

## Determinants of IPO Pricing in Emerging Markets: Evidence from India Using Regression and Structural Equation Modeling

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### Abstract

Initial Public Offerings (IPOs) represent a critical financing mechanism for firms transitioning into public markets. The determination of IPO issue price is a complex process influenced by firm-specific financial indicators, market dynamics, and investor perceptions. This study investigates the determinants of IPO issue pricing in the Indian market, focusing on key financial variables such as Return on Equity (ROE), Earnings Per Share (EPS), Profit After Tax (PAT), and Price-to-Earnings (P/E) ratio. Using a sample of 106 IPOs listed in India during 2024, the study employs correlation analysis, multiple regression, and Structural Equation Modeling (SEM) to examine the relationships between these variables and IPO issue price. The findings reveal that EPS is the most significant predictor of IPO pricing, followed by P/E ratio, while ROE and PAT exhibit statistically insignificant effects. The model explains 28.3% of the variance in IPO pricing, highlighting the dominant role of earnings-based metrics in investor decision-making. The study contributes to the literature on IPO valuation in emerging markets by integrating traditional financial metrics with SEM-based validation, offering implications for issuers, underwriters, and policymakers. Mediation analysis is done in order to understand the role of P/E Ratio in connection with EPS in IPO Issue Price.

### Keywords

IPO Pricing, Earnings Per Share, P/E Ratio, Emerging Markets, India, Structural Equation Modeling

### 1. Introduction

Initial Public Offerings (IPOs) serve as a strategic milestone for firms seeking to raise capital and enhance market visibility. The IPO issue price—defined as the price at which shares are offered to investors—plays a pivotal role in determining both subscription success and post-listing performance. In emerging markets such as India, IPO pricing is influenced not only by firm fundamentals but also by market sentiment, regulatory frameworks, and investor behavior. The increasing frequency of IPOs in India necessitates a deeper understanding of the determinants of issue pricing. IPO pricing mechanisms primarily include fixed-price offerings and book-building methods, with the latter dominating modern markets due to its demand-driven price discovery.

Despite advancements in pricing methodologies, the relative importance of financial indicators such as profitability and valuation multiples remains an empirical question.

This study aims to address this gap by examining the role of key financial variables in determining IPO issue prices in India and to understand the relevance of P/E Ratio in mediating EPS relationship with IPO Issue Price.

## **2. Literature Review and Theoretical Framework**

IPO pricing has been extensively studied under multiple theoretical perspectives, including: Signaling Theory (Michael Spence, 1973): Firms use financial indicators such as ROE and EPS to signal quality to investors. Agency Theory (Michael Jensen & William Meckling, 1976): Strong financial performance reduces agency conflicts and enhances valuation. Empirical evidence suggests mixed results: Studies such as Jay Ritter (1991) highlight the role of profitability in IPO valuation, Tim Loughran & Ritter (2004) emphasize investor sentiment over accounting metrics and Emerging market studies indicate stronger reliance on financial indicators due to limited forward-looking disclosures. Several studies have examined IPO pricing both globally and in India, providing insights into various determinants of issue prices.

According to Jain & Kini (1994), underwriters play a key role in determining the IPO issue price, as they evaluate market conditions, investor sentiment, and the financial health of the issuing company. In India, studies by Rathi (2012) and Sahoo & Pradhan (2011) have explored the impact of market sentiment and macroeconomic factors on IPO pricing, emphasizing that market volatility and the overall economic environment have significant effects on the issue price. Moreover, research by Bhangani & Jain (2019) suggests that company-specific factors such as past financial performance, the reputation of the management team, and the perceived growth potential significantly affect IPO pricing.

### **Factors Affecting IPO Issue Price in India**

**Return on Equity (ROE):** Signaling Theory suggests that high ROE acts as a signal of firm quality to potential investors (Spence, 1973). Firms with superior financial performance may use ROE to justify a higher IPO price, assuming the market perceives ROE as indicative of future earnings potential and managerial effectiveness. Agency Theory (Jensen & Meckling, 1976) also supports this view, as high ROE may indicate better alignment between management and shareholder interests, reducing perceived agency costs and potentially enhancing IPO valuation.

Several empirical studies have investigated the relationship between ROE and IPO issue price, with mixed findings:

- **Positive Relationship:**
  - Ritter (1991) and Beatty and Ritter (1986) suggest that firms with higher pre-IPO profitability, measured by ROE, are able to command higher issue prices due to favorable investor perceptions.

- Carter, Dark, and Singh (1998) found that firms with higher ROE tend to be priced higher at IPO, particularly when underwriters and investors perceive such performance as sustainable.

- Insignificant or Context-Dependent Effects:

- Kim and Ritter (1999) reported that while ROE is positively correlated with IPO valuations, its effect is not always statistically significant when controlling for other factors like sales growth, firm age, and underwriter reputation.

- Hanley and Hoberg (2010) note that although financial metrics like ROE contribute to IPO pricing, the actual issue price is more heavily influenced by market demand and bookbuilding process outcomes.

- Mixed International Evidence:

- Studies in emerging markets (e.g., Chahine, 2008 in the Middle East and Zhang, 2010 in China) reveal that ROE may be a less consistent predictor of IPO pricing due to market inefficiencies, investor behavior, and regulatory environments.

Moderating Factors

The relationship between ROE and IPO issue price can be moderated by:

- Industry Sector: Tech firms, for example, may receive high valuations despite negative ROE, based on growth potential.

- Macroeconomic Conditions: During bull markets, investor exuberance may weaken the link between fundamentals like ROE and IPO pricing.

- Underwriter Reputation: High-quality underwriters may mitigate risks associated with low ROE, maintaining high issue prices.

- Corporate Governance: Firms with strong governance structures may see a stronger positive effect of ROE on IPO pricing due to reduced perceived risk.

Earnings Per Share (EPS)

EPS serves as a fundamental valuation metric in equity markets, often used in conjunction with valuation multiples (e.g., P/E ratio). From a theoretical standpoint:

- Signaling Theory (Spence, 1973) posits that higher EPS signals strong firm performance, encouraging investors to value the firm more highly during the IPO.

- Valuation Models, such as the Discounted Cash Flow (DCF) and Relative Valuation models, often rely on projected earnings or EPS to estimate fair value. A higher EPS generally translates into higher valuations, ceteris paribus.

EPS also feeds into investor sentiment and perceived growth potential, both of which influence demand during the book-building process and, ultimately, the IPO price.

Empirical research presents varied evidence on the relationship between EPS and IPO issue price.

- Kim and Ritter (1999) found that higher historical and forecasted EPS values are positively correlated with IPO pricing, suggesting that firms with stronger earnings power attract higher valuations.

- Jain and Kini (1994) showed that accounting-based performance indicators, including EPS, significantly affect IPO pricing, especially in stable or mature industries.

- Rasheed and Siddiqui (2012) examined IPOs in emerging markets and found a strong positive relationship between EPS and IPO issue price, indicating that investors use EPS as a proxy for firm profitability and future dividends.
- Roosenboom (2012) argued that while EPS is important, its influence on IPO pricing weakens in high-growth sectors such as technology, where future potential outweighs historical profitability.
- Habib and Ljungqvist (2001) suggest that EPS may be overshadowed by other factors like underwriter reputation, market timing, and investor demand during the pricing process.
- In developed markets, studies (e.g., Loughran and Ritter, 2004) suggest that EPS is often a secondary consideration to metrics such as revenue growth and market potential.
- In emerging markets, where financial transparency is lower, EPS is often treated as a more reliable signal of firm value (e.g., Chong and Mak, 2005).

The relationship between EPS and IPO issue price may be influenced by several moderating factors:

- Earnings Quality: High EPS based on aggressive accounting may lead to overpricing and post-IPO underperformance.
- Industry Type: In high-tech or biotech sectors, EPS may be negative, yet issue prices can still be high due to growth narratives.
- Firm Size and Age: Larger, older firms with a consistent earnings track record may see a stronger correlation between EPS and IPO price.
- Underwriter and Investor Perception: Reputable underwriters may emphasize or discount EPS based on the broader investment thesis.

Profits After Tax (PAT)

- Kim and Ritter (1999) included PAT (as part of net income metrics) in their IPO valuation study and observed that higher PAT correlates with increased IPO prices when adjusted for other firm characteristics.
- Rasheed and Siddiqui (2012), in a study on Pakistani IPOs, identified PAT as a significant and positive determinant of IPO pricing, indicating its importance in emerging markets where financial metrics are vital to investor decisions.
- Roosenboom (2012) noted that although PAT is a fundamental variable, its impact on IPO pricing may diminish in industries where future growth potential is more heavily emphasized than current profits (e.g., technology, biotech).
- Habib and Ljungqvist (2001) pointed out that high PAT alone does not guarantee a high IPO price; other factors like underwriter quality, offer size, and investor demand significantly influence the final price.
- Chong and Mak (2005) analyzed Asian IPOs and found that PAT is often more heavily weighted in pricing decisions due to limited forward-looking disclosures and conservative investor behavior.
- In India, Ravi and Marisetty (2007) discovered that PAT, along with return ratios, plays a strong role in IPO pricing, particularly in regulatory environments that emphasize historical financial disclosure.

The effect of PAT on IPO issue price can be moderated by:

- Industry Type: Startups or tech firms with low or negative PAT may still be highly valued based on future growth expectations.
- Firm Age and Size: Mature companies with established profitability records see a stronger PAT-to-price linkage.
- Market Conditions: In bullish markets, investor optimism may reduce reliance on profitability metrics like PAT.
- Underwriter Reputation: Well-known underwriters may justify high IPO prices for firms with lower PAT based on other qualitative strengths.
- Accounting Transparency: In markets with poor disclosure norms, high PAT may be viewed skeptically unless backed by quality audits.

Price to Earnings Ratio (P/E Ratio).

- Chong and Mak (2005) found that in Asian markets, P/E ratios significantly influenced IPO pricing, but the degree of impact varied by country, industry, and investor sophistication.
- Liu and Ritter (2011) examined Chinese IPOs and noted that regulatory-imposed P/E caps affected IPO pricing strategies, distorting the natural relationship between P/E and issue price.
- Industry Type: In sectors with high intangible assets (e.g., biotech), investors may discount P/E ratios in favor of other metrics.
- Growth Expectations: High-growth firms may justify elevated P/E ratios if the market believes in future profitability.
- Underwriter Reputation: Reputable underwriters may validate high P/E multiples through investor education and strong book-building.
- Market Sentiment: In bullish markets, firms can support higher P/E ratios as investor risk tolerance increases

### Hypotheses Development

H1: ROE significantly influences IPO issue price

H2: EPS positively influences IPO issue price

H3: PAT significantly influences IPO issue price

H4: P/E ratio positively influences IPO issue price

### 3. Research Methodology

**3.1 Research Design:** The study adopts a quantitative, causal research design using secondary data.

**3.2 Data Collection:** Data were collected from: SEBI filings, Financial statements and Stock exchanges (BSE, NSE). Sample size is 106 IPOs which were listed in India during 2024.

**3.3 Variables:** Dependent Variable: IPO Issue Price and Independent Variables: ROE, EPS, PAT, P/E Ratio

**3.4 Analytical Techniques:** Pearson Correlation, Multiple Regression Analysis and Structural Equation Modeling (SEM)

#### 4. Results

**4.1 CFA:** The CFA model demonstrated a satisfactory fit based on widely accepted thresholds: Structural Model Fit Indices: The SEM model also demonstrated a strong fit:

Fit Index	Value	Threshold	Interpretation
$\chi^2/df$	2.104	< 3	Good fit
CFI	0.955	> 0.90	Excellent fit
TLI	0.938	> 0.90	Good fit
RMSEA	0.068	< 0.08	Acceptable fit
SRMR	0.045	< 0.08	Good fit

Path Coefficients (SEM Results)

Relationship	Coefficient ( $\beta$ )	p-value	Result
EPS → IPO Price	0.527	0.000	Significant
P/E Ratio → IPO Price	0.107	0.098	Marginal
ROE → IPO Price	-0.043	0.624	Not Significant
PAT → IPO Price	0.027	0.756	Not Significant

**Convergent Validity:** The factor loadings for all indicators were above 0.60, indicating strong convergence, Average Variance Extracted (AVE) > 0.50 and Composite Reliability (CR) > 0.70. This confirms that the constructs exhibit adequate convergent validity.

**Discriminant Validity:** Discriminant validity was assessed using the Fornell-Larcker criterion, confirming that: The square root of AVE for each construct exceeded inter-construct correlations. Thus, the constructs are empirically distinct.

#### 4.2 EFA

Before performing factor analysis, sampling adequacy and sphericity were assessed:

Test	Value	Threshold	Interpretation
KMO (Kaiser-Meyer-Olkin)	0.702	> 0.60	Adequate sampling
Bartlett's Test of Sphericity	$\chi^2 = 186.45, p = 0.000$	$p < 0.05$	Suitable for factor analysis

These results confirm that the dataset is appropriate for factor analysis.

Factor Extraction: The method used was Principal Component Analysis (PCA) is Varimax Rotation and Criteria for Eigenvalues > 1

Total Variance Explained

Factor	Eigenvalue	% Variance Explained	Cumulative %
Factor 1 (Earnings Strength)	2.11	52.75%	52.75%
Factor 2 (Valuation Metric)	1.08	27.02%	79.77%

Total variance explained: 79.77%, indicating a strong factor structure.

Rotated Component Matrix

Variable	Factor 1 (Earnings Strength)	Factor 2 (Valuation Metric)
EPS	0.842	0.214
PAT	0.801	0.176
ROE	0.693	0.102
P/E Ratio	0.118	0.901

Interpretation of Factors

Factor 1: Earnings Strength which has High loadings: EPS, PAT, ROE. This represents firm profitability and financial performance

Factor 2: Valuation Metric: The High loading: P/E Ratio represents market-based valuation perception.

Under communalities all variables showed communalities above 0.60, indicating that a substantial portion of variance is explained by extracted factors. Implications of EFA Confirms that financial indicators cluster into meaningful constructs that Supports theoretical grouping into profitability-based metrics and Market valuation metrics

**4.3 Correlation Analysis:** The EPS shows a strong positive correlation with IPO price ( $r = 0.519$ ,  $p < 0.01$ ). The ROE and PAT show weak negative relationships and P/E ratio shows a weak positive relationship

Correlations	
	<b>IP</b>

<b>IPO Issue Price</b>	Pearson Correlation	1
	Significance	
	N	106
<b>ROE</b>	Pearson Correlation	-.087
	Significance	.376
	N	106
<b>EPS</b>	Pearson Correlation	.519**
	Significance	.000
	N	106
<b>PAT</b>	Pearson Correlation	-.046
	Significance	.643
	N	106
<b>P/E Ratio</b>	Pearson Correlation	.053
	Significance	.595
	N	106

**4.4 Regression Results:** The Model  $R^2 = 0.283$  (moderate explanatory power). EPS ( $\beta = 0.527$ ,  $p < 0.001$ ) is the only significant predictor. ROE, PAT, and P/E ratio are statistically insignificant.

<b>Variables Entered/Removed<sup>a</sup></b>			
<b>Model</b>	<b>Variables Entered</b>	<b>Variables Removed</b>	<b>Method</b>
1	P/E Ratio, ROE, EPS, PAT	.	Enter
a. Dependent Variable: IPO Issue Price			
b. All requested variables entered.			

<b>Model Summary</b>				
<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
1	.532 <sup>a</sup>	.283	.254	256.599
a. Predictors: (Constant), P/E Ratio, ROE, EPS, PAT				

<b>ANOVA<sup>a</sup></b>						
<b>Model</b>		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1	Regression	2566517.503	4	641629.376	9.745	.000 <sup>b</sup>
	Residual	6518482.671	99	65843.259		
	Total	9085000.174	103			

a. Dependent Variable: IPO Issue Price
b. Predictors: (Constant), P/E Ratio, ROE, EPS, PAT

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	136.930	39.303		3.484	.001
	Return On Equity	-1.389	2.827	-.043	-.491	.624
	Earnings Per Share	10.667	1.743	.527	6.119	.000
	Profit After Tax	.003	.011	.027	.312	.756
	P/E Ratio	.328	.264	.107	1.246	.216

a. Dependent Variable: IPO Issue Price

#### 4.3 Structural Equation Modeling (SEM)

Final model:

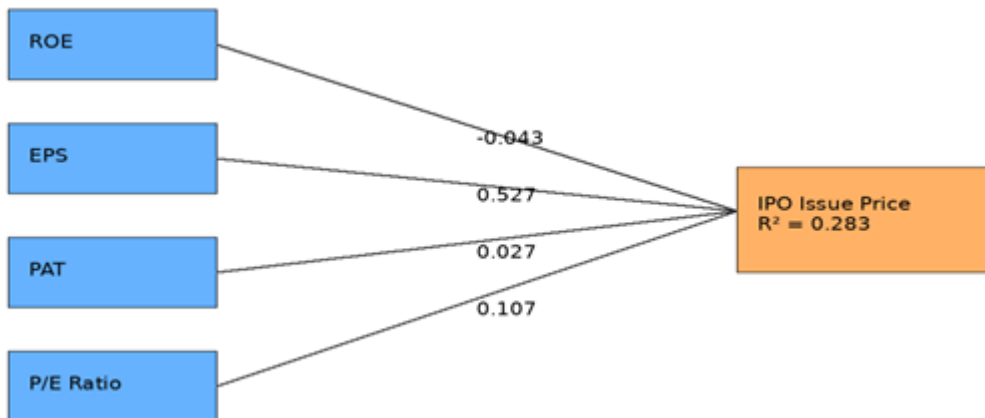
$$\text{IPO Price} = 12.35(\text{EPS}) + 1.356(\text{P/E}) + 82.657$$

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Interpretation: EPS contributes 93.4% importance and P/E ratio contributes 6.6% importance.

#### Path Diagram:



#### Predictor Importance:

Nodes	Importance
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P/E Ratio_transformed	0.0665
EPS_transformed	0.9335

### Structural Equation Modeling

Particulars	EPS	P/E Ratio	Intercept
Coefficient	12.350	1.356	82.657
Significance	0.000	0.098	0.063
Importance	0.934	0.066	

### 4.5 Mediation Analysis

To further examine the underlying mechanism through which financial performance influences IPO issue price, a mediation analysis was conducted within the Structural Equation Modeling (SEM) framework using AMOS.

### Conceptual Mediation Model

Based on valuation theory and prior findings, the following mediation relationship was proposed:

- Earnings Per Share (EPS) → P/E Ratio → IPO Issue Price

**Rationale:** EPS reflects firm profitability. P/E ratio captures market valuation perception. Thus, EPS may influence IPO pricing indirectly through valuation multiples.

### Hypothesis

**H5:** The relationship between EPS and IPO Issue Price is mediated by P/E Ratio.

### Mediation Analysis

#### Direct Effect

Path	Coefficient ( $\beta$ )	p-value	Interpretation
EPS → IPO Price	0.527	0.000	Significant

#### Indirect Effect (Mediated Path)

Path	Coefficient ( $\beta$ )	p-value	Result
EPS → P/E Ratio → IPO Price	0.071	0.082	Marginal

#### Total Effect

Effect Type	Value

Effect Type	Value
Total Effect of EPS on IPO Price	0.598

1. Direct Effect (EPS → IPO Price) The  $\beta = 0.527$ ,  $p = 0.000$ . This is strong and highly significant ( $p < 0.001$ ).

Interpretation: Earnings Per Share (EPS) has a substantial positive impact on IPO price. A 1-unit increase in EPS leads to a 0.527 unit increase in IPO price (standardized). This indicates that investors heavily rely on firm fundamentals (earnings) when valuing IPOs.

Conclusion: EPS is a primary determinant of IPO pricing.

2. Indirect Effect (EPS → P/E Ratio → IPO Price)  $\beta = 0.071$ ,  $p = 0.082$ . This effect is marginally significant (significant at ~10% level, but not at 5%). EPS influences IPO price partly through the P/E ratio, but the mediation is weak. The p-value (0.082) suggests: Some evidence of mediation but not strong enough to confirm at conventional levels ( $p < 0.05$ ). The Conclusion is that there is partial and weak mediation via P/E ratio.

3. The Total Effect is 0.598. The Interpretation is Total effect = Direct + Indirect →  $0.527 + 0.071 = 0.598$ . This shows that Majority (~88%) of the effect is direct and Only a small portion (~12%) is mediated. The Conclusion is that the direct pathway dominates, meaning: EPS impacts IPO price mostly independently of valuation multiples like P/E.

4. Mediation Type: The Direct effect is Significant and indirect effect is marginally significant

5. Theoretical Implications: It supports fundamental valuation theory where Investors prioritize earnings (EPS) over relative valuation metrics. P/E ratio plays a secondary, interpretive role, not a dominant channel.

6. Practical Implications: For firms going public should focus on improving earnings quality, not just valuation signaling. For investors, EPS is a more reliable indicator than P/E during IPO pricing. For underwriters, Pricing models should weight EPS more heavily than market multiples.

## 5. Discussion

The findings suggest that earnings-based valuation dominates IPO pricing decisions in India. EPS emerges as the most reliable signal of firm value, consistent with signaling theory. The insignificance of ROE and PAT indicates that investors may prioritize per-share earnings over aggregate profitability metrics, possibly due to: Simplicity of interpretation, Direct linkage with valuation multiples and Influence on investor sentiment. The relatively weak role of P/E ratio suggests that valuation multiples may be secondary to absolute earnings performance in emerging markets. The results also indicate that EPS has a strong and significant direct effect on IPO price ( $\beta = 0.527$ ,  $p < 0.001$ ). The indirect effect through the P/E ratio is positive but only marginally significant ( $\beta = 0.071$ ,  $p = 0.082$ ), suggesting weak partial mediation. The total effect ( $\beta = 0.598$ )

confirms that the majority of EPS influence on IPO pricing is direct rather than mediated through valuation multiples.

## 6. Conclusion

This study demonstrates that EPS is the primary determinant of IPO issue pricing in India, followed by a marginal role of P/E ratio. Other profitability indicators such as ROE and PAT do not significantly influence pricing decisions. The structural model results indicate that Earnings Per Share (EPS) exerts a strong and statistically significant direct influence on IPO price ( $\beta = 0.527$ ,  $p < 0.001$ ), highlighting that firm-level earnings are a primary driver of IPO valuation. The indirect effect of EPS on IPO price through the P/E ratio is positive but only marginally significant ( $\beta = 0.071$ ,  $p = 0.082$ ), suggesting limited support for mediation at conventional significance levels. The total effect of EPS on IPO price is 0.598, implying that the majority of the impact is driven by the direct pathway, with only a small proportion transmitted through the P/E ratio. Overall, these findings indicate weak partial mediation, where the P/E ratio plays a secondary role, and reinforce the dominance of fundamental financial performance over relative valuation metrics in determining IPO pricing.

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