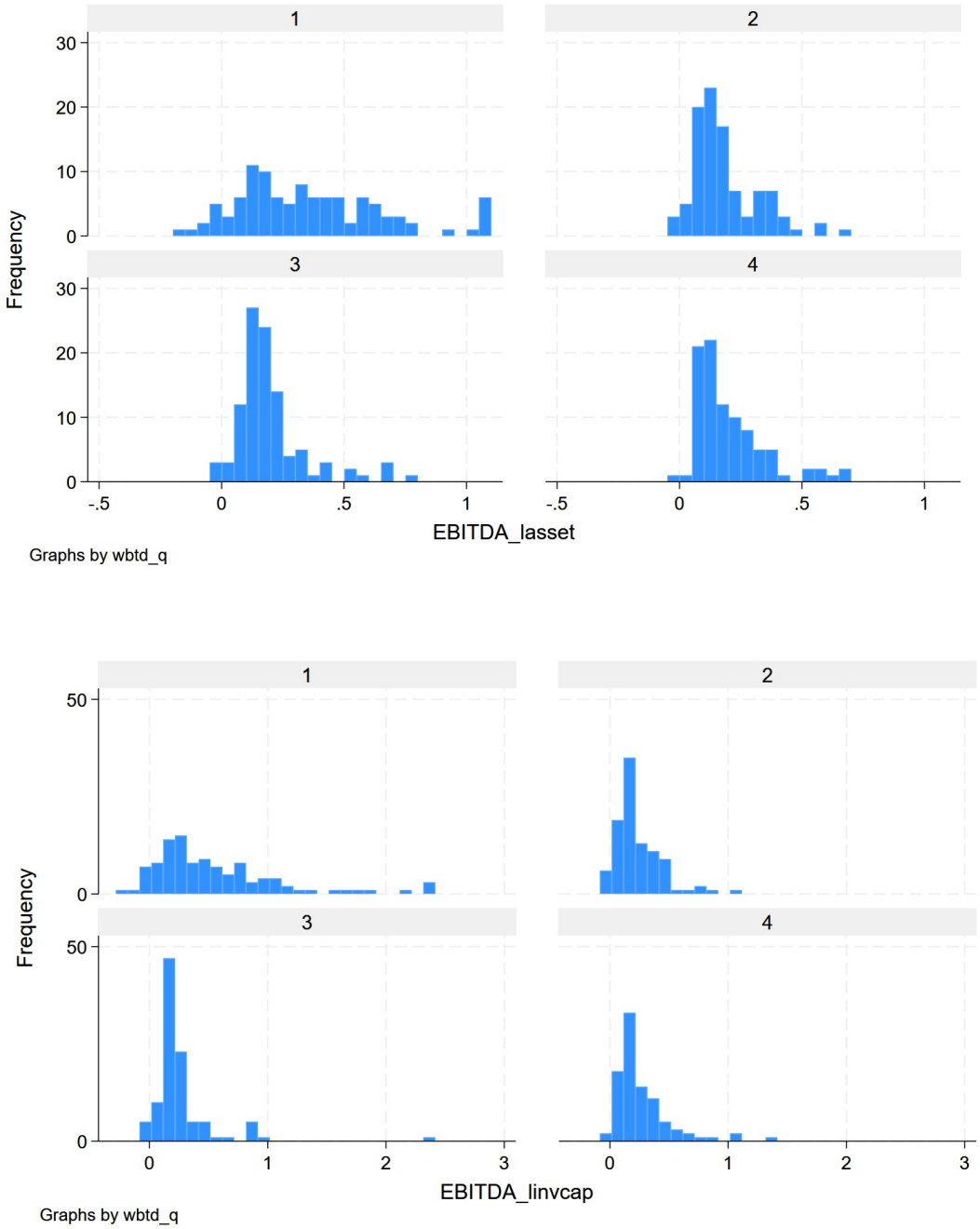
Analysis of the frequency distributions of the firm performance indicators by the quartiles of BT differences shows that the average values of performance indicators in the subsamples with lower values of BT differences are higher than those in the subsamples with higher values of BT differences. This result reveals the existence of a possible relation between BT differences and firm performance indicators. It is expected that this relation is negative. The regression analysis is used to test this relation.





Note: Developed by the author based on the sample analysis using the statistics Stata 17.0. Data source: LSEG Workspace.

Figure 6 - Frequency distributions of *CFO_lasset* (the upper panel) and *CFO_linvcap* (the lower panel) by the quartiles of BT differences



Note: Developed by the author based on the sample analysis using the statistics Stata 17.0. Data source: LSEG Workspace.

Figure 7 - Frequency distributions of *EBITDA_lasset* (the upper panel) and *EBITDA_linvcap* (the lower panel) by the quartiles of BT differences

Regression analysis

Hypothesis 1 testing

To test whether there is a significant relation between the size of BT differences and firm performance indicators, statistical analysis is conducted with the models' specifications as defined in section 1.3. Hypothesis 1 on the inverse relation between the size of BT differences and the book value based firm performance indicators is tested using public firms in Kazakhstan listed on stock exchanges.

Table 8 reports the results of testing the OLS regression (1) defined in section 1.3. The models in columns of the table differ by the dependent variable: *CFO_lasset* in column (1), *CFO_linvcap* in column (2), *EBITDA_lasset* in column (3), and *EBITDA_linvcap* in column (4).

Table 8 – Relation between book-tax differences and book value based firm performance indicators

Dependent variables::	(1) *CFO_lasset*	(2) CFO_*linvcap*	(3) EBITDA_*lasset*	(4) EBITDA_*linvcap*
Explanatory variables:				
btd_total	-0.451***	-0.878**	-0.723***	-1.353***
	(-3.27)	(-2.69)	(-5.82)	(-4.48)
NegNI	0.144***	0.192***	0.107***	0.139***
	(3.34)	(3.15)	(3.54)	(3.07)
big4	-0.003	-0.004	-0.003	-0.004
	(-1.25)	(-1.34)	(-1.42)	(-1.35)
booklev	-0.002	-0.003	-0.007	-0.009
	(-0.15)	(-0.21)	(-0.63)	(-0.52)
size	-0.050**	-0.095**	-0.072**	-0.136**
	(-2.24)	(-2.39)	(-2.55)	(-2.56)
lnage	0.144***	0.192***	0.107***	0.139***
	(3.34)	(3.15)	(3.54)	(3.07)
N	402	402	402	402
Year f.e.	Y	Y	Y	Y
F-statistics	5.768	11.225	20.299	18.621
p-value	0.000	0.000	0.000	0.000
R^2 adj	0.196	0.251	0.451	0.443

Note: The statistical analysis was conducted by the author using the statistical software Stata 17.0. Data source: LSEG Workspace. The models' specifications: robust standard errors clustered at the firm level with the year-fixed effects. *t-statistics* are in parenthesis. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test.

The results in Table 8 show that the coefficients on *btd_total* are negative and statistically significant at the one percent level (β coefficients equal -0.451, -0.878, -0.723, -1.353, *t-statistics* = -3.27, -2.69, -5.82, -4.48 respectively), thereby supporting hypothesis 1. The results on the control variables show statistically insignificant coefficients on *big4* and *booklev*. Significant at the five percent level negative coefficients on *size* and significant at the one percent level coefficients on *lnage* suggest that smaller and older firms demonstrate higher performance than larger and younger firms. F-statistics with the *p*-values equal zero in all models point out that the null hypothesis that all coefficients are equal to zero is rejected.

Table 9 presents a summary of the results of the models where the explanatory variable *btd_total* is substituted by the proxies of tax avoidance *ETR* and *desai*. Full results are given in Appendix B. Table 9 demonstrates that the coefficients on *ETR* are statistically indifferent from zero with the values of t-statistics differing 0.29 and 1.09. The coefficients on *desai* are insignificant in the models with CFO-based performance (*t-statistics* = -0.45 and -0.90), but have negative values, statistically significant at the one percent level with the EBITDA-based performance indicators (*t-statistics* = -5.07 and -4.15). It should be noted that *desai* represents the part of accruals not related to accounting accruals. Therefore, the statistical insignificance of the coefficients on *desai* in models with CFO-based performance indicators indicates that firms' tax avoidance does not lead to the growth or decline of the operating cash flows generating ability of firms. The EBITDA-based indicators may be subject to accounting manipulations with earnings. The statistical significance of the coefficients on *desai* I the models with EBITDA-based performance indicators may be a result of tax avoidance related to earnings management. The results may also indicate that tax-avoiding firms in Kazakhstan manage the reported earnings downward.

Table 9 – Summary of testing the model (1) with substituting the main explanatory variable by *ETR* and *desai*

	(1)	(2)	(3)	(4)
Dependent variable	*CFO_lasset*	CFO_*linvcap*	EBITDA_*lasset*	EBITDA_*linvcap*
ETR	-0.012	-0.026	0.041	0.079
	(-0.29)	(-0.41)	(1.01)	(1.09)
desai	-0.128	-0.467	-0.722***	-1.352***
	(-0.45)	(-0.90)	(-5.07)	(-4.15)

The table is developed by the author using Stata 17.0 statistical software. Data source: LSEG Workspace. The statistics results on the control variables are not presented. The full results of the regression analyses are in Appendix B. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test.

In general, the results in Tables 8 and 9 show that the size of BT differences and book performance indicators have an inverse relation and support hypothesis 1. The results in Table 10 indicate that the earnings management component is more likely to explain this relation. The analysis using alternative tax avoidance proxies does not provide strong evidence of the tax avoidance component being the likely source of the negative relation between the size of BT differences and firm performance indicators.

Testing hypothesis 2 requires extracting the earnings management component of BT differences. The difference between the coefficients on the components of BT differences would support our justification that firms with large BT differences are more susceptible to information asymmetry problem since earnings management is known to contribute to the worsening of the quality of financial statements. The results of testing hypothesis 2 is presented below.

Hypothesis 2 testing

Table 10 demonstrates the results of the regression model (6) above, where *btd_total* is the dependent variable and discretionary accruals (*daccrual*) or the indicator variable *emdown* are the main explanatory variables.

As expected, higher values of *btd_total* are associated with higher levels of discretionary accruals since the coefficient on *daccrual* is positive and statistically significant at 5% (*t-statistics* = 2.46). Firms with an effective tax rate above the statutory tax rate have a motivation for tax avoidance [272, p. 49]. The negative coefficient on *emdown* points out that lower levels of BT differences are associated with downward-managed accounting earnings. These results correspond with the results in [136, p. 452], where BT differences are shown to be positively related to discretionary accruals in most of the 32 countries analyzed in the study. The size of BT differences is positively associated with upward earnings management.

Table 10 – Decomposition of the book-tax differences into the components

	(1) *btd_total*	(2) *btd_total*
daccrual	0.331**	
	(2.46)	
emdown		-0.114**
		(-2.40)
NegNI	-0.081**	-0.088**
	(-2.19)	(-2.37)
big4	-0.047*	-0.051*
	(-1.69)	(-1.81)

Table 10 – continued

book lev	-0.001 (-0.75)	-0.001 (-0.79)
size	0.003 (0.33)	0.002 (0.27)
lnage	0.031* (1.79)	0.019 (1.42)
N	388	388
Year fixed effects	Y	Y
F-statistics	3.563	3.434
p-value	0.000	0.000
R^2 adjusted	0.124	0.139

Note: The table is developed by the author using Stata 17.0 statistical software. Data source: LSEG Workspace. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test.

The predicted by the model size of BT differences (*btdhat1* and *btdhat2*) are then used in the analysis presented in Table 11 as the component related to earnings management. Two estimates of the unrelated to earnings management component of BT differences are *error1* and *error2*. These variables are used in the second stage of the analysis presented in Table 11.

Table 11 – Relation between the components of BT differences and book performance indicators

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CFO_lasset	*CFO_linvcap*	*EBITDA_lasset*	*EBITDA_linvcap*	*CFO_lasset*	*CFO_linvcap*	*EBITDA_lasset*	*EBITDA_linvcap*
btdhat1	-3.938** (-8.12)	-5.208** (-10.43)	-1.273** (-5.05)	-2.072** (-4.74)				
error1	-0.068 (-0.68)	-0.334 (-1.29)	-0.634** (-5.38)	-1.177** (-4.37)				
btdhat2					-2.345** (-9.16)	-3.329** (-8.66)	-1.459** (-4.92)	-2.366** (-5.09)
error2					-0.216* (-1.77)	-0.503* (-1.81)	-0.598** (-4.56)	-1.120** (-3.81)
NegNI	-0.498** (-9.76)	-0.676** (-10.67)	-0.334** (-9.75)	-0.501** (-8.17)	-0.371** (-9.10)	-0.526** (-8.20)	-0.349** (-8.94)	-0.524** (-7.66)
big4	-0.068** (-2.08)	-0.068* (-1.70)	0.076** (2.40)	0.107** (2.49)	0.030 (0.73)	0.048 (1.01)	0.064* (1.97)	0.088** (2.08)

Table 11 – continued

book lev	-0.008**	-0.010**	-0.004*	-0.005*	-0.006**	-0.007**	-0.004**	-0.005**
	(-4.63)	(-4.80)	(-1.85)	(-1.82)	(-2.69)	(-2.59)	(-2.18)	(-2.08)
size	0.016**	0.021**	-0.005	-0.007	0.009	0.012	-0.004	-0.006
	(2.27)	(2.03)	(-0.46)	(-0.45)	(0.90)	(0.88)	(-0.39)	(-0.37)
lnage	0.072***	0.057*	-0.054*	-0.110**	0.016	-0.009	-0.047*	-0.100**
	(3.17)	(1.68)	(-1.95)	(-2.23)	(0.78)	(-0.28)	(-1.76)	(-2.06)
N	388	388	388	388	388	388	388	388
Year f.e.	Y	Y	Y	Y	Y	Y	Y	Y
F-statistics	20.045	23.406	24.953	25.684	21.217	33.025	26.616	27.257
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R^2 adj	0.674	0.638	0.451	0.428	0.361	0.397	0.472	0.443
Wald test F-statistics (p-value)	61.24 (0.000)	92.71 (0.000)	6.98 (0.012)	6.32 (0.016)	54.97 (0.000)	37.19 (0.000)	6.30 (0.016)	5.42 (0.024)

Note: The table represents the results of the statistical analysis conducted by the author using the statistical software Stata 17.0. Data source: LSEG Workspace. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test. Wald test is used for determining the difference in coefficients on *btdhat* and *error*.

The results in Table 11 are presented as follows. The models in columns (1)-(4) include *btdhat1* and *error1* obtained from the regression presented in column (1) of Table 9. Columns (5)-(8) of Table 11 contain the results with explanatory variables *btdhat2* and *error2* obtained from the regression in column (2) of Table 10.

All coefficients on *btdhat1* and *btdhat2* are negative and significant at the one percent level (*t-statistics* range between -4.74 and -10.43). These results indicate that higher book performance levels are negatively related to the size of the BT differences component explained by earnings management. The coefficients on *error1* are insignificant with the cash accounting returns in columns (1) and (2) (*t-statistics* = -0.68 and -1.29, respectively) but are significant at the one percent level with the EBITDA-based returns (*t-statistics* = -5.38 and -4.37 in columns (3) and (4), respectively). The coefficients on *error2* in columns (5) and (6) are negative and significant only at the ten percent level (*t-statistics* = -1.77 and -1.81, respectively), but are negative and significant at the one percent level in the regressions with EBITDA-based accounting returns (*t-statistics* = -4.56 and -3.81 in columns (7) and (8), respectively).

Wald test results on the difference between the coefficients on the components of BT differences suggest that the difference is statistically significant at the one percent (*t-statistics* = 61.24, 92.71, 45.21, 97.29 in columns (1), (2), (5) and (6),

respectively). In the regressions with EBITDA-based accounting returns in columns (3), (4), (7) and (8), the Walt test is significant at the level of five percent (*t-statistics* = 6.98, 6.32, 5.34, 4.15, respectively). Overall, Wald test indicates that the coefficients on the components of BT differences explained by discretionary accruals are significantly lower than those on the components of BT differences not explained by discretionary accruals.

F-statistics in all models correspond to the p-values of 0.000, suggesting that the sets of the variables used in the models explain the variation in the dependent variables. The value inflation factors VIF in all models are below 5 (not depicted in the table), indicating that the problems of multicollinearity should not be of a great concern.

The above results support hypothesis 2 that the relations between BT differences components and book performance indicators differ. BT differences explained by discretionary accruals evidence of strengthening of the factors that negatively affect firm performance. The component of BT differences not related to discretionary accruals may relate to firm performance in a different way. It is probable that this component of BT differences is explained by the released due to tax avoidance operating cash flows to a higher degree than due to earnings management.

2.2. Relation between book-tax differences and firm market value

This section presents the results of the study that involves the data of public firms in the Russian Federation[12]. The need for this study is justified by the larger number of available observations on the market value of firms in this market. Besides, the sample size allows to test the moderating impact of factors, such as dividend policy, impacting the relation between BT differences and firm market value. Besides, the fact that the IFRS were adopted in Russia later than in Kazakhstan. It makes it possible to test the hypotheses during the pre- and post-IFRS periods and to conclude on the impact of IFRS mandatory adoption on the investigated relations.

Data collection and sample selection

The data for analysis are taken from LSEG Workspace, formerly known as Thomson Reuters Refinitiv Eikon. The starting year of the sample is 2012, since the IFRS became mandatory in Russia starting from this year. The sample is limited to the years when IFRS is mandatory in Russia in order to exclude the impact of IFRS when testing hypotheses 3 and 4. The last year covered by the sample is 2020 to exclude the impact of the military invasion of the Russian Federation to Ukraine since this and related political events are likely to influence the financial indicators of firms.

[12] The main results of the study are published in [294]

To test hypothesis 5 about the role of IFRS adoption in the shaping the relation between BT differences and firm market value, the sample is expanded to 2000-2030. The year 2000 is chosen as the starting point for this analysis since that was the year when Vladimir Putin became the president of the country. Desai *et al*. [273] underscore the strengthening of tax administration starting from 2000 rising the concerns of re-nationalization. They also document that the stricter tax administration impacted share prices. The year 2012 is chosen as the separating point of the pre- and post-IFRS period since it was the first year when public firms in Russia were required to provide IFRS-compliant financial reports.

Table 12 presents the sample selection procedures for testing hypotheses 3-4. The initial sample excludes the financial sector firms due to their distinct accounting practices and consist of 4628 firm-year observations (FYOs) of 630 public firms from non-financial sectors between 2012 and 2020. Exclusion of FYOs with missing data on the book value of equity, total assets, and revenue from sales results in 3468 FYOs over the period starting from 2012. 652 FYOs with the reported net losses or negative values of book assets are excluded from both samples since the reporting of such firms are likely to be under financial distress. 1980 FYOs are lost due to the missing values of market capitalization for illiquid shares. 67 more observations are deleted from the sample due to the absent or negative value of income tax expenses. Firms that report income tax less than zero might be driven by peculiar tax reporting motivations, which are different from those that report positive profits and income tax expenses. The final sample contains 1421 FYOs of 336 firms.

Table 12 — Sample selection procedures: sample covering 2012-2020

Selection Criteria	**Excluded FYOs**	**Number of available FYOs/firms**
Initial sample		4,628/630
Minus: FYOs with the missing data on book value of equity, total assets, revenue from sales	508	4,120/515
Minus: FYOs with negative values of net income or negative book value of equity	652	3,468/509
Minus: FYOs with a missing value of market capitalization	1980	1,488/342
Minus: FYOs with negative or missing values of income tax expense	67	1,421/336
Final sample		1,421/336

Note: The table is developed by the author using the statistical package Stata 17.0. Data source: LSEG Workspace

Table 13 presents the sample selection for testing hypothesis 5. The initial sample is larger since it starts in 2000 and covers a greater number of years. Otherwise, the sample selection procedure is similar to the one presented in Table 12. The initial samples consist of 9,046 FYOs of 630 firms from 2000 until 2020. The final sample is 2,711 FYOs of 407 firms.

Table 13 - Sample selection procedures: sample covering 2000-2020

Selection Criteria	**Excluded FYOs**	**Number of available FYOs/firms**
Initial sample		9,046/630
Minus: FYOs with the missing data on book value of equity, total assets, revenue from sales	209	8,837/539
Minus: FYOs with negative values of net income or negative book value of equity	1968	6,869/534
Minus: FYOs with a missing value of market capitalization	3917	2,952/413
Minus: FYOs with negative or missing values of income tax expense	241	2,711/407
Final sample		2,711/407

Note: The table is developed by the author using the statistical package Stata 17.0. Data source: LSEG Workspace.

The robustness test conducted using 2SLS regression employs discretionary accruals as an instrument variable. However, since some observations do not have the necessary data for the estimation of discretionary accruals, such as depreciation and the value of property, plant, and equipment, the samples in the robustness test are slightly smaller. We lose 95 observations and end up with 1326 firm-year observations for testing hypotheses 3 and 4.

The sum of the total revenue from sales (total book value of assets) in the initial sample that contains 4628 FYOs over 2012-2020 equals 7.52×10^{12} USD (1.21×10^{13} USD). The sum of the total revenue from sales (total book value of assets) of the final sample amounts to 6.01×10^{12} USD (9.62×10^{12} USD) and counts for more than 79% of the corresponding measures in the initial sample. Thus, the final sample is representative. Similar results are obtained for the expanded sample covering the period starting from 2000, proving the representativeness of the sample.

By-industry composition of the sample is displayed in Table 14. The utilities sector prevails in the sample, representing more than 28% (26%) of the total firm-year observations in the sample starting from 2012 (2000). The basic materials sector follows with over 18% (20%) of firm-year observations. 17% (18%) of the observations are represented by the industrial sector and 15% (17%) are represented by the energy sector.

Table 14 – By-industry decomposition of the samples

Economic sector name	TRBC sector code	2012-2020		2000-2020	
		N	Percent of the total FYO	N	Percent of the total FYO
utilities	59	409	29%	697	26%
basic materials	51	261	18%	536	20%
industrials	52	235	17%	498	18%
energy	50	216	15%	471	17%
technology	57	100	7%	166	6%
consumer cyclicals	53	88	6%	153	6%
consumer non-cyclicals	54	70	5%	113	4%
healthcare	60	25	2%	46	2%
real estate	56	17	1%	31	1%
Total		1421	100%	2711	100%

Note: The table is developed by the author using the statistical package Stata 17.0. Data source: LSEG Workspace.

Descriptive statistics and correlation matrix

Table 15 displays the sample's descriptive statistics of the sample that starts from 2012. The average and median values of *tobin* equal 1.02 and 0.9, respectively. The average value of *tobin_ind* equals 0.11 and the median value is zero by construction of the variable. The variable *btd_total* has a mean value of -0.0130. At least 75% of observations have negative values of BT differences, meaning that the reported taxable base exceeds the reported book earnings.

The explanation of the negative values of BT differences in the sample partially lies in the Tax Code of the Russian Federation. The tax code prescribes certain rules for the recognition of taxable benefits that differ from the accounting treatment of the revenues from sales. The code also imposes limitations on the recognition of specific cost items for tax deductibility. The documentation for tax-deductible costs must be in strict compliance with the prescribed requirements. The expenses not included in the list of tax-deductible expenses or not supported by the prescribed documentation are still treated as operating expenses in book accounting but do not decrease the taxable income in tax reports.

For instance, voluntary life and pension insurance, and voluntary medical insurance must be less than 12% and 6% of the amount of labor costs, respectively. The deductible business entertainment expenses must not exceed four percent of labor costs, deductible for income tax purposes. The deductibility of the amounts spent on marketing campaigns' lotteries and prizes is limited to one percent of the revenue from sales. Tax reporting does not include the revaluation of fixed assets in the calculations of taxable income until the assets are sold and estimates the tax-deductible depreciation from the asset's historical cost. Such discrepancies between the values of fixed assets reported under IFRS and in the tax reports lead to the appearance of negative permanent BT differences. The amount of the deductible bad debt allowances is limited to 10% of the revenue from sales. Therefore, if the bad debt allowances in accounting reporting exceed the ten percent benchmark, then the difference leads to negative BT differences. Furthermore, the Tax Code of Russia applies the thin capitalization rules to define the amount of interest on debt from foreign entities and related parties.

Table 15 – Descriptive statistics of the main variables of the sample covering 2012-2020

	n	Mean	Std. Dev.	Min.	Max.	p25	p50	p75
tobin	1421	1.015	0.610	0.197	4.057	0.640	0.903	1.202
tobin_ind	1421	0.107	0.595	-0.713	3.273	-0.243	0.000	0.283
btd_total	1421	-0.013	0.036	-0.207	0.129	-0.027	-0.012	-0.0004
divpayout	1421	0.436	1.037	0.000	7.551	0.000	0.098	0.448
divdummy	1421	0.682	0.466	0.000	1.000	0.000	1.000	1.000
div_5	1421	2.782	1.510	1.000	5.000	1.000	3.000	4.000
Big4	1421	0.331	0.471	0.000	1.000	0.000	0.000	1.000
lnsize	1421	20.039	2.191	15.110	24.901	18.295	19.721	21.705
booklev	1421	5.685	2.903	1.000	10.000	3.000	6.000	8.000
sales_growth	1421	-0.004	0.257	-0.624	1.205	-0.124	-0.023	0.096
roa	1421	0.078	0.077	0.0002	0.409	0.024	0.056	0.108
asset_turn	1421	1.363	1.536	0.062	7.042	0.539	0.847	1.312
lnage	1421	3.055	0.183	2.398	3.367	2.996	3.091	3.178
daccrual	1326	-0.002	0.099	-0.541	0.463	-0.048	-0.012	0.034
btd_dacc	1326	-0.016	0.019	-0.072	0.050	-0.030	-0.014	-0.002
btd_error	1326	0.003	0.035	-0.191	0.148	-0.016	0.003	0.020

Note: The table is developed by the author using the statistical package Stata 17.0. Data source: LSEG Workspace.

The mean of *lnsize,* represented by the natural logarithm of total assets, equals 20.04 and it is close to the median value of 19.72, suggesting that the distribution is

not substantially skewed. The average value of book leverage is 2.8458 times, significantly higher than the median, which is 1.0156 times (not reported). The high difference between the median and median value of book leverage and the maximum value of more than 32 times evidence the existence of outliers. To address the problem of outliers, the decile rank of book leverage, denoted *booklev*, is applied. The mean value of *booklev* is 5.69 and the median is 6.0, respectively.

Firms have a negative *sales growth* of -0.41% on average, with a median value of -2.33%. The sales growth ranges between -12.38% and 120.5%. In only 33.1% of observations, financial reports are audited by large multinational audit Big Four firms. In 68.19% of the sample, firms pay dividends. The average payout ratio is 43.6% and the median value is 9.8%. The inclusion of an extra variable, *div_5,* which represents the quintile rank of dividend payout, is employed to tackle the issue arising from the non-normality of the payout ratio' distribution. The average value of *lnage* and its median are close to 3.1.

Table 16 presents the descriptive statistics of the extended sample that covers the period of 2000-2020

Table 16 – Descriptive statistics of the main variables of the sample covering 2000-2020

	n	Mean	Std. Dev.	Min.	Max.	p25	p50	p75
tobin	2711	1.113	0.736	0.222	5.797	0.691	0.960	1.291
tobin_ind	2711	0.114	0.617	-0.789	3.273	-0.239	0.000	0.283
btd_total	2711	-0.024	0.101	-0.573	0.333	-0.039	-0.015	0.0003
divpayout	2711	0.253	0.574	0.000	3.520	0.000	0.001	0.245
divdummy	2711	0.538	0.499	0.000	1.000	0.000	1.000	1.000
div_5	2711	2.466	1.575	1.000	5.000	1.000	2.000	4.000
Big4	2711	0.272	0.445	0.000	1.000	0.000	0.000	1.000
lnsize	2711	19.913	2.105	15.142	24.740	18.296	19.554	21.405
booklev	2711	5.701	2.824	1.000	10.000	3.000	6.000	8.000
sales_growth	2711	0.119	0.381	-0.608	2.484	-0.083	0.074	0.261
roa	2711	1.523	1.767	0.064	8.603	0.580	0.916	1.470
asset_turn	2711	0.090	0.092	0.000	0.485	0.026	0.063	0.118
lnage	2711	2.848	0.321	1.609	3.367	2.708	2.890	3.091
daccrual	2405	-0.001	0.132	-0.636	0.520	-0.056	-0.011	0.042
btd_dacc	2405	-0.029	0.045	-0.239	0.146	-0.056	-0.022	-0.001
btd_error	2405	0.004	0.089	-0.552	0.389	-0.025	0.004	0.034

Note: The table is developed by the author using the statistical package Stata 17.0. Data source: LSEG Workspace.

. The mean and median values *tobin* and *tobin_ind* for the extended sample are larger than those in the sample that starts from 2012. The mean value of *btd_total*

is also negative but is almost twice as less than in the sample starting from 2012. The percentage of negative *btd_total* is less than 75%. The mean of *divpayout* (0.2527) is nearly twice as low as that in the sample covering 2012-2020. The share of dividend-paying firms is 53.8% vs. 43.6%, respectively, in the sample of 2012-2000 and 2000-2020. The data indicate that fewer firms use Big Four firms' services during the extended sample period than in the post-IFRS period (27% vs. 33%). Other important differences are positive average sales growth, higher profitability, and efficiency ratios.

Table 17 displays the Pearson correlation coefficients between the main variables in the lower-left part and Spearman correlation coefficients in the upper-right part of the table, for the sample of 2012-2020.

Table 17 – Correlation matrix between the main variables of the sample covering 2012-2020

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) *tobin*	**1**	**0.924**	**-0.088**	**0.291**	**0.127**	**0.258**	**0.232**	**0.135**
(2) *tobin_ind*	**0.968**	**1**	**-0.130**	**0.286**	**0.143**	**0.265**	**0.201**	**0.095**
(3) *btd_total*	-0.017	-0.049	**1**	**-0.126**	**-0.058**	**-0.144**	0.029	**0.133**
(4) *divpayout*	**0.134**	**0.132**	**-0.133**	**1**	**0.817**	**0.930**	**0.159**	**0.318**
(5) divdummy	**0.133**	**0.142**	**-0.056**	**0.285**	**1**	**0.814**	**0.071**	**0.286**
(6) *div_5*	**0.223**	**0.225**	**-0.138**	**0.498**	**0.805**	**1**	**0.117**	**0.292**
(7) *Big4*	**0.179**	**0.152**	0.037	**0.067**	**0.071**	**0.117**	**1**	**0.459**
(8) *lnsize*	**0.087**	**0.058**	**0.121**	**0.093**	**0.293**	**0.295**	**0.443**	**1**
(9) *booklev*	**0.328**	**0.230**	**-0.185**	**0.117**	-0.020	-0.065	**0.214**	0.0103
(10) *sales_growth*	**0.079**	**0.056**	0.017	**-0.098**	-0.044	**-0.072**	0.042	**0.059**
(11) *asset_turn*	**0.123**	**0.150**	**-0.242**	0.031	-0.005	0.036	**-0.073**	**-0.382**
(12) *roa*	**0.300**	**0.278**	**0.256**	**-0.116**	**0.111**	**0.068**	0.016	**0.083**
(13) *lnage*	0.031	-0.041	**0.084**	0.043	0.004	-0.010	0.051	**0.056**
(14) *daccrual*	-0.006	-0.026	**0.269**	**-0.108**	**-0.051**	**-0.126**	**-0.057**	**-0.085**
(15) *btd_dacc*	**0.094**	**0.075**	**0.387**	**-0.123**	**0.060**	-0.028	**0.284**	**0.445**
(16) *btd_error*	**-0.080**	**-0.101**	**0.699**	-0.060	**-0.115**	**-0.120**	**-0.177**	**-0.234**
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) *tobin*	**0.554**	**0.093**	**0.264**	**0.137**	0.030	**-0.109**	**0.049**	**-0.082**
(2) *tobin_ind*	**0.507**	**0.055**	**0.264**	**0.126**	**-0.083**	**-0.122**	**0.038**	**-0.105**
(3) *btd_total*	**-0.179**	0.019	**-0.255**	**0.174**	**0.088**	**0.144**	**0.267**	**0.556**
(4) *divpayout*	**0.081**	-0.029	0.038	**0.084**	**0.063**	**-0.142**	0.022	-0.134
(5) divdummy	-0.016	0.004	0.021	**0.174**	-0.003	**-0.053**	**0.098**	**-0.127**
(6) *div_5*	**0.067**	-0.036	**0.081**	**0.099**	-0.033	**-0.153**	-0.002	-0.124
(7) *Big4*	**0.208**	**0.076**	-0.032	0.002	0.045	**-0.069**	**0.341**	**-0.240**
(8) *lnsize*	0.019	**0.097**	**-0.366**	**0.147**	0.051	**-0.113**	**0.505**	**-0.315**

Table 17 – continued

(9) *booklev*	**1**	**0.088**	**0.350**	**-0.333**	-0.054	**-0.090**	**-0.180**	**0.026**
(10) *sales_growth*	0.073	**1**	**0.067**	**0.116**	-0.009	0.003	**0.023**	**-0.014**
(11) *asset_turn*	**0.350**	-0.006	**1**	0.024	**-0.151**	-0.060	**-0.401**	**0.159**
(12) *roa*	**-0.266**	**0.081**	**-0.067**	**1**	**0.058**	**0.184**	**0.476**	**-0.188**
(13) *lnage*	-0.055	-0.040	**-0.061**	**0.077**	**1**	-0.021	**0.113**	**-0.021**
(14) *daccrual*	**-0.085**	0.013	-0.053	**0.332**	0.023	**1**	**0.536**	**-0.147**
(15) *btd_dacc*	**-0.217**	-0.024	**-0.624**	**0.554**	**0.095**	**0.415**	**1**	**-0.540**
(16) *btd_error*	-0.001	0.063	0.264	-0.122	0.013	**-0.183**	**-0.389**	**1**

This table represents the Spearman correlation matrix in the upper-right part of the table and Pearson correlation matrix in the lower-down part of the table. The correlation coefficients highlighted in bold indicate the p-values of less than 5% level using a two-tailed test. Compiled by the author based on statistical analysis using Stata 17.0 statistical software. Data source: LSEG Workspace.

By construction, *tobin* and *tobin_ind* are highly correlated, with Pearson's and Spearman's correlation coefficients equal to 0.968 and 0.924, respectively. Both *tobin* and *tobin_ind* are negatively correlated to *btd_total* and *daccrual*, with Spearman correlation coefficients being significant at five percent. The coefficients between the firm value variables and all dividends policy variables (*divpayout*, *divdummy,* and *div_5*) are positive and significant at five percent. All control variables except *lnage* (*big4*, *lnsize, booklev*, *sales_growth*, *asset_turn*, *roa*) have positive and significant at five percent Pearson and Spearman correlation coefficients. Pearson correlation coefficients between *tobin* (*tobin_ind*) and *lnage* are not significant at five percent; Spearman correlation matrix shows significant at five percent positive coefficients between *tobin* (*tobin_ind*) and *lnage*. The correlation coefficients between the pairs of the independent variables and control variables are either small or insignificant at five percent, suggesting that multicollinearity should not represent a problem.

The correlation matrix for the extended sample in Table 18 shows contradicting evidence on the size of the coefficients between *btd_total* and both firm value indicators. The values of the coefficients between the control variables doe not reveal large correlations, suggesting that multicollinearity should not raise serios concerns.

Table 18 – Correlation matrix of the sample covering 2000-2020

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) tobin	**1**	**0.886**	**-0.116**	**0.132**	0.038	**0.147**	**0.157**	**0.109**
(2) tobin_ind	**0.945**	**1**	**-0.099**	**0.206**	**0.120**	**0.200**	**0.167**	**0.105**
(3) *btd_total*	-0.027	-0.024	**1**	0.007	**0.063**	0.009	**0.099**	**0.175**
(4) *divpayout*	**0.091**	**0.144**	-0.026	**1**	**0.898**	**0.931**	**0.234**	**0.351**

Table 18 — continued

(5) divdummy	0.036	**0.103**	**0.097**	**0.401**	**1**	**0.892**	**0.216**	**0.351**
(6) *div_5*	**0.116**	**0.170**	**0.061**	**0.573**	**0.857**	**1**	**0.234**	**0.365**
(7) *Big4*	**0.098**	**0.123**	**0.098**	**0.121**	**0.216**	**0.232**	**1**	**0.483**
(8) *lnsize*	**0.058**	**0.072**	**0.162**	**0.142**	**0.363**	**0.372**	**0.469**	**1**
(9) *booklev*	**0.191**	**0.072**	**-0.086**	**0.137**	0.015	0.052	**0.154**	-0.008
(10) *sales_growth*	**0.117**	**0.068**	-0.036	**-0.119**	**-0.083**	**-0.062**	0.018	**0.068**
(11) *asset_turn*	**0.098**	**0.117**	**-0.246**	0.031	**-0.080**	**-0.041**	**-0.130**	**-0.400**
(12) *roa*	**0.286**	**0.253**	**0.229**	**-0.096**	0.033	**0.045**	0.003	**0.074**
(13) *lnage*	**-0.138**	**-0.073**	**0.099**	**0.173**	**0.224**	**0.139**	**0.062**	0.034
(14) *daccrual*	0.010	-0.002	**0.293**	**-0.085**	**-0.045**	**-0.075**	-0.029	-0.028
(15) *btd_dacc*	-0.002	**0.044**	**0.447**	0.015	**0.266**	**0.165**	**0.287**	**0.421**
(16) *btd_error*	-0.030	**-0.048**	**0.895**	-0.036	-0.024	-0.014	-0.033	-0.029
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) tobin	**0.409**	**0.174**	**0.230**	**0.175**	**-0.164**	**-0.097**	**-0.084**	-0.032
(2) tobin_ind	**0.404**	**0.079**	**0.198**	**0.125**	**-0.066**	**-0.085**	0.006	**-0.061**
(3) *btd_total*	**-0.137**	**-0.047**	**-0.262**	**0.185**	**0.143**	**0.204**	**0.367**	**0.658**
(4) *divpayout*	**0.068**	**-0.103**	**-0.080**	**0.056**	**0.279**	**-0.102**	**0.230**	**-0.110**
(5) divdummy	0.011	**-0.059**	**-0.110**	**0.108**	**0.240**	**-0.047**	**0.279**	**-0.091**
(6) *div_5*	**0.047**	**-0.042**	**-0.059**	**0.096**	**0.158**	**-0.099**	**0.183**	**-0.067**
(7) *Big4*	**0.150**	0.036	**-0.126**	0.021	**0.081**	**-0.049**	**0.316**	**-0.111**
(8) *lnsize*	0.000	**0.094**	**-0.427**	**0.129**	0.039	**-0.070**	**0.454**	**-0.138**
(9) *booklev*	**1**	**0.047**	**0.304**	**-0.336**	**0.042**	**-0.076**	**-0.149**	0.007
(10) *sales_growth*	0.056	**1**	**0.139**	**0.179**	**-0.335**	-0.006	**-0.150**	**0.047**
(11) *asset_turn*	**0.326**	0.035	**1**	**0.088**	**-0.168**	-0.038	**-0.427**	**0.057**
(12) *roa*	**-0.280**	**0.168**	0.039	**1**	**-0.097**	**0.177**	**0.309**	**-0.053**
(13) *lnage*	**0.041**	**-0.265**	**-0.076**	**-0.100**	**1**	0.040	**0.384**	**-0.117**
(14) *daccrual*	**-0.069**	**0.042**	**-0.065**	**0.322**	0.005	**1**	**0.402**	**-0.058**
(15) *btd_dacc*	-0.172-	**-0.124**	**-0.560**	**0.380**	**0.292**	**0.517**	**1**	**-0.294**
(16) *btd_error*	0.010	0.022	0.005	**0.066**	-0.036	**0.069**	0.001	**1**

This table represents the Spearman correlation matrix in the upper-right part of the table and Pearson correlation matrix in the lower-down part of the table. The correlation coefficients highlighted in bold indicate the p-values of less than 5% level using a two-tailed test. Compiled by the author based on statistical analysis using Stata 17.0 statistical software. Data source: LSEG Workspace.

Testing hypothesis 3 on the relation between book-tax differences and firm market value

Table 19 presents the output of model (2). In columns (1), (3), and (5), the dependent variable is *tobin*. In columns (2), (4), and (6), the dependent variable is *tobin_ind*. The first two columns depict the results for the whole sample. The coefficients on *btd_total* are negative and significant at the five percent level (β = -1.178 and -1.193, t-values of -2.24 and -2.30, respectively). The obtained results suggest that firms with lower BT differences are valued higher, thus supporting hypothesis 3.

Beta coefficients on the control variables are as follows. The positive coefficients on the dividend payout, *divpayout*, are significant at least at five percent in both models (β = -0.069 фтв -0.068, *t-statistics* = 4.42), indicating that higher dividend payout is associated with higher values of firm value, in line with the *outcome*, *complementary*, and *bird-in-hand* hypotheses of dividend policy.

The coefficients on *Big4* and *lnsize* are positive but not statistically significant. This result may reflect a disappearing effect from economies of scale upon achieving a certain level of efficiency. Similarly, the negative and significant at ten percent coefficients on *lnage* (β = -0.307 and -0.287, *t-statistics* = -1.90 and -1.76, respectively) show that more mature firms are valued lower than younger firms, similar to the results reported in [274]. These results suggest that larger and older firms are losing their flexibility. As firms get older, the increased rigidity negatively affects their share price.

The regression coefficients on *sales_growth* have different signs and are not significant in all models. These outcomes reflect the mixed results in prior studies. The results show positive and statistically significant at the one percent level coefficients on *roa* (β = 3.119 and 3.083, *t-statistics* = 7.06 and 6.96, respectively) and on *asset_turn* (β = 0.028 and 0.029, *t-statistics* = 2.06 and 2.08, respectively). This result reflects the existing premiums on more profitable and efficient firms [275]. The positive and statistically significant at the one percent level coefficients on *booklev* (β = 0.080 and 0.076, *t-statistics* = 10.36 and 9.78, respectively) indicate that investors positively assess firms with higher financial leverage, in line with the results in [229]. Such a result may reflect the monitoring role of the banking sectors over their debtors, which diminishes the information asymmetry for investors, resulting in decreasing required risk premiums. The coefficients on *Big4*, *lnsize,* and *sales_growth* are not significantly different from zero, according to the *t-statistics* values.

Table 19 – Relation between book-tax differences and firm value

Dependent variables:	*tobin* (1)	*tobin_ind* (2)
Independent variables:		
btd_total	-1.178**	-1.193**
	(-2.24)	(-2.30)
divpayout	0.069***	0.068***
	(4.42)	(4.42)
Big4	0.080	0.082
	(1.56)	(1.61)
lnsize	0.007	0.006
	(0.46)	(0.36)
booklev	0.080***	0.076***
	(10.36)	(9.78)
sales growth	-0.008	0.007
	(-0.11)	(0.09)
roa	3.119***	3.083***
	(7.06)	(6.96)
asset_turn	0.028**	0.029**
	(2.06)	(2.08)
lnage	-0.307*	-0.287*
	(-1.90)	(-1.76)
N	1421	1421
Industry f.e.	Y	Y
Year f.e.	Y	Y
F-statistics	18.771	12.502
p-value	0.000	0.000
Adjusted R-square	0.333	0.266

Note: The table represents the results of the statistical analysis conducted by the author using the statistical software Stata 17.0. Data source: LSEG Workspace. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test.

The values of F-statistics in both models of Table 19 correspond to the *p*-values of 0.000, thereby rejecting the null hypothesis on the equality of all parameters to zero

and suggesting acceptable model specification. The values of the adjusted coefficient of determination R^2 equal 0.333 and 0.266, indicating that at least 33.3% and 26.6% of Tobin's Q dispersion is explained by the model.

Testing hypothesis 4

Table 20 contains two panels and presents the results of regression (3). The panels differ by the outcome variables (*tobin* in Panel A and *tobin_ind* in Panel B). The models within each panel use different measures of dividend policy (*divpayout*, *divdummy*, and *div_5* in the corresponding columns as shown in both panels of the table).

Table 20 – Moderating role of dividend policy on the relation between book-tax differences and firm value

Panel A. The dependent variable is *tobin*						
	Dividend policy measure:					
	divpayout	*divpayout*	*divdummy*	*divdummy*	*div_5*	*div_5*
	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables:						
btd_total	-1.178**	-1.613***	-1.227**	-1.946***	-0.954*	-2.098***
	(-2.24)	(-2.88)	(-2.40)	(-3.25)	(-1.93)	(-2.77)
dividend_policy	0.069***	0.108***	0.145***	0.163***	0.071***	0.080***
	(4.42)	(4.43)	(3.83)	(3.88)	(6.03)	(5.98)
*btd_total*dividend_policy*		1.302**		1.446		0.494*
		(2.56)		(1.64)		(1.93)
big4	0.080	0.076	0.091*	0.089*	0.089*	0.087*
	(1.56)	(1.50)	(1.75)	(1.70)	(1.79)	(1.75)
lnsize	0.007	0.007	-0.001	-0.001	-0.009	-0.010
	(0.46)	(0.49)	(-0.07)	(-0.08)	(-0.62)	(-0.66)
booklev	0.080***	0.080***	0.082***	0.082***	0.082***	0.082***
	(10.36)	(10.50)	(10.69)	(10.73)	(10.97)	(11.09)
sales_growth	-0.008	-0.002	-0.027	-0.029	-0.001	-0.003
	(-0.11)	(-0.03)	(-0.38)	(-0.41)	(-0.02)	(-0.04)
roa	3.119***	3.129***	2.952***	2.959***	2.922***	2.934***
	(7.06)	(7.15)	(6.85)	(6.87)	(7.08)	(7.14)
asset_turn	0.028**	0.028**	0.025*	0.026*	0.019	0.019
	(2.06)	(2.09)	(1.92)	(1.95)	(1.52)	(1.54)
lnage	-0.307*	-0.302*	-0.290*	-0.284*	-0.291*	-0.286*
	(-1.90)	(-1.87)	(-1.80)	(-1.77)	(-1.82)	(-1.79)
N	1421	1421	1421	1421	1421	1421
F-statistics	18.771	17.642	15.929	15.273	19.114	18.616
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R-square	0.333	0.337	0.330	0.332	0.347	0.348

Table 20 – continued

Panel B. The dependent variable is *tobin_ind*						
	Dividend policy measure:					
	divpayout	*divpayout*	*divdummy*	*divdummy*	*div_5*	*div_5*
	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables:						
btd_total	-1.193**	-1.630***	-1.240**	-1.922***	-0.966**	-2.066***
	(-2.30)	(-2.94)	(-2.46)	(-3.21)	(-1.98)	(-2.75)
dividend policy	0.068***	0.108***	0.144***	0.162***	0.071***	0.080***
	(4.42)	(4.46)	(3.71)	(3.75)	(5.93)	(5.89)
*btd_total*dividend policy*		1.307***		1.370		0.475*
		(2.77)		(1.56)		(1.87)
Big4	0.082	0.078	0.093*	0.091*	0.091*	0.089*
	(1.61)	(1.54)	(1.80)	(1.75)	(1.84)	(1.80)
lnsize	0.006	0.006	-0.003	-0.003	-0.011	-0.011
	(0.36)	(0.39)	(-0.16)	(-0.17)	(-0.72)	(-0.76)
booklev	0.076***	0.076***	0.079***	0.079***	0.078***	0.079***
	(9.78)	(9.92)	(10.12)	(10.16)	(10.38)	(10.49)
sales_growth	0.007	0.012	-0.012	-0.014	0.014	0.012
	(0.09)	(0.17)	(-0.17)	(-0.20)	(0.19)	(0.17)
roa	3.083***	3.093***	2.917***	2.923***	2.886***	2.897***
	(6.96)	(7.05)	(6.76)	(6.78)	(6.98)	(7.03)
asset_turn	0.029**	0.029**	0.026*	0.026*	0.020	0.020
	(2.08)	(2.11)	(1.94)	(1.96)	(1.54)	(1.56)
lnage	-0.287*	-0.282*	-0.270*	-0.264	-0.270*	-0.266*
	(-1.76)	(-1.72)	(-1.67)	(-1.63)	(-1.68)	(-1.65)
N	1421	1421	1421	1421	1421	1421
Industry f.e.	Y	Y	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y	Y	Y
F-statistics	12.502	12.227	11.759	11.324	14.545	14.421
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R-square	0.266	0.270	0.264	0.265	0.281	0.283

Note: The table represents the results of the statistical analysis conducted by the author using the statistical software Stata 17.0. Data source: LSEG Workspace. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test.

The regression coefficients on *btd_total* are negative and statistically significant at least at the five percent level (β is between -0.966 and -2.066 with *t-statistics* between -1.98 and -2.94). The beta coefficients for all proxies of dividend

policy are positive and statistically significant at the one percent level (β is between 0.07 and 0.16 with the *t-statistics* between 3.71 and 5.93).

The coefficients on the interactive variable *btd_total*divpayout* are positive and significant at the five percent level in Panel A and one percent level in Panel B (t = 2.56 and 2.77 respectively in Panel A and B). The coefficients on *btd_total*div_5* are also positive and significant at the level of 10% (t = 1.93 and 1.87 in Panels A and B, respectively). The statistically significant positive coefficients indicate that dividend policy moderates the relation between BT differences and firm value and reduces the inverse relation, thereby supporting hypothesis 2.

The coefficients on *btd_total*divdummy* are not significant with the t-statistics value equal to 1.64 and 1.56 in Panels A and B, respectively. This result indicates that simply dividend paying status is not sufficient to moderate the association between *btd_total* and *tobin* or *tobin_ind* and that the size of dividend payout is important in this relation. The control variables demonstrate similar relations to the results shown in Table 8.

To summarize, the obtained results demonstrate that the negative coefficient on *btd_total* remains significant, thereby supporting hypothesis 3 on the inverse relation between BT differences and firm value. The positive significant coefficients on *dividend*btd_total* support hypothesis 4 stating that dividend payout mitigates the inverse relation.

Testing hypothesis 5 on the role of IFRS in shaping the relation between book-tax differences and firm value

Analysis of model (9a) and its variation with the inclusion of the interaction variable between *dividend* and *btd_dacc* was repeated with inclusion of an indicative variable *IFRS*, which is equal 1 for the observations in the post 2011 period and 0 otherwise. A summary of the results on the coefficients of the main explanatory variables are presented in Table 21.

Table 21 – Analysis of the role of mandatory IFRS adoption in shaping the relation between BT differences and firm value

Panel A. Dependent variable: *tobin*						
	Analyzed period:					
	Combined sample		Before IFRS	After IFRS	Before IFRS	After IFRS
	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables:						
IFRS	-0.075	0.383***				
	(-0.51)	(4.30)				
btd_dacc	-2.850***	-2.990***	-1.800	-4.708***	-1.740	-5.093***
	(-2.93)	(-3.03)	(-1.48)	(-3.30)	(-1.43)	(-3.53)

Table 21 – continued

divpayout	0.137***	0.181***	0.155**	0.126***	0.121	0.223***
	(5.71)	(4.19)	(2.40)	(4.90)	(0.97)	(4.93)
*btd_dacc*divpayout*		1.117			-0.479	3.101***
		(1.29)			(-0.33)	(3.06)
N	2254	2254	928	1326	928	1326
Industry f.e.	Y	Y	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y	Y	
F-statistics	18.779	18.818	10.887	18.289	10.623	14.502
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R-square	0.239	0.240	0.188	0.274	0.187	0.281
Panel B. Dependent variable: *tobin_ind*						
			Analyzed period:			
	Combined sample		Before IFRS	After IFRS	Before IFRS	After IFRS
	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables:						
IFRS	0.269**	0.218**				
	(2.03)	(2.58)				
btd_dacc	-2.895***	-3.032***	-1.565	-4.926***	-1.519	-5.265***
	(-3.35)	(-3.46)	(-1.47)	(-3.84)	(-1.42)	(-4.09)
divpayout	0.131***	0.174***	0.149**	0.122***	0.123	0.207***
	(5.69)	(4.14)	(2.36)	(4.95)	(1.00)	(4.65)
*btd_dacc*divpayout*		1.090			-0.369	2.729***
		(1.29)			(-0.25)	(2.87)
N	2254	2254	928	1326	928	1326
Industry f.e.	Y	Y	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y	Y	
F-statistics	10.764	10.771	4.929	12.654	4.871	12.097
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R-square	0.191	0.192	0.110	0.278	0.109	0.286

Note: This table represents a summary of the results of the statistical analysis conducted by the author. Results on the control variables are omitted. The full analysis results are presented in Appendix C. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test.

Full analysis results is presented in Appendix C. Panel A of Table 21 presents the results of the analysis with *tobin* and Panel B depicts the results with *tobin_ind* as the dependent variable Columns (1) and (2) of both panels present the results with the analysis of the sample over the period of 2000-2020, with and without the interactive

variable *btd_dacc*divpayout,* respectively. Panels A and B of Table 20 include the results obtained with the pre-IFRS sample in columns (3) and (5) and post-IFRS sample in columns (4) and (6). Analysis of the regression model without the interactive variable is in columns (3) and (4) and the analysis with the interactive variable in columns (5) and (6).

The coefficient on IFRS is not significant in column (1) (*t-statistics* = -0.51) but becomes significant in the model that tests the moderating effect in column (2) of Panel A (β = 0.38, *t-statistics* = 4.30). The coefficient on IFRS is positive and significant in both models in Panel (B) (β = 0.27 and 0.22, *t-statistics* = 2.03 and 2.58 in columns (1) and (2), respectively). The obtained results evidence that the market value of firms in Russia has enhanced with the adoption of IFRS.

In column (1) of both panels of Table 20 β-coefficients on *btd_dacc* are 2.850 and -2.895, with the t-statistics values of -2.93 and -3.35 respectively, significant at the level of 1%. The values of β-coefficients on *divpayout* in both panels in column (1) are positive and equal to 0.137 and 0.131, with *t-statistics* of 5.71 and 5.69, respectively, indicating the significance at the one percent level. We note that β-coefficients on the interaction variable in the analysis of the sample covering the period covering 20 years starting from 2000 are not statistically significant (β = 1.117 and 1.090, *t-statistics* = 1.29 in both Panels). It is possible that the moderating impact of dividend policy in one period is reversed in the other period, explaining the disappearance of the significance in the extended sample.

The full analysis including the control variables in Appendix shows the coefficients in column (2) of both panels being qualitatively similar to those in column (1).

Comparing the results of the analysis across the sub-samples covering the periods before and after the mandatory IFRS adoption reveals the following. β -coefficients on *btd_dacc* are not statistically significant in the pre-IFRS subsample (columns (3) and (5)), but become negative and significant in the regressions for the post-IFRS period (β = -4.7 and -4.9, *t-statistics* = -3.30 and -3.84 in column (4) of Panels A and B, respectively). The negative coefficients on *btd_dacc* remain statistically significant after introducing the interaction variable into the (β = -5.093 and -5.265, *t-statistics* = -3.53 and -4.09 in column (6) of Panel A and B, respectively).

The positive coefficients on *divpayout* are significant in the pre-IFRS period in the regressions without the interactive variables in column (3) of both panels but lose their significance when the *btd_dacc*divpayout* is included in the model in column (5) of both panels. In the post-IFRS period, the positive coefficients on *divpayout* are significant with 99% confidence (β = 0.126 and 0.122, *t-statistics* 4.90 and 4.95 in column (4) of Panels A and B, respectively). The positive coefficients on *divpayout* remain significant when the interaction variable is introduced into the model in

column (6), with β = 0.223 and 0.207, *t-statistics* = 4.93 and 4.65 in Panels A and B, respectively). *btd_dacc* and *divpayout* are also significant only in the post-IFRS period at one percent and are not significant in the pre-IFRS period.

2.3 Robustness check and additional analysis

Robustness check for the results of the analysis of the sample of Kazakhstani firms

The choice of the specifications for robustness check is determined by the sample characteristics in the studies presented in 2.2 and was justified in 1.3. To test the results for robustness for the study on Kazakhstani firms with relatively small sample size, additional statistical tools were employed. We introduce the lagged dependent variable to control for the serial correlation and then test the results using system Generalized Method of Moments and dynamic regression model with standard errors specified as in the main analysis and a modification using the jackknife sampling procedure. The results were also tested with application of a different specification of discretionary accruals using the method of Kothari et al. The tables presented in this section are shown in an abrupted form and focus on the coefficients on the main explanatory variables. Full analysis is presented in Appendix D Table D.1.

Analysis Using the System Generalized Method of Moments (sGMM)

The analysis is conducted following the methodological recommendations on sGMM long panel data analysis approach using the *xtabond2* command in Stata 17.0 with two-step specification. The lagged dependent variable is introduced as a *gmm-type* variable using the *collapse* option to avoid creation of the excessive number of instruments, as recommended in [262]. The instrument variables are *daccrual* (in columns (1) and (3), or *emdown* (in columns (2) and (4), *lnage*, and the indicator variables of the period. We apply robust, orthogonal and small specifications of error terms. The number of instruments is 26 and are less than the number of groups (42), which is in line with the recommendations for *xtabond2* application. The results are in Table 22.

The results in Table 22 support those presented in Table 8. Panel A of Table 21 presents the results with the CFO-based firm performance measurements and Panel B presents the results with EBITDA-based performance indicators. The coefficients on *btd_total* are negative and statistically significant at the five percent level in all models of Panel A. The results on the coefficients on *btd_total* in Panel B are not as straightforward. The results differ depending on the dependent variable and the earnings management instrumental variable. The coefficients on *btd_total* are not significant when *daccrual* is an instrumental variable and *EBITDA_lasset* is the dependent variable and in column (1), has marginal significance at the ten

percent level when *EBITDA_linvcap* is the dependent variable in column (3). The significance of the coefficients on *btd_total* is stronger in columns (2) and (4) with the dummy variable *emdown* as an instrumental variable. Such results confirm the conclusion that EBITDA-based performance indicators are subject to earnings management. Therefore, CFO-based performance indicators would be a better choice when exploring the relation between BT differences and firm performance. The results also indicate that manipulative practices in financial reporting explain the relation between BT differences and performance indicators.

Arellano-Bond tests AR(1) and AR(2) are used as the post-estimation tests to examine the presence of autocorrelation of the first and second order in dynamic panel data. The obtained results presented in the bottom part of both panels of Table 21 confirm the autocorrelation of the first-order AR1 test is significant at the one percent level. Second-order autocorrelation is statistically not significant as the results of AR2 indicate since the p-values exceed the ten percent threshold in all models. Another post-estimation test is Hansen 's-J test with the null hypothesis of validity of over-identification restrictions. The p-values in Hansen's J-test are larger than 10 percent, thereby showing that the test results do not reject the null hypothesis of validity of over-identified restrictions in all models of Panel A and B.

Table 22 – Results of the System Generalized Method of Moment Analysis (sGMM)

Panel A. Dependent variables: *CFO_lasset, CFO_linvcap*				
	(1)	(2)	(3)	(4)
	CFO_lasset	*CFO_lasset*	*CFO_linvcap*	*CFO_linvcap*
Instrumental variable on earnings management	*daccrual*	*emdown*	*daccrual*	*emdown*
Independent variables:				
lagged dep.var.	-0.0559	-0.0406	0.195	0.199
	(-0.64)	(-0.33)	(1.39)	(1.52)
btd_total	-1.781**	-1.570**	-2.960**	-2.771**
	(-2.69)	(-2.33)	(-2.36)	(-2.13)
Observations	367	367	367	367
No. of instruments	26	26	26	26
No. of groups	42	42	42	42
AR1 test	-1.914	-2.505	-2.368	-1.683
(p-value)	(0.056)	(0.012)	(0.018)	(0.092)
AR2 test	-0.800	-0.991	-0.694	-0.585
(p-value)	(0.424)	(0.322)	(0.488)	(0.558)
Hansen-J test	21.84	17.53	17.06	15.91
(p-value)	(0.191)	(0.419)	(0.450)	(0.530)

Table 22 – continued

Panel B. Dependent variables: *EBITDA_lasset, EBITDA_linvcap*				
	(1)	(2)	(3)	(4)
	EBITDA_lasset	*EBITDA_lasset*	*EBITDA_linvcap*	*EBITDA_linvcap*
Instrumental variable on earnings management used	*daccrual*	*emdown*	*daccrual*	*emdown*
Independent variables:				
lagged dep. var.	0.376**	0.334**	0.353***	0.333***
	(2.54)	(2.07)	(4.58)	(3.64)
btd_total	-0.363	-0.753**	-1.314*	-1.527***
	(-0.97)	(-2.35)	(-1.86)	(-3.32)
Observations	366	366	366	366
No. of instruments	26	26	26	26
No. of groups	42	42	42	42
AR1 test	-2.185	-2.365	-2.067	-2.117
(p-value)	(0.029)	(0.018)	(0.039)	(0.034)
AR2 test	-0.958	-0.893	0.154	-0.0298
(p-value)	(0.338)	(0.372)	(0.878)	(0.976)
Hansen-J test	21.94	22.58	15.71	15.49
(p-value)	(0.187)	(0.164)	(0.544)	(0.560)

Note: The table represents a summary of the results of the statistical analysis conducted by the author using the statistical software Stata 17.0. Full results are in Appendix D Table D.1. Data source: LSEG Workspace. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test. AR1 and AR2 stand for Arellano-Bond test for first and second-order autocorrelation, respectively. Hansen-J test is Hansen's test of over-identifying restrictions.

Table 23 presents an analysis similar to the one offered in Table 11, testing hypothesis 2 on the difference in the coefficients on the components of BT differences when testing the relation between them and firm performance indicators. Table 23 is an abridged version of the table in Appendix D Table D.2. We conduct the analysis using CFO-based performance indicators for the reasons explained above based on the results in Table 21. *btdhat1* and *error1* are the components of BTD determined as the predicted values and the error term from the regression of total BT differences on the size of discretionary accruals *daccrual. btdhat2* and *error2* are the estimates obtained by regressing BT differences on the dummy variable *emdown*. The results confirm the conclusions presented in Table 8.

Table 23 – Results of the System Generalized Method of Moment Analysis (sGMM) with the components of book-tax differences as the explanatory variables

	(1) CFO_lasset	(2) CFO_linvcap	(3) CFO_lasset	(4) CFO_linvcap
lagged dep. var.	0.0662	0.240***	0.00627	0.166
	(0.89)	(3.64)	(0.07)	(1.65)
btdhat1	-2.354***	-4.643***		
	(-4.83)	(-7.73)		
error1	0.454	-0.254		
	(1.02)	(-0.49)		
btdhat2			-2.568***	-4.435***
			(-3.77)	(-3.81)
error2			0.120	0.420
			(0.23)	(0.54)
big4	-0.0856	-0.00738	-0.107**	-0.0677
	(-0.90)	(-0.04)	(-2.14)	(-0.30)
Observations	367	367	367	367
No. of instruments	25	25	25	25
AR1 test	-2.302	-2.490	-3.022	-2.402
(p-value)	0.0213	0.0128	0.0025	0.0163
AR2 test	0.240	0.213	1.041	1.432
(p-value)	0.811	0.832	0.298	0.152
Hansen-J test	20.68	14.91	8.540	12.87
(p-value)	0.147	0.458	0.900	0.612
Wald test F-statistics	22.30	29.54	6.11	14.30
(p-value)	(0.0000)	(0.0000)	(0.0177)	(0.0005)

Note: The table represents a summary of the results of the statistical analysis conducted by the author using the statistical software Stata 17.0 and does not present the results on the control variables used in the analysis. Full results are in Appendix D Table D.2. Data source: LSEG Workspace The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test. AR1 and AR2 stand for Arellano-Bond test for first and second-order autocorrelation, respectively. Hansen-J test is Hansen's test of over-identifying restrictions.

The coefficients on the components of BT differences explained by earnings management (*btdhat1* and *btdhat2*) are negative and statistically significant at the one percent level, whereas the coefficients on *error1* and *error2* are statistically insignificant. Wald test's F-statistics reject the null hypothesis of the zero difference

between each pair of the coefficients on the two components of BT differences. Post-estimation test AR1 indicates the presence of the first-order autocorrelation and AR2 does not provide evidence of the presence of the second-order autoregression. Hansen's J-test does not reject the null hypothesis of overidentification restrictions validity.

Dynamic regression analysis

Table 24 presents the results of the dynamic regression analysis for testing hypothesis 1. The models specifications differ by the dependent variables identified in the columns headings.

Table 24 – Robustness check of hypothesis 1 using dynamic regression analysis results

	(1)	(2)	(3)	(4)
Dependent variable	*CFO_lasset*	*CFO_linvcap*	*EBITDA_lasset*	*EBITDA_linvcap*
lag of the dependent variable	0.097*	0.259***	0.450***	0.490***
	(1.87)	(3.44)	(3.62)	(6.63)
btd_total	-0.321**	-0.562***	-0.337**	-0.557**
	(-2.40)	(-2.86)	(-2.50)	(-2.32)
NegNI	-0.170***	-0.237***	-0.121***	-0.242***
	(-4.50)	(-3.85)	(-3.74)	(-3.79)
big4	0.115***	0.123**	0.063**	0.059**
	(3.11)	(2.59)	(2.34)	(2.28)
booklev	-0.000	-0.000	-0.002	-0.004
	(-0.15)	(-0.00)	(-1.36)	(-1.43)
size	-0.003	-0.005	-0.007	-0.005
	(-0.33)	(-0.49)	(-1.09)	(-0.65)
lnage	-0.052**	-0.068*	-0.054**	-0.074*
	(-2.14)	(-1.98)	(-2.13)	(-1.96)
N	379	379	378	378
Industry f.e.	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y
F-statistics	13.492	21.626	47.893	115.473
p-value	0.000	0.000	0.000	0.000
R^2 adj	0.236	0.306	0.620	0.587

Note: This table represents the results of the statistical analysis conducted by the author using Stata 17.0. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test.

The results confirm the results obtained in Table 23. In all model specifications, the coefficients on *btd_total* are negative and significant at least at the five percent level. The coefficients on the lagged dependent variables are positive as expected. The coefficients on *btd_total* remain negative and statistically significant

at least at the five percent level. The coefficients on the control variables are qualitatively similar to those reported in the previous analysis.

The results of the dynamic regression model for testing the results on hypothesis 2 for robustness are presented in Table 25.

Table 25 – Results of the dynamic regression analysis with the components of book-tax differences as the explanatory variables

	(1) *CFO_lasset*	(2) *CFO_linvcap*	(3) *EBITDA lasset*	(4) *EBITDA linvcap*	(5) *CFO_lasset*	(6) *CFO_linvcap*	(7) *EBITDA lasset*	(8) *EBITDA linvcap*
Lag of the dependent variable	0.124**	0.315***	0.467***	0.536***	0.137***	0.279***	0.452***	0.522***
	(2.18)	(8.26)	(3.51)	(7.46)	(3.23)	(5.37)	(3.48)	(7.73)
btdhat1	-3.316***	-4.725***	-0.503**	-1.015**				
	(-14.48)	(-10.88)	(-2.29)	(-2.34)				
error1	-0.035	-0.148	-0.308**	-0.434*				
	(-0.35)	(-1.11)	(-2.21)	(-1.87)				
btdhat2					-2.107***	-2.938***	-0.733***	-1.090***
					(-9.10)	(-7.89)	(-2.96)	(-2.75)
error2					-0.113	-0.300*	-0.285**	-0.429*
					(-1.02)	(-1.71)	(-2.06)	(-1.74)
N	367	367	366	366	367	367	366	366
Industry f.e.	Y	Y	Y	Y	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y	Y	Y	Y	Y
F-statistics	47.464	132.230	51.550	188.440	33.301	56.424	42.771	160.548
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R^2 adj	0.771	0.738	0.635	0.607	0.493	0.505	0.645	0.610
Wald test for the difference in coefficients on btdhat and error F-statistics (p-value)	175.03 (0.000)	114.56 (0.000)	1.03 (0.317)	2.74 (0.106)	54.99 (0.000)	38.75 (0.000)	3.53 (0.068)	2.52 (0.120)

Note: This table represents a summary of the results of the statistical analysis conducted by the author. Results on the control variables are omitted. The full analysis results are presented in Appendix D Table D.3. The model specification are in Section 1.3. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test.

BT differences are decomposed into the components using *daccrual* and *emdown,* resulting in two estimates of the BT differences explained by discretionary accruals (*btdhat1* and *btdhat2*) and two estimates of BT differences not explained by discretionary accruals (*error1* and error2). The models employ each of the dependent variables with each pair of the estimates of the BT differences components.

The results in Table 25 are abridged with the full version available in Appendix C.5. The table indicate statistically significant coefficients on the lagged dependent variables, as expected.

Beta-coefficients on *btdhat1* and *btdhat2* in Table 25 are negative and statistically significant at one percent in all models with CFO-based indicators of firm performance and at least the five percent in the models with EBITDA-based performance indicators. The coefficients on *error1* and *error2* are qualitatively similar to those presented in Table 10. However, Wald test statistics on the difference between the coefficients on the components of BT differences are significant only in the models where the dependent variable is represented by CFO-based performance indicators. No evidence on the difference between the coefficients when the dependent variables are EBITDA-based indicators is obtained. A possible explanation for such a result could be the impact of earnings management both on BT differences and the reported book earnings. Earnings management using accruals is expected to have a negligent impact on operating cash flows. Therefore, CFO-based indicators are a better choice for firm performance proxy in the analysis of the differences between the coefficients on the components of BT differences in the regression of performance indicators on them.

Another argument in support of using CFO-based indicators of firm performance lie in the analysis of the coefficients on the control variables in Appendix C.6. This analysis reveals that the introduction of the lagged dependent variable leads to a declined statistical significance of the coefficients on *big4*, *booklev*, *size* and *lnage* in the models with EBITDA-based performance indicators. Such a change in the statistical significance indicates that the control variables' impact on performance indicators is reflected in the coefficients on the lagged dependent variable. The coefficients on the control variables in the models with the CFO-based dependent variables are qualitatively similar to those reported in Table 11 above.

Dynamic regression analysis with jackknife specification

The dynamic regression analysis is repeated with an alternative specification of standard errors using a *jackknife* sampling procedure. The abridged results are in Table 26 with the full table available in Appendix D Table D.4. We do not present the results for re-testing hypothesis 1 since the results are qualitatively similar to those presented in Table 24 above. Table 26 contains the results for re-testing hypothesis 2 using a dynamic regression model with the jackknife specification.

The obtained results are similar to Table 25 above, with the difference that the statistical significance of the coefficients on *error1* and *error2* increased to the five percent level in the models with EBITDA-based performance indicators, thereby supporting the concerns on the validity of these measures for exploring the relation.

As for the models with CFO-based performance indicators, the results are qualitatively similar to those reported in Table 25 above. The coefficients on *btdhat1* and *btdhat2* are negative at the one percent significance level and those on *error1* and *error2* are statistically not significant.

Table 26 – Results of the dynamic regression analysis with the components of book-tax differences as the explanatory variables and jackknife specification of standard errors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CFO_lasset	*CFO_linvcap*	*EBITDA lasset*	*EBITDA linvcap*	*CFO_lasset*	*CFO_linvcap*	*EBITDA lasset*	*EBITDA linvcap*
lagged dep.var.	0.124	0.315***	0.467**	0.536***	0.137**	0.352***	0.475**	0.542***
	(1.31)	(6.37)	(2.47)	(7.29)	(2.19)	(5.88)	(2.52)	(7.46)
btdhat1	-3.316***	-4.725***	-0.503**	-1.015**				
	(-16.66)	(-13.15)	(-2.44)	(-2.44)				
error1	-0.035	-0.148	-0.308**	-0.434**				
	(-0.46)	(-0.98)	(-2.01)	(-2.06)				
btdhat2					-2.107***	-2.938***	-0.733***	-1.090***
					(-12.11)	(-10.15)	(-2.68)	(-2.98)
error2					-0.113	-0.300*	-0.285**	-0.429**
					(-1.22)	(-1.67)	(-2.00)	(-1.97)

Note: This table represents a summary of the results of the statistical analysis conducted by the author. Results on the control variables are omitted. The full analysis results are presented in Appendix D Table D.4. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test.

To summarize, several robustness checks were conducted to test the validity of the results on hypotheses 1 and 2. The choice of the methods is defined by the characteristics of the sample, which is relatively small. The robustness tests confirm the results obtained in the main analysis for CFO-based performance indicators. EBITDA-based performance indicators should be used with caution as they may be affected by discretionary accounting choices, raising endogeneity problem concerns.

Robustness check for the results of testing hypotheses 3-5

Two-stage regression analysis results

The outputs of the two-stage least squares (2SLS) regression analysis are presented in Tables 27 and 28. Table 27 depicts the results of the first stage of the 2 SLS analysis when the total BT differences are regressed on discretionary accruals.

The first column in Table 27 contains the results of the analysis when discretionary accruals are determined utilizing the Jones [70, p. 212] model (regression (7)).

Table 27 – Addressing the problem of endogeneity: 1st stage of 2SLS analysis

	Dependent variable:	
	btd_total	*btd_total*
	(1)	(2)
Independent variables:		
daccrual	0.059***	
	(4.53)	
k_daccrual		0.062***
		(4.31)
div_payout	-0.003***	-0.003***
	(-3.52)	(-3.19)
big4	0.002	-0.000
	(0.46)	(-0.04)
lnsize	0.000	0.001
	(0.37)	(1.17)
booklev	-0.000*	-0.001**
	(-1.88)	(-2.37)
sales_growth	-0.005	-0.008
	(-1.01)	(-1.58)
roa	0.070***	0.063***
	(3.21)	(3.02)
asset_turn	-0.004***	-0.004***
	(-3.36)	(-2.89)
lnage	-0.001	-0.002
	(-0.12)	(-0.25)
Industry f.e.	Yes	Yes
Year f.e.	Yes	Yes
N	1326	1145
F-statistics	4.280	3.796
p-value	0.000	0.000
Adjusted R-square	0.165	0.138

Note: This table presents the results of the statistical analysis conducted by the author using Stata 17.0. The model specification are in Section 1.3. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, respectively, using the two-tailed test.

The second column in Table 27 presents the results of a similar analysis, where discretionary accruals are defined using the Kothari *et al.* [71, p. 174] model (regression (10)):

$$TACC_{i,t} = \alpha_1 \frac{1}{TA} + \alpha_2 dSales + \alpha_3 PPE_{i,t} + \alpha_4 roa_{i,t-1} + \delta_{i,t} \quad (10),$$

where $roa_{i,t-1}$ represents the accounting return on assets of the preceding period. Similar to the logic in the Jones model, the error term in regression (10) represents discretionary accruals denoted as *k_accrual*. The analysis in the second column employs a smaller sample due to using a one-period lag of the return on assets. The coefficients on *daccrual* and *k_accrual* are 0.059 and 0.062, respectively. Both coefficients are significant at the 99% confidence interval (t-values = 4.53 and 4.31, respectively), indicating earnings management is positively related to BT differences.

Table 28 presents the abridged outcomes of the second stage of the 2SLS analysis, where dividend policy is proxied by *divpayout*. Appendix D Table D.5 reports the whole regression results, as well as the outcomes of the models with alternative dividend policy proxies *divdummy* and *div_5*. This table presents the results of regression models (9a) and (9b). The dependent variable is *tobin* in columns (1) and (2) and *tobin_ind* in columns (3) and (4). The main explanatory variable *btd_dacc* in columns (1) and (3) and *btd_error* in columns (2) and (4).

Table 28 – Addressing endogeneity problem: 2nd stage of 2SLS analysis
Dividend proxy: *divpayout*

	Dependent variable:			
	tobin	*tobin*	*tobin_ind*	*tobin_ind*
	(1)	(2)	(3)	(4)
Independent variables:				
btd_dacc	-13.898***		-15.663***	
	(-2.97)		(-3.34)	
btd_error		-0.930*		-0.920*
		(-1.69)		(-1.69)
divpayout	0.049***	0.073***	0.045***	0.072***
	(2.86)	(4.33)	(2.69)	(4.35)

Note: This table represents a summary of the results of the statistical analysis conducted by the author. Results on the control variables are omitted. The full analysis results are presented in Appendix D Table D.5. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, using the two-tailed test. Data source: LSEG Workspace.

As the outcomes depicted in Table 28 above, the negative coefficient on *btd_dacc,* the component of BT differences attributable to *daccrual*, is negative and significant at the one percent level in all models (β = -13.9 and -15.6, *t-statistics* = -2.97 and -3.34). The coefficients on *btd_error,* the component of BT differences not explained by *daccrual*, are much lower than those on *btd_dacc* and significant at a 10% level only (β = -0.93 and -0.92, *t-statistics* = -1.69). The results on the control variables reported in Appendix D Table D.5 are qualitatively similar to the results presented in the main analysis in Table 7. These results suggest that the information on earnings quality contained in BT differences has an impact on investors' valuation of firms.

Table 29 summarizes the outcomes of the 2-stage regression analysis for testing the hypothesis on the moderating role of dividend policy in the relation between BT differences and firm value. Full version of the table is in Appendix D Table D.6. The analysis is conducted for both proxies of firm value, *tobin* and *tobin_ind*, and three proxies of dividend policy. The dividend payout proxy is *divpayout* in models (1) and (2), *divdummy* in models (3) and (4), and *div_5* in columns (5) and (6).

The coefficients on *btd_dacc* are negative and statistically significant at the level of one percent in all model specifications (β-coefficients are between -13.34 and -22.67, *t-statistics* are in the range between -2.97 and -4.96). This result indicates that the increase of BT differences is associated with the decrease in the value of Tobin's Q by 13.3-22.7%. The positive coefficients on all proxies of dividend policy (*divpayout*, *divdummy*, and *div_5*) are significant at the level of one percent in all model specifications (β-coefficients on *divpayout* are between 0.045 and 0.073, *t-statistics* range between 2.69 and 4.35; β-coefficients on *divdummy* are between 0.118 and 0.143, *t- statistics* range between 2.96 and 3.51; β-coefficients on *div_5* are between 0.064 and 0.075, *t-statistics* range between 5.10 and 5.81).

The positive beta-coefficients on the interactive variables are significant at the level of one percent in all model specifications (β-coefficients are 3.563 and 3.473 in the models with *divpayout, t-statistics* = 3.2 and 3.3, respectively; β- coefficients are 6.596 and 6.809 in the models with *divdummy, t-statistics* = 2.98 and 3.06 respectively; β- coefficients are 2.635 and 2.722 in the models with *div_5, t-statistics* = 4.06 and 4.21, respectively). These results support hypothesis 4 that the negative relation between BT differences and firm value is mitigated by dividend payouts.

Table 29 – Summary of the outcomes of the 2nd stage of 2SLS analysis testing the moderating role of dividend policy on the relation between *btd_dacc* and firm value

	Dependent variable					
	tobin	*tobin_ind*	*tobin*	*tobin_ind*	*tobin*	*tobin_ind*
	(1)	(2)	(3)	(4)	(5)	(6)
	Independent variables:					
btd_dacc	-13.340***	-15.120***	-21.120***	-22.666***	-18.442***	-20.127***
	(-2.97)	(-3.35)	(-4.63)	(-4.96)	(-4.23)	(-4.59)
divpayout	0.169***	0.162***				
	(3.98)	(3.80)				
*btd_dacc*divpayout*	3.563***	3.473***				
	(3.29)	(3.19)				
divdummy			0.234***	0.236***		
			(3.69)	(3.66)		
*btd_dacc*divdummy*			6.596***	6.809***		
			(2.98)	(3.06)		
div_5					0.113***	0.113***
					(5.93)	(5.94)
*btd_dacc*div_5*					2.635***	2.722***
					(4.06)	(4.21)
Industry f.e.	Y	Y	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y	Y	Y
N	1326	1326	1326	1326	1326	1326
F-statistics	15.97	11.01	14.74	10.89	17.82	13.40
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Adj. R^2	0.269	0.200	0.258	0.190	0.283	0.215

Note: This table represents a summary of the results of the statistical analysis conducted by the author. Results on the control variables are omitted. The full analysis results are presented in Appendix D Table D.6. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, using the two-tailed test. Data source: LSEG Workspace.

An additional analysis is conducted to test whether there is a moderating effect of dividend policy on the relation between the unrelated to discretionary

accruals part of BT differences and firm value. The results are presented in Table 30 in an abridged form, with the full results available in Appendix D Table D.7.

Table 30 – The results of the 2nd stage of 2SLS analysis: testing the moderating role of dividends on the relation between the unrelated to discretionary accruals component of BT differences and firm value

	Dependent variable :					
	tobin	*tobin_ind*	*tobin*	*tobin_ind*	*tobin*	*tobin_ind*
	(1)	(2)	(3)	(4)	(5)	(6)
Explanatory variables:						
btd_error	-0.989*	-0.984*	-1.036	-0.949	-0.377	-0.243
	(-1.67)	(-1.67)	(-1.52)	(-1.40)	(-0.40)	(-0.26)
divpayout	0.073***	0.072***				
	(4.34)	(4.35)				
*btd_error*divpayout*	0.150	0.162				
	(0.37)	(0.42)				
divdummy			0.142***	0.142***		
			(3.45)	(3.37)		
*btd_error*divdummy*			0.239	0.097		
			(0.23)	(0.09)		
div_5					0.075***	0.075***
					(5.81)	(5.71)
*btd_error*div_5*					-0.116	-0.167
					(-0.34)	(-0.49)
Industry f.e.	Y	Y	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y	Y	Y
N	1326	1326	1326	1326	1326	1326
F-statistics	16.946	10.230	13.745	9.322	16.797	11.823
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Adj. R2	0.330	0.257	0.326	0.253	0.344	0.272

Note: This table represents a summary of the results of the statistical analysis conducted by the author. Results on the control variables are omitted. The full analysis results are presented in Appendix D Table D.7. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, using the two-tailed test. Data source: LSEG Workspace.

As the results show in Table 30, the negative relation between *btd_error* and firm value is significant only at only 10 percent level and only when dividend policy proxy is represented by *divpayout* (*β*-coefficients are -0.989 and -0.984, *t-statistics* =

-1.67 in both cases), and is not significant with the other proxies of dividend policy (β-coefficients in the regression with *divdummy* are -1.036 and -0.949 with the *t-statistics* = -1.52 and -1.40, respectively; β-coefficients in the regression with *div_5* are -0.377 and -0.243 with the *t-statistics* = -0.46 and -0.26, respectively). Similarly, the interaction variables of the proxies of dividend policy and the unrelated to discretionary accruals components of BT differences are statistically insignificant in all models (*t-statistics* range between -0.49 and 0.42).

Analysis using an alternative method in measuring discretionary accruals for the 2SLS analysis

In this section, the outcomes of the 2nd stage of 2SLS analysis are presented, with discretionary accruals defined using Kothari *et al.* [71, p. 174] model. The components of BT differences, attributable and non-attributable to Kothari discretionary accruals are labeled *btd_kDACC* and *error_kDACC,* respectively. Table 31 below summarizes the outcomes organized in Panels A, B, and with *divpayout*, *divdummy*, and *div_5* used as the proxies for dividend policy, respectively. The results in Table 31 are a summary of the findings with the results on the control variables not depicted. Full version of the table is in Appendix D Table D.7.

Table 31 – The results of the 2nd stage of 2SLS analysis with an alternative specification of the instrument variable: explained by discretionary accruals component of BT differences

Panel A. Dividend policy proxy is *divpayout*				
	Dependent variable:			
	tobin	*tobin*	*tobin_ind*	*tobin_ind*
	(1)	(2)	(3)	(4)
Independent variables:				
btd_kDACC	-11.165***	-12.219***	-11.594***	-12.627***
	(-3.38)	(-3.70)	(-3.48)	(-3.80)
div_payout	0.047**	0.210***	0.045**	0.205***
	(2.50)	(4.31)	(2.41)	(4.15)
*btd_kDACC*div_payout*		4.644***		4.549***
		(3.92)		(3.84)
N	1145	1145	1145	1145
Industry f.e.	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y
F-statistics	38.632	35.051	14.547	15.440
p-value	0.000	0.000	0.000	0.000
Adj. R2	0.380	0.394	0.311	0.326

Table 31 – continued

Panel B. Dividend policy proxy is *divdummy*				
	Dependent variable:			
	tobin	*tobin*	*tobin_ind*	*tobin_ind*
	(1)	(2)	(3)	(4)
Independent variables:				
btd_kDACC	-13.704***	-18.972***	-14.017***	-19.165***
	(-4.44)	(-5.11)	(-4.53)	(-5.13)
divdummy	0.110***	0.209***	0.108***	0.205***
	(2.79)	(3.13)	(2.66)	(3.03)
*btd_kDACC*divdummy*		6.780**		6.624**
		(2.22)		(2.16)
N	1145	1145	1145	1145
Industry f.e.	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y
F-statistics	31.387	35.699	15.092	13.781
p-value	0.000	0.000	0.000	0.000
Adj. R^2	0.381	0.385	0.312	0.316
Panel C. Dividend policy proxy is *div_5*				
	Dependent variable:			
	tobin	*tobin*	*tobin_ind*	*tobin_ind*
	(1)	(2)	(3)	(4)
Explanatory variables:				
btd_kDACC	-10.699***	-19.499***	-11.011***	-19.698***
	(-3.61)	(-5.47)	(-3.70)	(-5.53)
div_5	0.064***	0.113***	0.064***	0.112***
	(5.01)	(5.60)	(4.88)	(5.54)
*btd_kDACC*div_5*		3.001***		2.963***
		(3.72)		(3.69)
Industry f.e.	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y
N	1145	1145	1145	1145
F-statistics	31.216	34.286	17.135	16.805
p-value	0.000	0.000	0.000	0.000
Adj. R2	0.394	0.403	0.326	0.336

Note: This table represents a summary of the results of the statistical analysis conducted by the author. Data source: LSEG Workspace. The results on the control variables are not shown. The full analysis results are presented in Appendix D Table D.8. The model specification are in Section 1.3. Numbers in parentheses are *t-statistics*. ***, **, and * highlight the regression coefficients significant at 1%, 5%, and 10%, using the two-tailed test.

The results are similar to those obtained in the earlier analysis presented above. Therefore, the results on hypothesis 3 and 4 are considered robust. The results support the conclusion of the differential impact of related and unrelated to earnings management component of BT differences on firm performance. Furthermore, it is shown that the moderating role of dividend payout on the relation between BT differences and firm value are significant for the part of BT differences related to earnings management. There is no evidence of moderating impact of dividend policy on the relation between the part of BT differences unrelated to earnings management and firm value.

Conclusions of the section

This section presents the outcomes of two empirical studies. The first study examines public firms in Kazakhstan to explore the relation between book-tax differences and book firm performance indicators. The study also investigates the possibility of decomposing BT differences into parts attributable to discretionary accruals versus non-attributable parts, to better understand the relationship. Although the sample size of Kazakhstani firms is sufficient for statistical analysis using book-based performance indicators, the low liquidity of the capital markets imposes limitations when analyzing the relationship between BT differences and market-based performance indicators, due to the non-representativeness of the sample.

To address the study's research objectives, data from a larger economy with a similar level of institutional development was used. Following the collapse of the Soviet Union, Kazakhstan and the Russian Federation initially had comparable institutional conditions. While Russia's economy is larger and has accumulated substantial data, both countries' economies share similarities, making Russia an alternative context for the study. However, the two countries differ in many ways, including their financial reporting requirements. For example, Kazakhstan adopted IFRS in 2005, while Russia did so in 2012. Therefore, combining the two samples would not be appropriate, thereby justifying the need for two separate studies.

The second study, which focuses on Russian public firms, explores the relationship between BT differences and firm market value. Additionally, the study deepens the analysis by investigating the factors influencing this relationship, using dividend policy as an example. Since public firms in Russia adopted IFRS much later than those in Kazakhstan, the study also examines how IFRS adoption has impacted the relationship between BT differences and firm value.

The findings provide evidence of an inverse relation between BT differences and financial performance indicators. This negative relationship is observed for both book-based and market-based performance indicators. Specifically, the inverse relation between BT differences and book performance indicators is observed in the

context of Kazakhstani firms. The analysis also shows that the negative relationship is explained by BT differences associated with discretionary accruals. This suggests that the connection between tax differences and performance indicators in Kazakhstan is primarily driven by earnings manipulation, rather than tax planning. A possibility to decompose BT differences into the parts attributable and non-attributable to discretionary accruals to understand the relation was explored. Alternative model specifications, including OLS regression with fixed time effects, clustering of standard errors at the company level, dynamic regression analysis, and system GMM, confirm the robustness of the main conclusions.

In the Russian context, the analysis reveals a statistically significant negative relationship between the size of tax differences and market capitalization. This result is important because it emphasizes the need for high-quality financial reporting. The analysis of the 2-stage least squares method confirms the results are robust. These results are confirmed for both proxy variables of firm value — Tobin's Q and industry-adjusted Tobin's Q. These findings indicate that the information about earnings quality contained in BT differences affects the way companies are valued by investors. Furthermore, the results show that markets value the components of tax differences differently, depending on whether they are related to discretionary accruals. Both components are valued negatively, but the coefficients associated with the component of tax differences correlated with earnings management have higher absolute values and statistical significance than the coefficients for the component of tax differences not correlated with earnings management.

The findings of the study of Russian firms also demonstrate that the inverse relation between BT differences and firm market value is less pronounced in companies with higher dividend payouts compared to those with lower dividend payouts. The 2SLS analysis confirms the moderating role of dividend policy. The interaction analysis of the components of BT difference with the proxies for dividend policy suggests that dividend policy mitigates the informational asymmetry caused by the component of tax differences related to earnings management. This finding suggests that dividend payments partially mitigate the negative impact of the uncertainties caused by manipulative accounting practices. This outcome offers valuable insight for managers, as it illustrates that firms that combine tax avoidance with earnings management incur the high costs connected to the increase in dividend payouts.

Furthermore, the study results summarize the role of mandatory IFRS. The reported in the study relations, including the moderating role of dividend policy, became more pronounced in Russia in the post-IFRS period only. This conclusion is significant as it contributes to the understanding of the consequences of IFRS implementation and highlights the role of accounting quality in evaluating firms' tax policies.

The analysis of the relationship between tax differences and company value in the Russian Federation, a country with stringent tax controls, is particularly useful for Kazakhstan, especially for its regulatory authorities. It demonstrates that even with strict law enforcement, the quality of financial reporting may deteriorate. Moreover, the manipulation of accounting data is often linked to companies' tax policies, which in turn negatively impacts government tax revenues.

3 DISCUSSION OF RESULTS AND DEVELOPMENT OF RECOMMENDATIONS ON APPLICATION OF BOOK-TAX DIFFERENCES FOR ASSET EVALUATION

3.1 Discussion of the results within the proposed conceptual-theoretical Framework

Summary of a Conceptual-Theoretical Framework Explaining the Relation Between Book-Tax Differences and Firm Performance Indicators

Figure 8 presents a conceptual-theoretical framework explaining the relation between BT differences and the financial performance of companies.

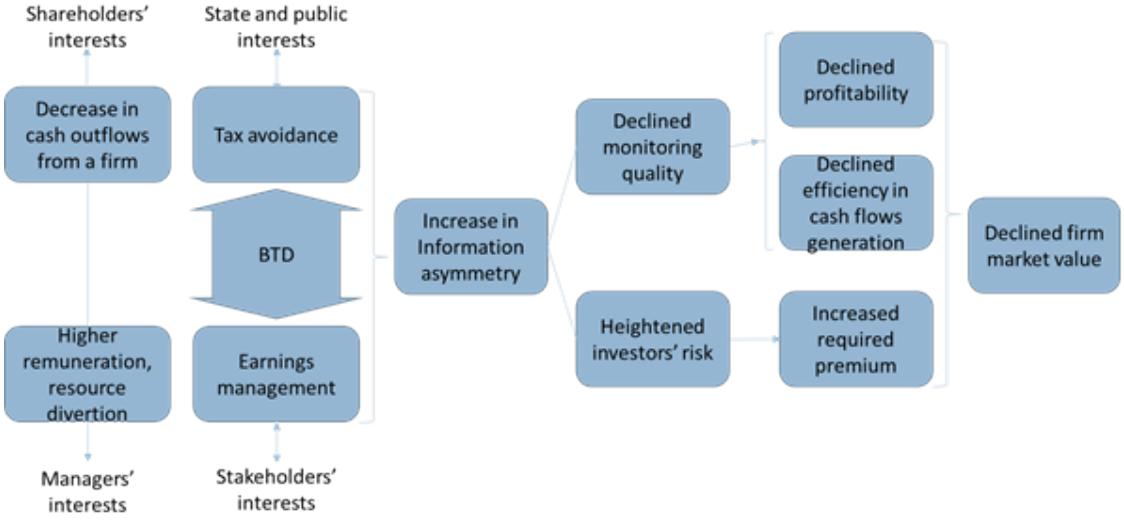


Figure 8 – Conceptual model explaining the relation between book-tax differences and financial indicators of firm performance

As proposed by Desai and Dharmapala, large BT differences not only indicate the aggressiveness of firms' tax planning but also reflect the extent of agency problems within companies. The interests of opportunistic managers conflict with those of shareholders, who are typically not in favor of resource outflows from the company. Tax payments are an outflow of cash, which shareholders generally do not welcome. Managers may engage in tax avoidance as a way of seemingly reducing such cash outflows. However, the need to conceal tax avoidance justifies manipulations with financial reporting, which serves as a major information source for a firm's outsiders. BT differences may arise as a result of tax avoidance but may be further increased in cases of earnings management. Therefore, BT differences reflect the degree of information asymmetry stemming from tax avoidance and earnings management. Increased information asymmetry leads to two significant negative consequences. First, it makes monitoring firms more difficult and less

efficient in preventing resource outflow. As a consequence, it results in worsened firm performance, which is reflected in lower profitability and inefficient asset utilization. Second, higher information asymmetry increases the risk for investors, who, in turn, demand higher risk premiums, thereby negatively affecting firm value. Furthermore, it leads to adverse outcomes in the long run, such as a negative impact on the development of financial markets.

Empirical results on the relation between book-tax differences and accounting financial performance indicators

The inverse relation between BT differences and earnings management has been confirmed by two empirical studies presented. The first study focuses on accounting indicators of firm performance and is conducted in the context of public firms in Kazakhstan. The results of the regression analysis evidence a statistically significant relation between the size of BT differences and financial performance indicators calculated using accounting data, thereby confirming hypothesis 1. This result illustrates that high levels of BT differences are associated with some activities that negatively affects firms' efficiency in asset utilization and ability to generate cash flows. Furthermore, when BT differences were substituted by alternative tax avoidance measurements, such as effective tax rate or the tax avoidance measurement proposed by Desai & Dharmapala [265], no evidence of significant relation is obtained. These results suggest that a possible negative impact on firm performance, most likely, arises not from tax avoidance, but from other sources of BT differences.

To confirm that the inverse relation between BT differences stems from the earnings management component, BT differences were divided into two components: those related to discretionary accruals and those unrelated. Regressing BT differences on discretionary accruals reveals a positive relation between the size of BT differences and upwards earnings management, in line with [77]. The values of BT differences predicted by this regression are considered to be associated with discretionary accruals, while the error terms are deemed unrelated to manipulative accounting practices. Testing hypothesis 2, which posits that the two components of BT differences have distinct relations with financial performance indicators, confirms the hypothesis. The coefficients for the book-tax difference component related to discretionary accruals were statistically significant, while those for the component unrelated to discretionary accruals were significantly lower or not statistically different from zero in some models. The test for the difference in coefficients confirms the statistically significant difference between the coefficients. These findings were validated using various model specifications and tested in additional analyses. This outcome confirms the assumption that the relationship

between BT differences and financial performance indicators is primarily driven by earnings management, in line with agency theory.

An additional observation emerges from comparing the regression coefficients on the earnings management and tax avoidance related components of BT differences. First, the results show a strong and statistically significant negative coefficient on the earnings management component of BT differences. However, the coefficients on the component not related to discretionary accruals (presumably, tax avoidance component) are not significant in the regressions with CFO-based indicators. Based on this observation, we conclude that higher levels of tax avoidance are not associated with the increases of the cash-generating ability of assets within the short run. Further studies are needed to test whether any longer-term effect exists.

Second, the coefficients on the tax avoidance component of BT differences are negative and statistically significant in the regressions with EBITDA-based performance indicators. In other words, tax-avoiding firms demonstrate lower pre-tax profits before depreciation and amortization and it is not a result of upward or downward manipulations with earnings. This observation suggests that tax avoidance, most likely, comes at a cost, which could be decreased operational efficiency.

Overall, the findings provide partial support for hypothesis 2. The hypothesis is confirmed when CFO-based indicators are applied as there is a statistically significant difference in the coefficients on the two components of BT differences. For EBITDA-based performance indicators, the test for the difference in the coefficients in the main regression analysis supports the hypothesis, but the statistically significant difference in the coefficients is not upheld in the sGMM analysis. Despite this, the results align with the agency view on BT differences as indicators of operational inefficiencies. Higher BT differences are associated with lower profitability and a reduced ability to generate cash flows. This relation is more likely due to deterioration in financial reporting quality rather than reductions in tax payments alone.

The second empirical research focuses on the market value based indicators of firm performance in the context of public firms in the Russian Federation.

Discussion of the results on the relation between book-tax differences and market value based financial performance indicators

The relationship between BT differences and the market value of companies was examined using data from Russian public companies. The larger size of the Russian stock market provides a sufficient number of observations, enabling the use of market value data and the exploration of the factors influencing the relation between BT differences and firm market value.

Descriptive statistics of the sample revealed that, in most observations, BT differences are negative. These results align with findings previously reported in [272, p. 43], who attribute the negative BT differences to a prevailing motivation to understate accounting profits under strict tax enforcement conditions. These findings differ from results in the United States [100, p. 99], Germany [276], Tunisia [277], and Indonesia [278]. However, negative BT differences are not exclusive to the Russian market. Previous studies documented negative median values of BT differences in other countries, like in China from 1999 to 2004 [150, p. 190]. Additionally, [279] reported negative median values of BT differences in Japan before the introduction of accounting standards regulating pension benefits, asset impairment, and financial instrument operations. These studies suggest that negative BT differences arise mainly due to legislative restrictions on expense deductions for tax purposes, differences in approaches to depreciation and bad debt write-offs, and tax relief measures provided by countries during certain periods. Similarly, Russian tax legislation offers significant tax incentives, such as accelerated depreciation for high-tech investments, which can lead to negative BT differences.

The results of regression analysis confirm Hypothesis 3 and are in line with the framework depicted in Figure 8. The results show that companies with higher BT differences are perceived by investors as riskier and are valued at a discount. This finding aligns with the positive accounting theory, which posits that investors use accounting data to evaluate investments [280]. Studies conducted in the context of the developed U.S. financial market, such as those by [99], [281], also show that investors incorporate information about corporate income tax expenses when assessing companies.

The findings are consistent with expectations derived from agency theory and the conceptual model presented earlier in Figure 8. This result confirms previous findings in the context of developed markets [8], [49]. A two-stage regression analysis further supports that corporate activities aimed at tax optimization require reduced transparency levels. This is evidenced by the positive coefficient in the first stage of the analysis, where the coefficients for discretionary accrual indicators are positive. The second stage of the two-stage regression analysis demonstrates that investors negatively assess companies engaging in tax optimization. This could be explained by investors demanding higher risk premiums for the additional risks associated with tax planning.

3.2. Discussion on factors affecting the relation between book-tax differences and market value of firms

This study examines the influence of two key aspects that impact the relationship between BT differences and the market value of companies: dividend

policy as an internal factor and international reporting standards as an external factor shaping the informational environment of companies.

The Moderating Role of Dividends in the Relationship Between Book-Tax Differences and Market Value

The findings of this research indicate that the size of dividend payments mitigates the negative relationship between BT differences and the market value of companies. Dividend payouts act as a moderator in the dependency between BT differences and a company's market value, as illustrated in Figure 9.

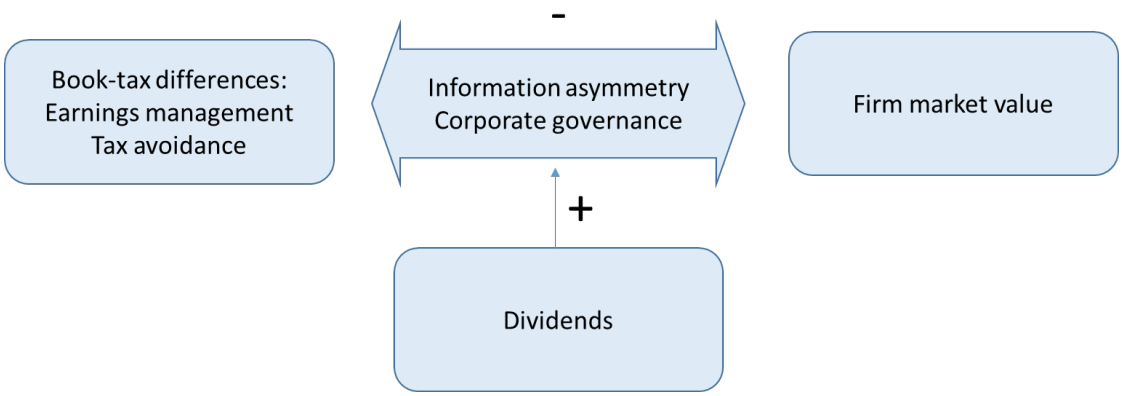


Figure 9 – Moderating role of dividend payments on the relation between book-tax differences and firm market value

The obtained result regarding the moderating role of dividends aligns with the signaling theory of dividends, according to which dividends convey certain information to market participants, and the payment of dividends thus reduces the level of risk for shareholders. According to this theory, dividends can be perceived as a signal of the company's financial stability and its willingness to share cash flows with shareholders, which can reduce the degree of information asymmetry in the market. Previous studies have shown that dividend payments reduce information asymmetry [228], [282]. The results are consistent with earlier research that demonstrated dividends serve as an informational channel in the context of high information asymmetry [121], [187].

An alternative explanation for the positive effect of dividends on the negative relation between BT differences and firm value can be derived from agency theory, particularly, the free cash flow hypothesis and the substitution hypothesis of dividends. The free cash flow hypothesis posits that dividend payments reduce the free cash flows available for managerial discretion and potential misuse. Since managers recognize that reducing dividend payments is perceived negatively by investors, decisions to pay dividends represent a long-term commitment by the

company to maintain these payments. Thus, dividends act as a disciplining tool that limits the amount of free cash flows available for managers to divert from the company.

According to the substitutive role of dividends hypothesis, the disciplining role of dividends is especially evident in the context of weak corporate governance. Companies pay higher dividends as a guarantee of protecting investors' interests in a situation where the adherence to investor interests is in question. It is implied that dividend payments are an expensive tool to guarantee investors' interests, but they are faster than developing the appropriate level of corporate governance [23, p. 132].

Table 31 summarizes the major theories that could provide explanation on why dividend policy might moderate the relation between BT differences and market value of a firm.

Table 31 – Summary of the theories providing the explanation of the moderating role of dividend policy on the relation between book-tax differences and firm value

Theory	Key insights
Signaling Theory	Dividend payments decrease information asymmetry and diminish investors' concerns over the firms' transparency by signaling the private information on the quality of firms' projects
Free cash flows hypothesis of agency theory of dividends	Dividends limit the freed cash flows from tax avoidance that would be otherwise available for diversion from firms by opportunistic managers.
Substitution hypothesis of agency theory of dividends	Dividend payments substitute alternative corporate governance mechanisms. Dividend payments signal a commitment to shareholder returns, which mitigate investors' concerns over possible risks arising from tax avoidance.

Note: developed by the author based on analysis of [119], [120], [121], [122]

The potential link between BT differences and the level of corporate governance stems from both components of BT differences: earnings management and tax avoidance. Earnings management is often seen as a sign of weak corporate governance (see literature review [283]). When testing hypotheses 2 and 4 this dissertation demonstrates that BT differences have a statistically significant relationship with the size of discretionary accruals, an indicator of earnings manipulation. Tax avoidance, too, is influenced by corporate governance mechanisms (see literature review [3, p. 12]). Therefore, BT differences can indicate tax avoidance linked to poor quality of corporate governance, which enables earnings management practices. Accordingly, the moderating effect of dividends on the negative

relationship between BT differences and firm value can be explained by the fact that dividends compensate for an inefficient corporate governance system, as prescribed in [23, p. 132]. Since companies that decide to pay dividends generally refrain from reducing dividend payments, dividends may serve as a mechanism for offsetting the weak investor protection in the context of weak corporate governance.

The conceptual model illustrating the role of dividends is presented in Figure 10.

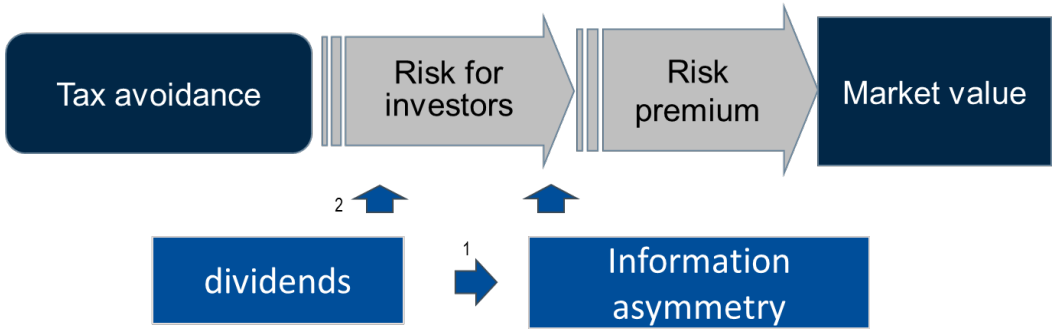


Figure 10 – Relations between book-tax differences, dividend payouts, and firm value

According to classical finance theory, the fair value of a company is determined by its assets' ability to generate cash flows in the future. Investors incorporate associated risks into required risk premium. As mentioned earlier, the size of BT differences increases the degree of information asymmetry and investor risk. Since dividends represent a firm's commitment to providing returns in the near future, they convey the information to investors, which directly affects the level of risk due to the increased certainty of cash flows for the investor. The moderating role of dividend payments in the relationship between BT differences and firm value shows that dividends also influence the level of asymmetry caused by manipulative practices with reported profits and the uncertainty arising from high levels of BT differences.

The empirical results confirm the positive impact of dividend payouts on firm value, consistent with the theories outlined in Table 30 above. Additionally, the findings support hypothesis 4 that dividend payouts mitigate the inverse relation between BT differences and firm value. The robustness tests using 2SLS analysis further validate the results. In this analysis, discretionary accruals serve as an instrumental variable, reinforcing that the negative impact of BT differences on firm value stems from manipulative financial reports.

A notable finding is the absence of a statistically significant coefficient for the interaction of BT differences with an indicator variable representing the company's status as a dividend payer. This suggests that being a dividend-paying company is insufficient to diminish the negative relationship between BT differences and firm value. Instead, the size of dividend payments appears to play a more critical role in

shaping investors' valuation of companies. Managers should take this into account when formulating their company's dividend policy.

Based on the results obtained, we cannot conclude that dividends are directly associated with a higher level of corporate governance, monitoring, or minority shareholder protection. However, the moderating role of dividends, as discussed in this paper, opens up avenues for further research. Future studies should include internal and external corporate governance mechanisms, such as the presence of independent directors, audit committees, board composition, and stock markets, to deepen the understanding of the mechanisms explaining how dividends affect the relation.

The Role of IFRS in Shaping the Informativeness of Financial Statements

The later introduction of the requirement to provide financial reporting in accordance with IFRS in Russia, compared to Kazakhstan, allows for a summary of the role of IFRS adoption in the context of the studied relationship between BT differences and market value of companies. The significance of the transition to IFRS can be analyzed from the perspective of institutional theory, where IFRS is seen as an institution ensuring a certain level of financial information exchange between companies and investors.

IFRS represents the regulatory requirements of global investors and financial institutions, which facilitated the integration of countries into the global economy. This external pressure was a key factor motivating countries to align their financial reporting standards with international norms. The obtained results show that the market value of companies in Russia increased with the adoption of IFRS, as predicted in [206]. However, the introduction of IFRS may also reflect companies' belief that aligning their financial reporting with international standards enhances their competitiveness and legitimacy in the eyes of the global market.

Testing Hypothesis 5 shows that information contained in BT differences and dividends becomes significant for determining a company's value after the mandatory implementation of IFRS. Compliance with IFRS demonstrates greater transparency and reliability of information for investors, reducing perceived risk. For investors, financial statements become clearer and more comparable, stimulating investments and increasing stock prices. IFRS compliance positions companies as global players seeking to meet the expectations of stakeholders in the global economic community. This facilitates access to global capital markets and ultimately has a positive impact on the market value of company stocks.

The implementation of IFRS strengthens the influence of information contained in accounting profits on the company's value. This is evidenced by the presence of statistically significant coefficients observed in the models only after the implementation of IFRS. However, a question arises as to why companies would

continue to pay dividends after transitioning to IFRS if they have expanded the pool of potential investors. From an institutional theory perspective, it is important to consider that companies may have adopted IFRS primarily due to regulatory pressure, potentially taking a schematic approach to information disclosure and limiting themselves to minimal compliance. Certain important information remains undisclosed and requires additional effort from investors to assess the level of risk associated with companies. Accordingly, dividends continue to serve as a channel for private information to external market participants after the implementation of IFRS. Moreover, international standards provide a certain information environment and facilitate the process of transmitting signals embedded in companies' dividend policies.

There are two alternative explanations of why the information contained in dividend payments is linked to the market value of companies only after the implementation of IFRS. First, [284] suggest that information asymmetry decreases after the implementation of IFRS as it mandates broader disclosures in financial statements. Similarly, [285] report improved quality of accounting statements in EU countries following IFRS adoption. Greater transparency enhances analysts' forecasts [286] and attracts foreign direct investments [287].

An explanation for why dividend policy modifies the assessment of BT differences only in the post-IFRS period is provided in [288]. Dividends become particularly significant when greater ‘noise’ affects the evaluation of accounting or taxable income. The IFRS prescription to apply the fair value of assets introduces subjectivity in accountants’ judgment [289], increasing uncertainties about the impact of BT differences on company valuation.

A clear example is the case described in [291] involving an energy producer in Russia. The company faced a potentially significant cash outflow because the size of the dividends was tied to reported profits. Under IFRS, the company’s assets’ revaluation increased profits, leading to higher dividends to preferred shareholders. To avoid this outflow to preferred shareholders, the company canceled dividends on common shares, leading to a significant drop if the prices of both common and preferred shares. This case illustrates the insufficient protection of minority investors' rights in Russia. It also highlights the interplay between dividends and accounting principles and demonstrates how the implementation of IFRS may exacerbate information asymmetry. IFRS reporting adds ‘noise’, making dividends a crucial channel for transmitting insider information to investors.

The results underscore the role of IFRS as an institution that enhances the reliance on accounting information for company valuation. However, the institutional approach to explaining the importance of IFRS is a multifaceted issue that requires further study.

Summary of the economic implications of the findings of the study

The findings expand the scope of accounting and tax reporting and deepen the understanding of their economic significance. First, the identified relationships between BT differences and the quality of financial reporting confirm that BT differences can serve not only as an indicator of tax planning but also as a measure of financial reporting quality. This is particularly significant for investors, who can use BT differences in company valuations, thereby broadening the application of book-tax difference analysis.

Second, the fact that BT differences are negatively correlated with financial performance indicators reflects a higher level of risk when investing in companies with significant BT differences. Increased risk adversely affects the market value of such companies. Information related to tax accounting requires specific knowledge of tax legislation, which varies by country and poses challenges in interpretation. Consequently, investors face the task of identifying the underlying causes of BT differences. There is a growing need for effective tools to distinguish between BT differences resulting from desirable tax optimization and those stemming from undesirable distortions in financial reporting.

Third, the results indicate that BT differences associated with earnings management exist in countries characterized by extremely strict tax enforcement. While strict tax enforcement is presumed to enhance tax compliance and revenue collection, the simultaneous presence of significant BT differences and indicators of manipulative financial reporting suggests otherwise. Strict tax discipline does not resolve tax collection issues; instead, it contributes to reduced transparency in financial reporting. This, in turn, exacerbates the problem of information asymmetry and diminishes the efficiency of financial markets.

Thus, the dependencies identified in the studies have broad implications for corporate management and economies at large. The conclusions outlined above expand the potential applications of information derived from tax and financial accounting data and highlight the need for further research in this area.

3.3 Recommendations

One of the issues examined in this dissertation is the relation between the size of BT differences and the size of companies' cash flows. The research results enable the development of a methodology for adjusting the forecast of cash flows when assessing the fair value of assets. Building on the findings of this research, this section outlines practical recommendations, particularly in the context of fair value assessment. We begin by reviewing the accounting standards related to fair value assessment and highlighting how the study’s findings can be integrated into their application.

Overview of financial reporting standards where the study's findings may be applicable

The findings of the study are particularly relevant for determining and disclosing the fair value of assets and liabilities. In this context, IFRS 13 'Fair Value Measurement' mandates that companies measure and disclose the fair value of assets and liabilities, offering a consistent framework that enhances transparency and comparability across financial statements. The standard defines three levels of fair value hierarchy depending on the type of data available: quoted prices in active markets, indirectly observable prices, and valuation data. When no liquid market exists for a given asset, a company must disclose the information needed to assess its fair value. This assessment is required for conducting an asset impairment test. According to IAS 36 '*Impairment of Assets'*, the carrying amount of investments in subsidiaries, associates, or joint ventures (i.e., "cash-generating unit," CGU) should not exceed the recoverable amount. The standard also mandates an annual evaluation for potential impairment of intangible assets with indefinite useful life, such as goodwill. The recoverable amount is defined as the higher of two values: (1) fair value less costs to sell, or (2) value in use. If the carrying amount exceeds the recoverable amount, the company must recognize an impairment loss in profit or loss, or other comprehensive income if the asset is accounted for at a revalued amount. In case of impairment loss recognition, deferred tax assets or liabilities should be recognized in compliance with IAS 12 '*Income Tax*'.

'Fair value less costs to sell' refers to the selling price, which would be received for an asset, while the '*value in use'* refers to the discounted value of future operating cash flows. Assessing the value of a CGU or goodwill requires estimating future cash flows, which must be based on "reasonable and supportable assumptions that represent the best estimate management can make." These estimates should also account for the quality of financial reporting and the size of BT differences, as these indicators correlate with operating cash flows and operating profits, as shown in Tables 7–12. The methodology for performing such an adjustment is provided below.

Furthermore, IFRS 7 '*Financial Instruments: Disclosure'* requires companies to disclose specific information about financial instruments, including their significance and associated risks. Companies must identify risks such as liquidity, market, credit, currency, and interest rate risks and form provisions for expected risks, reducing the company's profits. The expected risk is assessed by comparing the carrying amount and fair value of these instruments.

In this context, a critical risk for Kazakhstani companies is credit risk. Due to the weak liquidity of the stock market, companies often prefer to invest free funds in bank deposits rather than securities. Consequently, to assess the risk of impairment

in deposits, companies rely on credit risk assessments from global rating agencies, which is understandable in terms of resource allocation for credit risk evaluation. As noted in [163], rating agencies incorporate information about BT differences into their credit risk evaluations. Therefore, risks related to significant BT differences are indirectly considered when assigning ratings.

However, many companies' credit risk is tied to accounts receivable from counterparties who may not have credit ratings from international agencies, complicating the assessment of credit risks. As highlighted in the literature review Section 1.3, the size of BT differences correlates with the level of risk assessed by investors. Accordingly, companies could adjust their credit risk assessments based on the size of BT differences and adjust their discount rates for future cash flows accordingly. Further research is needed to explore the relationship between the size of BT differences and credit risk in the Kazakhstani market and to develop an appropriate methodology for these adjustments.

Recommended methodology for adjusting cash flows forecasts

Assessment of future cash flow is a crucial step is determining the fair value of an asset that involves a certain degree of subjectivity and requires an accountant to make justified adjustments and corrections. Since the forecasts are often constructed based on past data taken from the past financial statements, it is important to incorporate the quality of these financial statements into the assessment. We propose the following methodology, summarized in Figure 11, for adjusting forecasted cash flows as a potential tool to improve the fair value valuation.

The analysis begins with data collection and cleaning the data from unusable observations due to incomplete data. Next, the input parameters are evaluated, such as BT difference, the sum of total current accruals, and discretionary accruals, as well as a set of control variables. The next step involves evaluating the analytical models: (1) a regression model to examine the relation between BT differences and discretionary accruals to extract the BT differences component explained by discretionary accruals, and (2) a regression model for estimating the relation between operational cash flows and BT differences associated with discretionary accruals. The regression coefficient on BT differences is interpreted as the sensitivity coefficient of operating cash flows to earnings quality-rated BT differences. Finally, the model's application is monitored, with adjustments made to the data collection process and corrections to the models as necessary.

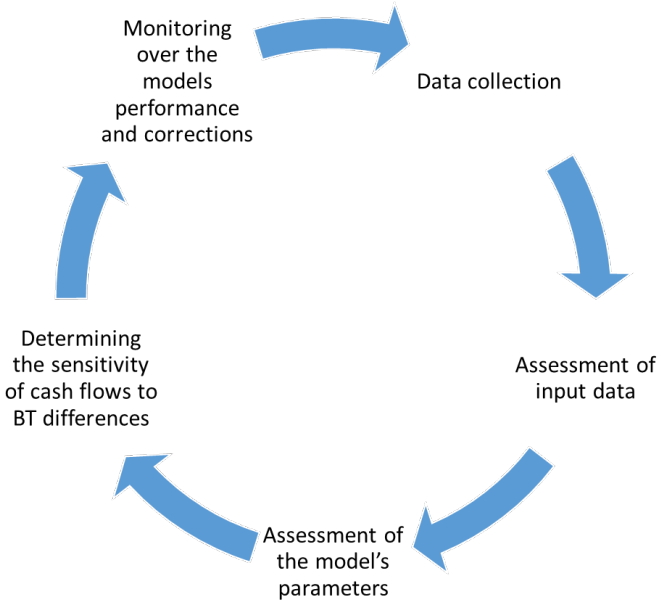


Figure 11 – Analysis process for developing the input parameters for the adjustment to predicted cash flows

Step 1. Data Collection

The size of discretionary accruals is determined using regression analysis by comparing the company's indicators with those of comparable companies. Therefore, before starting the analysis, data on the financial indicators of comparable firms should be collected. The list of financial indicators includes net income before extraordinary events, sales growth, total assets, asset profitability, cash flows from operating activities, depreciation, income tax expenses, financial leverage, the date of the company's state registration, and the name of the auditor. The exact number of companies depends on the industry and the level of competition. The data should be checked for completeness and any incomplete observations should be removed from the analysis.

Step 2. Evaluation of Input Parameters

Several parameters need to be estimated: BT differences, total current accruals, discretionary accruals.

a. Assessment of BT Differences.

BT differences are defined as the difference between pre-tax income and taxable income. If there is no access to taxable income data, the tax difference can be estimated using formula (5) in Section 1.3, as the difference between pre-tax income and estimated taxable income. Estimated taxable income equals the sum of income tax expenses divided by the statutory income tax rate.

b. Measurement of the Total Current Accruals.

The change in total current accruals is calculated as the difference between pre-tax income and depreciation, as well as cash flows from operating activities. The change in total current accruals is denoted as TACC.

c. Assessment of Discretionary Accruals.

Discretionary accruals can be assessed in several ways. The most popular method is the Jones model (model (7) in Section 1.3). In these models, TACC is the dependent variable. Independent variables include sales income and the book value of fixed assets. All variables are scaled by the average value of total assets. Alternatively, the methodology by Kothari et al. (model (10) in Section 1.3) can be used. Discretionary expenses are equal to the residual component of the regression.

Step 3. Evaluation of Analytical Models.

The relation between the size of BT differences and discretionary accruals is evaluated. BT differences related to discretionary accruals are determined as the predicted values using the parameters of the regression with BT differences as the dependent variable and discretionary accruals defined in Step 2 above, as the independent variable. The regression model includes control variables: an indicator of negative income, an auditor indicator, financial leverage, company size (measured as the natural logarithm of total assets), and the natural logarithm of the company's age.

Step 4. Assessment of the Sensitivity of Operational Cash Flows to Book-Tax Difference Related to Discretionary Accruals.

This assessment is necessary to determine the size of the adjustment to operating cash flows. The assessment is carried out using regression analysis as specified in Model (1). The dependent variable is the ratio of operating cash flows to the average value of total assets. The main independent variable is the BT difference related to discretionary accruals (*btdhat*), determined in Step 3 above. The control variables are the same as those used in the model described in Step 3. The resulting regression coefficients are used to estimate the size of the operational cash flows predicted by the model (CFO). The sensitivity of cash flows to earnings management, *CEM* (correction for earnings management), is determined as the sensitivity coefficient of the cash flows calculated at different levels of the BT differences related to discretionary accruals. Then, an adjustment is made to the cash flow forecast for the asset being assessed.

Step 5. Monitoring the Model Behavior and Model Refinement.

It is important to understand that the coefficients defined in Steps 3 and 4 above are influenced by external environment, which is in constant dynamic development and tends to change in response to external environmental factors. Therefore, the model behavior should be periodically reassessed, and the coefficients should be checked for significance. If significant changes are found, the model

parameters should be revised, and the coefficient (10) should be recalculated. Thus, the assessment process is dynamic and should undergo regular checks.

This recommendation for incorporating adjustments into cash flow evaluation when assessing company assets can be applied using any of the analytical model specifications presented in the study. The most robust approach involves calculations based on several alternative model specifications, with the average sensitivity coefficient being determined. Appendix D provides an example demonstrating a possible practical application of the study's results, particularly in the field of accounting. The study results recommendation can be used by financial analysts of investment firms, commercial banks, or other financial institutions for evaluating company performance and potential investments. Additionally, tax authorities can adapt the findings to assess taxpayers' levels of tax risk. For policymakers and developers of tax and economic reforms, the study highlights the economic effect of BT differences arising from tax incentives.

Conclusions of the section

The research makes a theoretical contribution to the understanding of financial reporting quality, tax planning theory, and the evaluation of company performance in the context of a transitional economy. It deepens the understanding of the relationship between financial performance indicators and the size of BT difference. Based on the assumption of the importance of accounting information for evaluating company value, the research provides tools for measuring company performance and its link to tax planning and earnings manipulation practices.

Understanding how to incorporate tax planning indicators and the quality of accounting information is essential for company performance monitoring. Investors can utilize the results of this study by including tax differences in their analysis of investment performance. The recent growth in the number of initial public offerings (IPOs) in Kazakhstan and the privatization of government stakes in large companies [290] has heightened investor interest in the quality of financial information of public companies. In this regard, the relationship between tax avoidance, the quality of accruals, and company performance is of significant practical importance. Policymakers, regulatory, and tax authorities can enhance the effectiveness of monitoring economic activities of companies by applying the results of this research.

This study has obvious limitations related to the sample size, which is restricted by the availability of data for public companies registered in Kazakhstan. The limited number of companies with stock market valuations made it impossible to examine the relation between the size of the BT differences and firm market value. Furthermore, the relatively small sample size precludes an analysis of factors affecting the relation, such as potential moderating variables.

To address these issues, the study was extended to a larger, yet comparable market - the Russian Federation. Russia was selected due to its objectively larger stock market and more extensive data availability, as well as its shared history of institutional development with Kazakhstan before its independence. However, significant differences between the two countries make it inappropriate to combine Kazakhstani and Russian firms into a single sample. Consequently, the research objectives were investigated through two separate studies.

Further research is needed to explore how corporate governance mechanisms or institutional development shape the relations between BT differences, the quality of accruals, and company performance in Kazakhstan and other emerging markets. This study focuses solely on one characteristic related to income quality—discretionary accruals. Other characteristics of earnings quality, such as the sensitivity of market value to changes in earnings (value relevance), as well as conditional and unconditional accounting conservatism, can be investigated as the stock markets develop when sufficient data on company market values becomes available for analysis. Moreover, studying the mechanisms that shape the impact of tax planning related to discretionary accruals on company performance is both of theoretical and practical interest and can be pursued in future research. In particular, academic studies may focus on the impact of corporate governance on this relationship.

CONCLUSION

This dissertation explores the implications of tax planning and earnings manipulation, focusing on the size of BT differences, which represent the gap between reported earnings in financial statements and the estimated amount of taxable income. The dissertation includes results from a theoretical review and two empirical studies. The first study examines whether the size of BT differences is relevant for evaluating the financial performance indicators of companies using the example of Kazakhstani firms. The second study employs a sample of publicly traded companies in the Russian Federation as an additional analysis and investigates whether there is a relation between the size of BT differences and the market value of companies, as well as the influence of dividend policy and the adoption of IFRS on this relation.

One of the objectives of the study was to develop a theoretical and conceptual framework for studying the nexus between BT differences and financial performance indicators. This objective was achieved by synthesizing the latest academic literature using an interdisciplinary approach. The modern definition of accounting goes beyond the technical practices that present a "true and fair" view of an organization's activities as the information for decision-making. The mission of the accounting profession, as it is seen nowadays, is *serving the public interest*. Consequently, the international academic community calls for expanding the boundaries of accounting research through interdisciplinary studies [291]. Modern accounting theory addresses such issues as moral hazard and adverse selection problems and has been focusing on topics such as the value relevance of accounting information, earnings management, discretionary accruals, tax planning, and management compensation [13] over the past 30 years.

Agency theory, information asymmetry, and stakeholder theory provide the theoretical foundation for the studies presented. The data indicate that BT differences reflect both the tax planning and earnings management activities of companies. Both types of activities exacerbate the information asymmetry surrounding a company. Tax avoidance gives managers opportunities to conduct business opaquely and present financial reports that conceal information from tax authorities. Self-interested managers exploit opportunities to divert company cash flows in the presence of information asymmetry. Since information asymmetry presents an additional risk for investors, companies with higher BT differences are valued lower, particularly when those differences result from earnings management.

Key Findings from the empirical studies are as follows.

a) The size of BT differences is negatively correlated with financial performance indicators calculated using accounting data. Companies with financial reporting

profits that significantly exceed taxable income have lower financial performance indicators.

b) The relationship between components of BT differences, both related and unrelated to earnings manipulation, and financial performance indicators is different. The negative correlation is more pronounced for the component of the book-tax difference associated with discretionary accruals.
c) The size of BT differences is inversely related to the market value of companies. This suggests that markets discount companies with higher BT differences. Investors perceive companies with larger BT differences as riskier and incorporate tax-related risks into stock prices.
d) An increase in the dividend payout ratio mitigates the negative relationship between BT differences and the market value of companies. The information signaled through a company's dividend policy reduces the adverse effect of uncertainty caused by tax optimization.
e) The results observed in the post-IFRS period for Russian companies indicate that IFRS-based accounting information is more informative, whereas no significant relationships were found before the adoption of IFRS, underscoring the importance of accounting information prepared according to internationally recognized standards.

The research successfully achieved its goal of exploring the relationship between the size of BT differences and companies' financial performance indicators. The study demonstrated that BT differences are negatively related to both market and accounting performance indicators. A decomposition of BT differences was performed to differentiate between those linked to earnings management and those not, and factors influencing these relationships were also examined.

Scientific Novelty of the Study is that it is the first study that examines the reflection of tax accounting data in the financial statements of companies in Kazakhstan and Russia and links them to manipulative practices in financial reporting. The research also demonstrates for the first time that BT differences associated with earnings manipulation are linked to a decline in company performance.

Additionally, the study is the first one to show that dividend policy can serve as a tool to reduce information asymmetry caused by earnings manipulation and tax optimization. Early studies on the relationship between tax optimization and dividend policy were limited to analyzing various tax rates on dividends and capital gains. The findings contribute to further developing the theory of dividend policy and suggest that studying the context of authoritarian regimes offers new avenues for research in accounting and finance.

Furthermore, this research expands knowledge on the role of IFRS and is the first to study the relationship between tax accounting and accounting quality in Russia after the adoption of IFRS. Early studies on IFRS in Russia pointed to increased

uncertainty in accounting asset valuations and difficulties in transitioning to IFRS, which could lead to incorrect conclusions about a supposed decline in the quality of financial reporting after IFRS implementation. This study shows that accounting information post-IFRS becomes more informative.

This research **contributes** to Positive Accounting Theory (PAT), which focuses on explaining and predicting real-world accounting practices and their implications for business and the economy. PAT addresses the desire of contracting parties to retain the ability to manipulate accounting figures. This research examines how decisions regarding accounting and tax reporting influence financial performance in the context of inefficient capital markets.

The findings of the study form a foundation for developing the following **practical recommendations**.

1. Regulatory and tax authorities should include the quality of accounting information in their analysis of economic efficiency when evaluating tax incentives and adopt a comprehensive approach beyond just analyzing tax reporting. One approach to evaluating financial reporting quality is the size of discretionary expenses. A ranking of financial reporting quality should be developed, one indicator of which is the correlation between the size of the book-tax difference and earnings management. International practices of financial reporting quality assessment should be employed, potentially involving international or local rating agencies.
2. Company managers should monitor the quality of financial information, comparing their company's reporting quality with that of other companies. Reporting quality indicators can be included in the list of key performance indicators for accountants. Companies may tie the quality of reporting, as assessed by rating agencies, to their performance.
3. Investors are encouraged to consider analyzing BT differences as an indicator of tax planning and accounting quality when evaluating company performance. Differentiating between BT differences explained and not explained by earnings management may add crucial information to company valuation.
4. Company managers should consider dividend policy as an effective tool for improving the company's informational environment and reducing information asymmetry. However, direct informational channels like financial reports should not be overlooked, as dividend policy helps reduce the negative perception of earnings management but does not entirely eliminate it.
5. Regulatory and tax authorities should recognize that stringent tax control, as seen in Russia, does not prevent the deterioration of financial information quality. Poor financial information quality is negatively valued by capital markets and has a detrimental impact on the economy. Therefore, regulators should focus not on tightening tax enforcement but on maintaining business transparency and ensuring proper quality of financial reporting.

The study has obvious limitations due to the sample of companies from Kazakhstan and the Russian Federation. Both countries are characterized by weak institutional development, high state participation in the economy, and high corruption levels. Additionally, Russia has had stringent tax controls since 2000. Therefore, the findings may be generalized to similar contexts. The sample is also limited to public companies, and some observations were inevitably lost due to incomplete data. However, a comparison of the initial and final samples shows that the samples are representative of the entire population of public companies in these two countries. Moreover, as companies vary in terms of corporate governance and the quality of financial reporting across countries, the results can be generalized to other contexts.

Future research could expand the study of tax planning and earnings management. Further studies are needed to determine whether similar relationships between dividend payments, BT differences, and company value are observed in other emerging and developed markets. Since the role of dividends depends on context, exploring this relationship in different corporate governance conditions may have important practical implications. Further analysis of how institutional development levels influence the relationships between tax differences, dividend policy, and market valuation is of great importance for developers of accounting standards, tax oversight, regulatory bodies, and fiscal authorities. Moreover, the significance of tax differences can be tested using Olson's (1985) valuation model. Future studies may also explore how tax differences relate to other accounting qualities, such as earnings sustainability, income smoothing, and accounting conservatism.

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APPENDICES

Appendix A

An example of disclosure of income tax expense by a Kazakhstani firm JSC *Kazakhtelecom*

Firms in Kazakhstan listed in stock exchanges follow IAS 12 *Income Tax* and disclose their income tax expenses and tax-related assets and liabilities. Below is a summary of the disclosure practice using the JSC *Kazakhtelecom*'s 2023 annual audited financial report as an illustration.

First, firms disclose and explain their accounting policy to recognition of income tax. According to IAS 12, accounting policy must ensure the separation of income tax expense into two components: current income tax expense and deferred income tax expense. The current income tax expense is an estimate of the amount of income tax that must be paid to the state budget for the reported period. The deferred income tax expense is calculated for the financial reporting purposes using the liability method by determining the size of temporary book-tax differences between the tax and book values of assets and liabilities. Deferred tax assets and liabilities must be recognized separately and must not be offset. Offsetting deferred tax assets versus deferred tax liabilities is permitted only if there is a legal justification for it. Deferred income tax assets and liabilities are allowed to be recognized within income state, or as a part of other comprehensive income or owners' equity.

Second, firms report the amount of the total income tax expense as a separate item in their profit and loss accounts and disclose the breakdown of the income tax expense in the notes to financial statement into the current and deferred expense. Any corrections to the income tax expense of prior periods are also shown. For instance, JSC *Kazakhtelecom* presents the information as follows (in KZT thousand).

Income tax expense	34.017.688
Corrections to the prior period's income tax expense	782.037
Economy on the deferred income tax	(4.965.143)
Total income tax expense	**29.834.581**

Further, the total income tax expense is reconciled with the amount calculated as a 20% of the earnings before tax.

Earnings before tax	134.237.791

Income tax at 20% statutory rate	**26.847.558**
Tax loss carried forward	21.547
Impairment of non-financial assets	277.705
Corrections to the prior period's income tax	1.903.915
Non-deductible expenses	783.857
Total income tax expense	**29.834.582**

Further, the company presents a breakdown of the sources of the economy of deferred income tax. The sum of changes in tax-related assets and liabilities equals to the 'Economy on the deferred income tax' reported in the breakdown of the income tax expense (KZT 4.965.143 thousand). The amounts on the changes in tax-related assets and liabilities reported within other comprehensive income and owners' equity are shown separately. The amounts of temporary book-tax differences not recognized in deferred tax assets or liabilities are reported in a separate disclosure note.

	Consolidated statement of financial position		Consolidated statement of comprehensive income		As part of other comprehensive loss	
In thousands of tenge	**31 December 2023**	31 December 2022	**2023**	2022	**2023**	2022
Deferred tax assets						
Property and equipment	**67,260**	3,220,475	**(3,153,215)**	(3,756,102)	–	–
Deferred services	**4,693,770**	5,248,087	**(554,317)**	159,661	–	–
Government grants	**8,246,596**	5,371,953	**2,874,643**	1,612,255	–	–
Reserves on employee bonuses	**4,051,525**	3,352,474	**699,051**	863,717	–	–
Asset retirement obligation reserves	**2,464,751**	1,908,874	**555,877**	(147,991)	–	–
Tax loss carry forward	**21,547**	8,486	**13,061**	(1,878,666)	–	–
Employee benefit obligations	**2,085,446**	2,588,383	**(222,950)**	649,572	**(279,987)**	387,506
Lease liabilities	**787,978**	1,132,732	**(344,754)**	(52,658)	–	–
Accrued provisions for unused vacations	**1,071,816**	843,101	**228,715**	9,094	–	–
Allowance for expected credit losses	**1,546,288**	1,253,765	**292,523**	725,127	–	–
Intangible assets	**540**	96,306	**(95,766)**	(162,606)	–	–
Other	**2,632,433**	1,274,023	**1,358,410**	153,557	–	–
Less: unrecognized tax assets	**(21,547)**	–	**(21,547)**	1,530,000	–	–
Less: deferred tax assets less deferred tax liabilities	**(27,278,952)**	(24,827,896)	**(2,451,056)**	718,127	–	–
Deferred tax assets	**369,451**	1,470,763	**(821,325)**	423,087	**(279,987)**	387,506
Deferred tax liabilities						
Property and equipment	**27,616,099**	28,471,199	**(855,099)**	(1,458,344)	–	–
Intangible assets	**24,601,978**	27,154,373	**(2,552,395)**	(2,552,396)	–	–
Other	**795,203**	723,455	**71,748**	242,162	–	–
Less: deferred tax assets less deferred tax liabilities	**(27,278,617)**	(24,827,896)	**(2,450.721)**	718,127	–	–
Deferred tax liabilities	**25,734,663**	31,521,131	**(5,786,468)**	(3,050,451)		–
Deferred income tax benefit	–	–	**4,965,143**	3,473,538	**(279,987)**	387,506

Source: *Kazakhtelecom* Consolifated Financial Statement for the year ended 31 December 2023 together with independent auditor's report, p.65

Appendix B

Relation between the indicators of tax avoidance and financial performance indicators – the full version of Table 9

Panel A. Explanatory variable: *ETR*				
	(1)	(2)	(3)	(4)
	CFO_lasset	CFO_*linvcap*	EBITDA_*lasset*	EBITDA_*linvcap*
ETR	-0.012	-0.026	0.041	0.079
	(-0.29)	(-0.41)	(1.01)	(1.09)
NegNI	-0.187***	-0.269***	-0.230***	-0.333***
	(-5.17)	(-5.12)	(-6.86)	(-6.04)
big4	0.172***	0.246***	0.148***	0.215***
	(4.22)	(4.45)	(4.47)	(4.02)
booklev	-0.002	-0.003	-0.002	-0.003
	(-1.12)	(-1.11)	(-1.15)	(-0.87)
size	-0.004	-0.007	-0.011	-0.015
	(-0.35)	(-0.46)	(-0.70)	(-0.61)
lnage	-0.067***	-0.126***	-0.097***	-0.181***
	(-2.76)	(-2.90)	(-2.97)	(-2.99)
N	402	402	402	402
Year f.e.	Y	Y	Y	Y
F-statistics	6.215	6.741	9.821	10.390
p-value	0.000	0.000	0.000	0.000
R^2 adj	0.127	0.123	0.159	0.114
Panel B. Explanatory variable: *desai*				
	(1)	(2)	(3)	(4)
	CFO_lasset	CFO_*linvcap*	EBITDA_*lasset*	EBITDA_*linvcap*
desai	-0.128	-0.467	-0.722***	-1.352***
	(-0.45)	(-0.90)	(-5.07)	(-4.15)
NegNI	-0.194***	-0.295***	-0.280***	-0.426***
	(-4.58)	(-4.63)	(-10.09)	(-8.59)
big4	0.158***	0.212***	0.112***	0.151***
	(3.36)	(3.17)	(3.68)	(3.30)
booklev	-0.003	-0.004	-0.003	-0.003
	(-1.24)	(-1.24)	(-1.18)	(-1.16)
size	-0.003	-0.005	-0.007	-0.008
	(-0.30)	(-0.30)	(-0.62)	(-0.52)
lnage	-0.062***	-0.109***	-0.073**	-0.136**
	(-2.75)	(-2.70)	(-2.64)	(-2.62)
N	393	393	393	393
Year f.e.	Y	Y	Y	Y
F-statistics	5.644	5.737	20.520	31.536
p-value	0.000	0.000	0.000	0.000
R^2 adj	0.108	0.144	0.435	0.427

Note: This table is a complete version of the analysis presented in Table 8. The analysis is conducted using Stata 17.0. Data source: LSEG Workspace. Models' specification: clustering the robust standard errors at the firm level, with inclusion of the year-fixed effects. *t*-statistics are shown in parentheses. ***, **, and *, denote the statistical significance levels of one, five, and ten percent respectively.

Appendix C

Analysis of the role of mandatory IFRS adoption in shaping the relation between BT differences and firm value – full version of Table 21

Panel A. Dependent variable : *tobin*						
			Analyzed period:			
	Combined sample		Before IFRS	After IFRS	Before IFRS	After IFRS
	(1)	(2)	(3)	(4)	(5)	(6)
Explanatory variables:						
IFRS	-0.075	0.383***				
	(-0.51)	(4.30)				
btd_dacc	-2.850***	-2.990***	-1.800	-4.708***	-1.740	-5.093***
	(-2.93)	(-3.03)	(-1.48)	(-3.30)	(-1.43)	(-3.53)
divpayout	0.137***	0.181***	0.155**	0.126***	0.121	0.223***
	(5.71)	(4.19)	(2.40)	(4.90)	(0.97)	(4.93)
*btd_dacc*divpayout*		1.117			-0.479	3.101***
		(1.29)			(-0.33)	(3.06)
big4	0.127**	0.122**	0.096	0.133**	0.098	0.116**
	(2.10)	(2.04)	(0.88)	(2.20)	(0.89)	(2.00)
lnsize	0.007	0.006	0.029	0.002	0.029	-0.002
	(0.39)	(0.34)	(1.09)	(0.10)	(1.09)	(-0.10)
booklev	0.071***	0.070***	0.049***	0.084***	0.049***	0.082***
	(8.94)	(8.92)	(3.83)	(9.48)	(3.82)	(9.45)
sales_growth	-0.036	-0.034	-0.032	-0.066	-0.032	-0.055
	(-0.88)	(-0.83)	(-0.57)	(-1.07)	(-0.57)	(-0.90)
roa	3.342***	3.332***	2.481***	4.337***	2.478***	4.253***
	(7.64)	(7.67)	(4.43)	(7.45)	(4.43)	(7.74)
asset_turn	-0.024	-0.023	-0.013	-0.031	-0.013	-0.021
	(-1.37)	(-1.28)	(-0.52)	(-1.40)	(-0.53)	(-1.02)
lnage	-0.266**	-0.265**	-0.218	-0.377*	-0.218	-0.375*
	(-2.11)	(-2.11)	(-1.56)	(-1.86)	(-1.56)	(-1.87)
N	2254	2254	928	1326	928	1326
F-statistics	18.779	18.818	10.887	18.289	10.623	14.502
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R-square	0.239	0.240	0.188	0.274	0.187	0.281
Panel B. Dependent variable : *tobin_ind*						
			Analyzed period:			
	Combined sample		Before IFRS	After IFRS	Before IFRS	After IFRS
	(1)	(2)	(3)	(4)	(5)	(6)
Explanatory variables:						
IFRS	0.269**	0.218**				
	(2.03)	(2.58)				
btd_dacc	-2.895***	-3.032***	-1.565	-4.926***	-1.519	-5.265***
	(-3.35)	(-3.46)	(-1.47)	(-3.84)	(-1.42)	(-4.09)
divpayout	0.131***	0.174***	0.149**	0.122***	0.123	0.207***

	(5.69)	(4.14)	(2.36)	(4.95)	(1.00)	(4.65)
*btd_dacc*divpayout*		1.090			-0.369	2.729***
		(1.29)			(-0.25)	(2.87)
big4	0.129**	0.124**	0.093	0.136**	0.094	0.121**
	(2.26)	(2.19)	(0.95)	(2.42)	(0.96)	(2.22)
lnsize	0.013	0.013	0.033	0.009	0.033	0.006
	(0.87)	(0.82)	(1.40)	(0.55)	(1.40)	(0.37)
booklev	0.067***	0.066***	0.046***	0.082***	0.046***	0.080***
	(8.91)	(8.91)	(3.74)	(9.97)	(3.74)	(10.00)
sales_growth	-0.031	-0.029	-0.018	-0.060	-0.018	-0.051
	(-0.78)	(-0.74)	(-0.33)	(-1.05)	(-0.33)	(-0.89)
roa	3.058***	3.049***	2.147***	4.182***	2.144***	4.108***
	(8.04)	(8.09)	(4.72)	(8.21)	(4.74)	(8.53)
asset_turn	-0.020	-0.018	-0.005	-0.029	-0.005	-0.021
	(-1.20)	(-1.11)	(-0.21)	(-1.46)	(-0.21)	(-1.08)
lnage	-0.247**	-0.246**	-0.239*	-0.311*	-0.239*	-0.309*
	(-2.21)	(-2.21)	(-1.90)	(-1.85)	(-1.91)	(-1.85)
N	2254	2254	928	1326	928	1326
F-statistics	10.764	10.771	4.929	12.654	4.871	12.097
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R-square	0.191	0.192	0.110	0.278	0.109	0.286

Industry- and year-fixed effects are included. Robust standard errors are clustered at the firm level. The numbers in parentheses represent the *t*-statistics. The significance levels of one, five, and ten percent using the two-tailed test are labeled with ***, **, and *, respectively.

Appendix D

Robustness check of the results

Table D.1 – Results of the System Generalized Method of Moments (sGMM) – full version of Table 22

Panel A. Dependent variables: *CFO_lasset, CFO_linvcap*				
	(1)	(2)	(3)	(4)
	CFO_lasset	*CFO_lasset*	*CFO_linvcap*	*CFO_linvcap*
	dacc	*emdown*	*dacc*	*emdown*
Independent variables:				
lagged dep.var.	-0.0559	-0.0406	0.195	0.199
	(-0.64)	(-0.33)	(1.39)	(1.52)
btd_total	-1.781**	-1.570**	-2.960**	-2.771**
	(-2.69)	(-2.33)	(-2.36)	(-2.13)
big4	-0.252	-0.326	-0.369	-0.465
	(-1.04)	(-1.27)	(-1.00)	(-1.13)
NegNI	0.340	-0.374	-0.905	-1.378
	(0.42)	(-0.86)	(-1.03)	(-1.00)
booklev	0.00271	-0.00721*	-0.00192	-0.0164
	(0.17)	(-1.87)	(-0.24)	(-1.02)
lnage	0.0777	0.0190	-0.00732	-0.00737
	(0.86)	(0.26)	(-0.07)	(-0.07)
period=2	0.163	0.191	0.236	0.285
	(0.92)	(1.05)	(0.93)	(1.22)
period=3	0.0925	0.154	0.215	0.277
	(0.45)	(0.78)	(0.89)	(1.07)
Constant	-0.154	0.114	0.177	0.240
	(-0.54)	(0.40)	(0.54)	(0.74)
Observations	367	367	367	367
No. of instruments	26	26	26	26
No. of groups	42	42	42	42
AR1 test	-1.914	-2.505	-2.368	-1.683
(p-value)	0.0556	0.0122	0.0179	0.0923
AR2 test	-0.800	-0.991	-0.694	-0.585
(p-value)	0.424	0.322	0.488	0.558
Hansen-J test	21.84	17.53	17.06	15.91
(p-value)	0.191	0.419	0.450	0.530
Panel B. Dependent variables: *EBITDA_lasset, EBITDA_linvcap*				
	(1)	(2)	(3)	(4)
	EBITDA_lasset	*EBITDA_lasset*	*EBITDA_linvcap*	*EBITDA_linvcap*
	dacc	*emdown*	*dacc*	*emdown*
lagged dep. var.	0.376**	0.334**	0.353***	0.333***
	(2.54)	(2.07)	(4.58)	(3.64)
btd_total	-0.363	-0.753**	-1.314*	-1.527***
	(-0.97)	(-2.35)	(-1.86)	(-3.32)
big4	0.129	0.152	-0.218**	-0.271*

	(0.79)	(1.09)	(-2.18)	(-1.86)

Table D.1 – continued

NegNI	-0.0894	-0.183	-0.429	-0.361
	(-0.58)	(-1.07)	(-0.73)	(-0.74)
booklev	0.00266	0.00392	-0.00227	-0.00386
	(0.42)	(0.62)	(-0.37)	(-0.60)
lnage	-0.0674	-0.0692	-0.0350	-0.0160
	(-1.41)	(-1.45)	(-0.48)	(-0.17)
period=2	-0.0119	-0.00447	0.0829	0.0806
	(-0.25)	(-0.13)	(1.62)	(1.20)
period=3	-0.0183	-0.00527	0.0735	0.0643
	(-0.36)	(-0.13)	(1.34)	(1.13)
Constant	0.254*	0.234	0.329	0.302
	(1.95)	(1.67)	(1.39)	(1.07)
Observations	366	366	366	366
No. of instruments	26	26	26	26
No. of groups	42	42	42	42
AR1 test	-2.185	-2.365	-2.067	-2.117
(p-value)	0.0289	0.0180	0.0387	0.0343
AR2 test	-0.958	-0.893	0.154	-0.0298
(p-value)	0.338	0.372	0.878	0.976
Hansen-J test	21.94	22.58	15.71	15.49
(p-value)	0.187	0.164	0.544	0.560

Note: The table represents a summary of the results of the statistical analysis conducted by the author using the statistical software Stata 17.0. Data source: LSEG Workspace. *t-statistics* are in parenthesis. ***, **, and * correspond to the significance levels of 1%, 5%, and 10%, using the two-tailed test. AR1 and AR2 stand for Arellano-Bond test for first and second-order autocorrelation, respectively. Hansen-J test is Hansen's test of over-identifying restrictions.

Table D.2 – Results of the System Generalized Method of Moment Analysis (sGMM) with the components of book-tax differences as the explanatory variables – full version of Table 23

	(1)	(2)	(3)	(4)
Dependent variables:	CFO_lasset	CFO_linvcap	CFO_lasset	CFO_linvcap
Explanatory variables:				
lagged dep. var.	0.0662	0.240***	0.00627	0.166
	(0.89)	(3.64)	(0.07)	(1.65)
btdhat1	-2.354***	-4.643***		
	(-4.83)	(-7.73)		
error1	0.454	-0.254		
	(1.02)	(-0.49)		
btdhat2			-2.568***	-4.435***
			(-3.77)	(-3.81)
error2			0.120	0.420
			(0.23)	(0.54)
big4	-0.0856	-0.00738	-0.107**	-0.0677

	(-0.90)	(-0.04)	(-2.14)	(-0.30)

Table D.2 – continued

NegNI	0.302	-0.121	0.400*	0.297
	(1.01)	(-0.30)	(1.74)	(0.44)
booklev	-0.00293	-0.00928	-0.00240	0.00101
	(-0.75)	(-1.40)	(-0.40)	(0.08)
lnage	0.0771	0.0611	0.0613	0.0899
	(1.64)	(0.86)	(1.17)	(1.00)
crisis==2	0.0518	0.0686	0.00156	0.0543
	(0.85)	(1.34)	(0.03)	(0.75)
crisis==3	0.0173	0.0939	-0.0296	0.0332
	(0.26)	(1.34)	(-0.50)	(0.36)
Constant	-0.240	-0.334	-0.121	-0.376
	(-1.55)	(-1.57)	(-0.59)	(-1.18)
Observations	367	367	367	367
No. of instruments	25	25	25	25
AR1 test	-2.302	-2.490	-3.022	-2.402
(p-value)	0.0213	0.0128	0.0025	0.0163
AR2 test	0.240	0.213	1.041	1.432
(p-value)	0.811	0.832	0.298	0.152
Hansen-J test	20.68	14.91	8.540	12.87
(p-value)	0.147	0.458	0.900	0.612
Wald test F-statistics	22.30	29.54	6.11	14.30
(p-value)	(0.0000)	(0.0000)	(0.0177)	(0.0005)

Note: The table represents a summary of the results of the statistical analysis conducted by the author using the statistical software Stata 17.0 and does not present the results on the control variables used in the analysis. Data source: LSEG Workspace. *t-statistics* are in parenthesis. ***, **, and * correspond to the significance levels of 1%, 5%, and 10%, using the two-tailed test. AR1 and AR2 stand for Arellano-Bond test for first and second-order autocorrelation, respectively. Hansen-J test is Hansen's test of over-identifying restrictions.

Table D.3 – Robustness check of hypothesis 1 using dynamic regression analysis results – full version of Table 25

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CFO_lasset	*CFO_linvcap*	*EBITDA lasset*	*EBITDA linvcap*	*CFO_lasset*	*CFO_linvcap*	*EBITDA lasset*	*EBITDA linvcap*
Lag of the dependent variable	0.124**	0.315***	0.467***	0.536***	0.137***	0.279***	0.452***	0.522***
	(2.18)	(8.26)	(3.51)	(7.46)	(3.23)	(5.37)	(3.48)	(7.73)
btdhat1	-3.316***	-4.725***	-0.503**	-1.015**				
	(-14.48)	(-10.88)	(-2.29)	(-2.34)				
error1	-0.035	-0.148	-0.308**	-0.434*				
	(-0.35)	(-1.11)	(-2.21)	(-1.87)				
btdhat2					-2.107***	-2.938***	-0.733***	-1.090***
					(-9.10)	(-7.89)	(-2.96)	(-2.75)
error2					-0.113	-0.300*	-0.285**	-0.429*
					(-1.02)	(-1.71)	(-2.06)	(-1.74)

Table D.3 – continued

NegNI	-0.402***	-0.562***	-0.129***	-0.266***	-0.303***	-0.430***	-0.153***	-0.276***
	(-15.35)	(-11.14)	(-3.92)	(-3.35)	(-8.68)	(-6.69)	(-4.50)	(-3.65)
big4	-0.066**	-0.138***	0.050	0.017	-0.001	-0.030	0.038	0.016
	(-2.40)	(-4.88)	(1.58)	(0.59)	(-0.04)	(-1.00)	(1.42)	(0.66)
booklev	-0.005***	-0.007***	-0.001	-0.002	-0.004**	-0.005**	-0.002*	-0.002
	(-5.61)	(-4.36)	(-1.21)	(-1.24)	(-2.66)	(-2.10)	(-1.68)	(-1.27)
size	0.012**	0.018***	-0.006	-0.002	0.007	0.010	-0.005	-0.002
	(2.07)	(3.19)	(-0.91)	(-0.31)	(0.87)	(1.19)	(-0.82)	(-0.33)
lnage	0.055***	0.088***	-0.047*	-0.049	0.009	0.015	-0.041	-0.050
	(3.00)	(3.20)	(-1.74)	(-1.33)	(0.46)	(0.52)	(-1.65)	(-1.44)
N	367	367	366	366	367	367	366	366
F-statistics	47.464	132.230	51.550	188.440	33.301	56.424	42.771	160.548
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R^2 adj	0.771	0.738	0.635	0.607	0.493	0.505	0.645	0.610
Wald test for the difference in coefficients on btdhat and error F-statistics (p-value)	175.03 (0.000)	114.56 (0.000)	1.03 (0.317)	2.74 (0.106)	54.99 (0.000)	38.75 (0.000)	3.53 (0.068)	2.52 (0.120)

Note: This table represents a summary of the results of the statistical analysis conducted by the author. Results on the control variables are omitted. Models' specifications: clustering the robust standard errors at the firm level, with industry- and year-fixed effects *t*-statistics are in parentheses. ***, **, and * correspond to the significance levels of 1%, 5%, and 10%, using the two-tailed test.

Table D.4 – Results of the dynamic regression analysis with the components of book-tax differences as the explanatory variables and jackknife specification of standard errors – full version of Table 26

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CFO_las set	*CFO_lin vcap*	*EBITDA _lasset*	*EBITDA _linvcap*	*CFO_las set*	*CFO_lin vcap*	*EBITDA _lasset*	*EBITDA _linvcap*
lagged dep.var.	0.124	0.315***	0.467**	0.536***	0.137**	0.352***	0.475**	0.542***
	(1.31)	(6.37)	(2.47)	(7.29)	(2.19)	(5.88)	(2.52)	(7.46)
btdhat1	-3.316***	-4.725***	-0.503**	-1.015**				
	(-16.66)	(-13.15)	(-2.44)	(-2.44)				
error1	-0.035	-0.148	-0.308**	-0.434**				
	(-0.46)	(-0.98)	(-2.01)	(-2.06)				
btdhat2					-2.107***	-2.938***	-0.733***	-1.090***
					(-12.11)	(-10.15)	(-2.68)	(-2.98)

Table D.4 – continued

error2					-0.113	-0.300*	-0.285**	-0.429**
					(-1.22)	(-1.67)	(-2.00)	(-1.97)
NegNI	-0.402***	-0.562***	-0.129***	-0.266***	-0.303***	-0.430***	-0.153***	-0.276***
	(-15.60)	(-10.83)	(-3.73)	(-3.30)	(-9.08)	(-6.41)	(-3.87)	(-3.55)
big4	-0.066**	-0.138***	0.050	0.017	-0.001	-0.030	0.038	0.016
	(-2.36)	(-6.07)	(1.33)	(0.69)	(-0.04)	(-0.78)	(1.26)	(0.69)
booklev	-0.005***	-0.007***	-0.001	-0.002	-0.004***	-0.005*	-0.002*	-0.002
	(-5.51)	(-3.62)	(-1.36)	(-1.09)	(-2.74)	(-1.87)	(-1.87)	(-1.12)
size	0.012***	0.018***	-0.006	-0.002	0.007	0.010	-0.005	-0.002
	(3.06)	(3.09)	(-1.22)	(-0.36)	(0.92)	(0.90)	(-1.13)	(-0.36)
lnage	0.055***	0.088***	-0.047**	-0.049	0.009	0.015	-0.041**	-0.050*
	(3.25)	(3.84)	(-1.97)	(-1.63)	(0.51)	(0.55)	(-1.98)	(-1.68)
N	367	367	366	366	367	367	366	366
F-statistics	26.336	21.493	15.907	12.433	19.290	17.215	15.858	12.418
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R^2 adj	0.771	0.738	0.635	0.607	0.699	0.692	0.633	0.603
Wald test for the difference in coefficients on btdhat and error F-statistics (p-value)	217.54 (0.000)	141.07 (0.000)	1.62 (0.204)	3.34 (0.069)	103.48 (0.000)	71.61 (0.000)	6.27 (0.013)	4.64 (0.032)

Note: This table represents a summary of the results of the statistical analysis conducted by the author. Results on the control variables are omitted. Models' specifications: clustering the robust standard errors at the firm level, with industry- and year-fixed effects *t*-statistics are in parentheses. ***, **, and * correspond to the significance levels of 1%, 5%, and 10%, using the two-tailed test.

Table D.5 - Addressing endogeneity problem: 2nd stage of 2SLS analysis – full version of Table 28

Panel A. Dividend proxy: *divpayout*				
	Dependent variable :			
	tobin	*tobin*	*tobin_ind*	*tobin_ind*
	(1)	(2)	(3)	(4)
Независимые переменные				
btd_dacc	-13.898***		-15.663***	
	(-2.97)		(-3.34)	
btd_error		-0.930*		-0.920*
		(-1.69)		(-1.69)
divpayout	0.049***	0.073***	0.045***	0.072***
	(2.86)	(4.33)	(2.69)	(4.35)

Table D.5 – continued

big4	0.111**	0.077	0.116**	0.078
	(1.99)	(1.45)	(2.09)	(1.47)
lnsize	0.028	0.003	0.029	0.002
	(1.53)	(0.21)	(1.59)	(0.10)
booklev	0.079***	0.078***	0.075***	0.074***
	(9.73)	(9.43)	(9.21)	(8.87)
sales_growth	-0.064	-0.029	-0.053	-0.013
	(-0.86)	(-0.38)	(-0.71)	(-0.17)
roa	4.630***	3.173***	4.770***	3.129***
	(7.28)	(6.84)	(7.46)	(6.71)
asset_turn	0.013	0.033**	0.010	0.033**
	(0.79)	(2.33)	(0.63)	(2.32)
lnage	-0.578***	-0.317*	-0.593***	-0.301*
	(-3.01)	(-1.86)	(-3.07)	(-1.75)
N	1326	1326	1326	1326
F-statistics	19.873	17.497	11.228	10.569
p-value	0.000	0.000	0.000	0.000
Adjusted R-square	0.335	0.330	0.265	0.257

Panel B. Dividend proxy: *divdummy*

	Dependent variable :			
	tobin	*tobin*	*tobin_ind*	*tobin_ind*
	(1)	(2)	(3)	(4)
Explanatory variables:				
btd_dacc	-16.800***		-18.206***	
	(-3.79)		(-4.11)	
btd_error		-0.909*		-0.897*
		(-1.69)		(-1.69)
divdummy	0.121***	0.143***	0.118***	0.143***
	(3.09)	(3.51)	(2.96)	(3.41)
big4	0.127**	0.088	0.131**	0.089
	(2.30)	(1.62)	(2.38)	(1.64)
lnsize	0.026	-0.004	0.026	-0.006
	(1.37)	(-0.25)	(1.39)	(-0.36)
booklev	0.081***	0.081***	0.077***	0.077***
	(10.10)	(9.81)	(9.56)	(9.25)
sales_growth	-0.077	-0.049	-0.063	-0.032
	(-1.02)	(-0.64)	(-0.83)	(-0.42)
roa	4.801***	2.994***	4.909***	2.951***
	(7.72)	(6.59)	(7.87)	(6.47)
asset_turn	0.005	0.030**	0.003	0.030**
	(0.30)	(2.20)	(0.17)	(2.19)
lnage	-0.616***	-0.298*	-0.625***	-0.281

	(-3.31)	(-1.75)	(-3.34)	(-1.64)

Table D.5 – continued

N	1326	1326	1326	1326
F-statistics	16.395	14.258	11.509	9.696
p-value	0.000	0.000	0.000	0.000
Adjusted R-square	0.337	0.326	0.267	0.253

Panel C. Dividend proxy: *div_5*

	Dependent variable :			
	tobin	*tobin*	*tobin_ind*	*tobin_ind*
	(1)	(2)	(3)	(4)
Explanatory variables:				
btd_dacc	-12.408***		-13.893***	
	(-2.93)		(-3.28)	
btd_error		-0.659		-0.646
		(-1.25)		(-1.25)
div_5	0.065***	0.075***	0.064***	0.075***
	(5.27)	(5.81)	(5.10)	(5.70)
Big4	0.117**	0.089*	0.121**	0.090*
	(2.18)	(1.71)	(2.26)	(1.73)
lnsize	0.009	-0.014	0.010	-0.016
	(0.53)	(-0.90)	(0.57)	(-1.01)
booklev	0.080***	0.080***	0.076***	0.076***
	(10.20)	(10.01)	(9.64)	(9.43)
sales_growth	-0.042	-0.016	-0.029	0.000
	(-0.57)	(-0.22)	(-0.38)	(0.00)
roa	4.323***	2.986***	4.440***	2.942***
	(7.36)	(6.89)	(7.50)	(6.75)
asset_turn	0.005	0.023*	0.003	0.023*
	(0.33)	(1.72)	(0.20)	(1.72)
lnage	-0.542***	-0.307*	-0.552***	-0.291*
	(-2.97)	(-1.83)	(-3.00)	(-1.72)
N	1326	1326	1326	1326
F-statistics	19.182	17.486	13.416	12.323
p-value	0.000	0.000	0.000	0.000
Adjusted R-square	0.350	0.344	0.280	0.272

Note: This table represents a summary of the results of the statistical analysis conducted by the author. Results on the control variables are omitted. Models' specifications: clustering the robust standard errors at the firm level, with industry- and year-fixed effects *t*-statistics are in parentheses. ***, **, and * correspond to the significance levels of 1%, 5%, and 10%, using the two-tailed test. Data source: LSEG Workspace.

Table D.6 – Results of the 2nd stage of 2SLS analysis testing the moderating role of dividend policy on the relation between *btd_dacc* and firm value – the full version of Table 29

	Dependent variable					
	tobin	*tobin_ind*	*tobin*	*tobin_ind*	*tobin*	*tobin_ind*
	(1)	(2)	(3)	(4)	(5)	(6)
Explanatory variables:						
btd_dacc	-13.340***	-15.120***	-21.120***	-22.666***	-18.442***	-20.127***
	(-2.97)	(-3.35)	(-4.63)	(-4.96)	(-4.23)	(-4.59)
divpayout	0.169***	0.162***				
	(3.98)	(3.80)				
*btd_dacc*divpayout*	3.563***	3.473***				
	(3.29)	(3.19)				
divdummy			0.234***	0.236***		
			(3.69)	(3.66)		
*btd_dacc*divdummy*			6.596***	6.809***		
			(2.98)	(3.06)		
div_5					0.113***	0.113***
					(5.93)	(5.94)
*btd_dacc*div_5*					2.635***	2.722***
					(4.06)	(4.21)
Big4	0.103*	0.108**	0.126**	0.130**	0.111**	0.115**
	(1.91)	(2.01)	(2.34)	(2.42)	(2.16)	(2.24)
lnsize	0.021	0.022	0.022	0.022	0.003	0.003
	(1.16)	(1.22)	(1.18)	(1.20)	(0.17)	(0.20)
booklev	0.078***	0.074***	0.081***	0.077***	0.079***	0.075***
	(9.65)	(9.12)	(10.06)	(9.53)	(10.13)	(9.56)
sales_growth	-0.035	-0.024	-0.075	-0.061	-0.038	-0.025
	(-0.47)	(-0.33)	(-1.00)	(-0.80)	(-0.52)	(-0.34)
roa	4.453***	4.598***	4.769***	4.876***	4.166***	4.278***
	(7.47)	(7.65)	(8.05)	(8.21)	(7.73)	(7.87)
asset_turn	0.016	0.013	-0.000	-0.002	0.003	0.001
	(1.00)	(0.83)	(-0.01)	(-0.14)	(0.20)	(0.07)
lnage	-0.552***	-0.567***	-0.622***	-0.631***	-0.513***	-0.522***
	(-2.97)	(-3.03)	(-3.30)	(-3.32)	(-2.84)	(-2.87)
Industry f.e.	Y	Y	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y	Y	Y
N	1326	1326	1326	1326	1326	1326
F-statistics	15.97	11.01	14.74	10.89	17.82	13.40
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Adj. R^2	0.269	0.200	0.258	0.190	0.283	0.215

Note to Table D.6: This table represents a summary of the results of the statistical analysis conducted by the author. Results on the control variables are omitted. Models' specifications: clustering the robust standard errors at the firm level, with industry- and year-fixed effects *t*-statistics are in parentheses. ***, **, and * correspond to the significance levels of 1%, 5%, and 10%, using the two-tailed test. Data source: LSEG Workspace.

Table D. 7 – The results of the 2nd stage of 2SLS analysis: testing the moderating role of dividends on the relation between the unrelated to discretionary accruals component of BT differences and firm value – full version of Table 30

	Dependent variable :					
	tobin	*tobin_ind*	*tobin*	*tobin_ind*	*tobin*	*tobin_ind*
	(1)	(2)	(3)	(4)	(5)	(6)
Explanatory variables:						
btd_error	-0.989*	-0.984*	-1.036	-0.949	-0.377	-0.243
	(-1.67)	(-1.67)	(-1.52)	(-1.40)	(-0.40)	(-0.26)
divpayout	0.073***	0.072***				
	(4.34)	(4.35)				
*btd_error*divpayout*	0.150	0.162				
	(0.37)	(0.42)				
divdummy			0.142***	0.142***		
			(3.45)	(3.37)		
*btd_error*divdummy*			0.239	0.097		
			(0.23)	(0.09)		
div_5					0.075***	0.075***
					(5.81)	(5.71)
*btd_error*div_5*					-0.116	-0.167
					(-0.34)	(-0.49)
Big4	0.077	0.078	0.088	0.089	0.089*	0.090*
	(1.44)	(1.46)	(1.61)	(1.63)	(1.71)	(1.73)
lnsize	0.004	0.002	-0.004	-0.006	-0.014	-0.016
	(0.22)	(0.11)	(-0.24)	(-0.36)	(-0.90)	(-1.01)
booklev	0.078***	0.074***	0.081***	0.077***	0.080***	0.076***
	(9.47)	(8.90)	(9.80)	(9.24)	(9.97)	(9.38)
sales_growth	-0.029	-0.013	-0.049	-0.032	-0.016	0.001
	(-0.39)	(-0.18)	(-0.64)	(-0.42)	(-0.22)	(0.01)
roa	3.173***	3.129***	2.999***	2.953***	2.976***	2.928***
	(6.84)	(6.70)	(6.56)	(6.43)	(6.88)	(6.74)
asset_turn	0.033**	0.033**	0.030**	0.031**	0.023*	0.023*
	(2.33)	(2.32)	(2.23)	(2.21)	(1.72)	(1.72)

Table D.7 – continued

lnage	-0.317*	-0.300*	-0.297*	-0.281	-0.307*	-0.290*
	(-1.85)	(-1.74)	(-1.75)	(-1.64)	(-1.82)	(-1.71)
Industry f.e.	Y	Y	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y	Y	Y
N	1326	1326	1326	1326	1326	1326
F-statistics	16.946	10.230	13.745	9.322	16.797	11.823
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Adj. R^2	0.330	0.257	0.326	0.253	0.344	0.272

Industry and year effects are included. Robust standard errors are clustered at the firm level. The numbers in parentheses represent the *t*-statistics. The significance levels of one, five, and ten percent using the two-tailed test are labeled with ***, **, and *, respectively.

Table D.8 – The results of the 2nd stage of 2SLS analysis with an alternative specification of the instrument variable – full version of Table 31

Panel A. Dividend policy proxy is *divpayout*

	Dependent variable:			
	tobin	*tobin*	*tobin_ind*	*tobin_ind*
	(1)	(2)	(3)	(4)
Independent variables:				
btd_kDACC	-11.165***	-12.219***	-11.594***	-12.627***
	(-3.38)	(-3.70)	(-3.48)	(-3.80)
div_payout	0.047**	0.210***	0.045**	0.205***
	(2.50)	(4.31)	(2.41)	(4.15)
*btd_kDACC*div_payout*		4.644***		4.549***
		(3.92)		(3.84)
Big4	0.032	0.027	0.034	0.029
	(0.60)	(0.52)	(0.63)	(0.56)
lnsize	0.020	0.016	0.018	0.014
	(1.24)	(1.00)	(1.09)	(0.86)
booklev	0.082***	0.082***	0.079***	0.079***
	(9.48)	(9.58)	(9.03)	(9.11)
sales_growth	-0.171**	-0.135**	-0.149**	-0.113*
	(-2.48)	(-2.03)	(-2.20)	(-1.73)
roa	4.451***	4.394***	4.456***	4.400***
	(8.79)	(9.12)	(8.71)	(9.00)
asset_turn	-0.012	-0.010	-0.015	-0.013
	(-0.58)	(-0.50)	(-0.71)	(-0.63)
lnage	-0.329*	-0.331*	-0.323*	-0.325*
	(-1.83)	(-1.87)	(-1.79)	(-1.82)
N	1145	1145	1145	1145
F-statistics	38.632	35.051	14.547	15.440
p-value	0.000	0.000	0.000	0.000
Adj. R^2	0.380	0.394	0.311	0.326

Table D.8 – continued

Panel B. Dividend policy proxy is *divpayout*

	Dependent variable			
	tobin	*tobin*	*tobin_ind*	*tobin_ind*
	(1)	(2)	(3)	(4)
Explanatory variables:				
error_kDACC	-0.697	-0.590	-0.671	-0.568
	(-1.16)	(-0.91)	(-1.14)	(-0.89)
divpayout	0.084***	0.086***	0.084***	0.085***
	(4.52)	(4.70)	(4.49)	(4.65)
*error_kDACC*divpayout*		-0.287		-0.278
		(-0.64)		(-0.61)
Big4	0.038	0.039	0.040	0.041
	(0.69)	(0.70)	(0.72)	(0.74)
lnsize	0.016	0.015	0.013	0.013
	(0.96)	(0.94)	(0.80)	(0.78)
booklev	0.086***	0.086***	0.083***	0.083***
	(9.91)	(9.89)	(9.45)	(9.42)
sales_growth	-0.072	-0.071	-0.046	-0.045
	(-1.05)	(-1.04)	(-0.68)	(-0.67)
roa	3.540***	3.540***	3.511***	3.510***
	(7.36)	(7.37)	(7.31)	(7.31)
asset_turn	0.034**	0.034**	0.033**	0.033**
	(2.29)	(2.29)	(2.17)	(2.17)
lnage	-0.316*	-0.317*	-0.310*	-0.310*
	(-1.77)	(-1.77)	(-1.72)	(-1.72)
Industry f.e.	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y
N	1145	1145	1145	1145
F-statistics	28.577	27.838	12.679	12.329
p-value	0.000	0.000	0.000	0.000
Adj. R^2	0.369	0.369	0.299	0.299

Panel B. Dividend policy proxy is *divdummy*

	Dependent variable :			
	tobin	*tobin*	*tobin_ind*	*tobin_ind*
	(1)	(2)	(3)	(4)
Explanatory variables:				
btd_kDACC	-13.704***	-18.972***	-14.017***	-19.165***
	(-4.44)	(-5.11)	(-4.53)	(-5.13)
divdummy	0.110***	0.209***	0.108***	0.205***
	(2.79)	(3.13)	(2.66)	(3.03)
*btd_kDACC*divdummy*		6.780**		6.624**
		(2.22)		(2.16)
Big4	0.038	0.038	0.039	0.040
	(0.70)	(0.72)	(0.74)	(0.76)

Table D.8 – continued

lnsize	0.015	0.013	0.013	0.011
	(0.90)	(0.78)	(0.75)	(0.64)
booklev	0.083***	0.082***	0.079***	0.079***
	(9.47)	(9.42)	(9.01)	(8.97)
sales_growth	-0.202***	-0.219***	-0.178***	-0.194***
	(-2.95)	(-3.27)	(-2.65)	(-2.95)
roa	4.522***	4.538***	4.521***	4.537***
	(9.16)	(9.42)	(9.08)	(9.33)
asset_turn	-0.024	-0.029	-0.026	-0.031
	(-1.18)	(-1.45)	(-1.28)	(-1.54)
lnage	-0.323*	-0.330*	-0.318*	-0.325*
	(-1.81)	(-1.86)	(-1.77)	(-1.81)
Industry f.e.	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y
N	1145	1145	1145	1145
F-statistics	31.387	35.699	15.092	13.781
p-value	0.000	0.000	0.000	0.000
Adj. R^2	0.381	0.385	0.312	0.316

Panel C. Dividend policy proxy is *div_5*

	Dependent variable :			
	tobin	*tobin*	*tobin_ind*	*tobin_ind*
	(1)	(2)	(3)	(4)
Explanatory variables:				
btd_kDACC	-10.699***	-19.499***	-11.011***	-19.698***
	(-3.61)	(-5.47)	(-3.70)	(-5.53)
div_5	0.064***	0.113***	0.064***	0.112***
	(5.01)	(5.60)	(4.88)	(5.54)
*btd_kDACC*div_5*		3.001***		2.963***
		(3.72)		(3.69)
Big4	0.041	0.041	0.043	0.043
	(0.79)	(0.81)	(0.83)	(0.85)
lnsize	0.004	0.002	0.002	-0.001
	(0.28)	(0.10)	(0.13)	(-0.05)
booklev	0.082***	0.082***	0.079***	0.079***
	(9.62)	(9.63)	(9.14)	(9.13)
sales_growth	-0.146**	-0.165**	-0.122*	-0.140**
	(-2.19)	(-2.55)	(-1.87)	(-2.20)
roa	4.226***	4.237***	4.223***	4.234***
	(8.90)	(9.48)	(8.78)	(9.31)
asset_turn	-0.018	-0.022	-0.020	-0.024
	(-0.91)	(-1.14)	(-1.02)	(-1.23)
lnage	-0.323*	-0.323*	-0.317*	-0.318*
	(-1.83)	(-1.84)	(-1.79)	(-1.80)

Table D.8 – continued

Industry f.e.	Y	Y	Y	Y
Year f.e.	Y	Y	Y	Y
N	1145	1145	1145	1145
F-statistics	31.216	34.286	17.135	16.805
p-value	0.000	0.000	0.000	0.000
Adj. R^2	0.394	0.403	0.326	0.336

Note: This table represents a summary of the results of the statistical analysis conducted by the author. Results on the control variables are omitted. Models' specifications: clustering the robust standard errors at the firm level, with industry- and year-fixed effects *t*-statistics are in parentheses. ***, **, and * correspond to the significance levels of 1%, 5%, and 10%, using the two-tailed test. Data source: LSEG Workspace for Students.