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Does Intellectual Capital Efficiency Enhance Market Valuation in Digitally Transforming Firms? Evidence from India

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ABSTRACT

The increasing importance of knowledge-based resources has shifted the focus of value creation from tangible assets to intellectual assets, making intellectual capital an essential determinant of corporate competitiveness and market valuation. Despite extensive research, empirical evidence on the relationship between intellectual capital and firm market value remains inconclusive, particularly in emerging economies. This study examines the impact of Intellectual Capital Efficiency, measured using the Modified Value Added Intellectual Coefficient (MVAIC), on the market value of Indian listed firms. The study employs a balanced panel dataset comprising 50 Indian listed firms over the period 2020–2025, resulting in 300 firm-year observations. The empirical analysis employs panel data estimation techniques, including Pooled Ordinary Least Squares, Random Effects, and Two-Way Fixed Effects models. Model selection is based on the Redundant Fixed Effects and Hausman tests, both of which support the use of the Two-Way Fixed Effects model with robust Panel Corrected Standard Errors. The findings reveal that Intellectual Capital Efficiency has a statistically significant negative impact on firm market value. These findings challenge the conventional expectation of a positive relationship between intellectual capital efficiency and firm value and suggest that the market may not uniformly reward firms for improvements in intellectual capital efficiency. The study contributes to the growing literature on intellectual assets by providing empirical evidence from the Indian context using the more comprehensive MVAIC framework and offers valuable insights for managers, investors, and policymakers regarding the role of intellectual assets in corporate valuation.

Keywords: Intellectual Capital Efficiency; MVAIC; Firm Market Value; Tobin's Q; Panel Data; Indian Listed Firms.

1. Introduction

As the business environment has developed, knowledge has gained importance, shifting the primary focus from physical and financial resources to knowledge itself and other intangible

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resources (Stewart, 1997). Firms earlier determined their value through various tangible assets such as factories, machinery, land and financial capital. However, today, the gradual drift from those tangible assets shows that value creation is increasingly determined through employee skills, innovation, technology, systems, and relationships (Ellis and Seng, 2015). Collectively, these intangible knowledge-based resources are referred to as intellectual assets (IA). They have gained significant importance in today's business environment and have emerged as key drivers of corporate success.

Intellectual assets generally include the knowledge and capabilities of employees, organisational systems and processes, innovation capabilities, and relationships with customers and other stakeholders (Ulum et al., 2016). Unlike tangible resources, intellectual assets are difficult to observe and measure directly. When utilised to their full potential, intellectual assets can improve employee productivity, strengthen organisational efficiency, promote innovation, and enhance a firm's ability to respond to changing market conditions (Alfraih, 2017). In addition, firms possessing high-value intellectual assets are better positioned to generate future wealth and achieve a sustainable competitive advantage.

Despite their increasing significance, many intellectual assets are not fully recognised in traditional financial statements. Conventional accounting systems primarily record assets that satisfy established recognition criteria, leaving many internally generated knowledge based resources either unrecorded or insufficiently represented. Consequently, a firm's book value often fails to reflect the complete range of resources that contribute to value creation. As intellectual assets continue to play a more prominent role in organisational success, their limited representation in conventional financial reporting raises an important question: does the stock market adequately recognise and value the intellectual assets that firms possess and employ?

Theoretically, intellectual assets can influence the market value of firms through several channels. Firms that effectively utilise employee competence, organisational processes, technological innovation, and stakeholder relationships are better positioned to improve productivity, optimise operations, and sustain long-term growth. These strengths may positively influence investors' expectations regarding future profitability and growth potential. Market value reflects investors' perceptions of a firm's ability to generate future value rather than merely its current accounting performance. Consequently, firms with stronger intellectual assets are likely to command higher market valuations. Therefore, a firm's ability to effectively utilise its intellectual resources may help explain the difference between its book value and market value.

Over the past several decades, extensive academic literature has examined the relationship between intellectual assets and firm market value. Many studies have investigated whether intellectual resources enhance firm value and whether capital markets appropriately recognise

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the economic benefits generated by these assets. While numerous studies report a positive relationship between intellectual assets and market value, others present mixed or even negative findings. The impact of intellectual assets appears to depend on several factors, including the institutional environment, industry characteristics, measurement approaches, and the extent to which firms utilize these resources. Consequently, the relationship between intellectual assets and firm market value remains an area requiring further empirical investigation.

A considerable proportion of earlier research has relied on the traditional Value Added Intellectual Coefficient (VAIC) model to measure intellectual assets. However, the VAIC model has been criticised for its inability to capture all components of intellectual assets, particularly relational capital. To address these limitations, researchers have increasingly recommended the Modified Value Added Intellectual Coefficient (MVAIC) model, which incorporates a more comprehensive representation of intellectual assets. Nevertheless, empirical evidence based on the MVAIC framework remains relatively limited, particularly in emerging economies and within specific industries. This gap highlights the need for further investigation into how intellectual assets influence firm market value using more comprehensive measurement approaches.

Against this background, the present study examines the impact of intellectual assets on firm market value. By investigating whether the stock market recognises and values the intellectual resources employed by firms, the study seeks to contribute to the growing body of literature on intangible resources and corporate valuation. The findings are expected to provide valuable insights for managers regarding the value-creating role of intellectual assets and assist investors in assessing firm value beyond the information contained in traditional financial statements.

2. Literature Review and Hypotheses Development

The transition from an industrial economy to a knowledge-based economy has fundamentally changed the sources of corporate value creation. While traditional competitive advantage was largely derived from tangible resources, contemporary firms increasingly depend on intellectual assets such as employee knowledge, organisational capabilities, innovation, and stakeholder relationships to sustain long-term competitiveness (Stewart, 1997). Intellectual assets have therefore emerged as strategic resources that enable firms to generate value beyond what is reflected in their physical and financial assets.

The Resource-Based View (RBV) suggests that resources capable of creating sustain-able competitive advantage should be valuable, rare, inimitable, and non-substitutable (Wernerfelt, 1984). Intellectual assets satisfy these characteristics because they are embedded within organisational knowledge, human expertise, routines, and relationships that competitors find

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difficult to replicate. Consequently, firms possessing superior intellectual assets are expected to achieve higher productivity, stronger innovation capability, and greater market valuation.

The importance of intellectual assets has also led to the development of various measurement approaches. Pulic (2000) introduced the Value Added Intellectual Coefficient (VAIC™), which evaluates the efficiency with which firms utilise human capital, structural capital, and capital employed to generate value. Although widely adopted, the VAIC model has been criticised for omitting relational capital, an increasingly important component of intellectual assets in today's interconnected business environment (Bayraktaroglu et al., 2019). To overcome this limitation, researchers proposed the Modified Value Added Intellectual Coefficient (MVAIC), which incorporates relational capital and provides a more comprehensive assessment of intellectual asset efficiency (Bayraktaroglu et al., 2019).

From a theoretical perspective, intellectual assets influence firm market value by improving innovation, operational efficiency, knowledge utilisation, and stakeholder confidence. Efficient utilisation of intellectual resources enhances firms' future earning potential, thereby increasing investors' expectations regarding future cash flows and growth opportunities. Consequently, the capital market may assign higher valuations to firms demonstrating superior intellectual asset efficiency (Kianto et al., 2014; Salvi et al., 2020). Empirical evidence largely supports this proposition. Nguyen and Doan (2020), using Vietnamese listed firms, reported that intellectual capital positively enhances firm value by improving firms' competitive capability and market perception. Similarly, Ni et al. (2020) found that intellectual capital significantly contributes to firm value enhancement in Taiwanese firms, suggesting that investors recognise the economic benefits generated through efficient knowledge management. Xu et al. (2021) further demonstrated that intellectual capital efficiency promotes sustainable corporate growth, ultimately translating into higher firm valuations. Studies by Putri et al. (2019), Pangestuti et al. (2022), Dewi and Dewi (2022), and Yustyarani and Yuliana (2020) also document a positive association between intellectual capital and firm value across different institutional settings, indicating that firms capable of effectively managing knowledge-based resources are rewarded by the capital market.

Despite this growing consensus, empirical findings remain inconclusive. Several studies have reported either insignificant or negative relationships between intellectual capital and firm value. Aryanti and Mertha (2022), Kusuma and Rahyuda (2022), Saputra et al. (2022), and Nabila and Surasni (2021) observed that greater investment in intellectual capital does not necessarily translate into higher market valuation. Vereira and Pawestri (2024) further argued that excessive investment in intellectual capital may impose additional financial burdens, thereby reducing firm value. These conflicting findings suggest that the market's valuation of intellectual assets may depend upon firm-specific characteristics, institutional settings, industrial contexts, and measurement approaches. Recent literature also highlights limitations associated with the traditional VAIC framework. Since VAIC excludes relational capital, it may underestimate the actual contribution of intellectual assets to firm value, particularly in knowledge-intensive industries where customer relationships, networks, and external collaborations constitute significant sources of competitive advantage (Bayraktaroglu et al., 2019). Consequently, several scholars recommend employing the MVAIC framework to obtain a more comprehensive evaluation of intellectual assets and their economic consequences (Bayraktaroglu et al., 2019). Thus, we frame the following hypothesis.

H1: Intellectual Capital Efficiency has a significant positive impact on the market value.

3. Research Methodology

3.1 Data and Sample Selection

The present study adopts a quantitative research design to examine the impact of intellectual assets on firm market value among Indian listed firms. The study relies exclusively on secondary data obtained from the CMIE ProwessIQ database, which is one of the most comprehensive databases containing financial and accounting information on Indian companies. The database provides standardized financial statements, market-related information, and firm-specific characteristics that are widely used in corporate finance and accounting research. The sample consists of 50 Indian listed firms observed over a period of six years (2020–2025), resulting in a balanced panel dataset comprising 300 firm-year observations. Firms were selected based on the availability of complete financial information necessary for calculating the study variables throughout the sample period. Companies with missing or incomplete observations were excluded to maintain consistency in the panel dataset. The use of panel data enables the study to capture both cross-sectional differences among firms and variations over time, thereby providing more efficient and reliable estimates than purely cross-sectional or time-series data.

3.2 Research Variables

The study examines the relationship between intellectual assets and firm market value by employing one dependent variable, one independent variable, and two control variables.

The dependent variable is firm market value, measured using Tobin’s Q, which is one of the most widely accepted market-based measures of firm valuation. Tobin’s Q reflects investors’ expectations regarding a firm’s future growth opportunities by comparing the market value of the firm with the replacement cost or book value of its assets. A higher Tobin’s Q indicates greater market valuation and stronger investor confidence.

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The Modified Value Added Intellectual Coefficient (MVAIC) is used in this study as a proxy for measuring intellectual assets because it provides a more comprehensive assessment of a firm's intellectual capital efficiency than the traditional Value Added Intellectual Coefficient (VAIC) model. The VAIC model, developed by Pulic (2000), evaluates the efficiency with which firms create value through three components: Capital Employed Efficiency (CEE), Human Capital Efficiency (HCE), and Structural Capital Efficiency (SCE). Although the VAIC framework has been widely adopted in intellectual capital research, it has been criticised for excluding Relational Capital, which captures the value generated through relationships with customers, suppliers, business partners, and other external stakeholders (Bayraktaroglu et al., 2019). To overcome this limitation, the Modified Value Added Intellectual Coefficient (MVAIC) extends the original VAIC framework by incorporating Relational Capital Efficiency (RCE) as an additional component, thereby providing a more holistic measure of intellectual assets. Consequently, MVAIC evaluates value creation efficiency through four dimensions: Capital Employed Efficiency (CEE), Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), and Relational Capital Efficiency (RCE). The MVAIC is computed as the sum of these four efficiency coefficients:

$$MVAIC = CEE + HCE + SCE + RCE \qquad (1)$$

where CEE = VA/CE, representing the efficiency of physical and financial capital; HCE = VA/HC, measuring the value created per unit of investment in human capital; SCE = SC/VA, where structural capital (SC) is calculated as VA− HC, reflecting the efficiency of organisational systems, processes, and innovation; and RCE = RC/VA, measuring the contribution of relational capital to value creation, with relational capital (RC) commonly proxied by selling, marketing, and distribution expenses. The computation be-gins with the estimation of Value Added (VA), which represents the wealth created by the firm and is generally calculated as the difference between output and input (excluding employee costs), or alternatively as the sum of operating profit, employee expenses, depreciation, and amortisation (Pulic, 2000). A higher MVAIC score indicates greater efficiency in utilising intellectual assets to generate value and improve organisational performance. Owing to its broader coverage of intellectual capital components, particularly relational capital, MVAIC has become one of the most widely accepted measures for evaluating intellectual assets in contemporary empirical research (Bayraktaroglu et al., 2019; Xu & Wang, 2018; Kamath, 2015).

To control for firm-specific characteristics that may influence market value, two control variables are incorporated into the analysis. Leverage is measured as the ratio of total debt to shareholders' equity and is included to capture the influence of capital structure on firm valuation. Firm size is measured as the natural logarithm of total assets and controls for differences arising from the scale of business operations. Larger firms generally possess greater

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resources and market presence, which may influence investor valuation independently of intellectual assets.

Table 1: Operationalization of Research Variables

Variable	Abbreviation	Measurement	Source
Tobin's Q Book	TobinQ	Market Value of Equity + Value of Debt / Total Assets	Bayraktaroglu et al. (2019)
MVAIC	MVAIC	Modified Value Added Intellectual Coefficient	Ni et al. (2021)
Leverage	LEV	Total Debt / Shareholders' Equity	Hussain and Mukherjee (2025)
Firm Size	Size	Natural Logarithm of Total Assets	Hussain and Mukherjee (2025)

Source: Authors' own tabulation

3.3 Model Specification

To examine the relationship between intellectual assets and firm market value, the following panel regression model is estimated:

$TobinQ_{it} = \beta_0 + \beta_1 MVAIC_{it} + \beta_2 LEV_{it} + \beta_3 SIZE_{it} + \varepsilon_{it}$ Model (1) where:

- TobinQ = Firm market value
- MVAIC = Modified Value Added Intellectual Coefficient
- LEV = Leverage
- SIZE = Firm size
- ε = Error term

3.4 Estimation Method

The empirical analysis is conducted using EViews 14. Initially, descriptive statistics are computed to examine the distributional characteristics of the variables, including the mean, median, standard deviation, minimum, maximum, skewness, and kurtosis. These statistics provide preliminary insights into the nature and variability of the data. Thereafter, Pearson's correlation analysis is performed to assess the degree of association among the variables and to identify any potential multicollinearity. Since none of the pairwise correlation coefficients exceed the threshold value of 0.80, multicollinearity is not considered a concern.

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To investigate the relationship between intellectual assets and firm market value, three panel data estimation techniques are employed. The analysis begins with the Pooled Ordinary Least Squares (Pooled OLS) model, which assumes homogeneity across firms and ignores individual firm-specific and time-specific effects. Subsequently, the Random Effects Model (REM) is estimated, which allows for unobserved firm-specific heterogeneity under the assumption that these individual effects are randomly distributed and un-correlated with the explanatory variables. Finally, the Two-Way Fixed Effects Model is estimated to simultaneously control for both firm-specific and period-specific effects, thereby accounting for unobserved heterogeneity that remains constant across firms or across time.

To obtain reliable statistical inference, the preferred fixed effects model is estimated using Panel Corrected Standard Errors (PCSE), which corrects for heteroskedasticity and contemporaneous correlation commonly encountered in panel datasets.

Model selection is carried out using a series of specification tests. The Redundant Fixed Effects Test is employed to determine whether cross-sectional and period-specific fixed effects are statistically significant. Subsequently, the Hausman Specification Test is conducted to choose between the Random Effects and Fixed Effects estimators. The null hypothesis of the Hausman test states that the Random Effects estimator is appropriate and consistent. A statistically significant test statistic leads to rejection of the null hypothesis, indicating that the Fixed Effects estimator provides more consistent estimates. The results of both the Redundant Fixed Effects Test and the Hausman Test indicate that firm-specific and time-specific effects are statistically significant, and the Random Effects assumptions are violated. Consequently, the Two-Way Fixed Effects Model is selected as the most appropriate estimation technique for analysing the relationship between intellectual assets and firm market value. Robust Panel Corrected Standard Errors are reported for the final model to ensure consistent and efficient parameter estimates.

4. Empirical Results

4.1 Descriptive Statistics

Table 2 is the descriptive analysis of all variables. The mean value of Tobin’s Q is 3.727 and a standard deviation of 1.751, indicating moderate dispersion in firm value across the sampled firms.

The mean value of MVAIC is 3.277 with a standard deviation of 0.512, suggesting relatively stable intellectual capital efficiency across firms. The skewness value of −0.355 indicates slight left skewness, while kurtosis of 2.843 suggests nearly a normal distribution

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Table 2: Descriptive Statistics

Variable	Mean	Median	Std. Dev.	Min	Max	Skewness	Kurtosis	Obs
Tobin's Q	3.727	3.318	1.751	0.873	8.413	0.286	1.855	300
MVAIC	3.277	3.331	0.512	1.754	4.680	−0.355	2.843	300
Leverage	2.761	2.477	1.342	1.269	9.535	1.909	8.085	300
Total Assets	5.315	5.324	0.681	3.822	7.010	0.040	2.823	300

Author's Computation

Leverage has a mean of 2.761 and a standard deviation of 1.342 with skewness (1.909) and kurtosis (8.085) indicating strong positive skewness and leptokurtic distribution, indicating the presence of highly leveraged firms within the sample.

Total Assets, the proxy for firm size, shows a mean of 5.315 and a standard deviation of 0.681, indicating a low dispersion in firm size. The skewness (0.040) and kurtosis (2.823) indicate a near-normal distribution. Therefore, the descriptive statistics suggest sufficient variation in the variables to proceed with panel regression analysis.

4.2 Correlation Analysis

Table 3: Correlation Matrix

Variables	Tobin Q	MVAIC	Leverage	Total Assets
Tobin Q	1.000	0.085	0.089	−0.249
MVAIC	0.085	1.000	−0.209	−0.226
Leverage	0.089	−0.209	1.000	−0.151
Total Assets	−0.249	−0.226	−0.151	1.000

Author's Computation

Table 3 shows the pairwise correlation coefficients among the variables. None of the pairwise correlation coefficients exceeded 0.80, which indicated the absence of severe multicollinearity among the independent variables, indicating no serious collinearity problem.

4.3 Hypotheses Testing

Table 4 presents the regression results under pooled OLS, random effect, and two-way fixed effect specifications. Under the pooled OLS model, MVAIC shows a positive and statistically significant coefficient ($\beta = 0.882$, $p < 0.01$), suggesting that intellectual capital positively

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influences firm value when firm-specific heterogeneity is ignored. Total Assets has a significant negative coefficient (β = −0.977, $p < 0.01$), i.e., larger firms tend to have lower Tobin's Q, and Leverage is statistically insignificant.

Table 4: Regression Results

Variables	Pooled OLS	Random Effect	Two-Way Fixed Effect
MVAIC	0.882***	−0.256	−0.260**
	(2.723)	(−1.429)	(−2.318)
Leverage	−0.089	0.094	0.108
	(−0.536)	(0.481)	(0.719)
Total Assets	−0.977***	0.853	−3.968***
	(−2.976)	(1.439)	(−2.645)
Constant	7.290***	0.752	26.346***
R^2	0.064	0.019	0.927
F-stat	6.737***	1.907	54.122***

Author's Computation

t-statistics in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Note: Robust Panel Corrected Standard Errors (PCSE) are used for the two-way fixed effect model.

Table 5: Model Selection Tests

Test	Statistic	p-value
Cross-section Fixed Effect	54.465	0.000
Period Fixed Effect	21.399	0.000
Cross-section + Period FE	53.191	0.000
Hausman Test	19.392	0.0002

Author's Computation

Note: Since both the Redundant Fixed Effect test and Hausman test are significant at 1%, the double fixed effect model is selected as the most appropriate specification.

Under the random effect model, none of the explanatory variables are statistically significant, indicating weak explanatory power under this specification. The low R2 value (0.019) further indicates that the model is poorly fit.

The two-way fixed effect model provides the most reliable estimates based on the model selection tests. Under this specification, MVAIC exhibits a negative and statistically significant coefficient (β = −0.260, $p < 0.05$), implying that after controlling for firm-specific and time-

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specific heterogeneity, intellectual capital efficiency has an inverse relationship with firm valuation (Ge & Xu, 2021). This result contradicts the pooled OLS findings, thereby indicating that in simpler models the relation may be driven by unobserved firm or period effects. The results do not support H1.

Leverage remains statistically insignificant in the fixed effect model, indicating that capital structure does not exert a significant influence on firm value in the sampled firms during the study period. Total Assets continues to have a negative and significant coefficient ($\beta = -3.968$, $p < 0.01$), suggesting that larger firms tend to receive relatively lower market valuation.

Table 5 shows that the Redundant Fixed Effect test indicates that cross-sectional fixed effects are highly significant ($F = 54.465$, $p < 0.01$), implying substantial firm-specific heterogeneity. Similarly, period fixed effects are also significant ($F = 21.399$, $p < 0.01$), suggesting the presence of time-specific influences affecting firm value.

The joint cross-section and period fixed effect test is also significant ($F = 53.191$, $p < 0.01$), confirming that both firm-specific and time-specific effects should be incorporated into the model. This indicates that pooled OLS is inappropriate as it ignores unobserved heterogeneity across firms and time.

Further, the Hausman test yields a chi-square statistic of 19.392 with a p-value of 0.0002, leading to rejection of the null hypothesis that random effects estimation is consistent. Therefore, the fixed effect model is preferred over the random effect model. Based on these findings, the two-way fixed effect model (incorporating both cross-sectional and period effects) is selected as the most suitable specification for the study.

5. Discussion

The fixed-effects estimation reveals a statistically significant negative relationship between the Modified Value-Added Intellectual Coefficient (MVAIC) and Tobin's Q, suggesting that, after controlling for firm-specific and time-specific heterogeneity, increases in intellectual capital efficiency are associated with a decline in market-based firm valuation during the study period. The findings reject H1, as Intellectual Capital Efficiency exhibits a significant negative impact on firm market value, contrary to the hypothesised positive relationship. Although this finding appears contradictory with available literature, which largely reports a positive relation between intellectual capital and firm value, several theories and empirical findings can justify the result.

Firstly, investments in intellectual capital such as employee development, technological infrastructure, innovation, and research and development often involve substantial short-term costs while their returns are earned over the long run period. According to the Resource-Based

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View, intangible resources contribute to sustainable competitive advantage only when they are effectively deployed and transformed into productive capabilities (Clulow et al., 2003); during the initial stages of investment, rising intellectual capital efficiency may increase costs and compress short-term financial expectations, leading investors to respond cautiously. This argument is further supported by Hall (1993), which states that sustainable competitive advantage requires transforming intangible resources into relevant capability differentials, and that intangible resources achieve competitive advantage only when certain conditions are met (Mulyono, 2013).

The market's limited ability to efficiently price intangible assets, particularly in emerging economies such as India, can be another explanation for this negative association. According to Lev (2001), traditional accounting systems inadequately capture intangible value, thereby creating informational asymmetry between firms and investors. Therefore, even when firms improve intellectual capital efficiency, the market may fail to immediately reward such improvements through higher valuation, thereby weakening or even reversing the expected positive relationship with Tobin's Q.

Further, the negative association may also reflect diminishing returns or overinvestment in intellectual capital. While intellectual capital is generally expected to improve firm competitiveness, excessive or inefficient allocation of resources toward intangible as-set development may reduce shareholder value (Barajas & Shakina, 2024). This aligns with the free cash flow hypothesis developed by Jensen (1986), which suggests that man-agers may overinvest in projects that increase the organization's scale or goodwill but do not necessarily maximize shareholder wealth. In such cases, higher MVAIC results in lower market valuation.

Finally, the sample period of our study, 2020–2025, provides a strong explanation for the negative relationship (Masih & Masih, 1997). This period involves the unprecedented disruptions caused by the COVID-19 pandemic, followed by supply-chain instability, inflationary pressures, interest rate hikes, and increased market uncertainty. During such crisis periods, investors typically prioritize liquidity, earnings stability, and short-term resilience rather than long-term intangible growth potential. According to the discounted cash flow theory of Damodaran (2008), periods of elevated uncertainty raise discount rates and disproportionately reduce the market valuation of growth-oriented or knowledge-intensive firms. Therefore, firms improving intellectual capital efficiency during this volatile period may still experience declining Tobin's Q.

Overall, the negative coefficient of MVAIC should not be interpreted as evidence that intellectual capital destroys firm value. Rather, it suggests that the market valuation effects of intellectual capital are complex, nonlinear, and highly dependent on timing, market conditions, and firm-specific dynamics.

6. Conclusion

This study examines the impact of Intellectual Capital Efficiency, measured through the Modified Value Added Intellectual Coefficient (MVAIC), on the market value of 50 Indian listed firms over the period 2020–2025. Using a two-way fixed effects panel model with robust Panel Corrected Standard Errors, the study finds that Intellectual Capital Efficiency has a statistically significant negative relationship with Tobin's Q, contrary to the hypothesised positive association. This result suggests that the Indian capital market does not uniformly reward improvements in intellectual capital efficiency, potentially due to short-term cost effects, informational asymmetry in pricing intangibles, diminishing returns from overinvestment, and the volatile macroeconomic conditions prevailing during the sample period.

The findings contribute to the growing body of literature on intellectual assets by offering empirical evidence from an emerging economy using a more comprehensive MVAIC framework. For managers, the results highlight the importance of timing and strategic deployment of intellectual capital investments. For investors, the findings suggest that intellectual capital efficiency alone may not be a reliable short-term indicator of firm value, particularly during periods of economic uncertainty. For policymakers, the study underscores the need for improved disclosure standards regarding intangible assets to reduce informational asymmetry between firms and the market. Future research could extend this analysis by examining industry-specific effects, non-linear relationships, and longer time horizons that capture both stable and turbulent economic periods.

References

Abul M.M. Masih, Rumi Masih (1997). Dynamic linkages and the propagation mechanism driving major international stock markets: An analysis of the pre- and post-crash eras. *The Quarterly Review of Economics and Finance*, 37(4), 859–885.

Alfraih, M. M. (2017). The value relevance of intellectual capital disclosure: Empirical evidence from Kuwait. *Journal of Financial Regulation and Compliance, 25*(1), 22–38. https://doi.org/10.1108/JFRC-06-2016-0053

Barajas, A., & Shakina, E. (2024). Non-optimality of intellectual capital inputs: a new avenue for research. *Journal of Intellectual Capital*, 25(5–6), 1210–1236. https://doi.org/10.1108/JIC-03-2024-0094

Bayraktaroglu, A. E., Calisir, F., & Baskak, M. (2019). Intellectual capital and firm performance: An extended VAIC model. *Journal of Intellectual Capital*, 20(3), 406–425.

Clulow, V., Gerstman, J., & Barry, C. (2003). The resource-based view and sustainable competitive advantage: the case of a financial services firm. *Journal of European Industrial Training*, 27(5), 220–232. https://doi.org/10.1108/03090590310469605

Damodaran, A. (2008). *The Origins of Growth: Past Growth, Predicted Growth and Fundamental Growth*.

Dewi, P. P., & Dewi, K. A. K. (2022). Pengungkapan Sustainability Reporting, Intellectual Capital, dan Nilai Perusahaan. *E-Jurnal Akuntansi*, 32(12), 3761.

Ellis, H., & Seng, D. (2015). The value relevance of voluntary intellectual capital disclosure: New Zealand evidence. *Corporate Ownership & Control, 13*(1), 1071–1087.

Ge, F., & Xu, J. (2021). Does intellectual capital investment enhance firm performance? Evidence from pharmaceutical sector in China. *Technology Analysis & Strategic Management*, 33(9), 1006–1021. https://doi.org/10.1080/09537325.2020.1862414

Hall, R. (1993). A framework linking intangible resources and capabilities to sustainable competitive advantage. *Strategic Management Journal*, 14(8), 607–618. https://doi.org/10.1002/smj.4250140804

Hussain, I., & Mukherjee, T. (2025). Board characteristics and corporate financial distress: the Indian evidence. International Journal of Corporate Governance, 15(2), 127–160. https://doi.org/10.1504/ijcg.2025.145659

Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review*, 76(2), 323–329.

Kamath, G. B. (2015). Impact of Intellectual Capital on Financial Performance and Market Valuation of Firms in India. *International Letters of Social and Humanistic Sciences*, 48, 107–122.

Kianto, A., Ritala, P., Spender, J. C., & Vanhala, M. (2014). The interaction of intellectual capital assets and knowledge management practices in organizational value creation. *Journal of Intellectual Capital*, 15(3), 362–375.

Lev, B. (2001). *Intangibles: Management, Measurement, and Reporting*. Brookings Institution Press.

Mulyono, F. (2013). Sumber Daya Perusahaan dalam Teori Resource-based View.

Jurnal Administrasi Bisnis, 9(1), 71796. https://doi.org/10.26593/jab.v9i1.434

Nguyen, A. H., & Doan, D. T. (2020). The impact of intellectual capital on firm value: Empirical evidence from Vietnam. *International Journal of Financial Research*, 11(4), 74–85.

Ni, Y., Cheng, Y. R., & Huang, P. (2020). Do intellectual capitals matter to firm value enhancement? *Journal of Intellectual Capital*, 22(4), 725–743.

Pangestuti, D. C., Muktiyanto, A., & Geraldina, I. (2022). Role of profitability, business risk, and intellectual capital in increasing firm value. *Journal of Indonesian Economy and Business*, 37(3), 311–338.

Pulic, A. (2000). VAIC™ – An Accounting Tool for Intellectual Capital Management.

International Journal of Technology Management, 20(5–8), 702–714.

Putri, A. J., Agustin, H., & Helmayunita, N. (2019). Pengaruh Intellectual Capital terhadap Nilai Perusahaan dengan Profitabilitas sebagai Variabel Intervening. *Jurnal Eksplorasi Akuntansi*, 1(3), 1541–1555.

Salvi, A., Vitolla, F., Giakoumelou, A., Raimo, N., & Rubino, M. (2020). Intellectual capital disclosure in integrated reports: The effect on firm value. *Technological Forecasting and Social Change*, 160.

Stewart, T. A. (1997). *Intellectual Capital: The New Wealth of Organizations*. Nicholas Brealey.

Ulum, I., Rizqiyah, R., & Jati, A. W. (2016). Intellectual Capital Performance: A Comparative Study between Financial and Non-Financial Industry of Indonesian Biggest Companies. *DergiPark (Istanbul University)*, 6(4), 1436–1439.

Vereira, C. C., & Pawestri, H. P. (2024). Pengaruh Intellectual Capital dan Struktur Modal terhadap Kinerja Keuangan serta Implikasinya terhadap Nilai Perusahaan. 3(6), 2434–2448.

Wernerfelt, B. (1984). A Resource-Based View of the Firm. *Strategic Management Journal*, 5(2).

Xu, J., & Wang, B. (2018). Intellectual capital, financial performance and companies' sustainable growth: Evidence from the Korean manufacturing industry. *Sustainability*, 10(12), 4651.

ISSN: 2455-8834

Volume:11, Issue:08 "August 2026"

Xu, X. L., Li, J., Wu, D., & Zhang, X. (2021). The intellectual capital efficiency and corporate sustainable growth nexus. *Environment, Development and Sustainability*, 23(11), 16038–16056.

Yustyarani, W., & Yuliana, I. (2020). Influence of Intellectual Capital, Income Diversification on Firm Value of Companies with Profitability Mediation. *Jurnal Dinamika Akuntansi*, 12(1), 77–8

