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Study of the relationship between audit quality and the cost of capital according to the corporate life cycle

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Abstract: This research looks at how audit quality affects the cost of capital at many phases of the company life from 2012 to 2014. The independent variable is audit quality; the dependent variable is capital cost. The study investigates how audit quality affects the cost of capital throughout the stages of the company listed on the stock exchange, including growth, maturity, and decline. The results reveal a noteworthy link between capital cost and audit quality. High audit quality improves investor trust in the expansion phase, therefore lowering capital expenses. Financial stability and openness help companies in the mature stage, therefore enhancing the negative association between audit quality and capital expenditures. Financial difficulties, however, restrict the efficacy of audit quality in lowering capital expenses during the declining period. The research emphasizes the need of good auditing in reducing information asymmetry and thereby decreasing financing costs at many phases of business life. Investors, regulatory authorities, and financial managers trying to maximize capital structure choices depending on company lifecycle dynamics might find great value in these ideas.

Keywords: Audit Quality, Cost of Capital, Corporate Life Cycle, Financial Transparency, Investment Decisions.

Introduction: For creditors, investors, and other stakeholders in today's financial climate, dependability of financial information and openness are prerequisites for making economic decisions. Ensuring the reliability of financial accounts, thus minimizing information asymmetry, and so lowering the cost of financing for businesses depend on audit quality in great measure. A basic financial statistic that affects investment choices, corporate finance plans, and general company sustainability is capital's cost.

With respect for the business life cycle, this research investigates the link between audit quality and capital cost. Businesses go through many phases: growth, maturity, and decline; each influences financing costs, investor confidence, and financial reporting quality differently. High-quality audits may boost investor confidence and lower capital costs in growth and maturity phases; yet, their efficacy may fade in the declining phase from financial difficulty and unstable markets.

Though much is already known about audit quality and cost of capital, little study has looked at how this link changes over many corporate life cycle phases. Knowing these dynamics can help financial analysts, legislators, and business managers create sensible financial plans and rules by means of important knowledge.

This study is to investigate, using empirical data and statistical modeling to evaluate the relevance of audit quality, how it affects the cost of capital during corporate life cycle phases. The results will support scholarly debates on corporate finance and auditing by providing useful consequences for enhancing financial openness and investment decision-making.

2.Literature and theoretical framework of research

Financial and accounting literature has much to say about the link between audit quality and capital cost. Reducing information asymmetry, increasing financial transparency, and bettering investment decisions all depend on audit quality in some basic sense. As a fundamental financial indicator, the cost of capital shows the return investors need to pay for funding a firm. At certain phases of a company's existence, this connection changes and influences the financial success and stability of companies. Theoretically based on earlier study results on audit quality, cost of capital, and the effect of the corporate life cycle on this connection, this part investigates.

Audit quality

A fundamental component of business governance, audit quality shapes investor trust and financial statement reliability. A good audit offers reasonable confidence that financial statements are free from significant misstatements, therefore lowering financial risks and increasing market efficiency. Audit quality is influenced by many elements as shown in Figure (1), including larger audit companies, which are often linked with stronger resources, competence, and reputation, which helps explain their greater audit quality. Higher audit fees might point to a more comprehensive audit process, but depending too much on audit fees from one customer may threaten auditor independence. Type of audit report: A qualified or negative audit opinion indicates possible financial issues, therefore influencing investor impressions and the cost of capital of a firm. Research show that good audit quality lowers information asymmetry and risk perception, hence lowering capital costs. D'Angelo (1981), for instance, discovered that companies under the scrutiny of more established, bigger audit firms show more financial openness and reduced financing costs.

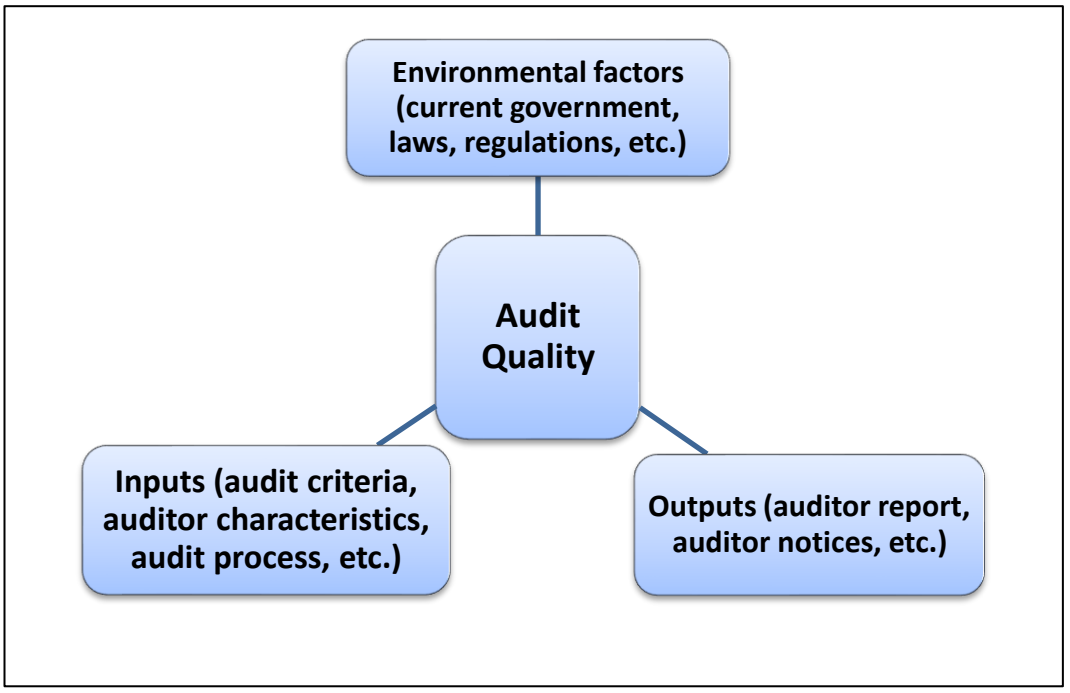

Figure (1): Elements that influenced the audit quality

Cost of capital

For debt and equity investors, the cost of capital is their needed return on investment. In financial decision-making, it is a major predictor of a company's capacity to attract money, grow activities, and maintain profitability. Important elements of the capital cost consist of cost of equity often shaped by financial disclosure quality and risk perception, this is the anticipated return for owners. Debt cost A company's creditworthiness and risk profile will determine the interest rate charged on borrowed money. Previous studies show that companies with more financial openness and strong audit quality often have lower capital cost. Improved disclosure policies, according to Kothari et al. (2001), decrease the risk premium investors demand, therefore reducing the total capital costs.

Corporate life cycle and its impact on audit quality and cost of capital

Companies go through many phases of life: development, maturity, and decline each of which influences their capital structure, risk profile, and financial reporting policies. Growth stage because of perceived risk, young businesses can pay more for capital. At this point, good audits may boost reputation and attract investors, hence lowering capital expenses. Established companies benefit from financial stability and investor confidence, which results in

a more significant negative association between audit quality and capital expenditures. Decline stage companies find it difficult to get suitable financing conditions due to financial crisis and declining investor trust, therefore restricting the influence of audit quality on cutting capital expenses. Defond and Zhang (2014) underlined that as they depend on investor trust to get money, companies in the development stage gain more from good audits. On the other hand, companies in the declining phase find it difficult to use audit quality to lower financing costs because of higher financial risks.

Theoretical framework

Grounded on the following theoretical stances, Agency Theory (Jensen & Meckling, 1976) holds that by lowering information asymmetry between managers and investors, thus lowering capital costs and mitigating agency conflicts. High-quality audits, according to Signaling Theory (Spence, 1973), act as a good signal to investors, therefore improving business value and lowering capital costs. Emphasizing the role audit quality plays in meeting the interests of many stakeholders including creditors, regulators, and investors. Stakeholder Theory (Freeman, 1984) helps to explain financial success. These theoretical underpinnings help to support the theory that corporate finance choices are greatly shaped by audit quality and that information asymmetry's related dangers are minimized.

Research background

Reviewing past studies becomes essential in comprehending the actual background and the developing body of literature on the topic after analyzing the theoretical ideas about audit quality, cost of capital, and the corporate life cycle. This part compiles local (Persian) as well as worldwide research on the link between audit quality and the cost of capital, along with the impact of the corporate life cycle on this link. This evaluation seeks to provide a thorough framework that facilitates the identification of research gaps the current work attempts to fill.

International studies

Fan (2020) investigated how financial restrictions affected the cost of equity capital, showing a substantial positive link between financing restrictions and capital costs; financial equity was thus very important in mediating this influence. Financial report quality is clearly correlated, according to Zhou et al. (2022) with both investment efficiency and capital cost. Their results imply that improved disclosure quality improves the accuracy of financial decisions. Liu & Visaki (2017) looked at the link between capital cost and information quality using a cross-sectional analysis. They discovered that the cost of capital and accrual quality show a substantial relationship. In 2009 Acharya et al. looked at the links between profits quality and capital cost. By means of analytical approaches, they showed how knowledge asymmetry shapes the cost of equity capital, therefore affecting its quality. Lee, Tsouk, Taylor, & Rouge (2009) investigated, via auditor reputation, both direct and indirect impacts of audit quality on the cost of capital. Their results underline how important auditor confidence is for influencing investor impressions and financing costs.

National studies

Apart from foreign research, local studies provide a whole picture of how audit quality affects the capital cost of Iranian corporations, In "Investigating the Moderating Role of Political Communication in the Relationship Between the Risk of Stock Price Decline and Cost of Capital in Companies Listed on the Tehran Stock Exchange," Esmaeili (2022) discovered that political risk and political communication have a strong negative correlation with the cost of capital. The findings also showed that political communication serves as a mediator, therefore affecting the degree of the link between corporate cost of capital and declining stock price risk.

In his 2019 paper "Examining the Relationship Between Information Disclosure, Company Growth, and the Cost of Capital," Hosseini Omran came to the quite strong positive correlation between firm growth and cost of capital. The analysis revealed, nonetheless, no statistically significant correlation between disclosure and cost of capital. Using descriptive and inferential statistical techniques, Nasirpour (2000), in his dissertation "Investigating the Effect of Company Size on the Cost of Capital in Tehran Stock Exchange Companies for the Period 1999-2000," examined the effect of business size on capital costs. The results revealed no statistically noteworthy correlation between Tehran-listed companies' capital cost and business size.

Research gap and current study contribution

No study, either local or international, has particularly looked at the link between audit quality and capital cost throughout many phases of the company life cycle as noted in past studies. Although current studies have looked at audit quality, capital cost drivers, and business development, none have combined these elements into a coherent model. Therefore, especially in the framework of the Iranian corporate environment, this study attempts to partly close this research gap by examining the interaction between audit quality and the cost of capital within the corporate life cycle. Policymakers, investors, and business managers trying to maximize financial decision-making by means of high-quality audits and capital cost control should find great value in the results.

Research hypothesis

The following hypotheses have been developed based on the theoretical framework and past research stressing the need of audit quality in lowering the cost of capital and evaluating the effect of the corporate life cycle on this link. These hypotheses seek to investigate the variations in the influence of audit quality on the cost of capital at many phases of business life. These are the study hypotheses:

1. At certain phases of the business life, the effect of audit quality on the cost of capital varies greatly.

2. Audit quality significantly correlates with capital cost throughout the expansion phase.

3. Audit quality has a strong correlation with capital cost throughout the mature period.

4. Audit quality clearly correlates with capital cost during the declining period.

METHODOLOGY

Empirical model and study design

This paper will use a multiple regression model as described below to evaluate these assumptions. The model is intended to evaluate how audit quality affects the cost of capital at many phases of the company life.

Data collection methods

The research makes use of secondary data sources mostly from financial statements and reports from publicly traded corporations. The main data sources from Tehran Stock Exchange (TSE) databases, Tadbir Pardaz and Rahevard Navin financial information systems, publicly available corporate financial disclosures, and regulatory reports and market research. Variables indicating audit quality, cost of capital, and corporate life cycle categorization have been constructed by use of financial and auditing data.

Sample selection and population

This study's target demographic comprises Tehran Stock Exchange (TSE) listed enterprises. Based on the following criteria, a method of systematic sampling was used: Companies had to have been constantly listed on the TSE between 2013 and 2021. Trading restrictions should not have lasted more than six months for any company. Every company's financial year should finish on March 29 to guarantee uniformity of data. Different financial arrangements caused companies in the financial and investment sectors that is, banks, insurance, and financial institutions to be excluded. Following these criteria results in 124 companies guaranteeing enough representation at many phases of company existence.

Research variables and econometric model

The association between audit quality and cost of capital throughout many business life cycle stages is investigated using a multiple regression model in this paper. Defined as both dependent and independent variables are as follows,

A- Dependent Variable

Cost of Equity (COE): Measured using Gordon Growth Model

$$Costofequityit=E(EPSt+1)/Pt$$

Where:

E(EPSt+1) = Expected earnings per share in the next financial period

Pt = Market price of stock at the end of the previous period

B- Independent Variables:

- Audit Quality (AQ): Measured using multiple proxies

1. Audit Firm Size Large firms (Big 4 equivalents) vs. smaller firms.

2. Audit Fees Log-transformed audit fees extracted from financial reports.

3. Auditor Rotation Whether the firm has changed auditors (binary: 1 = yes, 0 = no).

4. Audit Opinion Type Modified vs. unmodified opinions.

C- Control Variables:

To evaluate how audit quality affects the cost of capital, the research combines numerous important financial factors. Measuring the percentage rise in revenue over a certain time, Firm Growth (EG) reflects the company's expansion rate. Representing the company's market capitalization, Firm Value (FW) shows its whole value on the stock market. The development in total assets indicates the capacity of the company to increase its resource base and so determines asset growth (AG.). The debt-to-equity ratio captures financial leverage (LEV), therefore stressing the company's dependence on outside funding in comparison to its equity. Finally, Firm Size (SIZE) is computed as the natural logarithm of total assets, therefore offering a uniform gauge of the size and economic impact of the business.

Classification of Corporate Life Cycle

Using a categorization system modified by Anthony and Ramesh (1992), companies are arranged into three corporate life cycle phases depending on financial data. The stages include large revenues, large capital expenditures, and low dividend distribution, which define the Growth phase. Phase of maturity, moderate dividend payment, steady capital expenditure, slow expansion. Decline phase, high dividend payment; little or negative growth falling investments. Principal component analysis (PCA) based on increases in sales, ratio of capital expenditure, dividend

paying ratio and firm age. Companies are placed in one of the three life cycles using a composite score.

Hypothesis Testing and Analytical Methods

Regression analysis will help to evaluate the hypotheses by capturing firm-level fluctuations across time. Statistical methods are used, Descriptive statistics include mean, standard deviation, and key variable distribution. Stationarity tests include Levin-Lin-Chu and Im-Pesaran-Shin unit root tests Variance Inflation Factor (VIF) study in multicollinearity check. Breusch-Pagan test for variance consistency in heteroskeasticity. Fixed against random effects Hausman test in model selection. EViews and Excel are used in the analysis for statistical calculations. The hypothesis testing approach used draws on the framework established by Zhou et al. (2022) and Pirsakis & Aitredes (2015):

$$Costofequityit=\beta0+\beta1AQit+\beta2EGit+\beta3FWit+\beta4AGit+\beta5LEVit+\beta6SIZEit+\varepsilon it$$

Where:

AQ = Audit Quality

EG = Growth Rate

AG = Institutional Value

FW = Firm Value

LEV = Financial Leverage

SIZE = Firm Size

For every step of the business life cycle, the aforementioned econometric model will be approximated to properly assess the research hypotheses.

RESULTS

Descriptive analysis

The descriptive data for the main variables utilized in this study are shown in table 1, cost of equity, audit quality, firm growth, firm value, asset growth, financial leverage, and business size. The statistical tests include mean (average value), maximum value, lowest value, standard deviation (measure of dispersion), and Jarque-Bera probability used to evaluate normality.

Table 1: The descriptive data for the main variables

Variable	Mean	Max	Min	Std Dev	Jarque-Bera Probability
Cost of Equity (Costofequity)	0.19	1.34	0.001	0.20	0.0001
Audit Quality (AQ)	0.265	1.00	0.00	0.44	0.0000
Growth Opportunities (FW)	0.47	0.99	0.016	0.25	0.0001
Growth Rate (EG)	0.40	1.14	-0.63	0.38	0.0001
Financial Leverage (LEV)	2.15	9.85	0.10	1.56	0.0001
Firm Value (AG)	0.26	0.31	0.22	0.01	0.0001
Firm Size (SIZE)	0.13	0.18	0.10	0.01	0.0001

The Jarque-Bera probability values are all near 0.0001, indicating that the data distributions deviate from normality.

Significance of Research Variables

By use of many statistical methods, Table (2) shows the statistical significance tests for the main research variables, therefore assessing their effect on the dependent variable of the study. The findings show whether every factor appreciably helps to explain variances in the capital cost.

Table 2: Testing the Significance of Research Variables

variable Name	Levin, Lin & Chu Test Statistic	Levin, Lin & Chu Test Probability	Fisher Test Probability	Fisher Test Statistic	Phillips-Perron Test Probability	Result
Cost of Equity	-6.32	0.0001	0.31	256.7	0.33	Non-stationary
Audit Quality	-1.67	0.046	0.49	237.5	0.52	Non-stationary
Growth Opportunities	-7.68	0.0001	0.47	249.5	0.46	Non-stationary
Growth Rate	-4.57	0.0001	0.0001	463.5	0.0001	Stationary
Financial Leverage	-6.91	0.0001	0.0001	247.3	0.50	Stationary
Firm Value	2.37	0.99	0.97	155.2	0.99	Non-stationary
Firm Size	19.38	0.0001	0.0001	31.53	0.0001	Stationary

The results imply that certain variables such as Growth Rate, Financial Leverage, and Firm Size are stationary that is, ideal for inclusion into the regression model. Non-stationary factors (e.g., Cost of Equity, Audit Quality, Growth Opportunity, and Firm Value) abound in this time as well.

Ensuring the validity of the econometric model and enhancing the accuracy of hypothesis testing concerning audit quality, business characteristics, and the cost of capital across many corporate life cycle phases depend on this study.

Description of the Kao Test Results

The Kao Co-integration test findings which evaluate whether audit quality and the cost of capital have a long-term connection throughout many business life cycle phases growth, maturity, and decline phases are shown in the Table (3).

Table (3): Kao Co-integration test

Model Number	t-Statistic	Probability (p-value)
Model 1 (Growth Phase)	-2.6942	0.0035
Model 2 (Maturity Phase)	-2.2876	0.0032

Model 3 (Decline Phase)	-4.5462	0.0001

These findings confirm the theory that, with diverse degrees of effect, audit quality clearly affects capital costs at many phases of the company life.

The correlation between independent variables

Table (4): Spearman correlation test

Variable	Audit Quality	Growth Opportunities	Growth Rate	Financial Leverage	Firm Value	Firm Size
Audit Quality	1					
p-value	----					
Growth Opportunities	-0.14	1				
p-value	0.0001	----				
Growth Rate	-0.19	0.21	1			
p-value	0.0001	0.0001	---			
Financial Leverage	0.002	0.20	0.015	1		
p-value	0.9368	0.0001	0.6792	---		
Firm Value	-0.004	-0.068	-0.011	-0.027	1	
p-value	0.9115	0.0607	0.7490	0.4518	---	
Firm Size	-0.11	0.46	0.040	0.11	-0.029	1

The significance levels p-values confirm that certain correlations are statistically significant ($p < 0.05$) and others are not, thereby suggesting maybe little influence in regression analysis. This correlation matrix guarantees that independent variables do not overlap in predictive models and helps find multicollinearity problems.

Testing the type of the compound data pattern

Table (5): Results using Limer F-Test and Hausman Test

Model Number	Limer F-Test Statistic	Limer F-Test Probability	Hausman Test Statistic	Hausman Test Probability	Result
Model 1 (Growth Phase)	2.2337	0.0001	6.4760	0.0026	Fixed Effects Model
Model 2 (Maturity Phase)	2.2193	0.0001	5.4606	0.0023	Fixed Effects Model
Model 3 (Decline Phase)	2.2212	0.0001	6.1938	0.0078	Fixed Effects Model

This method is used in the research to investigate the effect of audit quality on cost of capital throughout many corporate life cycle phases as both Limer F-test and Hausman test findings support the Fixed Effects Model. By use of unobserved firm-specific effects, this approach guarantees more exact estimates.

Description of the Regression Results

The results of the regression analysis are shown in this table 6,7 and 8, which clarifies the influence of audit quality and other financial factors on the cost of capital throughout this period.

Table (6): Final test results for the first model in the period of corporate growth

Variable	Coefficient	t-Statistic	Probability (p-value)
Audit Quality (AQ)	-0.277	-4.39	0.0001
Growth Opportunities (FW)	-0.014	-0.96	0.3359
Growth Rate (EG)	-0.013	-2.78	0.0051

Financial Leverage (LEV)	0.10	6.42	0.0001
Firm Value (AG)	-0.011	-4.23	0.0001
Firm Size (SIZE)	-0.015	-2.24	0.0062
Constant (Intercept)	0.78	2.15	0.0001

The model shows generally that although financial leverage raises capital cost, growth rate, business size, and firm value help to lower financing costs; audit quality greatly decreases the cost of capital in the growth phase

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Table (7): Final results for the second research model for the companies' eligibility period

Variable	Coefficient	t-Statistic	Probability (p-value)
Audit Quality (AQ)	-0.072	-3.98	0.0001
Growth Opportunities (FW)	-0.004	-0.93	0.3503
Growth Rate (EG)	-0.004	-2.80	0.0084
Financial Leverage (LEV)	0.24	5.44	0.0001
Firm Value (AG)	-0.39	-0.009	0.9924
Firm Size (SIZE)	-0.017	-5.29	0.0000
Constant (Intercept)	0.75	2.331	0.0001

The maturity phase model shows that whilst financial leverage raises capital's cost, audit quality greatly lowers it. While growth prospects and business valuation have no bearing on the cost of capital during this period, growth rate and firm size do help to lower financing costs. These results confirm that, with leverage being the key cost driver, audit quality is essential in preserving reduced capital costs as companies grow.

Table (8): Results of the final test of the second sub-hypothesis

Variable	Coefficient	t-Statistic	Probability (p-value)
Audit Quality (AQ)	-0.08	-2.75	0.0092
Growth Opportunities (FW)	-0.003	-1.98	0.0494
Growth Rate (EG)	0.004	0.94	0.3426
Financial Leverage (LEV)	0.12	5.92	0.0001
Firm Value (AG)	-0.10	-3.102	0.0003
Firm Size (SIZE)	-0.012	-2.20	0.0017
Constant (Intercept)	0.69	2.32	0.0001

Even in financial crisis, the declining phase model demonstrates that audit quality is a crucial determinant of capital cost reduction. Financial leverage, however, greatly raises capital expenses; business size and value assist to reduce financing risks. These results underline the need of firms in decline to maintain high audit quality and control their debt to maximize their cost of capital.

Clarify the results according to the hypotheses

The first hypothesis indicate the results to the existence of a statistically significant difference between the cost of capital and the quality of auditing in the stages of the companies' life cycle, and it is clear from this that the quality of auditing has a major role in reducing the cost of capital.

The second and third hypotheses in the growth stage,

1-Emphasizing the function of audit systems encouragement of cooperation among firms, auditors, and investors to guarantee the delivery of high-quality financial reports helps to lower the cost of capital by thus ensuring their respective roles.

2-Considering the corporate life cycle to guarantee more efficient financial management, financial choices should consider the many phases of the life cycle of a company growth, maturity, and decline.

3-Encouragement of transparency will help all corporate stakeholders to reveal the quality of their financial reports at every level of the business life, the positive impact of auditing quality was more evident, which led to enhancing investor confidence as well as significantly reducing the cost of capital. These results are consistent with the study of Perkis and Lodris 2015, which confirms that auditing quality reduces the cost of capital.

The fourth hypothesis in the decline stage (retreat), the results showed that the impact of auditing quality was weak due to the challenges facing companies (low liquidity and resources).

Practical recommendations in consideration of the results

The following useful suggestions are made based on study results to improve audit quality and lower capital cost, particularly in the expansion stage, audit firms should concentrate on raising audit quality as it significantly influences capital cost reduction and investor trust increase.

therefore guaranteeing more market confidence and stability.

These suggestions seek to maximize capital management within companies, boost investor trust, and streamline financial decisions.

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