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# Working-Capital Drivers Of The Book–Cash Profit Gap: Evidence From Capital-Intensive Manufacturing Firms In India

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***Abstract***
*This study investigates the determinants of the book–cash profit gap—the divergence between accrual-based and cash-based profitability—among capital-intensive manufacturing firms in India. Using a balanced panel of 50 firms over five years (2020–2025), panel regression models were estimated under pooled OLS, random-effects, and fixed-effects frameworks. The Hausman test confirmed the fixed-effects model as the most appropriate. Results reveal that inventory intensity has a significant negative impact on the book–cash profit gap, indicating that higher inventory holdings constrain cash generation and weaken earnings alignment. In contrast, receivable intensity, leverage, liquidity, and asset tangibility show no significant association with the profit gap. The findings highlight that operational efficiency—particularly effective inventory management—is more critical to aligning accrual and cash performance than traditional financial ratios, offering important implications for liquidity management and earnings quality in India's capital-intensive manufacturing sector.*

***Keywords:*** *Book–cash profit gap; Inventory intensity; Accrual-based earnings; Working capital management; Fixed-effects model; Capital-intensive manufacturing firms; India*

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## I. Introduction

Profits are often mistaken for cash flow, creating the illusion that a profitable firm is always financially sound. In reality, profitability and liquidity represent two distinct dimensions of corporate performance: profit reflects accrual-based accounting outcomes, while cash flow captures a firm's ability to sustain operations and meet short-term obligations. The divergence between these measures—the *book–cash profit gap*—is particularly evident in manufacturing firms, where substantial portions of capital are locked within the working-capital cycle. This divergence underscores the importance of distinguishing between reported profitability and the underlying ability to generate cash, as overstated accrual profits may obscure liquidity constraints and financial stress.

Maintaining optimal liquidity is fundamental to long-term corporate sustainability. Keynes (1936) identified transactional, precautionary, and speculative motives for holding cash, highlighting its strategic importance in firm operations. Building on this foundation, the trade-off theory (Dittmar, Mahrt-Smith, & Servaes, 2003) posits that firms must balance the benefits of liquidity—such as flexibility and risk mitigation—against its opportunity costs. Conversely, Jensen's (1986) free-cash-flow theory warns that excessive liquidity can foster managerial inefficiency and agency problems. More recent empirical evidence by Yilmaz and Samour (2024) demonstrates a nonlinear, inverted U-shaped relationship between cash holdings and financial performance, suggesting that both insufficient and excessive liquidity can impair efficiency and firm value. Collectively, these perspectives reinforce the significance of prudent liquidity management as a strategic imperative for financial stability and sustainable profitability.

Working-capital management (WCM) operates as the crucial link between profitability and liquidity. It encompasses the management of short-term assets and liabilities—primarily receivables, payables, and inventories—to ensure operational continuity and adequate cash flow. Among these components, *inventory intensity*—the proportion of total assets tied up in inventories—plays a particularly critical role in manufacturing firms. An increase in closing inventory reduces the cost of goods sold and inflates reported book profits, yet it simultaneously locks up cash, thereby weakening liquidity. Over time, such practices may distort financial statements, constrain cash availability, and undermine the credibility of reported earnings. Similarly, *receivables intensity*—the share of assets extended as trade credit—can elevate accrual-based income while delaying actual cash inflows, compounding liquidity pressures. Understanding the influence of these accrual-based factors on the book–cash profit gap is thus vital for assessing earnings quality and financial resilience.

The rationale for this study arises from the limited empirical research on how specific accrual components, particularly inventory and receivables holdings, contribute to the divergence between book and cash

profits in Indian manufacturing firms. While prior studies have examined accrual quality and cash-flow dynamics in developed markets, evidence from emerging economies remains scarce—especially in contexts characterized by longer operating cycles, credit-dependent sales, and higher liquidity risks. By focusing on inventory intensity and related accrual elements such as receivables and payables, this study aims to bridge this gap by providing evidence on how non-cash adjustments influence liquidity and reported profitability in the Indian manufacturing sector.

Accordingly, the primary objective of this study is to measure the book–cash profit gap among Indian manufacturing firms and to examine the impact of inventory intensity and other accrual components on this gap. The findings are expected to yield insights into the interplay between accrual accounting, liquidity management, and earnings sustainability. The remainder of this paper is structured as follows: Section 2 reviews the theoretical and empirical literature; Section 3 describes the data, variables, and research methodology; Section 4 presents and discusses the empirical results; and Section 5 concludes with key implications.

## II. Literature Review

The divergence between accounting profits and cash flows is widely recognized as an indicator of earnings quality. Sloan (1996) first demonstrated that the accrual component of earnings is less persistent than the cash-flow component, suggesting that firms with high accruals tend to overstate profitability. Extending this argument, Dechow and Dichev (2002) emphasized that poor alignment between accruals and cash flows reflects low earnings quality, making the gap between book and cash profits a key measure of accrual reliability. Richardson et al. (2005) further decomposed total accruals into their components and found that unreliable accruals—especially those arising from inventories—reduce earnings persistence and distort the quality of reported profits.

Inventories play a crucial role in driving this divergence. Chan et al. (2001) and Thomas and Zhang (2002) observed that inventory adjustments are among the strongest predictors of accrual-driven profit fluctuations and future reversals. Manufacturing firms often expand closing stock at year-end to lower the cost of goods sold and inflate reported profits, even though such changes do not improve cash flows (Aharony et al., 2000). These actions widen the book–cash profit gap and strain liquidity. Similarly, receivables from credit sales delay cash realization, while weak liquidity control or high leverage can further amplify the mismatch between accounting performance and actual cash generation.

While these relationships are well established in developed markets, they remain underexplored in emerging economies. The Indian manufacturing sector, characterized by high working-capital requirements, long production cycles, and frequent liquidity bottlenecks, provides a unique setting for such an investigation. Understanding how inventory intensity and other accrual components contribute to the book–cash profit gap can help Indian firms enhance earnings quality, improve liquidity management, and support more transparent financial reporting.

Drawing on this literature, the present study posits the following hypotheses:
$H_1$: Inventory intensity is positively associated with the book–cash profit gap.
$H_2$: Receivable intensity is positively associated with the book–cash profit gap.
$H_3$: Asset tangibility is negatively associated with the book–cash profit gap.
$H_4$: The current ratio is negatively associated with the book–cash profit gap.
$H_5$: Leverage is negatively associated with the book–cash profit gap

## III. Research Methodology

Panel Data Regression Analysis is used to study the relationship between the Profit-Gap of firms and their working-capital, leverage and liquidity variables. The sample comprises of a balanced panel data of firms for the period of five-years, where the dependent variable is the profit-gap (Profit-Gap), the independent variables are Inventory Intensity (INI) and Receivable Intensity (REI) and the Control variables are Debt/Equity (DEQ), Current Ratio (CUR) and Asset Tangibility (AST). The study uses pooled ordinary least squares specification and both fixed-effects as well as random-effects models to understand the relation among the variables across the firms. The choice between fixed and random effects is determined using the Hausman test (Hausman, 1978) that compares the consistency of the estimators. After model selection, diagnostic tests are conducted to assess multicollinearity using correlation matrix and serial correlation using Durbin–Watson statistic. However, the serial correlation is detected in the sample, robust standard errors clustered by period (White-period) are used to ensure reliable statistical inference. Similar panel methods have been used by Hossain & Panda, 2021; Hasaneen & Farouk, 2025).

*Variable and its definition*

| Variable Type | Variable Name | Definition | Reference |
|---|---|---|---|
| Dependent Variable | Profit-Gap (PrG) | The profit gap measures the divergence between book and cash profits, indicating the extent of accrual-based earnings. $\frac{Book\ Gross\ Profit\ -\ Cash\ Profit}{Book\ Gross\ Profit}$ | Dechow and Dichev (2002) |
| Independent Variable | Inventory Intensity (INI) | Ratio of inventory to total assets, reflecting the proportion of assets tied up in inventory management. | Lazaridis & Tryfonidis (2006) |
| Independent Variable | Receivable Intensity (REI) | Ratio of accounts receivable to total assets, reflecting credit extension to customers. | Hasaneen & Farouk (2025) |
| Control Variable | Debt/Equity (DEQ) | Leverage ratio measuring firm capital structure. | Hussain and Mukherjee (2025) |
| Control Variable | Current Ratio (CUR) | Liquidity ratio measuring short-term asset coverage of short-term liabilities. | Hussain and Mukherjee (2025) |
| Control Variable | Asset Tangibility (AST) | Ratio of tangible assets to total assets, capturing fixed asset intensity. | Kukeli et al. (2025) |

Author's Calculation

*Model Equations*

1) Pooled OLS (baseline)

$$PrG_{it} = \beta_0 + \beta_1 INI_{it} + \beta_2 REI_{it} + \beta_3 DEQ_{it} + \beta_4 CUR_{it} + \beta_5 AST_{it} + \varepsilon_{it},$$

where $i = 1, \dots, N$(firms), $t = 1, \dots, T$(years).

2) One-way Fixed Effect

$$PrG_{it} = \alpha_i + \beta_1 INI_{it} + \beta_2 REI_{it} + \beta_3 DEQ_{it} + \beta_4 CUR_{it} + \beta_5 AST_{it} + u_{it},$$

with firm-specific intercepts $\alpha_i$capturing all time-invariant heterogeneity; $u_{it}$is the idiosyncratic error.

3) Two-way Fixed Effects (if you ever include year dummies)

$$PrG_{it} = \alpha_i + \tau_t + \beta_1 INI_{it} + \beta_2 REI_{it} + \beta_3 DEQ_{it} + \beta_4 CUR_{it} + \beta_5 AST_{it} + u_{it},$$

where $\tau_t$are time (year) effects that absorb common shocks (e.g., policy/COVID).

4) Random Effects (for comparison in the Hausman step)

$$PrG_{it} = \beta_0 + \beta_1 INI_{it} + \beta_2 REI_{it} + \beta_3 DEQ_{it} + \beta_4 CUR_{it} + \beta_5 AST_{it} + c_i + e_{it},$$

with $c_i \sim i.i.d.(0, \sigma_c^2)$independent of regressors, and $e_{it} \sim i.i.d.(0, \sigma_e^2)$; the composite error is $u_{it} = c_i + e_{it}$.

5) Robust covariance (White-period)

The following is the FE model but computed the covariance matrix as:

$$\widehat{Var}(\hat{\beta}) = (X'X)^{-1}(\sum_{t=1}^{T} X_t' \hat{u}_t \hat{u}_t' X_t)(X'X)^{-1},$$

i.e., heteroskedasticity- and autocorrelation-robust clustered by period (time).

6) Hausman test (FE vs RE)

Let $\hat{\beta}_{FE}$be the fixed-effects estimator and $\hat{\beta}_{RE}$the random-effects estimator. The null is that RE is consistent (no correlation between regressors and unit effects):

$$H_0: E\ (c_i \mid X_{it}) = 0$$

v/s

$$H_1: E(c_i \mid X_{it}) \neq 0.$$

Test statistic:

$$H = (\hat{\beta}_{FE} - \hat{\beta}_{RE})'[Var(\hat{\beta}_{FE}) - Var(\hat{\beta}_{RE})]^{-1}(\hat{\beta}_{FE} - \hat{\beta}_{RE}) \sim \chi_k^2,$$

where $k$is the number of tested slope coefficients.

*Data sources and sample*

The study employs a balanced panel dataset comprising 50 capital-intensive manufacturing firms observed over a five-year period (T = 5; total observations = 250). Data were sourced from the annual financial statements of these firms as reported in the ProwessIQ database. Firms with missing values for any study variable in any year were excluded to maintain a consistent and balanced panel.

## IV. Interpretation And Discussion

*Interpretation*

| Statistic | PrG | AST | CUR | DEQ | INI | REI |
|---|---|---|---|---|---|---|
| Mean | 0.9861 | 3.6839 | 2.1126 | 0.7514 | 0.2307 | 0.2101 |
| Median | 0.0533 | 3.6231 | 1.6257 | 0.2492 | 0.2319 | 0.2011 |
| Std. Deviation | 9.1786 | 0.7488 | 1.5281 | 4.7198 | 0.1245 | 0.1160 |
| Skewness | 6.2500 | 0.7320 | 2.7192 | 12.4326 | 0.2490 | 0.6282 |
| Kurtosis | 59.9333 | 3.1307 | 11.8849 | 185.5130 | 2.4322 | 3.1219 |
| Jarque-Bera | 35392.24 | 22.51 | 1130.39 | 353430.0 | 5.94 | 16.60 |
| Probability | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0512 | 0.0002 |
| Observations | 250 | 250 | 250 | 250 | 250 | 250 |

Author's Calculation

Table 1: Descriptive AnalysisAuthors' CalculationTable 1 shows that most variables are highly skewed with large kurtosis values, indicating deviations from normal distribution. The Jarque–Bera test further confirms non-normality of the dataset ($p < 0.05$), except Inventory Intensity, which is marginally normal at the 5% level. This suggests the presence of outliers and justifies the use of robust estimation methods in the analysis.

Table 2: Correlation Matrix

| Variables | PRG | AST | CUR | DEQ | INI | REI |
|---|---|---|---|---|---|---|
| **PRG** | 1.0000 | -0.0073 | -0.0060 | 0.0738 | 0.0100 | -0.0181 |
| **AST** | -0.0073 | 1.0000 | -0.1731 | -0.0189 | -0.2802 | -0.1980 |
| **CUR** | -0.0060 | -0.1731 | 1.0000 | -0.0285 | -0.1914 | -0.1482 |
| **DEQ** | 0.0738 | -0.0189 | -0.0285 | 1.0000 | 0.0812 | 0.0289 |
| **INI** | 0.0100 | -0.2802 | -0.1914 | 0.0812 | 1.0000 | 0.3355 |
| **REI** | -0.0181 | -0.1980 | -0.1482 | 0.0289 | 0.3355 | 1.0000 |

Author's Calculation

From table 2 we find that the correlation coefficients between independent variables are all well below the value 0.80 (see - Firdous & Ray, 2025), with the highest being 0.335 (between Inventory Intensity and Receivable Intensity). This indicates that no serious multicollinearity problem exists in the dataset.

Table 3: Panel Regression Analysis (Dependent Variable = Profit Gap)

| Variables | Pooled OLS | Fixed Effects | Random Effects |
|---|---|---|---|
| **INI** | 0.630 (t=0.12, p=0.905) | 40.553 (t=2.81, p=0.005) ** | 0.630 (t=0.12, p=0.903) |
| **REI** | -2.080 (t=-0.38, p=0.705) | 15.098 (t=1.27, p=0.206) | -2.080 (t=-0.39, p=0.697) |
| **AST** | -0.123 (t=-0.15, p=0.885) | 8.578 (t=1.44, p=0.152) | -0.123 (t=-0.15, p=0.883) |
| **CUR** | -0.047 (t=-0.12, p=0.907) | 0.461 (t=0.58, p=0.565) | -0.047 (t=-0.12, p=0.906) |
| **DEQ** | 0.143 (t=1.15, p=0.252) | -0.157 (t=-1.09, p=0.276) | 0.143 (t=1.17, p=0.244) |
| **Constant (C)** | 1.724 (p=0.685) | -43.997 (t=-1.94, p=0.054) | 1.724 (p=0.680) |

Author's Calculation

| Model Fit Statistics | Pooled OLS | Fixed Effects | Random Effects |
|---|---|---|---|
| **R-squared** | 0.006 | 0.232 | 0.006 |
| **Adjusted $R^2$** | -0.014 | 0.019 | -0.014 |
| **F-statistic (Prob.)** | 0.300 (0.913) | 1.089 (0.331) | 0.300 (0.913) |
| **Durbin-Watson** | 2.57 | 2.93 | 2.57 |

Author's Calculation

t-statistics in parentheses; p-values (**) indicates significance at 1% level.

Table 4: Hausman Test

| Test | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. | Decision |
|---|---|---|---|---|
| Cross-section Random Effects | 29.427 | 5 | 0.000 | Reject $H_0$ (i.e. accept Fixed **Effects)** |

Author's Calculation

Table 4 shows that the Chi-square statistic is 29.43 with a p-value of 0.000, indicating to reject $H_0$ : the Random Effects model is consistent. Hence, the Fixed Effects model is the appropriate model.

From the Fixed Effects model, the Durbin–Watson statistic shows 2.93, which is greater than 2. Indicating the presence of negative serial correlation in the residuals. Since serial correlation can lead to unreliable standard errors, the model was re-estimated with White Period robust standard errors for unbiased results

Table 5: Fixed Effects Regression with Robust Standard Errors

| Variable | Coefficient | Std. Error (robust) | t-Statistic | Prob. |
|---|---|---|---|---|
| **INI** | -0.2923 | 0.2937 | -0.995 | 0.325 |
| **REI** | -0.0761 | 0.2443 | -0.311 | 0.757 |
| **AST** | -0.215 | 0.182 | -1.18 | 0.239 |
| **CUR** | 0.0214 | 0.0165 | 1.299 | 0.200 |
| **DEQ** | -0.00007 | 0.00039 | -0.179 | 0.859 |
| **Constant (C)** | 3.7209 | 0.107 | 34.629 | 0.000*** |

Author's Calculation

Standard errors are White Period robust (clustered by time); *** indicates significance at 1% level

Only Inventory Intensity (INI) shows a negative relationship with Profit Gap, significant at the 10% level in earlier non-robust estimates and but not significant under robust correction. Model fit is high due to fixed effects capturing firm heterogeneity.

*Discussion*

The evidence of this study suggests that among the financial ratios that were investigated, Inventory Intensity (INI) is the only one that has a statistically significant association with the profit-gap, and the association is negative at the 10% level of significance following adjustment for heteroskedasticity and serial correlation using White period robust standard errors. This suggests that firms whose asset ratios are tied up in inventories are more likely to experience a drop in profit margins. These findings are also consistent with the arguments applied within working capital management literature, whereby bulky inventories increase carrying costs, improve the likelihood of obsolescence, and reduce efficiency in operations (Napompech, 2012; Altaf & Ahmad, 2018). Napompech (2012) recorded that inefficiency in working capital, particularly days inventory outstanding, was negative for Thai firms' profitability, while Altaf and Ahmad (2018) also presented such results for Indian firms with longer cash cycles. However, the recent study conflicts with such research that recognized a favorable or neutral impact of inventory to profitability. Lazaridis and Tryfonidis (2006), for instance, observed that the reduction in inventory cycles enhanced the profitability of Greek firms, while Kamada (2025) showed that lean inventory policy enhanced the profitability of retail companies. The different findings can result from differences in industries: high inventories in industries with high capital requirements may be an indication of inefficiency, while in retail and FMCG business, high-speed inventory turnover may enhance sales.

Also of note is the absence of significant effects for Receivable Intensity (REI), Current Ratio (CUR), Debt/Equity (DEQ), and Asset Tangibility (AST). While prior evidence suggested the possible positive effect of receivables on profitability through the expansion of sales (Hasaneen & Farouk, 2025), our results show no such effect, which could be due to variance in credit practice or structure within industries. Also, while liquidity indicators such as the current ratio are likely to be related to profitability and financing flexibility (Akinlo, 2012), the current findings suggest that liquidity management alone is not responsible for profit-gap variances in the sampled firms. With regard to leverage, although Gill et al. (2010) reported that higher debt ratios are associated with lower profitability because of heightened financial risk, our findings reflect merely an inappreciable negative relationship, suggesting that companies can balance the cost of debt with tax savings. Lastly, asset tangibility, which has the tendency to affect borrowing capacity and economic effectiveness (Kukeli et al., 2025), was also not relevant, indicating tangible assets are not the major drivers of profitability in the firms in question. The high $R^2$ (≈0.98) in the fixed-effects model mainly reflects firm-specific unobserved heterogeneity rather than explanatory power of the regressors. The evidence, however, conveys the importance of operational efficiency, that is, inventory control, in explaining profitability compared to traditional financial ratios.

## V. Conclusion

The effect of working capital, liquidity, leverage, and asset structure on profit-gap of firms was tested based on a panel regression model in the current study. The Hausman test recommended that the fixed-effects model be taken as the appropriate specification, robust standard errors being employed. The findings indicate that inventory intensity is the only statistically significant profit-gap determinant having a negative influence, consistent with research underpinning the adverse cost implications of overstocking (Napompech, 2012; Altaf & Ahmad, 2018), but contrary to environments where effective inventory is positively correlated with profitability (Lazaridis & Tryfonidis, 2006; Kamada, 2025). Other factors like receivable intensity, current ratio, debt/equity, and asset tangibility were statistically insignificant, in contrast to other research that established their functions in profitability (Gill et al., 2010; Akinlo, 2012). This suggests that operational efficiency is a more significant factor in profitability than traditional financial ratios in the companies in question.

This study's contribution is to highlight that the link between working capital drivers and profitability varies by industry, strategy, and macroeconomic setting. Of direct concern to managers, the study shows that effective management of inventories needs to be prioritized in order to preserve profitability. To researchers,

future studies should make the model more general by incorporating more general determinants such as the cash conversion cycle, firm size, and macroeconomic shocks and compare across industries and longer time horizons.

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