

Designing a Model for Assessing the Costs of Asymmetric Information from the Perspective of Earnings Valuation and Earnings Selectivity

1. Maryam. Aghakhani^{ID}: Department of Accounting, WT.C., Islamic Azad University, Tehran, Iran.
2. Khadijeh. Khodabakhshi Parijan^{ID}*: Department of Accounting, WT.C., Islamic Azad University, Tehran, Iran.
3. Malihe. Alifarri^{ID}: Department of Accounting, WT.C., Islamic Azad University, Tehran, Iran.

*corresponding author's email: parijan@iau.ac.ir

ABSTRACT

This study aimed to design and empirically validate a model for assessing asymmetric information costs from the perspectives of earnings valuation and earnings selectivity among firms listed on the Tehran Stock Exchange. This applied, descriptive-correlational study used a two-stage design. In the expert stage, 120 fundamental market analysts were selected purposively to evaluate 28 candidate variables related to earnings valuation and earnings selectivity. After screening, 26 variables were retained and subsequently classified into valuation- and selectivity-related dimensions. In the archival stage, 170 listed firms were selected through screening criteria and examined over 2015–2024, yielding 1,700 firm-year observations. Asymmetric information cost was measured using a market-based price-impact proxy. Data were analyzed using descriptive statistics, Kolmogorov-Smirnov testing, Pearson correlations, augmented Dickey-Fuller tests, F-Limer and Hausman tests, regression diagnostics, fixed-effects panel regression, stepwise model optimization, and the Vuong test in Excel, SPSS, and EViews. The valuation model retained earnings persistence, predictability, timeliness, conditional and unconditional conservatism, earnings-response coefficient, revenue-expense matching, expected profitability growth, and return on assets, together with firm size, loss status, and leverage. The model was significant and explained 63.6% of the variation in asymmetric information costs. The selectivity model retained discretionary accrual earnings management, real earnings management, accrual quality, accrual–cash flow correlation, total-accrual management, earnings variability, cash-flow-to-operating-income volatility, classification shifting, and income smoothing, plus the same control variables, explaining 74.2% of the variance. The Vuong test showed a significant difference between the two models, with the selectivity model demonstrating greater explanatory power. Asymmetric information costs are explained by both valuation-related and selectivity-related earnings characteristics, but the selectivity dimension provides stronger explanatory power, highlighting the importance of earnings quality, manipulation, volatility, and classification attributes in shaping firms' information environments.

Keywords: Asymmetric Information Costs; Earnings Valuation; Earnings Selectivity; Earnings Quality; Earnings Management; Panel Data; Tehran Stock Exchange

Introduction

Information asymmetry is one of the fundamental problems underlying the functioning of capital markets because managers, controlling shareholders, auditors, investors, and other market participants do not possess equal access to timely, reliable, and decision-relevant information. Managers generally have superior knowledge about firms'



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current operations, future prospects, risks, financing needs, and earnings-generating processes, whereas external investors must form expectations primarily from financial reports, market disclosures, analyst assessments, and observable trading information. When the quality, credibility, timeliness, or interpretability of these information channels declines, uninformed or less-informed investors face greater uncertainty regarding firm value and the sustainability of reported performance. Such uncertainty can increase adverse selection, widen differences in investors' assessments, reduce market liquidity, and raise the implicit costs of executing transactions. Consequently, the cost of asymmetric information should not be regarded merely as a market-microstructure phenomenon; rather, it is closely associated with the quality and usefulness of accounting information through which investors evaluate firms and discriminate between sustainable and transitory components of reported earnings. In this context, the credibility of the broader financial reporting environment is partly shaped by the quality of professional judgment exercised by accountants and auditors. Recent auditing research has shown that professional behavior and judgment can be influenced by workplace conditions and interpersonal experiences, suggesting that organizational and behavioral factors may indirectly affect the information environment in which capital-market participants operate (1). Similarly, evidence concerning behavioral biases among auditors demonstrates that professional judgments cannot always be assumed to arise from purely mechanical application of accounting and auditing rules, because cognitive and contextual factors may influence information evaluation and reporting-related decisions (2). These considerations reinforce the need for a multidimensional approach to asymmetric information that gives particular attention to the characteristics of earnings through which investors infer value and assess the credibility of corporate performance.

Earnings constitute one of the most widely used accounting signals in equity valuation because they summarize the financial consequences of numerous operating, investing, and financing decisions in a form that can be compared over time and across firms. Nevertheless, the informational value of earnings depends not only on their absolute magnitude but also on their persistence, predictability, timeliness, responsiveness to economic news, matching properties, conservatism, accrual quality, and susceptibility to managerial intervention. An earnings number that is highly persistent and predictable may provide a stronger basis for forming expectations regarding future performance than one characterized by extreme volatility or discretionary manipulation. Likewise, timely recognition of economic gains and losses can increase the extent to which accounting outcomes correspond to information already reflected in securities prices. The valuation function of earnings is therefore closely related to whether reported accounting outcomes help investors update expectations about future cash flows and intrinsic firm value. At the same time, the usefulness of earnings depends on investors' ability to distinguish among alternative earnings attributes and to determine which components provide reliable signals and which may reflect temporary accrual adjustments, classification choices, or real operating manipulation. The present study conceptualizes this second dimension as earnings selectivity, referring to the informational properties that enable market participants to differentiate between earnings signals according to their quality and credibility. Such differentiation becomes particularly important in environments where investors face heterogeneous levels of information and analytical capability.

The quality of the corporate information environment is also inseparable from the human and organizational systems through which financial information is generated, reviewed, audited, and communicated. Research on audit professionals has emphasized the importance of retaining qualified human resources in independent audit firms because auditor continuity, expertise, and professional capacity contribute to the sustainability of assurance

functions (3). Turnover-related research has likewise indicated that work pressure and job satisfaction may influence auditors' intention to remain in or leave the profession, implying potential consequences for institutional expertise and audit continuity (4). Evidence from the Iranian context has similarly identified multiple determinants of auditors' intention to leave the profession, indicating that audit labor-market stability is a relevant organizational issue in maintaining professional quality (5). Moreover, proactive work behavior and job satisfaction have been linked to auditors' professional skepticism, a central attribute in the critical evaluation of management representations and accounting estimates (6). These findings are important for research on asymmetric information because external assurance is intended to reduce uncertainty regarding the reliability of disclosed financial information. If the professional environment weakens auditors' skepticism, judgment quality, engagement, or continuity, the capacity of auditing to constrain opportunistic reporting and reduce information risk may also be affected.

Recent organizational research further demonstrates that exclusionary workplace experiences can influence employees' psychological states and behavioral responses. Workplace ostracism generally refers to circumstances in which individuals perceive that they are ignored, excluded, or socially disconnected within their work environment. From a communication perspective, ostracism can emerge through explicit or implicit interpersonal messages that signal exclusion, nonrecognition, or withdrawal of social engagement (7). Studies have identified workplace ostracism as a meaningful organizational phenomenon whose antecedents and consequences can be examined through individual, interpersonal, and organizational dimensions (8). Within public organizations, ostracism has been shown to influence job performance, with work discipline operating as an important explanatory mechanism (9). Evidence from banking organizations likewise indicates that workplace ostracism may be associated with task performance and organizational citizenship behavior, demonstrating that social exclusion can affect both formal and discretionary dimensions of employee performance (10). Research has also shown that ostracism can reduce creative behavior through its relationships with thriving at work, work engagement, and organization-based self-esteem (11). Although these studies do not directly measure financial-market information asymmetry, they highlight a broader mechanism that is highly relevant to accounting and auditing settings: organizational conditions can influence the behavior and performance of professionals responsible for producing, analyzing, or validating economically important information.

The consequences of exclusion are particularly relevant where organizational effectiveness depends on information exchange. Knowledge withholding and defensive communication can disrupt the circulation of information even within organizations before information reaches external markets. Workplace ostracism has been associated with knowledge-hiding behavior, with reciprocal beliefs helping explain why excluded employees may intentionally withhold knowledge from colleagues (12). Related evidence suggests that defensive silence mediates the relationship between workplace ostracism and knowledge hiding, while experiential avoidance can modify this process (13). Research on employee participation and training has additionally shown that ostracism may condition their effects on organizational commitment (14). These findings demonstrate that access to information and willingness to communicate cannot be separated completely from interpersonal and institutional conditions. In accounting settings, where the collection, interpretation, challenge, aggregation, and disclosure of information require repeated interaction among employees, managers, accountants, internal auditors, external auditors, and analysts, impediments to information sharing may ultimately affect the quality of reported signals. Consequently, the costs investors bear because of unequal information may originate not only in intentional managerial disclosure choices but also in organizational processes affecting how information is generated and transmitted.

The transition toward remote and technology-mediated professional work has introduced additional complexities into these processes. Research in large audit firms has shown that remote working arrangements may alter patterns of social bonding and professional interaction among audit personnel (15). Such developments are relevant because accounting and auditing judgments frequently depend on collaborative problem solving, consultation, review, and informal knowledge exchange. Organizational culture may either mitigate or intensify the behavioral effects of workplace exclusion, as research has demonstrated that culture can moderate the relationship between workplace ostracism and employee performance (16). Similar evidence from technology-intensive academic environments indicates that organizational culture and work-life balance interact with experiences of ostracism under changing technological conditions (17). At the same time, empowering leadership has been associated with favorable employee psychological states and behaviors, illustrating how supportive organizational mechanisms can strengthen engagement and constructive conduct (18). These studies collectively emphasize that organizational arrangements influence the quality of human judgment and information-related behavior. This is particularly important in financial reporting systems because the reliability of earnings data depends not only on formal accounting standards but also on the professional processes through which estimates, accruals, classifications, impairments, provisions, and disclosures are determined and reviewed.

The psychological literature on social exclusion provides an additional perspective on how information and decision behavior may change when relational needs are threatened. Social exclusion has been found to influence prosocial behavior through threats to relational needs and differences in regulatory focus (19). Experimental evidence also suggests that social rejection can affect prosocial sharing decisions in contexts characterized by inequality (20). Interventions intended to strengthen prosociality among socially excluded groups further demonstrate that behavioral consequences of exclusion can be altered through mechanisms that restore social connection and participation (21). Although these studies are situated outside capital-market accounting, their implications are relevant to the behavioral foundations of disclosure and information sharing. Market information is produced through a chain of individual and collective judgments, and the willingness of organizational members to communicate unfavorable information, challenge optimistic estimates, share specialized knowledge, and participate in control processes may influence what ultimately becomes observable to outside investors. The behavioral conditions surrounding information production therefore represent a potentially important background factor in understanding why financial statements differ in their informativeness and why market participants may assign different levels of uncertainty to reported earnings.

From the perspective of capital-market decision making, asymmetric information becomes economically consequential when differences in information sets influence securities valuation and trading behavior. Investors who suspect that other market participants possess superior firm-specific information may require compensation for adverse-selection risk or reduce their willingness to trade. Price movements generated by relatively small transaction values can therefore indicate a market in which liquidity providers and uninformed participants perceive greater information risk. For this reason, price-impact measures provide a useful empirical proxy for asymmetric information costs. However, a market-based measure alone does not explain which characteristics of accounting information are responsible for variation in those costs. A more informative analytical framework must connect market-based information costs with the properties of earnings used by investors to estimate value and evaluate reporting quality. This requires distinguishing between variables that improve the valuation usefulness of earnings

and variables that indicate the extent to which earnings are affected by accrual estimation, manipulation, classification choices, smoothing, or volatility.

The valuation perspective encompasses attributes that enhance the ability of reported earnings to represent economic performance and support expectations about future outcomes. Earnings persistence indicates the extent to which current earnings are likely to recur, while predictability reflects the ability of current accounting information to support forecasts of future outcomes. Timeliness captures how rapidly economic information becomes reflected in accounting income. Conditional and unconditional conservatism describe different aspects of asymmetric recognition and cautious reporting, whereas the earnings-response coefficient captures market sensitivity to accounting outcomes. Revenue-expense matching reflects the correspondence between recognized revenues and associated economic sacrifices, expected profitability growth captures changes in anticipated performance, and return on assets reflects efficiency in generating earnings from the asset base. When these characteristics increase the credibility and interpretability of reported earnings, investors may face less uncertainty about firm value and therefore lower information-related transaction costs. Conversely, weak persistence, poor predictability, delayed recognition, inadequate matching, or low profitability may impair investors' ability to infer intrinsic value from financial statements.

The earnings-selectivity perspective addresses a related but distinct issue: whether reported earnings contain characteristics that make it difficult for investors to distinguish sustainable performance from accounting or operational intervention. Accrual quality is relevant because accruals requiring substantial estimation may create uncertainty regarding the conversion of accounting earnings into future cash flows. The correlation between accruals and operating cash flows provides information about the relationship between recognition adjustments and underlying cash performance. Total and discretionary accrual-based earnings management reflect the possibility that managers use accounting choices to influence reported outcomes, whereas real earnings management captures intervention through operational decisions such as production, sales incentives, or discretionary expenditures. Earnings variability and the relationship between cash-flow and operating-income volatility reveal the stability of the earnings-generating process. Classification shifting can alter the presentation of recurring and nonrecurring components without necessarily changing bottom-line earnings, while income smoothing may suppress economically meaningful fluctuations. These characteristics are important because investors do not simply observe earnings; they must evaluate which components deserve greater weight in valuation. Greater ambiguity regarding this selection process can widen differences in investors' interpretations and thereby increase asymmetric information costs.

The distinction between valuation and selectivity also permits a more detailed assessment of how financial reporting characteristics affect the market information environment. A model based solely on the level of earnings or a small set of traditional ratios may fail to capture the complex channels through which reported performance becomes informative or misleading. Furthermore, contemporary financial markets increasingly rely on sophisticated analysts who combine accounting ratios, historical persistence, market reactions, cash-flow behavior, and earnings-management indicators when assessing firms. The professional environment of such analysts and auditors also matters because judgment quality can be affected by interpersonal and organizational conditions. Research concerning psychological empowerment, for example, suggests that adverse workplace experiences may influence work engagement through changes in employees' perceptions of autonomy and capability (22). Strategic modeling of ostracism experiences in high-pressure professional environments likewise indicates that exclusion is a

multidimensional organizational phenomenon requiring attention to causal relationships among individual and structural factors (23). Together with evidence on professional judgment, skepticism, retention, knowledge hiding, and organizational culture, these studies support the broader proposition that high-quality financial information is partly dependent on the institutional and human processes that produce and evaluate it.

A further issue concerns the need to develop models appropriate to the institutional context in which firms operate. Measures developed in one market may not fully capture the behavior of investors, reporting incentives, ownership structures, trading conditions, regulatory arrangements, or information intermediaries in another market. Accordingly, constructing a locally optimized model requires combining theoretically established indicators with expert assessments from professionals who actively interpret financial statements and make investment judgments. Fundamental analysts are especially relevant because their work involves evaluating profitability, earnings persistence, forecast performance, valuation ratios, accrual behavior, and other dimensions directly related to investors' information needs. Their assessments can therefore help identify which accounting attributes are considered practically meaningful before archival econometric modeling is undertaken. At the same time, expert judgment should not replace empirical validation. Candidate indicators must subsequently be tested against observable market-based asymmetric information costs using firm-year data and appropriate panel-data procedures. The integration of expert screening with longitudinal econometric modeling therefore provides a mechanism for linking conceptual relevance with market evidence.

The literature considered in this study also suggests that information asymmetry should be approached as a phenomenon spanning accounting measurement, professional judgment, organizational behavior, and market interpretation. Behavioral biases may affect auditors' judgments (2), incivility can alter audit professionals' decision processes (1), professional skepticism is related to work-related behavioral characteristics (6), and the stability of the audit workforce remains important for sustaining professional capacity (3). In parallel, ostracism, exclusion, knowledge hiding, weakened engagement, and reduced social bonding can influence the flow of information within organizations (11, 13-15). These streams of evidence do not substitute for direct measures of accounting information quality, but they reinforce the theoretical importance of investigating the characteristics of the accounting outputs ultimately delivered to investors. If earnings are more persistent, timely, predictable, well matched, and valuation relevant, they should theoretically reduce uncertainty. If earnings instead display stronger evidence of manipulation, smoothing, classification shifting, poor accrual quality, or instability, investors may encounter greater difficulty identifying the economic substance of reported performance. Measuring these two dimensions simultaneously can therefore provide a more comprehensive assessment of asymmetric information costs than reliance on a single earnings-quality indicator.

Despite the extensive literature on asymmetric information, earnings quality, and individual accounting attributes, an important gap remains in the integration of valuation-related and selectivity-related earnings characteristics into empirically optimized measures of asymmetric information costs. Many existing approaches focus either on market proxies such as spreads and price impact or on individual accounting attributes, while comparatively less attention has been devoted to identifying which combinations of earnings characteristics provide the greatest explanatory power for market-based information costs within a specific institutional setting. A model capable of differentiating the contribution of earnings valuation from that of earnings selectivity can provide a more granular representation of how financial reporting characteristics relate to investors' information disadvantages. Such a framework may also clarify whether the market consequences of information asymmetry are more strongly associated with the ability of

earnings to convey firm value or with the ability of investors to distinguish high-quality earnings from earnings affected by discretionary reporting choices. Accordingly, the aim of this study was to design and empirically validate a model for assessing the costs of asymmetric information from the perspectives of earnings valuation and earnings selectivity among firms listed on the Tehran Stock Exchange.

Methods and Materials

The present study was designed as an applied, descriptive-correlational investigation aimed at developing an empirical model for assessing the costs of asymmetric information from the perspective of earnings valuation and earnings selectivity. From the standpoint of purpose, the study was applied because it sought to translate theoretical concepts concerning information asymmetry and the informational properties of accounting earnings into an operational framework that could be used by investors, analysts, corporate decision-makers, and other capital-market stakeholders. From the standpoint of data collection and empirical strategy, the study adopted a descriptive-correlational design because the relationships between asymmetric information costs and a set of accounting- and market-based indicators were examined without experimental manipulation. The inferential logic of the research was primarily inductive. Theoretical foundations and candidate variables were initially identified through a systematic review of the accounting, finance, earnings-quality, valuation, and information-asymmetry literature, after which empirical data were used to determine which variables contributed significantly to explaining asymmetric information costs. The quantitative stage relied on longitudinal firm-year observations, thereby allowing both cross-sectional differences among firms and temporal variations within firms to be incorporated into the model. The principal unit of analysis in the archival phase was therefore the firm-year observation.

The statistical population consisted of two complementary groups. The first group comprised professional market experts, specifically fundamental analysts working in capital-market and brokerage offices in Tehran. These analysts were treated as representatives of informed market participants and, more specifically, as proxies for investors who routinely assess earnings information, valuation signals, accounting quality, and firm-specific financial information when making investment decisions. A total of 120 executive experts participated in the initial screening stage. Participants were selected through purposive or judgmental sampling because the study required respondents with sufficient professional knowledge of financial-statement analysis, firm valuation, earnings quality, market information, and investment decision-making. Selection therefore emphasized analysts whose professional experience enabled them to evaluate the relevance of the initially identified indicators to asymmetric information costs. The expert stage was not intended to estimate population parameters through probability sampling; instead, it was used to establish the practical relevance and market comprehensibility of variables derived from the theoretical literature. The initial conceptual pool consisted of 28 variables covering profitability, expected earnings growth, return measures, earnings persistence and predictability, accrual properties, conservatism, earnings management, income smoothing, earnings classification shifting, and other dimensions of earnings informativeness. Expert evaluation reduced this initial set to 26 variables after the ratio of net income to working capital and the measure distinguishing efficient from opportunistic accrual-based earnings management were judged insufficiently necessary for the intended model.

The second population consisted of firms listed on the Tehran Stock Exchange and related organized capital-market segments. Rather than determining a probabilistic sample size through a conventional sampling formula, a screening procedure was employed to construct a balanced and sufficiently comparable panel. Firms were required

to have a fiscal year ending at the end of Esfand, corresponding approximately to the end of March, in order to minimize inconsistencies arising from differences in financial-year timing. Firms were also required to have maintained continuous operations throughout the study period, to have experienced no material change in their fiscal year, and to possess all financial, accounting, trading, and market information required for computation of the research variables. Banks, insurance companies, investment companies, financial intermediaries, holding companies, and leasing firms were excluded because their accounting structures, capital requirements, leverage characteristics, and regulatory environments differ materially from those of ordinary nonfinancial firms. Firms additionally had to have been admitted to the market before 2015 and to remain within the study population through 2024. Companies operating in designated base-market categories that did not satisfy the comparability requirements, firms admitted after the beginning of the observation period, delisted firms, companies with nonstandard fiscal year-ends, and firms with substantial missing observations, fiscal-year changes, or extended trading interruptions were excluded. Application of these screening criteria resulted in a final sample of 170 companies.

The principal archival observation period covered ten fiscal years from 2015 through 2024. Accordingly, the maximum theoretical dataset consisted of 1,700 firm-year observations before adjustments required by the construction of lagged, lead, rolling-window, or incomplete variables. Because several earnings-quality indicators required observations from earlier or subsequent periods, the effective number of observations available for particular models could be lower than the maximum panel size. Five-year rolling windows were used where required to estimate firm-specific characteristics such as earnings persistence, earnings predictability, variability, cash-flow volatility relative to operating-income volatility, and the final rolling explanatory power used in constructing the optimized asymmetric-information measure. This longitudinal structure was selected because asymmetric information is unlikely to be adequately represented by a single-period accounting outcome and because valuation-related earnings properties frequently emerge from the persistence, volatility, predictability, matching, and market-response characteristics of earnings observed over several periods.

The conceptual model was developed around two related dimensions: earnings valuation and earnings selectivity. Following the theoretical classification adopted for the study, 18 variables were ultimately retained from the broader set of expert-approved indicators, including ten indicators associated principally with the valuation dimension and eight associated with the earnings-selectivity dimension. The inclusion process was guided by two methodological principles. First, candidate variables had to reflect contemporary and economically interpretable phenomena that could reasonably be understood and used by capital-market investors. Second, the variables had to be derivable from accounting and market information while extending beyond models that merely treat raw accounting outputs as isolated predictors. In this respect, the study sought to capture the manner in which reported earnings are evaluated, differentiated, interpreted, and selected by investors rather than simply testing whether a particular accounting number is statistically associated with stock prices.

Data collection was performed through a combination of library research, expert elicitation, structured questionnaire assessment, corporate financial statements, official market disclosures, and specialized capital-market databases. The theoretical component was developed through examination of books, peer-reviewed articles, dissertations, prior empirical studies, and domestic and international sources addressing asymmetric information, earnings quality, earnings valuation, accounting conservatism, accrual quality, earnings management, market reaction, and financial reporting quality. This stage generated the initial conceptual pool of 28 indicators. A

structured questionnaire was then administered to the 120 fundamental analysts to assess the practical importance of these variables in evaluating the costs of asymmetric information. Following expert screening, 26 variables were retained. These variables were subsequently mapped onto the theoretical domains of earnings valuation and earnings selectivity, resulting in a final set of 18 indicators used in the empirical model-development stage.

Financial-statement information was extracted from firms' annual reports, audited financial statements, accompanying notes, and disclosures submitted to the Iranian capital market. Market-related data, including share prices, stock returns, transaction values, and trading information, were collected from recognized exchange databases and specialized financial software, including Tadbir Pardaz and Rahavard. The combination of accounting and market data made it possible to calculate both internal financial-reporting characteristics and external market-response variables. Raw data were initially organized, reconciled, and screened in Microsoft Excel. Particular attention was paid to the consistency of firm identifiers, fiscal years, lagged observations, share-price adjustments, and the availability of consecutive-year information required for rolling regressions and dynamic measures.

The dependent construct, asymmetric information cost, was initially operationalized using a price-impact illiquidity measure based on the approach introduced by Amihud. For each firm and period, the absolute daily stock return was scaled by the daily monetary value of trading and then averaged across the number of trading days in the relevant period. Conceptually, the indicator can be expressed as the mean of $|R_d|/V_d$ across D trading days, where $|R_d|$ represents the absolute daily stock return, V_d denotes the monetary value of transactions on day d , and D represents the number of trading days included in the measurement period. A larger value indicates that a given amount of trading is accompanied by a greater absolute price movement, which is interpreted as greater price impact, lower market liquidity, and a higher economic cost associated with informational asymmetry. Conversely, smaller values indicate lower price sensitivity to trading volume and lower inferred asymmetric information costs.

The explanatory framework contained 18 indicators associated with earnings valuation and earnings selectivity. Expected change in profitability growth, denoted $VALUE_E$, was estimated using changes in realized profitability, particularly return on equity, between consecutive periods. The underlying assumption was that realized changes in profitability provide an observable basis for assessing investors' expectations regarding the continuation of earnings growth. Return on assets, ROA, was calculated as net income divided by total assets and represented the firm's ability to generate earnings from its asset base. Revenue-expense matching, $MATCH$, was assessed using a regression in which current revenue was modeled as a function of lagged, current, and subsequent expenses. The coefficient on current-period expense represented the strength of contemporaneous matching, with a stronger positive coefficient indicating closer alignment between recognized revenue and associated costs.

The volatility ratio between operating cash flow and operating income, $ROCFOP$, was calculated as the standard deviation of operating cash flows divided by the standard deviation of operating income over a five-year window. The indicator captured the relationship between cash-flow volatility and reported operating-income volatility and was incorporated as a dimension of earnings quality. The correlation between total accruals and operating cash flow, $CORRL_TA_CF$, was calculated from firm-specific accrual and operating-cash-flow observations. More pronounced negative association between accruals and cash flows was interpreted as evidence potentially consistent with stronger accrual-based earnings intervention. Accrual quality, AQ , was estimated using the Dechow-Dichev framework, in which changes in noncash working capital were regressed on operating cash flows from the previous, current, and subsequent periods. The residual from this model represented the component of working-

capital accruals not explained by realized operating cash flows; larger residual magnitudes therefore indicated poorer accrual quality.

Earnings persistence, SOP, was measured using a first-order autoregressive earnings model in which current net income was regressed on prior-period net income. Estimation was conducted using rolling five-year observations, and a slope coefficient closer to one represented stronger earnings persistence. Earnings predictability, PRED, was evaluated through the relationship between earnings and operating cash-flow information using rolling regression estimation. The dispersion of the regression residuals served as the predictability criterion; greater residual dispersion reflected lower predictability, whereas lower residual dispersion indicated that earnings contained more stable information concerning future or cash-flow-related performance. Earnings variability, CHANGEABLE, was derived from the residual behavior of a time-series earnings model linking current earnings to lagged earnings. Larger residual values represented greater earnings volatility and lower earnings stability.

The earnings-response coefficient, REAC_COF, measured the degree to which equity returns responded to reported earnings and changes in earnings. Stock return was regressed on current earnings and the change in earnings relative to the previous year, and the estimated earnings coefficient was used to represent market sensitivity to accounting earnings. A larger coefficient was interpreted as a stronger market response to reported earnings. Earnings timeliness, TIME_E, was estimated from a return-earnings model in which stock returns were regressed on current net income and changes in net income. The adjusted coefficient of determination obtained from this model was used as the principal indicator of timeliness, with greater explanatory power reflecting a closer temporal correspondence between accounting earnings and information incorporated into market prices.

Conditional conservatism, CON_BASU, was measured through the asymmetric-timeliness framework associated with the Basu model. Earnings per share scaled by beginning-of-period share price were modeled as a function of annual stock return, an indicator variable distinguishing negative from nonnegative returns, and the interaction between the two. A stronger incremental response of earnings to negative returns was interpreted as greater conditional conservatism because bad news was recognized more rapidly than good news. Unconditional conservatism, CON_GIVO, was measured using an accrual-based approach consistent with the Givoly-Hayn framework. Total accruals were scaled by total assets and multiplied by minus one so that the resulting index could be interpreted in the direction specified by the research framework. Persistent negative accrual behavior over extended periods was used as evidence of conservative accounting practices not explicitly conditional on contemporaneous market news.

Total-accrual-based earnings management, ATBM, was calculated as the difference between operating income and operating cash flow. Discretionary-accrual earnings management, EM_ADJJO, was estimated through the modified Jones model. Total accruals scaled by lagged total assets were regressed on the inverse of lagged assets, changes in revenue adjusted for changes in receivables, and property, plant, and equipment. The firm-year residual represented discretionary accruals. The magnitude of discretionary accrual behavior was then transformed in accordance with the directional interpretation adopted for the study so that the resulting measure was consistent with the overall modeling framework.

Real earnings management, ERM, incorporated three dimensions: abnormal operating cash flow, abnormal production costs, and abnormal discretionary expenses. Abnormal operating cash flow was estimated by modeling operating cash flow scaled by lagged assets as a function of the inverse of lagged assets, current sales, and changes in sales. Abnormal production costs were obtained from a model linking production costs to current sales

and current and lagged changes in sales. Abnormal discretionary expenditure was estimated by relating discretionary expenses to lagged sales and the inverse of lagged assets. The residuals of these models represented abnormal operational behavior. The composite real earnings-management measure was constructed by combining the three components so that lower abnormal operating cash flow, higher abnormal production costs, and lower abnormal discretionary expenditures jointly represented a greater degree of real activities manipulation.

Earnings classification shifting, ECS, was measured using a core-earnings framework. Expected core earnings were estimated as a function of prior-period core earnings, asset turnover, current and lagged operating accruals, sales growth, and an indicator for negative sales growth. A companion model captured changes in core earnings. The unexpected core-earnings residual was used as the primary classification-shifting proxy because the alternative measure based on unexpected changes in core earnings conveyed substantially overlapping information. The relevant models were estimated within market-industry categories to improve comparability among firms operating under similar economic conditions. Larger positive residual values were interpreted as stronger evidence of classification shifting.

Income smoothing, IS, was calculated as the ratio of the standard deviation of earnings before extraordinary items to the standard deviation of operating cash flows. Both earnings and operating cash flow were scaled by beginning-of-year total assets before the volatility measures were obtained. A smaller ratio indicated that reported earnings fluctuated less than the underlying cash flows, which was interpreted as greater income smoothing and, therefore, potentially greater earnings management. A larger ratio reflected comparatively less smoothing.

Three additional firm characteristics were incorporated as control variables in the model because they may affect the magnitude of information asymmetry independently of the focal earnings-related constructs. Firm size was measured as the natural logarithm of the book value of total assets. Financial leverage was calculated as total liabilities divided by total assets. Loss status was represented by a binary variable taking the value of one when the firm reported a loss in a particular year and zero otherwise. These variables were included to improve explanatory adequacy and reduce the possibility that the final asymmetric-information model would attribute to earnings valuation or earnings selectivity effects actually arising from firm scale, capital structure, or loss-making status.

Data preparation and statistical analyses were conducted using Microsoft Excel, SPSS, and EViews version 10. Excel was employed primarily for data coding, variable construction, reconciliation of accounting records, organization of panel observations, and preliminary calculations. SPSS was used for descriptive and preliminary statistical procedures, while EViews was used for panel-data diagnostics, regression estimation, rolling-window estimation, and stepwise model optimization. The statistical significance level was set at 0.05 unless a specific analytical procedure required otherwise. Descriptive statistics were first calculated for all continuous research variables and included the minimum, maximum, arithmetic mean, and standard deviation. These statistics were used to evaluate the distributional characteristics of the data, detect implausible observations, and provide an initial description of variation among firms and across the ten-year research period.

Distributional properties were evaluated before inferential modeling. The Kolmogorov-Smirnov procedure was specified in the research design for evaluating departures from normality, together with complementary attention to skewness and kurtosis. Where substantial positive skewness or other distributional irregularity affected variables for which transformation was statistically and substantively appropriate, logarithmic transformation was considered. Because the principal dataset was longitudinal, the analysis did not rely exclusively on cross-sectional normality

assumptions. Particular attention was instead paid to the properties of the regression residuals, the stability of the variables over time, and the assumptions relevant to panel-data estimation.

Bivariate relationships among the variables were initially examined using Pearson correlation coefficients. Correlation analysis served two purposes: it provided preliminary evidence concerning the direction and magnitude of association between asymmetric information costs and the earnings-related variables, and it assisted in identifying potentially excessive intercorrelations among candidate predictors before multivariate estimation. Multicollinearity was subsequently assessed using the variance inflation factor. VIF values below 10 were treated as indicating the absence of problematic multicollinearity, while larger values were examined carefully before inclusion of the relevant predictors in the final specification. Because stepwise model development can be particularly sensitive to collinearity among conceptually related earnings-quality variables, correlation patterns and VIF statistics were jointly considered rather than relying on a single diagnostic criterion.

The stationarity of the longitudinal variables was evaluated before estimation of the principal panel regressions. An augmented Dickey-Fuller-type unit-root procedure was specified to test whether relevant time-series components exhibited stable statistical properties over time. The null hypothesis of a unit root was rejected when the probability value fell below 0.05. Variables showing evidence of nonstationarity were subjected to appropriate transformation or reconsideration before their inclusion in regression models, thereby reducing the risk of spurious regression results. Given the combined time-series and cross-sectional nature of the dataset, stationarity assessment was interpreted in conjunction with the structure of the panel and the behavior of the variables across firms and years.

The appropriate panel specification was determined through sequential model-selection tests. The F-Limer, or Chow-type, test was used to determine whether pooled ordinary least squares or a panel-data specification was more appropriate. A statistically significant test result indicated the presence of meaningful cross-sectional heterogeneity and therefore supported panel estimation rather than simple pooling. Where panel estimation was indicated, the Hausman specification test was used to distinguish between fixed-effects and random-effects models. A significant Hausman statistic supported fixed-effects estimation by indicating systematic association between the unobserved firm-specific effects and the explanatory variables, whereas a nonsignificant statistic supported the random-effects specification. These procedures were applied to ensure that the final coefficient estimates reflected the underlying structure of the data rather than an arbitrarily selected econometric estimator.

Regression diagnostics were performed to evaluate heteroskedasticity and serial dependence. The White test was used to assess whether the variance of the error term remained constant across observations. Where heteroskedasticity was detected, estimation was adjusted using an appropriate robust covariance procedure so that statistical inference would not depend on the conventional homoskedastic-error assumption. Serial correlation was assessed using the Breusch-Godfrey framework and, where applicable, the Durbin-Watson statistic. A Durbin-Watson value in the approximate range of 1.5 to 2.5 was treated as preliminary evidence against substantial first-order autocorrelation, although formal residual testing was given greater weight when the panel structure or model form required it. These diagnostics were particularly important because repeated firm observations across ten years create the possibility that shocks affecting one period may persist into subsequent periods.

The statistical significance of each estimated regression was evaluated using the F statistic, while the significance of individual regression coefficients was assessed with t statistics and their associated probability values. Adjusted R-squared was reported as the principal goodness-of-fit indicator because it penalizes

unnecessary predictors and is therefore more appropriate than unadjusted R-squared for comparing specifications containing different numbers of independent variables. The signs and magnitudes of the coefficients were interpreted in relation to the theoretical direction of the underlying indicators. Where a measure was naturally coded so that a higher numerical value represented poorer earnings quality or stronger earnings manipulation, its orientation was considered explicitly before combining it with the broader stakeholder-oriented model.

The central model-building procedure employed stepwise regression in EViews to identify the combination of earnings valuation and earnings-selectivity variables that provided the strongest empirically defensible explanation of asymmetric information costs. The candidate set consisted of the 18 final accounting and market indicators together with the specified control variables. The stepwise procedure was implemented through the combinatorial option so that alternative combinations of predictors could be compared rather than relying exclusively on mechanically sequential forward or backward entry. Model selection considered statistical significance, adjusted explanatory power, coefficient direction, multicollinearity, stability, and consistency with the conceptual framework. The purpose of this procedure was not simply to maximize in-sample fit but to obtain a parsimonious indigenous model containing variables that retained both statistical relevance and substantive meaning for investors and other market stakeholders.

Following identification of the final regression specification, the model was transformed into a firm-year measure of the cost of asymmetric information from the perspective of earnings valuation and earnings selectivity. Consistent with the logic of valuation-based explanatory-power models, the final specification was re-estimated over rolling five-year windows extending from $t-5$ to t for each firm-year for which sufficient data were available. The coefficient of determination generated for each rolling estimation was then used as the empirical index of asymmetric information costs associated with the valuation and selectivity of earnings. Within the operational convention adopted in this study, a larger firm-year R-squared indicated a higher measured level of asymmetric information cost from the earnings valuation and selectivity perspective, whereas a smaller value indicated a lower level of such cost. The rolling procedure allowed the index to reflect the evolving relationship between market-based information asymmetry and the relevant earnings characteristics rather than treating the association as constant across the entire sample period.

The resulting approach therefore integrated expert judgment, accounting-based earnings attributes, market behavior, longitudinal firm-level information, and econometric model optimization within a single empirical framework. The initial Amihud-type price-impact measure supplied an observable market proxy for asymmetric information costs, while the 18 earnings-related indicators represented alternative channels through which the valuation relevance and selectivity of reported earnings could influence those costs. Firm size, leverage, and loss status served as controls, and the final stepwise panel specification identified the subset of variables with the greatest explanatory contribution after diagnostic assessment. This procedure provided the empirical basis for constructing the proposed model for evaluating asymmetric information costs from the perspective of earnings valuation and earnings selectivity.

Findings and Results

The demographic characteristics of the executive experts are reported in Table 1. Of the 120 fundamental analysts participating in the expert assessment, 98 respondents, equivalent to 81.7%, were men and 22 respondents, equivalent to 18.3%, were women. In terms of education, the largest group held master's degrees,

accounting for 56.7% of the respondents, followed by bachelor's degree holders at 25.0% and doctoral degree holders at 18.3%. Regarding analytical approach, 57.5% reported primarily using fundamental analysis, whereas 42.5% used a combination of fundamental and technical analysis. The participants were also highly experienced: 48.3% reported at least 16 years of professional activity, 44.2% had 11–15 years of experience, and only 7.5% had between 5 and 10 years. These characteristics indicate that the expert assessment was predominantly based on relatively experienced market professionals with advanced academic qualifications.

Table 1. Demographic Characteristics of Fundamental Market Analysts

Characteristic	Category	Frequency	Percentage
Gender	Male	98	81.7
	Female	22	18.3
Education	Bachelor's degree	30	25.0
	Master's degree	68	56.7
	Doctoral degree	22	18.3
Analytical method	Fundamental analysis	69	57.5
	Fundamental and technical analysis	51	42.5
Professional experience	5–10 years	9	7.5
	11–15 years	53	44.2
	16 years or more	58	48.3

Descriptive statistics for the dependent and control variables are presented in Table 2. The mean asymmetric information cost, measured by SPREAD, was 0.115, with a median of 0.102 and a standard deviation of 0.138. The indicator ranged from approximately zero to 0.551, showing meaningful heterogeneity in information-related trading costs across firms and years. Mean firm size was 14.989, with a standard deviation of 1.588. Financial leverage averaged 0.532 and displayed a relatively high kurtosis of 11.855, indicating concentration around the central range together with relatively heavy tails. Of the 1,700 observations, 1,550 firm-years were profitable and 150 were loss-making, meaning that approximately 91.2% of the observations belonged to profitable firms and 8.8% represented loss firm-years.

Table 2. Descriptive Statistics of the Dependent and Control Variables

Variable	Mean	Median	Maximum	Minimum	SD	Skewness	Kurtosis
Asymmetric information cost (SPREAD)	0.115	0.102	0.551	0.000	0.138	0.414	2.237
Firm size (SIZE)	14.989	14.819	21.362	11.116	1.588	0.612	4.071
Financial leverage (LEV)	0.532	0.528	2.972	0.031	0.223	1.100	11.855

For LOSS, 1,550 observations were profitable firm-years and 150 observations were loss-making firm-years.

Table 3 presents the descriptive statistics of the variables ultimately operationalized within the earnings-valuation and earnings-selectivity models. Within the valuation-related group, the mean earnings persistence coefficient was 0.542, whereas earnings timeliness averaged 0.596. Conditional conservatism had a mean of 0.152, while unconditional conservatism averaged -0.038 . The mean earnings-response coefficient was 0.112, although its standard deviation of 11.685 indicates substantial cross-sectional variation. Revenue-expense matching averaged 1.387, expected profitability growth 0.855, and return on assets 0.149. Within the earnings-selectivity group, discretionary accrual-based earnings management averaged -0.140 , real earnings management was centered around zero, accrual quality averaged -0.134 , and the correlation between accruals and operating cash flows averaged -0.386 . Earnings variability averaged 0.110, the ratio of operating cash-flow volatility to operating-income volatility averaged 1.752, classification shifting averaged -0.004 , and income smoothing averaged 1.221.

Table 3. Descriptive Statistics of Earnings-Valuation and Earnings-Selectivity Variables

Dimension	Variable	Mean	Median	Maximum	Minimum	SD	Skewness	Kurtosis
Valuation	Earnings persistence (PERS)	0.542	0.412	5.218	-2.226	1.063	1.091	6.508
Valuation	Earnings predictability (PRED)	-0.109	-0.086	-0.010	-0.540	0.079	-1.750	7.112
Valuation	Earnings timeliness (TIMELIN_E)	0.596	0.648	0.998	0.010	0.289	-0.391	1.923
Valuation	Conditional conservatism (CON_BASU)	0.152	0.130	7.271	-4.354	0.255	-0.945	4.051
Valuation	Unconditional conservatism (CON_GIVO)	-0.038	-0.030	0.473	-0.548	0.141	-0.102	4.500
Valuation	Earnings-response coefficient (REACT_COFF)	0.112	0.026	59.466	-40.596	11.685	0.883	11.013
Valuation	Revenue-expense matching (MATCH)	1.387	1.258	6.185	-3.049	1.003	0.641	9.708
Valuation	Expected profitability growth (VALUE_E)	0.855	0.949	1.000	0.065	0.198	-1.757	5.422
Valuation	Return on assets (ROA)	0.149	0.127	0.710	-0.981	0.156	0.214	5.371
Selectivity	Discretionary accrual earnings management (EM_ADJJONES)	-0.140	-0.099	0.000	-0.886	0.140	-2.257	10.112
Selectivity	Real earnings management (REM)	0.000	0.028	0.827	-0.968	0.263	-0.749	4.824
Selectivity	Accrual quality (TAQ)	-0.134	-0.104	-0.884	-2.790	0.129	-2.557	12.648
Selectivity	Accrual-cash flow correlation (CORRL_TA_CF)	-0.386	-0.582	0.901	-0.995	0.559	0.816	2.414
Selectivity	Total-accrual-based management (TA_T_1)	0.037	0.029	0.625	-0.518	0.145	0.224	5.077
Selectivity	Earnings variability (CHANGEABLE)	0.110	0.081	0.845	0.005	0.104	2.950	15.901
Selectivity	CFO-to-operating-income volatility (STDCFO_OP)	1.752	1.209	10.746	0.096	1.674	2.897	13.468
Selectivity	Classification shifting (CHANGE_CLASSIFIC)	-0.004	-0.006	0.506	-0.563	0.084	0.024	8.939
Selectivity	Income smoothing (SMOTH)	1.221	1.003	6.363	0.005	0.994	2.326	10.509

Taken together, the descriptive findings show substantial dispersion among the accounting and market characteristics included in the models. Several indicators displayed nonzero skewness and relatively high kurtosis. Negative skewness for some variables reflected concentration toward one side of their empirical distributions, whereas high positive kurtosis indicated relatively peaked and heavy-tailed distributions. These distributional characteristics justified the subsequent diagnostic testing before regression estimation.

The first research question concerned the factors affecting asymmetric information costs from the perspectives of earnings valuation and earnings selectivity. The initial screening was conducted using the assessments of the 120 fundamental analysts. Table 4 reports the distribution of expert responses for the 28 initially proposed indicators. The strongest endorsement was observed for variables such as earnings predictability, return on equity, return on assets, the accrual-cash flow relationship, revenue-expense matching, and changes in profitability. Conversely, the ratio of net income to working capital and accrual-based earnings management classified into efficient and opportunistic components received very low necessity ratings and were therefore excluded from subsequent classification.

Table 4. Expert Assessment of Candidate Variables

Candidate variable	Very necessary %	Necessary %	Moderately necessary %	Slightly necessary %	Not necessary %	Mean	Median	SD
Changes in profitability and gross, net, and operating margins	53.6	46.4	0.0	0.0	0.0	4.535	5.0	0.507
Expected changes in profitability growth	14.3	42.9	39.3	3.6	0.0	3.678	4.0	0.772
Earnings per share (EPS)	25.0	39.3	28.6	7.1	0.0	3.821	4.0	0.904

Dividend per share (DPS)	35.7	35.7	25.0	3.6	0.0	4.035	4.0	0.881
Operating profit-to-sales ratio	28.6	39.3	17.9	14.3	0.0	3.821	4.0	1.020
Net income-to-working-capital ratio	0.0	0.0	7.1	21.4	71.4	1.357	1.0	0.621
P/E-to-net-income-growth ratio	39.3	32.1	17.9	10.7	0.0	4.000	4.0	1.018
Realized earnings relative to forecast earnings	32.1	50.0	10.7	7.1	0.0	4.071	4.0	0.857
Return on equity	57.1	39.3	3.6	0.0	0.0	4.535	5.0	0.576
Return on assets	57.1	32.1	10.7	0.0	0.0	4.464	5.0	0.692
CFO volatility relative to operating-income volatility	17.9	64.3	14.3	3.6	0.0	3.964	4.0	0.692
Correlation between accruals and operating cash flow	60.7	35.7	3.6	0.0	0.0	4.571	5.0	0.572
Accrual quality	32.1	32.1	7.1	0.0	28.6	3.392	4.0	1.640
Earnings persistence	28.6	42.9	28.6	0.0	0.0	4.000	4.0	0.769
Earnings predictability	67.9	28.6	3.6	0.0	0.0	4.642	5.0	0.558
Earnings variability	50.0	32.1	17.9	0.0	0.0	4.321	4.5	0.772
Value relevance of earnings	32.1	39.3	21.4	7.1	0.0	3.964	4.0	0.922
Earnings-response coefficient	50.0	39.3	7.1	3.6	0.0	4.357	4.5	0.780
Revenue-expense matching	53.6	46.4	0.0	0.0	0.0	4.535	5.0	0.507
Earnings timeliness	35.7	50.0	10.7	3.6	0.0	4.178	4.0	0.772
Conditional conservatism	32.1	50.0	10.7	7.1	0.0	4.071	4.0	0.857
Unconditional conservatism	39.3	7.1	53.6	0.0	0.0	3.857	3.0	0.970
Total-accrual-based earnings management	17.9	60.7	17.9	3.6	0.0	3.928	4.0	0.716
Discretionary-accrual earnings management	32.1	32.1	28.6	7.1	0.0	3.892	4.0	0.956
Real earnings management	17.9	42.9	28.6	10.7	0.0	3.678	4.0	0.904
Efficient/opportunistic accrual-based earnings management	0.0	0.0	0.0	21.4	78.6	1.214	1.0	0.417
Classification shifting	14.3	42.9	39.3	3.6	0.0	3.678	4.0	0.772
Income smoothing	46.4	39.3	7.1	7.1	0.0	4.250	4.0	0.887

Accordingly, 26 of the 28 initially proposed indicators were retained after expert screening. Based on the adopted conceptual classification, the variables associated with earnings valuation comprised changes in profitability and profit margins, expected profitability growth, EPS, DPS, operating profit to sales, the P/E-to-earnings-growth ratio, realized relative to forecast earnings, return on equity, return on assets, earnings persistence, earnings predictability, earnings value relevance, the earnings-response coefficient, revenue-expense matching, earnings timeliness, conditional conservatism, and unconditional conservatism. The earnings-selectivity category comprised the operating cash-flow-to-operating-income volatility ratio, accrual–cash flow correlation, accrual quality, earnings variability, total-accrual-based earnings management, discretionary-accrual earnings management, real earnings management, income smoothing, and classification shifting. Thus, the screening and classification stage yielded 17 valuation-related and 9 selectivity-related indicators.

Before estimating the inferential models, the normality of the dependent variable was examined using the Kolmogorov-Smirnov test. The hypotheses were specified as:

H_0 : The dependent variable follows a normal distribution

H_1 : The dependent variable does not follow a normal distribution

For asymmetric information costs, the mean was 0.115, the standard deviation was 0.138, the K-S statistic was 1.063, and the significance level was 0.169. Because $p = 0.169 > 0.05$, the null hypothesis of normality was not rejected. The dependent variable was therefore treated as sufficiently normally distributed for the subsequent parametric analyses.

Pearson correlation coefficients were next estimated to examine the bivariate relationships between asymmetric information costs and the variables related to earnings valuation. Table 5 shows that all valuation-related variables included in this stage were significantly correlated with SPREAD. Earnings persistence was negatively associated with asymmetric information costs ($r' = -0.3232p < 0.001$), as were earnings predictability ($r' = -0.2582p < 0.001$), earnings timeliness ($r' = -0.1181p < 0.001$), conditional conservatism ($r' = -0.2747p < 0.001$), unconditional conservatism ($r' = -0.4182p < 0.001$), the earnings-response coefficient ($r' = -0.1227p < 0.001$), revenue-expense matching ($r' = -0.1507p < 0.001$), expected profitability growth ($r' = -0.1009p < 0.001$), return on assets ($r' = -0.2283p < 0.001$), and firm size ($r' = -0.1812p < 0.001$). Financial leverage, by contrast, was positively related to asymmetric information costs ($r' = 0.2890p < 0.001$).

Table 5. Pearson Correlations for the Earnings-Valuation Model

Variable	SPRE AD	PERS	PRED	TIMELI N_E	CON_BA SU	CON_GI VO	REACT_C OFF	MATC H	VALUE _E	ROA	SIZE
SPREAD	1.000										
PERS	-0.323 ***	1.000									
PRED	-0.258 ***	0.033	1.000								
TIMELIN_ E	-0.118 ***	0.001	-0.035	1.000							
CON_BAS U	-0.275 ***	0.149* **	-0.094 ***	0.008	1.000						
CON_GIV O	-0.418 ***	-0.173 ***	0.068* *	-0.031	-0.113** *	1.000					
REACT_C OFF	-0.123 ***	0.004	0.001	0.051*	-0.048*	0.032	1.000				
MATCH	-0.151 ***	0.051* ***	-0.091 ***	0.048*	0.040	-0.007	0.044	1.000			
VALUE_E	-0.101 ***	0.077* *	-0.059 *	0.098***	-0.033	-0.033	0.041	0.012	1.000		
ROA	-0.228 ***	0.282* **	-0.250 ***	0.035	0.161*** *	-0.259** *	-0.026	0.134* **	0.114** *	1.000	
SIZE	-0.181 ***	0.124* **	-0.079 **	-0.024	0.030	-0.142** *	-0.074**	0.067* *	-0.058 *	0.213* **	1.00 0
LEV	0.289* **	-0.147 ***	0.192* **	-0.061*	0.220***	0.371***	-0.032	-0.084 ***	-0.065 **	-0.582 ***	-0.0 11

The second correlation model examined the earnings-selectivity variables. As shown in Table 6, discretionary-accrual earnings management had a positive correlation with asymmetric information costs ($r' = 0.2772p < 0.001$), as did real earnings management ($r' = 0.3899p < 0.001$), total-accrual-based earnings management ($r' = 0.2473p < 0.001$), earnings variability ($r' = 0.3455p < 0.001$), operating-cash-flow volatility relative to operating-income volatility ($r' = 0.1606p < 0.001$), classification shifting ($r' = 0.1437p < 0.001$), and income smoothing ($r' = 0.2111p < 0.001$). Accrual quality was negatively related to asymmetric information costs ($r' = -0.3987p < 0.001$), as was the accrual-cash flow correlation ($r' = -0.3925p < 0.001$). Firm size again showed a negative association ($r' = -0.1812p < 0.001$), whereas leverage showed a positive association ($r' = 0.3890p < 0.001$).

Table 6. Pearson Correlations for the Earnings-Selectivity Model

Variable	SPREAD	EM_ADJJONES	REM	TAQ	CORRL_TA_CF	TA_T_1	CHANGE	STDCFO_OP	CHANGE_CLASS	SMOTH	SIZE
SPREAD	1.000										
EM_ADJJONES	0.277**	1.000									
REM	0.390**	0.079**	1.000								
TAQ	-0.399***	0.363***	0.130**	1.000							
CORRL_TA_CF	-0.393***	0.075**	-0.234***	-0.148***	1.000						
TA_T_1	0.247**	-0.050*	-0.073**	-0.050*	0.261***	1.000					
CHANGE	0.346**	-0.257***	-0.128***	-0.288***	0.215***	0.254**	1.000				
STDCFO_OP	0.161**	-0.097***	0.013	0.053*	-0.397***	-0.040	-0.108***	1.000			
CHANGE_CLASS	0.144**	0.018	-0.250***	0.004	0.065**	-0.052*	0.034	0.005	1.000		
SMOTH	0.211**	-0.100***	0.020	-0.231***	0.232***	0.179**	0.484**	-0.318***	-0.007	1.000	
SIZE	-0.181***	-0.043	-0.059*	-0.084***	0.228***	0.127**	0.109**	-0.074**	0.043	0.054*	1.000
LEV	0.389**	0.051*	0.223**	0.045	-0.315***	-0.259***	-0.282***	0.067**	-0.189***	-0.142***	-0.011

Because nonstationary panel variables may produce spurious regression estimates, unit-root properties were examined using the augmented Dickey-Fuller procedure. The null and alternative hypotheses were expressed as:

H_0 :The variable contains a unit root and is nonstationary

H_1 :The variable is stationary

The results are summarized in Table 7. All variables were stationary at the 5% significance level. With the exception of conditional conservatism, for which the probability value was 0.025, the reported probability values were effectively below 0.001. Therefore, the null hypothesis of a unit root was rejected for all variables, and the panel series were considered suitable for subsequent regression estimation without further differencing.

Table 7. Augmented Dickey-Fuller Stationarity Tests

Variable	Lag	ADF t-statistic	p-value
SPREAD	0	-13.215	<0.001
SIZE	0	-2.701	0.003
LEV	0	-14.300	<0.001
PERS	0	-15.835	<0.001
PRED	0	-13.982	<0.001
TIMELIN_E	0	-14.381	<0.001
CON_BASU	0	-3.117	0.025
CON_GIVO	0	-11.284	<0.001
REACT_COFF	0	-37.934	<0.001
MATCH	0	-38.706	<0.001
VALUE_E	0	-39.861	<0.001
ROA	0	-13.300	<0.001
EM_ADJJONES	0	-14.502	<0.001
REM	0	-38.433	<0.001
TAQ	0	-8.580	<0.001
CORRL_TA_CF	0	-13.764	<0.001
TA_T_1	0	-11.437	<0.001
CHANGEABLE	0	-3.504	<0.001
STDCFO_OP	0	-26.092	<0.001
CHANGE_CLASSIFIC	0	-38.269	<0.001

SMOTH	0	-38.968	<0.001
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The second research question addressed the form of the model for measuring asymmetric information costs on the basis of earnings valuation and earnings selectivity. Panel-model selection was first examined using the F-Limer test. For the earnings-valuation model, the F-Limer statistic was 3.621 with $p < 0.001$, while the corresponding statistic for the earnings-selectivity model was 4.201 with $p < 0.001$. Accordingly, the pooled specification was rejected in favor of the panel specification for both models. The Hausman test was subsequently used to discriminate between fixed and random effects. The Hausman statistic was 74.025 for the valuation model ($p < 0.001$) and 29.999 for the selectivity model ($p = 0.002$), supporting fixed-effects estimation in both cases.

The final regression results are reported in Table 8. Both models were statistically significant as a whole. The valuation model produced an F statistic of 36.165 ($p < 0.001$), whereas the selectivity model produced an F statistic of 44.801 ($p < 0.001$). The coefficients of determination were 0.636 and 0.742, respectively, indicating that the included predictors explained approximately 63.6% of the variation in asymmetric information costs in the valuation model and 74.2% in the selectivity model. The Durbin-Watson statistics were 1.804 and 1.800, respectively, both within the conventional 1.5–2.5 interval, suggesting no substantial first-order residual autocorrelation.

Table 8. Final Fixed-Effects Models of Asymmetric Information Costs

Model/Variable	Coefficient	p-value	Model/Variable	Coefficient	p-value
Earnings-Valuation Model			Earnings-Selectivity Model		
PERS	-0.007	<0.001	EM_ADJJONES	0.126	<0.001
PRED	-0.061	0.002	REM	0.096	<0.001
TIMELIN_E	-0.012	<0.001	TAQ	-0.238	<0.001
CON_BASU	-0.036	<0.001	CORRL_TA_CF	-0.111	<0.001
CON_GIVO	-0.042	0.015	TA_T_1	0.062	<0.001
REACT_COFF	-0.001	0.004	CHANGEABLE	0.084	<0.001
MATCH	-0.003	<0.001	STDCFO_OP	0.006	<0.001
VALUE_E	-0.013	0.016	CHANGE_CLASSIFIC	0.068	0.022
ROA	-0.084	<0.001	SMOTH	0.013	0.023
SIZE	-0.005	0.041	SIZE	-0.006	0.014
LOSS	0.131	<0.001	LOSS	0.132	0.014
LEV	0.136	0.026	LEV	0.111	0.028
Constant	-0.125	0.087	Constant	0.197	<0.001
F-Limer	3.621	<0.001	F-Limer	4.201	<0.001
Hausman	74.025	<0.001	Hausman	29.999	0.002
F statistic	36.165	<0.001	F statistic	44.801	<0.001
R^2	0.636	—	R^2	0.742	—
Durbin-Watson	1.804	—	Durbin-Watson	1.800	—

The final optimized indigenous model for asymmetric information costs from the earnings-valuation perspective was therefore expressed as:

$$\begin{aligned}
 SPREAD_{it} = & -0.125 - 0.007PERS_{it} - 0.061PRED_{it} - 0.012TIMELIN_E_{it} \\
 & -0.036CON_BASU_{it} - 0.042CON_GIVO_{it} - 0.001REACT_COFF_{it} \\
 & -0.003MATCH_{it} - 0.013VALUE_E_{it} - 0.084ROA_{it} \\
 & -0.005SIZE_{it} + 0.131LOSS_{it} + 0.136LEV_{it} + \varepsilon_{it}
 \end{aligned}$$

The signs of the estimated coefficients indicate that greater earnings persistence, predictability, timeliness, conditional conservatism, unconditional conservatism, earnings-response sensitivity, revenue-expense matching, expected profitability growth, return on assets, and firm size were associated with lower asymmetric information

costs. By contrast, loss-making status and greater leverage were associated with higher asymmetric information costs.

The final optimized model based on earnings selectivity was expressed as:

$$\begin{aligned} SPREAD_{it} = & 0.197 + 0.126EM_ADJJONES_{it} + 0.096REM_{it} - 0.238TAQ_{it} \\ & - 0.111CORRL_TA_CF_{it} + 0.062TA_T_1_{it} + 0.084CHANGEABLE_{it} \\ & + 0.006STDCFO_OP_{it} + 0.068CHANGE_CLASSIFIC_{it} + 0.013SMOTH_{it} \\ & - 0.006SIZE_{it} + 0.132LOSS_{it} + 0.111LEV_{it} + \varepsilon_{it} \end{aligned}$$

In this specification, greater discretionary-accrual earnings management, real earnings management, total-accrual-based earnings management, earnings variability, relative operating cash-flow volatility, classification shifting, and income smoothing were positively associated with asymmetric information costs. Accrual quality and the accrual-cash flow correlation entered the model negatively according to their operational coding. Firm size again showed a negative coefficient, whereas LOSS and LEV were positively associated with asymmetric information costs.

An important result of the optimization process was that discretionary accrual-based earnings management remained in the final earnings-selectivity model when operationalized using the modified Jones specification. Thus, among alternative accrual-based specifications considered during model development, the modified Jones representation supplied the retained empirical measure. Furthermore, all three control variables—SIZE, LOSS, and LEV—remained in both optimized models, indicating that firm scale, loss status, and financial leverage contributed explanatory information beyond the earnings-related constructs.

After estimation of the final specifications, the study constructed firm-year measures of asymmetric information costs from the perspectives of earnings valuation and earnings selectivity using rolling explanatory power over the interval from $t - 5$ to t . For firm i in year t , the measure can be represented generally as:

$$SIC_{i,t}^{(k)} = R_{i,[t-5t]}^{2(k)}$$

where k denotes either the earnings-valuation model or the earnings-selectivity model, and $R_{i,[t-5t]}^{2(k)}$ represents the coefficient of determination obtained from the relevant model over the rolling estimation window. Under the operational interpretation adopted in this study, a larger firm-year R^2 represented a higher measured level of asymmetric information cost from the corresponding earnings-information perspective, whereas a smaller R^2 represented a lower level.

The explanatory power of the two nonnested specifications was further compared using the Vuong test. The resulting statistic was:

$$Z_{Vuong} = -3.854, p < 0.001$$

The statistically significant Vuong statistic demonstrated that the explanatory performance of the two models differed significantly. The earnings-selectivity model produced $R^2 = 0.742$, compared with $R^2 = 0.636$ for the earnings-valuation model. Thus, within the present sample and empirical specification, the earnings-selectivity model accounted for a significantly larger proportion of variation in asymmetric information costs than did the valuation-based model.

Overall, the findings answered both research questions. For the first question, expert screening reduced the initial pool of 28 candidate indicators to 26 relevant variables, consisting of 17 indicators associated with earnings valuation and 9 associated with earnings selectivity. For the second question, model optimization retained nine substantive earnings-related variables in each empirical specification, together with the three control variables of firm size, loss status, and leverage. The valuation model explained 63.6% of the variation in asymmetric information costs, whereas the selectivity model explained 74.2%, and the Vuong test confirmed that the difference between the explanatory performance of the two specifications was statistically significant.

Discussion and Conclusion

The present study developed and empirically evaluated two complementary models for measuring asymmetric information costs from the perspectives of earnings valuation and earnings selectivity. The findings showed that both dimensions were significantly associated with asymmetric information costs, although their explanatory capacities differed. In the earnings-valuation model, nine substantive variables remained in the optimized specification: earnings persistence, earnings predictability, earnings timeliness, conditional conservatism, unconditional conservatism, the earnings-response coefficient, revenue-expense matching, expected profitability growth, and return on assets. Firm size, loss status, and financial leverage also remained significant controls. Collectively, these variables explained 63.6% of the variation in asymmetric information costs. In the earnings-selectivity model, discretionary accrual-based earnings management, real earnings management, accrual quality, the correlation between accruals and operating cash flows, total-accrual-based earnings management, earnings variability, operating cash-flow volatility relative to operating-income volatility, classification shifting, and income smoothing remained in the final model, together with the same three control variables. This model explained 74.2% of the variation in asymmetric information costs. The significant Vuong statistic further indicated that the explanatory power of the earnings-selectivity model was significantly different from, and greater than, that of the earnings-valuation model. These findings suggest that asymmetric information costs are influenced not merely by the extent to which earnings help investors estimate firm value, but even more strongly by the extent to which investors can distinguish sustainable and high-quality earnings from earnings affected by managerial discretion, accounting classification, volatility, or manipulation.

The negative association between earnings persistence and asymmetric information costs indicates that firms whose earnings display greater continuity over time are characterized by a more transparent informational environment. Persistent earnings reduce ambiguity concerning the sustainability of current performance because investors can place greater weight on current earnings when forming expectations about future profitability. This result is consistent with the broader logic that information environments become more reliable when organizational and professional processes facilitate continuity, predictability, and confidence in reported outcomes. Research on auditor retention similarly emphasizes that continuity in professional expertise is important for sustaining the reliability of assurance processes and institutional knowledge (3). Likewise, professional skepticism and proactive work behavior have been shown to contribute to more rigorous judgment in auditing contexts (6). Although these studies focus on audit professionals rather than earnings persistence directly, they support the broader interpretation that continuity, expertise, and disciplined professional evaluation contribute to a more credible information environment. When reported earnings are persistent, investors face less uncertainty about whether

current accounting performance is temporary or sustainable, which can reduce information disadvantages between insiders and outside shareholders.

Earnings predictability was also negatively associated with asymmetric information costs. Greater predictability means that reported earnings provide a more stable basis for estimating future operating cash flows or future accounting outcomes. When investors can infer future performance more reliably from current information, the informational advantage held by managers and other insiders is weakened. This finding can be interpreted alongside evidence showing that psychological and organizational conditions influence whether information is shared, retained, or withheld. Workplace ostracism has been associated with knowledge hiding, particularly where reciprocal beliefs encourage employees to respond defensively to social exclusion (12). Similarly, defensive silence has been identified as a mechanism linking workplace ostracism to knowledge hiding (13). These findings are relevant because predictability is partly dependent on the consistency and reliability of underlying information flows. Where organizational information is fragmented, withheld, or distorted, accounting outcomes are likely to become more difficult for external users to interpret. By contrast, predictable earnings reduce the need for investors to rely on privately held or selectively transmitted information.

The negative coefficients for earnings timeliness, conditional conservatism, and unconditional conservatism further indicate that reporting mechanisms that recognize economically relevant information more rapidly and cautiously are associated with lower asymmetric information costs. Timely accounting recognition reduces the delay between an underlying economic event and its reflection in financial reports, thereby narrowing the period during which insiders may possess superior information. Conditional conservatism additionally accelerates the recognition of unfavorable economic news, while unconditional conservatism can create a reporting posture that limits overstatement of net assets and earnings. These relationships can be understood in light of research showing that judgment quality is sensitive to organizational conditions. Audit professionals' judgments may be affected by client incivility and coping strategies (1), while auditors' behavioral biases can influence professional decision-making (2). Such findings imply that the timeliness and conservatism of reporting cannot be viewed purely as mechanical accounting properties; they are also outcomes of professional judgment and institutional discipline. When these mechanisms operate effectively, investors receive information earlier and in a form less vulnerable to optimistic bias, reducing informational inequality.

The significant negative relationship between the earnings-response coefficient and asymmetric information costs indicates that when market prices respond more strongly and systematically to reported earnings, the market appears to treat earnings as more informative. A stronger earnings-response coefficient implies that earnings contain information relevant to investors' valuation decisions and that this information is incorporated into stock returns more clearly. Similarly, the negative association between revenue-expense matching and asymmetric information costs suggests that the informational value of earnings increases when revenues and the expenses incurred to generate them are recognized in corresponding periods. Better matching reduces noise in reported profitability and improves investors' ability to infer underlying performance. The same logic applies to expected profitability growth and return on assets, both of which were negatively associated with asymmetric information costs. Stronger profitability and more favorable expectations regarding future profitability can generate more observable and interpretable signals about firm performance, thereby reducing uncertainty. The broader organizational literature supports the importance of clarity, engagement, and positive psychological conditions in improving performance-related outcomes. Empowering leadership has been shown to strengthen positive

psychological states and favorable employee behaviors (18), while work environments that undermine participation or belonging can weaken employee performance (16). Although these studies are organizational rather than capital-market analyses, they reinforce the idea that clearer, more stable, and more credible performance signals arise from healthier organizational processes.

The earnings-selectivity model yielded particularly important findings because it demonstrated that variables related to the quality, composition, and manipulability of earnings explained a larger proportion of asymmetric information costs than the valuation-oriented variables. Discretionary accrual-based earnings management was positively associated with asymmetric information costs, meaning that greater use of discretionary accruals was accompanied by higher market information costs. This result is theoretically intuitive because discretionary accruals increase the possibility that reported earnings deviate from the underlying economic performance of the firm. When investors cannot easily determine whether reported earnings result from genuine operating performance or accounting discretion, they face greater uncertainty and a higher risk of adverse selection. The finding is consistent with research demonstrating that professional judgments and behavioral tendencies can be influenced by contextual pressures and cognitive biases (2). It also aligns with evidence that auditor work pressure and job satisfaction are related to turnover intentions (4) and that intention to leave the auditing profession is influenced by multiple professional and organizational factors (5). These professional conditions are relevant because weaker continuity, reduced professional engagement, or increased judgment pressure may impair the effectiveness of mechanisms intended to constrain discretionary financial reporting.

Real earnings management was likewise positively related to asymmetric information costs. Unlike accrual manipulation, real earnings management alters actual operational decisions, including production, discretionary expenditure, and the timing of sales-related activities. Such actions can make it especially difficult for external investors to distinguish normal operational behavior from decisions undertaken primarily to achieve accounting targets. Because real earnings management modifies the underlying activities of the firm rather than merely their accounting representation, its information consequences may be persistent and harder to detect. This result can be interpreted alongside evidence that workplace pressures and social dynamics influence employee behavior and decision-making. Workplace ostracism has been associated with poorer task performance and organizational citizenship behavior (10), while exclusionary experiences can reduce creative behavior through diminished thriving, engagement, and organization-based self-esteem (11). Such evidence illustrates a broader principle relevant to financial reporting: behavioral responses to organizational pressures may affect substantive actions, not merely communication. In the context of earnings management, managerial pressures may therefore shape real decisions that subsequently alter the transparency of financial information.

Accrual quality and the correlation between accruals and operating cash flows were negatively associated with asymmetric information costs according to their operational coding. Better accrual quality implies that reported accruals correspond more closely with actual cash-flow realizations, reducing estimation error and increasing the credibility of accounting earnings. Similarly, a stronger economically meaningful relationship between accruals and cash flows can help investors distinguish accounting adjustments that reflect normal timing differences from those that may reflect opportunistic reporting. These results are compatible with the broader literature on information sharing and relational trust. When employees experience ostracism, they may hide knowledge and limit the flow of useful information (12, 13), whereas employee participation and organizational commitment can be influenced by the presence of exclusionary conditions (14). At the capital-market level, accrual quality performs a similar

informational function by determining how effectively accounting numbers communicate the relationship between recognized earnings and underlying cash-generation capacity. Higher-quality accrual information therefore reduces uncertainty and limits the informational advantage of insiders.

The positive relationship between total-accrual-based earnings management and asymmetric information costs provides additional evidence that the magnitude of accrual intervention matters for market transparency. Likewise, earnings variability was positively related to asymmetric information costs, indicating that greater instability in reported earnings makes it more difficult for investors to separate permanent changes in economic performance from temporary shocks or accounting noise. The same pattern was observed for operating cash-flow volatility relative to operating-income volatility. Higher relative volatility weakens the stability of the relationship between cash-based and accounting-based measures of performance, thereby increasing uncertainty about the quality and sustainability of earnings. These findings are conceptually compatible with research showing that social exclusion threatens relational needs and changes behavioral orientation (19). Experimental evidence also suggests that social rejection can alter decision-making in situations involving unequal distributions and sharing (20). In financial markets, investors similarly make decisions under unequal access to information. When earnings are highly volatile or disconnected from underlying cash-flow patterns, the informational inequality between informed and uninformed participants becomes more consequential.

Classification shifting and income smoothing were also positively associated with asymmetric information costs. Classification shifting changes the presentation of recurring and nonrecurring components within the income statement without necessarily changing aggregate net income. Because bottom-line earnings may remain unchanged, investors must possess sufficient analytical sophistication to identify whether improvements in core earnings result from genuine operating performance or strategic reclassification. This can increase the informational advantage of sophisticated investors and insiders relative to less-informed market participants. Income smoothing similarly reduces observed volatility in reported earnings and may obscure economically meaningful variation in underlying performance. Although some smoothing may theoretically communicate private information about long-term prospects, the positive coefficient observed in this study indicates that, within the examined sample, greater smoothing was associated with higher asymmetric information costs. This interpretation is consistent with communication research conceptualizing ostracism partly as an interpersonal message that can operate through subtle patterns of inclusion and exclusion rather than explicit statements (7). In a parallel manner, classification shifting and smoothing can change the way economic information is presented without necessarily altering the aggregate accounting outcome, making interpretation more dependent on investors' informational resources.

The control variables also provide meaningful evidence. Firm size was negatively associated with asymmetric information costs in both models, suggesting that larger companies tend to operate in richer information environments. Larger firms generally attract more analyst coverage, media attention, institutional monitoring, and investor scrutiny, which may reduce the informational advantage available to insiders. In contrast, loss status was positively associated with asymmetric information costs. Loss-making firms often generate greater uncertainty concerning future performance, going-concern prospects, asset recoverability, and the sustainability of operating strategies. Financial leverage also had a positive coefficient in both models, suggesting that highly leveraged firms face greater informational risk, possibly because debt obligations intensify financial risk and increase uncertainty regarding future cash-flow sufficiency. These relationships are consistent with the broader view that organizational strain can affect performance, commitment, and behavioral outcomes. Workplace ostracism has been associated

with lower organizational effectiveness under certain cultural conditions (16), and its consequences can vary depending on organizational culture and work-life conditions (17). Similarly, financial strain may alter managerial incentives and reporting behavior in ways that heighten investors' information concerns.

The significant difference between the two models is perhaps the most important overall finding. The selectivity model explained 74.2% of asymmetric information costs compared with 63.6% for the valuation model, and the Vuong test confirmed that this difference was statistically significant. This suggests that investors' difficulty in distinguishing high-quality earnings from manipulated, volatile, reclassified, or smoothed earnings is more strongly associated with asymmetric information costs than the valuation relevance of earnings alone. In other words, the informational problem appears to arise not only from whether earnings help determine firm value, but also from whether market participants can identify which aspects of earnings deserve to be trusted. This interpretation is consistent with research emphasizing the importance of psychological empowerment and engagement in producing constructive work behavior (22), as well as research showing that workplace exclusion can create strategic and multidimensional consequences for organizational functioning (23). Studies of social exclusion also indicate that prosociality and cooperation can be modified through interventions that improve inclusion and social connection (21). Collectively, these findings support the broader proposition that information environments depend on the quality of selection, interpretation, and transmission processes, not merely on the existence of information itself.

The study is subject to several limitations. First, the archival analysis was limited to 170 firms operating in the Tehran capital market during 2015–2024, and financial institutions, banks, insurers, leasing firms, and other entities with structurally different reporting systems were excluded; therefore, the generalizability of the resulting model to other industries or capital markets should be approached cautiously. Second, several variables were estimated using rolling regressions and accounting models, meaning that measurement error may arise from model specification and the availability of consecutive firm-year observations. Third, asymmetric information cost was primarily operationalized through a market-based price-impact proxy, while information asymmetry is inherently multidimensional and can also be reflected in bid-ask spreads, analyst forecast dispersion, trading by informed investors, disclosure quality, or probability-of-informed-trading measures. Fourth, the expert stage relied on purposive sampling of fundamental analysts, which provided informed judgments but did not constitute a probability sample of all market participants. Finally, the use of stepwise model optimization may increase sensitivity to sample-specific relationships, and the final combination of predictors should therefore be interpreted as an empirically optimized specification for the present dataset rather than as a universally invariant model.

Future studies should validate the proposed models in different periods, sectors, and capital markets and examine whether the coefficients remain stable under alternative institutional, regulatory, and macroeconomic conditions. Comparative research could examine listed companies in multiple emerging and developed markets to determine whether earnings selectivity consistently explains more variation in asymmetric information costs than earnings valuation. Future studies could also employ alternative information-asymmetry proxies, including quoted and effective bid-ask spreads, analyst forecast dispersion, informed trading probabilities, disclosure scores, and institutional ownership-based indicators. Machine-learning techniques, Bayesian model averaging, penalized regression methods such as LASSO and elastic net, and out-of-sample cross-validation could be used to compare the predictive stability of the proposed stepwise models. Researchers may further distinguish between positive and negative discretionary accruals, upward and downward real earnings management, different forms of classification shifting, and intentional versus informational income smoothing. Incorporating corporate governance variables,

audit quality, ownership concentration, board characteristics, institutional monitoring, digital disclosure, and analyst coverage could also clarify the mechanisms through which earnings characteristics ultimately affect information asymmetry.

For investors and financial analysts, the results suggest that evaluating reported earnings should extend beyond conventional profitability ratios and focus more systematically on accrual quality, discretionary accrual behavior, real earnings management, earnings variability, classification shifting, and income smoothing. Analysts should therefore incorporate multiple earnings-quality indicators into valuation models rather than relying predominantly on EPS, ROA, or short-term earnings growth. Corporate boards and audit committees should strengthen oversight of accounting estimates, accrual policies, classification decisions, discretionary expenditures, production decisions, and unusual year-end operational activities that can alter the perceived quality of earnings. Auditors should place particular emphasis on firms exhibiting simultaneous increases in accrual manipulation, real earnings management, volatility, leverage, and recurring losses because these conditions may signal a more opaque information environment. Regulators and stock exchanges can use the proposed framework as part of risk-based monitoring systems to identify firms whose earnings characteristics are associated with elevated asymmetric information costs. Finally, corporate managers seeking to reduce their cost of information asymmetry should prioritize timely reporting, sustainable profitability, transparent matching of revenues and expenses, credible accrual estimation, consistent classification practices, and reduced reliance on earnings-smoothing or earnings-management techniques.

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Authors' Contributions

All authors equally contributed to this study.

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All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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