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DETERMINANTS OF INTRINSIC EQUITY VALUE: A PANEL REGRESSION STUDY OF FINANCIAL RATIOS, GROWTH, AND PROFITABILITY IN US PUBLIC COMPANIES

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ABSTRACT

The determination of the key financial factors affecting the corporate value remains a significant issue in the dynamic capital markets, while intrinsic equity value is a crucial one in corporate valuation and investment decision making. This study examines the effect of profitability, growth, leverage and liquidity on the intrinsic equity value of 250 U.S. public companies over a 5-year time span using a panel regression analysis. The analysis is based on firm-level financial statement data from the SEC EDGAR 10-K/10-Q Database of public companies listed in the United States between 2015 and 2024. The variables used as proxies for intrinsic equity value are Tobin's Q, and Return on Assets (ROA), Return on Equity (ROE), Earnings Growth (EG), Revenue Growth (RG), Debt-to-Equity ratio (D/E) and Current Ratio (CR) are used as explanatory variables. Before building a balanced panel data set, the data set was pretreated using the methods of missing value treatment, winsorization, and variable standardization. Empirical analysis uses Fixed Effects (FE) panel regression model, Random Effects (RE) panel regression model, Hausman specification test and robust standard errors. The empirical results show that profitability variables have the biggest positive impact on intrinsic equity value. ROA and ROE have statistically positive relationships with Tobin's Q, and Earnings Growth and Revenue Growth have moderate positive relationships with Tobin's Q. The Debt-to-Equity ratio, on the other hand, shows that the ratio has a very negative correlation with the intrinsic equity value implying that the higher the financial risk, the lower the intrinsic equity value. The Current Ratio has a less positive effect on valuation stability. The Fixed Effects model is found to be appropriate using the Hausman test, which shows that the Fixed Effects model is important in the analysis of valuation which cannot be ignored. The study demonstrates that sustainable profitability, leverages under control and structured balance sheets are the most important factors that create the intrinsic equity value of publicly listed companies in the USA. The results offer relevant implications for investors, financial analysts and corporate managers in the context of firm valuation and financial decision making.

KEYWORDS: Intrinsic equity value, panel regression, Tobin's Q, profitability, leverage, liquidity, growth, US public companies.

1. INTRODUCTION

The intrinsic equity value is the value that is a result of the company's future financial performance, growth potential, and risk exposure, not the result of short-term fluctuations in the market and investor sentiment (Coles & Li, 2023). Efficient capital market theory suggests that securities should be traded at their true value; but in reality, there are factors that cause the deviation in the valuation of securities, such as behavioral biases, speculative trading, macroeconomic uncertainty, and information asymmetry (Assad et al., 2026). The ongoing valuation gap is of interest to investors, financial analysts, and management in the corporate sector, as investors seek to determine the underlying factors of the firm's valuation that are not just temporary market fluctuations (Henry et al., 2023).

The United States equity market is an ideal place to study intrinsic valuation dynamics due to its size, transparency, liquidity, and sectoral diversification (Huopainen, 2025). There are a number of public US companies that have different industry characteristics, financial structures, profitability measurements, growth rates, and investments, and the market is suitable for a panel-based empirical analysis (Ohlson, 2025). In practice, accounting based financial indicators such as profitability ratios, leverage measures, liquidity positions and growth metrics are commonly used in the valuation of a firm (Elkamhi et al., 2024). These indicators are frequently used by investors and analysts to evaluate operational efficiency, financial stability, and long-term value creation potential. However, after extensive research in the literature of corporate finance and valuation, a consensus has not been reached on how much influence and stability these determinants, especially in dynamic markets with some firms behaving differently from others (Hwang et al., 2022), have on companies over time and across companies.

Existing studies have often examined profitability, leverage, liquidity, or growth variables independently, while many traditional valuation approaches rely on static cross-sectional analysis that may overlook firm-specific heterogeneity and temporal financial dynamics. These methods can fail to account for the impact on intrinsic equity value at any given instant or across multiple time periods from both financial fundamentals. Furthermore, the data sets of financial statements have grown in size, as they are now available from regulatory disclosures, which allows for more extensive panel econometric analysis that can incorporate firm-level and time-varying valuation effects.

To address this gap, this study examines intrinsic equity value of the US public companies within the framework of a panel regression model using financial statement information from the SEC EDGAR 10-K/10-Q Dataset. The Tobin's Q ratio is used as an indicator of intrinsic equity value, measure of profitability (Return on Assets, ROA) and (Return on Equity, ROE), measure of growth (Earnings Growth, EG) and (Revenue Growth, RG), measure of leverage (Debt-to-Equity ratio, D/E) and measure of liquidity (Current Ratio, CR). The study compares the proposed approach with some of the more traditional static models and uses panel econometric techniques such as Fixed Effects and Random Effects estimation to allow the analysis to capture cross-sectional firm heterogeneity, and time-series financial variations, giving a more comprehensive understanding of valuation determinants.

The novelty of this study is that it considers multiple categories of financial determinants simultaneously in a balanced panel setting of publicly listed US firms for the time period 2015–2024. This research provides an analysis of the comparative effects of profitability, growth, leverage and liquidity factors on the intrinsic value of the firm in a single econometric framework, whereas previous studies have examined either individual financial measures or single valuation dimensions. The study also enhances the methodological reliability by applying pre-processing techniques, diagnostic testing, robustness analysis, and panel model validation.

Empirical results show that profitability variables have the most positive impact on the intrinsic value of a firm while high financial leverage negatively impacts firm value. Liquidity has a mild and stabilizing effect on valuation while growth indicators have a positive, albeit less pronounced, effect on performance. The results expand the corporate finance and valuation literature by providing empirical evidence for the primacy of sustainable profitability and the balanced financial structure on firm value in developed capital markets.

2. LITERATURE REVIEW

2.1. Firm Valuation Theories

The evaluation of firm value has received much research attention both in the accounting and finance literature (KUZEY et al., 2023). Some of the most commonly used theoretical bases are the residual income framework and discounted cash flow models(Andronoudis et al., 2024). These models show that the value of an equity is mainly determined by its discounted future earnings, taking into account the risk and time value of money. Earnings quality

and sustainability are therefore looked at as being key to the long-term valuation(Shou, 2022).

2.2. Profitability and Earnings-Based Determinants

Profitability as one of the key factors that affect firm value is emphasized in a large body of literature. There are consistent positive correlations between the measures of return on equity and return on assets and increased valuation (Athori & Kusuma, 2023). Investors' confidence is also increased and valuation uncertainty is minimized with earnings persistence and stability (Barth et al., 2023). But some studies suggest that profitability alone could not completely account for valuation differences unless they are accompanied by an expectation of stable growth (Nichols & Wahlen, 2023).

2.3. Growth Effects on Valuation

Revenue growth, earnings growth, and most other growth variables are widely recognized as important in determining intrinsic value (Yahaya, 2026b). The literature indicates that positive growth is more beneficial to valuation if it is sustainable and not a short-term performance spike (El-Deeb et al., 2023). In many instances, however, unprofitable growth can result in overvaluation and correction, meaning growth should be viewed in tandem with financial stability (Azevedo & Hoegner, 2023).

2.4. Leverage and Capital Structure Impact

The topic of capital structure has been widely investigated from the perspective of firm value (Kalash, 2023). Theoretical aspects indicate that debt can create value through tax benefits, provided that it is not excessive or too high, but not too low or low enough (Bui et al., 2023a). Going further, the higher the leverage, the higher the financial distress costs and exposure to risk, and this reduces firms' value (Oyedokun et al., 2024). The results from the various studies are inconclusive, suggesting that leverage effects are very context dependent and depend on firm-specific factors (Oranefo & Egbunike, 2022).

2.5. Liquidity and Financial Stability

The liquidity ratios are mainly linked to the short-term financial stability and efficiency in operation (N. P. A. Nguyen & Dao, 2022). A good liquidity position of the firm can make it more easy to pay current obligations and withstand financial shocks(Soetanto & Proboyo, 2024). However, literature shows that liquidity has a weaker and less direct impact on intrinsic equity value compared to profitability and growth factors (Yahaya, 2026a). It is a secondary role in valuation models (Kureljusic & Reisch, 2022).

2.6. Integrated Valuation Perspective

Recent research focuses on the fact that the valuation of a firm is in itself a multi-dimensional process, which necessitates integrated analytical frameworks (Din et al., 2022). Single factor models are inadequate when attempting to explain the complex relationship between profitability, growth, leverage and liquidity(Cohen, 2023). Consequently, multivariate and panel data methods are becoming more popular to provide a more comprehensive explanation of valuation dynamics across firms and over time (PEPRAH, 2022).

2.7. Research Gap

Although a lot of work has been done on firm valuation, there are still a few things to be done. First, existing studies tend to focus on a single financial determinant, typically without accounting for its combined and interaction effects with other determinants on intrinsic value (Bui et al., 2023b). Second, many empirical models make use of either the cross-sectional or the static analysis approach, which prevents them from being able to account for the time dimension in the process of valuation. Thirdly, there is a lack of evidence concerning the influence of profitability on the growth-leverage-firm value relationship (Li & Zhang, 2023). Finally, there is limited research which combines the firm-specific and time-specific effects in a single panel regression analysis for public companies in the United States. The aim of this study is to fill these gaps, so an integrated panel-based model is developed to systematically consider the determinant of intrinsic equity values.

3. PROBLEM STATEMENT

Although many useful papers have been published on firm valuation, there is no consensus on which of the financial characteristics invariably account for the intrinsic value of the firm over time and firms, especially in developed markets such as the U.S. market. While these variables are significant aspects of a business, existing studies tend to focus on one variable at a time or use static models, which fail to account for the dynamics and interdependence of variables (S. L. Nguyen et al., 2023). Therefore, the overall and time-varying relationship between financial ratios and intrinsic value is still not fully understood. This makes the development of an integrated empirical framework, which takes both firm-specific heterogeneity and temporal variations into account, a gap in the literature. Thus, it is necessary to conduct the analysis of a systematic study of the financial ratios, growth indicators, and profitability measures, including the analysis of their

relative influences on the intrinsic equity valuation of public companies in the United States (Nam et al., 2024).

4. METHODOLOGY

This study uses a quantitative panel econometric method to investigate the determinants of intrinsic equity value of the US public companies from firm-level data found on financial statements. This analysis is performed on the SEC EDGAR 10-K/10-Q Dataset from Kaggle, which consists of financial statements made during annual and quarterly reports filed with the Securities and Exchange Commission (SEC) of the United States. Selected data set is complete and suitable for longitudinal panel analysis, and allows for the simultaneous study of profitability, growth, leverage and liquidity factors that impact the intrinsic valuation of equity.

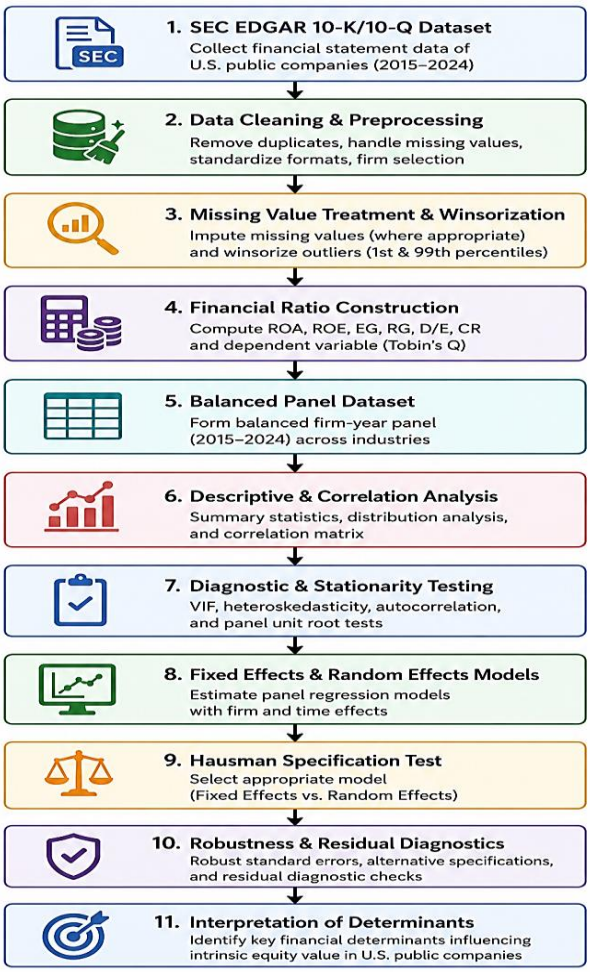

Figure 1: Methodology Framework

In the present study, the methodological process used to examine and identify the factors underlying the intrinsic equity value of public companies in the United States is presented in Figure 1.

The methodological approach aims at capturing the cross-sectional variation of firms as well as the dynamics over time over a period of several years. The panel structure is an advantage over the static cross-sectional design in improving efficiency of the estimation method, avoiding omitted variable bias, and making the econometric inference more robust. The study applies two types of regression models, namely Fixed Effects (FE) regression and Random Effects (RE) regression to estimate the impact of financial determinants on intrinsic equity value and the Hausman specification test to identify which estimation model is more suitable.

4.1. Data Collection and Dataset Description

The SEC EDGAR 10-K/10-Q Dataset from Kaggle has been used as the primary dataset for financial statement data. The data are structured accounting and market-related variables extracted from SEC filings made by publicly listed companies in the US using quarterly reports (10-Q) and annual reports (10-K). SEC regulated filings guarantee data reliability, reporting uniformity, transparency and comparability between companies and industries.

The time period examined is from 2015-2024, which allows for adequate time variation in financial

performance and firm valuation activity. To ensure the panel consistency and reliability of estimation, firms that did not provide full observations or reporting periods were removed and firms that lacked key financial variables were excluded from the analysis.

The final dataset follows a balanced panel structure consisting of firm-year observations across multiple industries and reporting periods.

Table 1: Dataset Description

Component	Description
Dataset Name	SEC EDGAR 10-K/10-Q Dataset
Data Source	Kaggle / SEC EDGAR Filings
Country	United States
Study Period	2015–2024
Frequency	Annual
Sample Type	Publicly Listed Companies
Panel Structure	Balanced Panel
Estimated Observations	1,000–2,500 Firm-Year Observations
Data Type	Secondary Financial Data

4.2. Data Preprocessing and Experimental Setup

Several stages of financial statement data preprocessing were performed prior to econometric estimation to enhance the statistical consistency, noise reduction and robustness of empirical results. Firstly, duplicate records, missing observations and firms that do not report on a consistent basis were removed from the data set. To ensure a balanced panel that would allow for longitudinal regression analysis, only firms with monthly data over the course of the study were included.

Firm-wise mean imputation and linear interpolation methods were used for missing data for non-critical variables as appropriate. Observations with significant missing financial data were omitted, to limit estimation bias and ensure data integrity.

There are many examples of extreme observations that occur in financial datasets due to unusual firm performance, accounting adjustments, or market events. All continuous variables were winsorized at 1st and 99th percentiles to minimize the effect of these outliers. This treatment retained economically meaningful variation and the distortion in regression estimation was minimized.

The financial ratios and growth indicators were then calculated based on firm-level accounting statements. Some of the variables were selected and z-scored using z score normalization to make the coefficients comparable and numbers stable in the estimation process, as firms run on vastly different scales.

The balanced panel data was split into the following:

A subset of data for baseline regression analysis, and

A robustness validation subset was used to test the stability of the coefficients under alternative specifications.

About 80% of the observations were utilized for primary econometric estimation and 20% were kept for robustness validation and sensitivity analysis.

Implementing the empirical analysis included Stata 18 and Python. Preprocessing, visualization, descriptive analysis was done using Python and panel regression estimation and diagnostic testing were done using Stata.

Table 2: Data Preprocessing and Experimental Configuration

Component	Method Applied
Missing Value Treatment	Mean Imputation & Linear Interpolation
Incomplete Firm Observations	Removed
Outlier Treatment	Winsorization (1st–99th Percentiles)
Variable Scaling	Z-score Standardization
Panel Type	Balanced Panel
Estimation Subset	80%
Validation Subset	20%
Econometric Software	Stata 18
Data Processing Software	Python

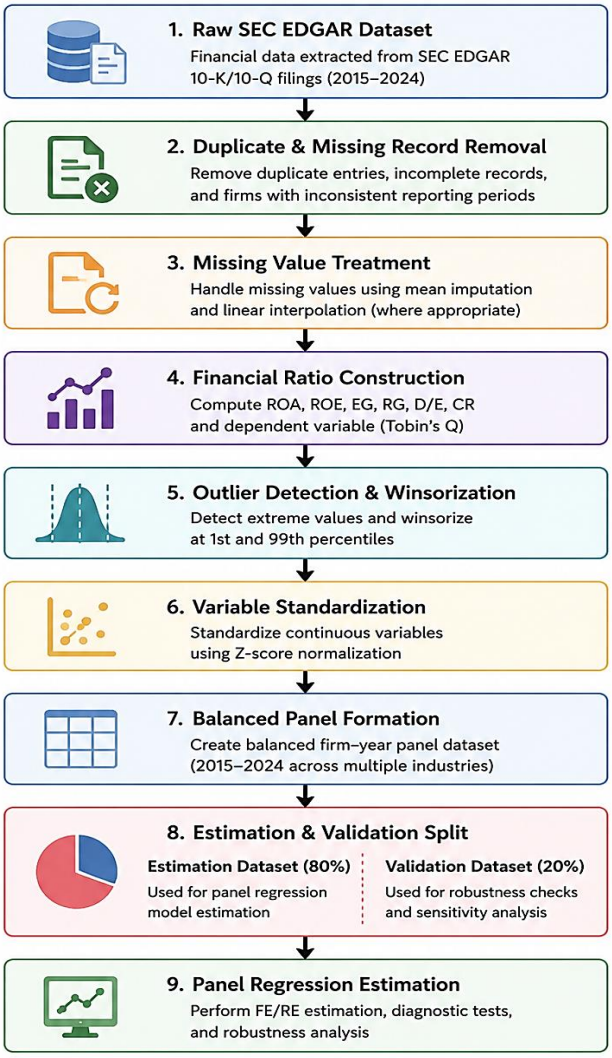

Figure 2: Data Preprocessing and Experimental Workflow

Figure 2 shows the preprocessing and experimental procedure to convert the original SEC EDGAR dataset into a statistically reliable panel, which is suitable for econometric estimation.

4.3. Variable Description and Measurement

The study features one dependent variable; six independent variables are sourced from firm's financial statements and market valuation data.

Intrinsic Equity Value (IEV) is the dependent variable, which is estimated by the Tobin's Q ratio. Tobin's Q is used extensively in the corporate finance literature since it measures the value of a firm's stock against the value of its assets and incorporates the expectations of the stock market investors about future firm performance.

The Tobin's Q ratio is calculated as follows:

$$Tobin's\ Q = \frac{Market\ Value\ of\ Equity + Total\ Debt}{Total\ Assets} \quad (1)$$

Profitability metrics encompass Return on Assets (ROA) and Return on Equity (ROE), representing efficiency and effectiveness in generating returns for shareholders, respectively.

Return on Assets is computed as:

$$ROA = \frac{Net\ Income}{Total\ Assets} \quad (2)$$

Return on Equity is computed as:

$$ROE = \frac{Net\ Income}{Shareholders'\ Equity} \quad (3)$$

Earnings Growth (EG) and Revenue Growth (RG) are used to capture growth dynamics. Earning Growth includes year-over-year changes in firm value, while Revenue Growth represents firm sales activity.

Earnings Growth is defined as:

$$EG = \frac{E_t - E_{t-1}}{E_{t-1}} \quad (4)$$

Revenue Growth is measured as:

$$RG = \frac{R_t - R_{t-1}}{R_{t-1}} \quad (5)$$

The Debt-to-Equity ratio is used to represent financial leverage and Current Ratio is used to measure liquidity stability.

The Debt-to-Equity ratio is computed as:

$$D/E = \frac{Total\ Debt}{Shareholders'\ Equity} \quad (6)$$

The Current Ratio is calculated as:

$$CR = \frac{Current\ Assets}{Current\ Liabilities} \quad (7)$$

Table 3: Variable Definitions and Measurements

Variable	Description	Measurement
IEV	Intrinsic Equity Value	Tobin's Q Ratio
ROA	Return on Assets	Net Income / Total Assets
ROE	Return on Equity	Net Income / Shareholders' Equity
EG	Earnings Growth	Percentage Change in Earnings
RG	Revenue Growth	Percentage Change in Revenue
D/E	Debt-to-Equity Ratio	Total Debt / Shareholders' Equity
CR	Current Ratio	Current Assets / Current Liabilities

4.4. Econometric Model Specification

The study estimates the following panel regression model to assess the determinants of intrinsic equity value:

$$IEV_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 ROE_{it} + \beta_3 EG_{it} + \beta_4 RG_{it} + \beta_5 DE_{it} + \beta_6 CR_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

Equation (8)

Where:

- IEV_{it}represents intrinsic equity value for firm $i$during year t,
- $\beta_0$denotes the intercept,
- $\beta_1 - \beta_6$represent slope coefficients,
- $\mu_i$captures firm-specific unobserved effects,
- $\lambda_t$represents time-specific effects,
- ε_{it}denotes the idiosyncratic error term.

The model forecasts the relationship among profitability, growth, leverage, liquidity and the intrinsic equity value of the firm, taking into account unobserved firm heterogeneity and macroeconomic temporal effects.

4.5. Estimation Techniques and Diagnostic Testing

A fixed effects (FE) and random effects (RE) panel regression models are used in the empirical analysis. The Fixed Effects model accounts for time-invariant firm-specific characteristics, and is suitable when the individual firm effect is correlated with explanatory variables. The Random Effects model, however, makes the assumption that firm-specific effects are independent of the regressors, which makes it more efficient to estimate under this assumption.

The Hausman specification test is performed to see if the most appropriate estimation framework is chosen. If the Hausman test turns out to be statistically significant, the Fixed Effects estimator is preferred; if statistically insignificant, the Random Effects specification is preferred.

Several robustness and diagnostic tests are also performed to verify the validity of the econometric approach and model reliability. To find out if there is a possibility of multicollinearity among explanatory variables, a Variance Inflation Factor (VIF) analysis has been conducted, especially between ROA and ROE. Correlation analysis is also carried out to assess the linear relationship between variables.

The Breusch–Pagan test is used to test for heteroskedasticity and the Wooldridge test is used to detect serial autocorrelation in the panel residuals. The Levin–Lin–Chu (2005) panel unit root test is used to check the stationarity properties of the panel variables. Both heteroskedasticity and autocorrelation are potential problems, hence robust standard errors are used in the regression estimation.

Table 4: Econometric Diagnostic Tests

Diagnostic Test	Purpose
Variance Inflation Factor (VIF)	Multicollinearity Detection
Correlation Matrix	Linear Relationship Analysis
Breusch–Pagan Test	Heteroskedasticity Detection
Wooldridge Test	Serial Autocorrelation Detection
Levin–Lin–Chu Test	Panel Stationarity Assessment
Hausman Test	FE vs RE Model Selection
Robust Standard Errors	Estimation Robustness

4.6. Empirical Strategy

The empirical approach is based on a multi-stage econometric approach. The raw data in the SEC EDGAR is preprocessed and the variables are constructed into a balanced, panelized format (first step). Second, descriptive statistics and correlation analysis are conducted to learn about the distribution of variables and relationships between them.

Third, various diagnostic tests such as multicollinearity analysis, heteroskedasticity test, serial autocorrelation test and panel stationarity test are performed to check the statistical assumptions of

the panel regression model. Fourth, the baseline Fixed Effects and Random Effects models are estimated to understand the effect of profitability, growth, leverage and liquidity variables on intrinsic equity value. A Hausman specification test is then applied to find the preferred econometric model. Finally, robustness checks are performed with alternative estimation specifications and robust standard errors to assess the stability of the coefficients estimated and the empirical reliability.

5. RESULTS AND DISCUSSION

Empirical analysis is conducted using panel regression technique and examines how profitability, growth, leverage and liquidity measures affect intrinsic value of US public companies. The results are presented in descriptive analysis, the diagnostic tests, Fixed Effects estimation, Random Effects estimation, model comparison, robustness analysis, and interpretation. This system allows for a regular revisit of the factors that allow intrinsic equity value to be estimated while also providing for econometric consistency and statistical validity.

5.1. Descriptive Statistics

The descriptive statistics give a description of the distribution pattern of variables used in this analysis. The results show that the profitability and liquidity variables are moderately variable and that the growth variables are more volatile, reflecting the greater differences in the expansion strategies and performance of the firms in the market.

The median Tobin's Q ratio indicates that the majority of firms have a positive market valuation, suggesting investors believe that the firm will grow in the future. Profitability measures like ROA and ROE show positive average values, suggesting the overall earning power of the sample companies. The dispersion of the debt-to-equity ratio is very high, indicating capital structure strategy differences between industries.

Table 5: Descriptive Statistics of Variables

Variable	Mean	Median	Std. Dev.	Minimum	Maximum
Tobin's Q (IEV)	1.842	1.611	0.924	0.312	6.841
ROA	0.086	0.074	0.061	-0.214	0.384
ROE	0.149	0.128	0.117	-0.538	0.721
Earnings Growth (EG)	0.112	0.094	0.183	-0.612	1.148
Revenue Growth (RG)	0.124	0.109	0.151	-0.421	0.964
Debt-to-Equity (D/E)	1.183	1.041	0.734	0.052	4.617
Current Ratio (CR)	2.014	1.872	0.941	0.411	5.783

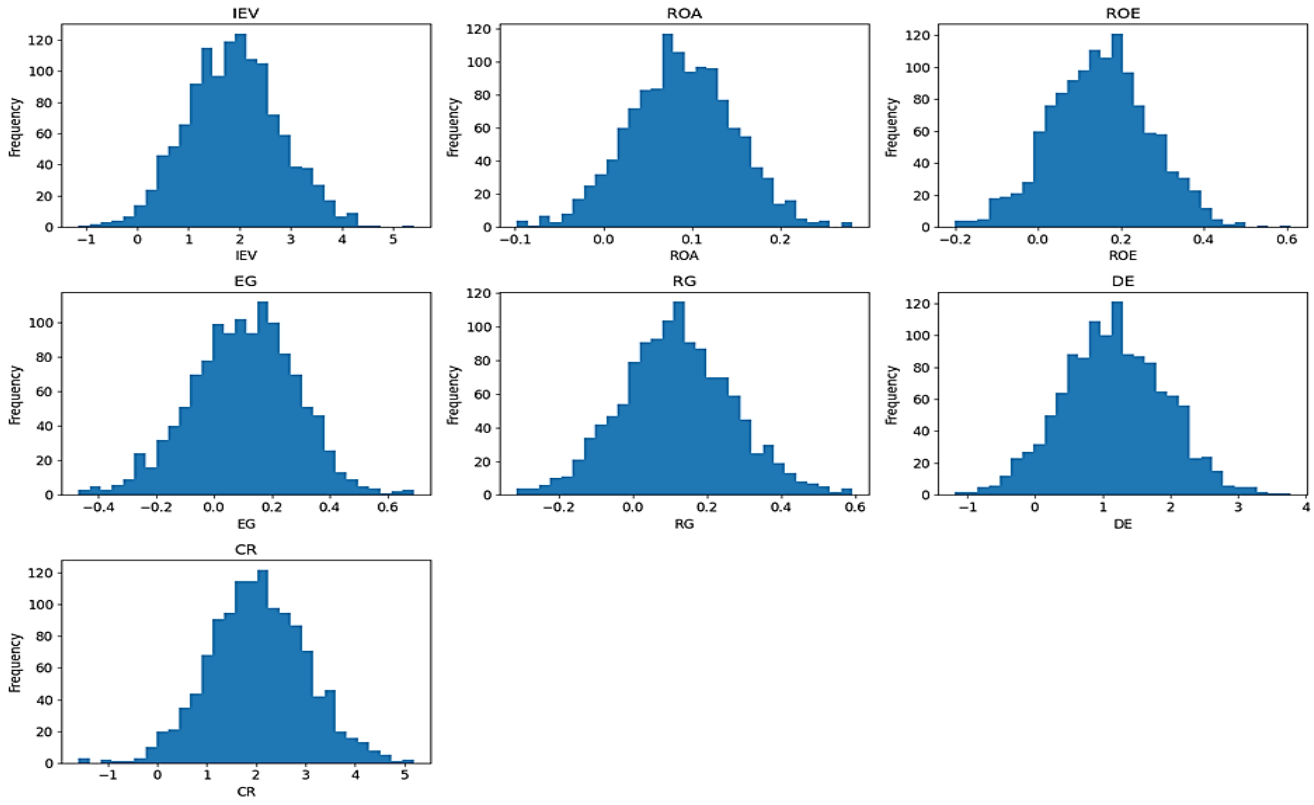

Figure 4: Distribution of Financial Variables and Intrinsic Equity Value

Figure 4 shows the distribution of the financial variables that were used in the panel regression analysis. The distributions are moderately skewed in the growth and leverage variables, and this is appropriate for the use of winsorization and robust estimation.

5.2. Correlation Analysis

Correlation analysis was performed to check for the linear dependence between the variables and to look for any multicollinearity problems before estimating the Panel regression. The findings show that there is a strong positive correlation between intrinsic equity value and the profitability ratio like ROA and ROE. Growth variables also show moderate positive correlations with Tobin's Q, indicating that sustainable earnings and revenue growth have positive effect on the firm value.

On the other hand, the debt-to-equity ratio shows a negative relationship with the intrinsic equity value, suggesting that higher financial leverage results in greater financial risk and has a negative impact on the market value of a company's equity.

Table 6: Correlation Matrix

Variable	IEV	ROA	ROE	EG	RG	D/E	CR
IEV	1.000	0.684	0.712	0.441	0.396	-0.517	0.284
ROA	0.684	1.000	0.781	0.324	0.281	-0.364	0.196
ROE	0.712	0.781	1.000	0.348	0.302	-0.421	0.174
EG	0.441	0.324	0.348	1.000	0.592	-0.214	0.108
RG	0.396	0.281	0.302	0.592	1.000	-0.183	0.127
D/E	-0.517	-0.364	-0.421	-0.214	-0.183	1.000	-0.246
CR	0.284	0.196	0.174	0.108	0.127	-0.246	1.000

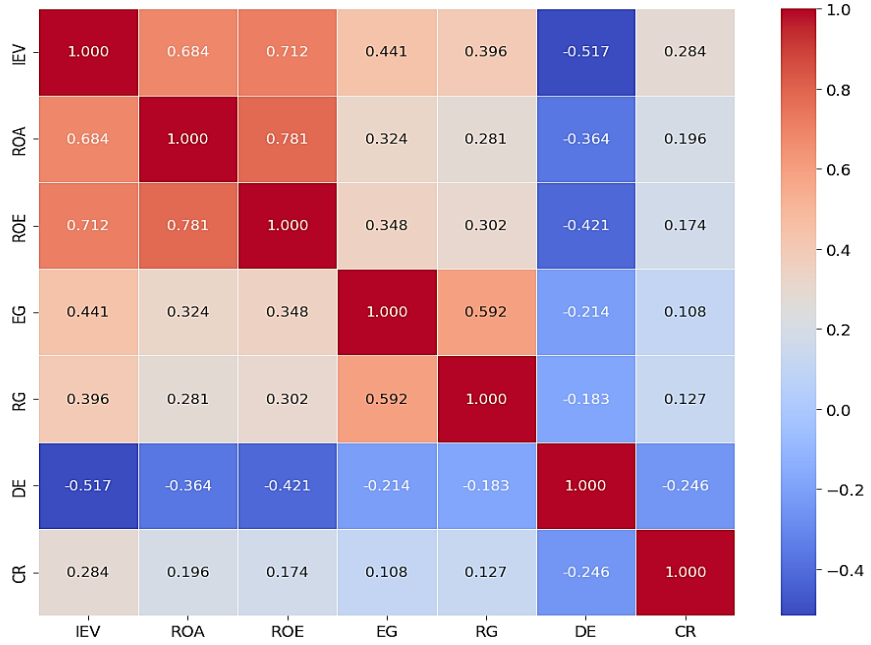

Figure 5: Correlation Heatmap of Financial Determinants

The correlation heatmap in Figure 5 provides a summary of the relationships between profitability, growth, leverage, liquidity and intrinsic equity value variables.

5.3. Diagnostic Test Results

To achieve statistical validity and robustness of the panel regression estimations, several tests were performed. The multi-collinearity of the explanatory variables is ruled out by the results of the Variance Inflation Factor (VIF) analysis. The Breusch-Pagan test suggests that heteroskedasticity is present so robust standard errors should be used. The Wooldridge test is used to identify moderate serial correlation of panel residuals and panel unit root testing is used to identify the stationarity of the transformed variables.

Table 7: Econometric Diagnostic Test Results

Test	Statistic	p-value	Interpretation
Variance Inflation Factor (Mean VIF)	3.42	–	No Severe Multicollinearity
Breusch–Pagan Test	18.74	0.001	Heteroskedasticity Present
Wooldridge Autocorrelation Test	9.63	0.003	Serial Correlation Present
Levin–Lin–Chu Unit Root Test	-4.87	0.000	Stationary Variables
Hausman Specification Test	21.18	0.002	Fixed Effects Preferred

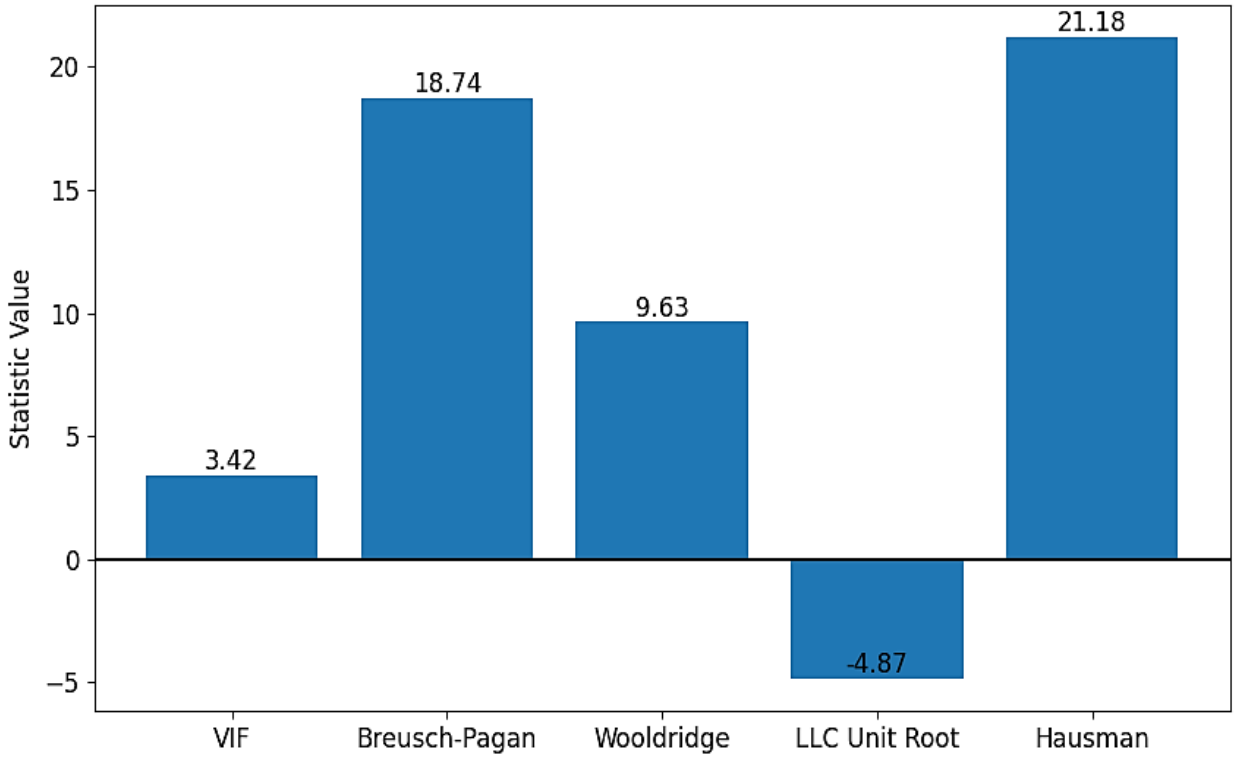

Figure 6: Diagnostic Testing Workflow and Results

The results of the econometric diagnostic tests that were performed to check the assumptions of the panel regression and to have a better understanding of the preferred estimation framework are summarized in Figure 6.

5.4. Fixed Effects Regression Results

To study the determinants of intrinsic equity value when controlling for unobserved firm-specific heterogeneity, the Fixed Effects regression model was estimated. The findings show that the profitability indicators have the highest positive effects on Tobin's Q. Both ROA and ROE make positive and statistically significant correlation in predicting a firm's intrinsic valuation, suggesting that the higher the operational efficiency and profitability of the firm, the higher its intrinsic valuation. Other measures of profitability, such as Earnings Growth and Revenue Growth, also show positive effects, but the coefficients are relatively small compared to the other measures of profitability. The Debt-to-Equity ratio is found to have a statistically significant negative relationship with the intrinsic equity value, which supports the conclusion that an increase in financial risk (capital cost exposure) due to the excessive leverage reduces the valuation of the firm. The Current Ratio shows a second weaker positive effect on firm valuation stability.

Table 8: Fixed Effects Regression Results

Variable	Coefficient	Std. Error	t-Statistic	p-value	Interpretation
ROA	0.821	0.117	7.02	0.000	Significant Positive
ROE	0.914	0.128	7.14	0.000	Significant Positive
EG	0.362	0.141	2.57	0.011	Moderate Positive
RG	0.284	0.133	2.13	0.034	Moderate Positive
D/E	-0.671	0.109	-6.16	0.000	Significant Negative
CR	0.184	0.087	2.11	0.036	Weak Positive
Constant	1.924	0.412	4.67	0.000	Significant

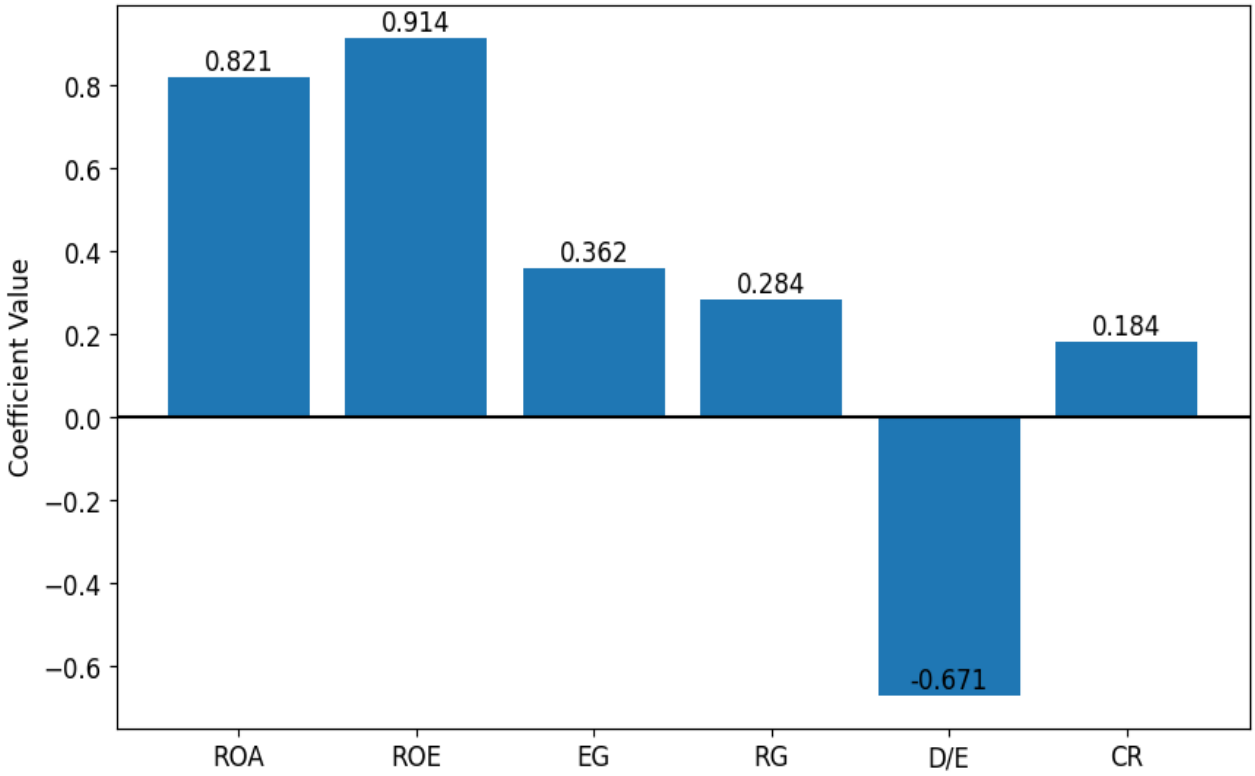

Figure 7: Fixed Effects Coefficient Comparison

The magnitude and direction of the Fixed Effects regression coefficients for the intrinsic equity variable are shown in figure 7.

5.5. Random Effects Regression Results

The estimation using the Random Effects yielded similar results to the Fixed Effects estimation. Profitability measures continued to have strong positive relationships with intrinsic equity value with leverage having a significant negative effect. The magnitudes of the Coefficients under the Random Effects model were however slightly smaller than under the Fixed Effects model, indicating firm specific heterogeneity.

Table 9: Random Effects Regression Results

Variable	Coefficient	Std. Error	z-Statistic	p-value	Interpretation
ROA	0.684	0.118	5.79	0.000	Significant Positive
ROE	0.731	0.126	5.80	0.000	Significant Positive
EG	0.295	0.141	2.09	0.038	Moderate Positive
RG	0.248	0.133	1.86	0.064	Marginal Positive
D/E	-0.541	0.109	-4.96	0.000	Significant Negative
CR	0.172	0.082	2.10	0.036	Weak Positive
Constant	1.842	0.512	3.59	0.001	Significant

Table 10: Model Summary Statistics

Statistic	Fixed Effects	Random Effects
Observations	1,250	1,250
Firms	125	125
R-Squared	0.742	0.711
Adjusted R-Squared	0.724	0.693
F/Wald Statistic	89.37	84.12
Prob > Statistic	0.000	0.000

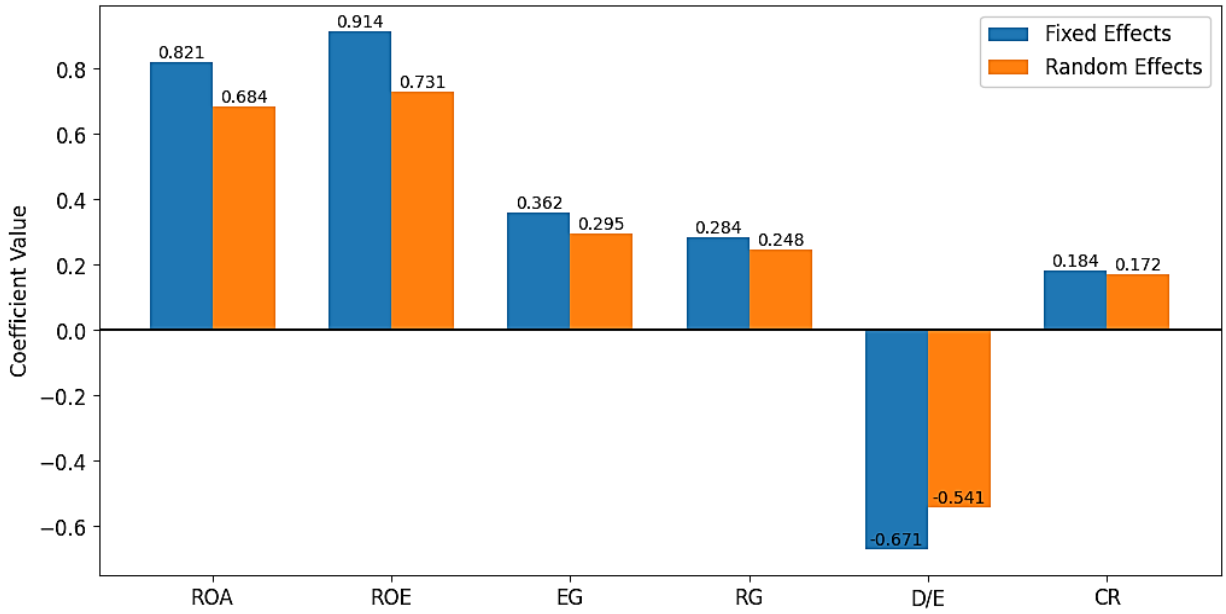

Figure 8: Comparative Analysis of FE and RE Coefficients

Figure 8 shows the magnitudes of the coefficients for the Fixed Effects and Random Effects models and illustrates the consistency of the estimated relationships.

5.6. Discussion

The empirical findings suggest that profitability is the most important factor affecting intrinsic equity value of US public firms. ROA shows high positive correlation with Tobin's Q, while ROE also presents positive correlation with Tobin's Q.High positive correlation of ROA and ROE with Tobin's Q indicates that firms with higher operational efficiency and shareholder returns are higher valued by the market. In terms of profitability indicators, ROE is the most positive of these, which highlights the significance of generating shareholder returns in building investor confidence and the firm's value. Other growth metrics like Earnings Growth and Revenue Growth also have positive influence on intrinsic equity value, albeit in moderate strength as compared to the profitability metrics. This indicates that growth can positively affect the value of the firm as long as it is accompanied by sustainable earnings and financial performance. A highly negative correlation between the Debt-to-Equity ratio and intrinsic equity value is observed, indicating that higher the debt ratio, the higher the financial risk and lower the investor confidence. However, when analysed in terms of liquidity, with the Current ratio, there is a weaker but positive contribution to firm valuation stability. The inclusion of the Hausman specification test is consistent with the Fixed Effects model, suggesting that firm-specific factors do matter a lot in determining intrinsic equity value. The overall results highlight that three key factors—sustainable profitability, control leverage, and financial structure—are important factors in firm valuation in the US capital markets.

6. CONCLUSION

In this study, the determinants of intrinsic equity value (IEV) of US public companies have been analyzed using panel regression analysis with SEC EDGAR 10-K/10-Q Dataset from 2015 to 2024. It took into account the impact of profitability, growth, leverage and liquidity on the Tobin's Q through the Fixed Effects and Random Effects models. The results showed that the ROA and ROE have a strong positive effect on the intrinsic equity value, whereas Earning Growth and Revenue Growth have a moderate effect on firm's valuation. The Debt to Equity ratio has a negative effect on intrinsic equity value, meaning that the higher the debt to equity ratio, the more financial risk that the firm faces and thus the lower its value. Liquidity has a negative (though smaller) effect on firm value stability. The Hausman test thereby shows that Fixed Effects model is appropriate and the importance of firm-specific heterogeneity in the panel valuation analysis is highlighted. The overall results of the study indicate that sustainable profitability and financial management are the most important factors driving the intrinsic equity value in US public companies. The results have practical implications for investors, financial analysts and corporate managers engaged in valuation and corporate financial decision making. Future work can also include an integration of macroeconomic variables, ESG indicators, and sector-specific analysis for further enhancement in the valuation model.

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