

Interrelationship between Working Fund Allocation, Investment Strategies and Dividend Decisions in Indian PSEs: An Analytical Study

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Abstract—This study fills critical research in understanding working capital management dynamics within Indian Public Sector Enterprises (PSEs), specifically examining the relationship between investment and dividend decisions. While existing literature recognizes the influence of cash flow on these financial choices, the direct impact of working capital allocation remains underexplored. Drawing on ten years of financial data from top-performing Maharatnas, this research employs descriptive statistics, correlation analysis, and multiple regressions to assess key financial metrics—including Capital Expenditure, Dividend per Share, and Net Working Capital. The findings indicate that while Total Assets and Net Income significantly shape dividend decisions, Net Working Capital has a limited role in influencing investment or dividend policies. Additionally, the study highlights the potential impact of high leverage ratios on investment strategies, underscoring the importance of prudent capital management. These insights provide valuable guidance for optimizing financial strategies in Indian PSEs, strengthening corporate governance, and promoting economic stability. The study concludes with recommendations for further research, advocating for more nuanced models to capture the complexities of working capital management and its broader implications for financial performance in the public sector.

Index Terms—Working Capital Management, Indian Public Sector Enterprises (Maharatna), Investment Decisions, Dividend Decisions, Working Capital Allocation, Capital Expenditure, Dividend per Share, Net Income.

I. INTRODUCTION

PSEs, or public sector enterprises, are vital to the Indian economy since they create jobs, build

infrastructure, and boost GDP as a whole. As government-owned entities, PSEs operate with the objective of serving the public interest. One of the key factors influencing the investment and dividend decisions of these enterprises is the availability and management of their working fund. The working fund acts as a financial backbone, enabling PSEs to make strategic investments and distribute dividends effectively. In this article, we will explore the role of the working fund in shaping investment and dividend decisions in India's public sector enterprises.

The working fund, also known as working capital, refers to the financial resources available to an organization to cover its day-to-day operations and short-term obligations. For PSEs, the working fund comprises cash, inventory, accounts receivable, and short-term investments. It serves as a buffer to meet operational expenses, manage production and sales cycles, and pursue growth opportunities. Investment decisions are critical for PSEs, as they determine the allocation of resources towards projects that generate long-term returns. The working fund plays a vital role in making the decisions like Financing Capital Expenditure: The working fund provides the necessary liquidity for PSEs to finance capital expenditure projects. Whether it's expanding infrastructure, upgrading technology, or acquiring new assets, PSEs can utilize their working capital to fund these investments. Maintaining an adequate working fund allows PSEs to mitigate risks associated with uncertainties in the business environment. It provides a cushion to absorb unexpected expenses, manage cash flow fluctuations, and avoid the need for external borrowing during challenging times. Dividend decisions are crucial for

PSEs as they impact the return to shareholders, including the government, and influence investor confidence. The working fund plays a significant role in shaping dividend decisions in the following ways like,

The working fund provides PSEs with the necessary liquidity to distribute dividends. It ensures that the enterprises have sufficient cash to meet their dividend obligations while retaining a portion for reinvestment and operational requirements. A robust working fund allows PSEs to maintain stable dividend payouts over time. This consistency enhances investor confidence, attracts new shareholders, and reflects positively on the enterprise's financial health. And by effectively managing their working fund, PSEs can strike a balance between dividend distribution and reinvestment in growth opportunities. This ensures that the enterprises continue to generate returns, sustain profitability, and remain competitive in their respective industries.

One of primary objectives of a firm is to maximize shareholders wealth, this means the financial manager needs to give optimize decision about maintaining of assets and liabilities level. And it is related to working capital management. In this paper, we look at the relation between working fund management and investment and dividend decisions in Indian public-sector enterprises from 2013 to 2022. Choices on investments are sometimes referred to as choices about capital budgeting. It is imperative to maximize the exploitation of a company's rare assets and resources. Selecting investment locations allows a company to maximize potential earnings. This choice has to do with the deliberate choice of assets in which the companies would invest their capital. Investments made by the company go toward buying current and fixed assets. Capital budgeting decisions are made when decisions are made on fixed assets. Enterprise cash flows, earnings, and a variety of investment criteria are the factors influencing investment decisions. An organization must first make a sizable initial cash investment when launching an enterprise. However, in order to cover regular, ongoing costs, the organization still hopes to receive some sort of income. To enable the venture, survive, there needs to be some consistent cash flow. Creating revenue and, additionally, profits is the fundamental requirement for beginning any business. The rate of return a venture will provide the

organization in the form of profit is the most important factor to consider when selecting a project. For example, if venture A yields a 10% return whereas venture B yields a 15% return, then project B should be chosen. Businesses can evaluate various investment proposals using a variety of Capital Budgeting methodologies at their disposal. Primarily, these are predicated on computations concerning the sum of money invested, interest rates, cash flows, and rate of return linked to proposals. To determine which investment idea is the best, these processes are used to the submissions. The allocation of the organization's profits is the subject of dividend decisions. The two main options are to divide the earnings profit to the shareholders or keep it for themselves. The historical and current income is used to pay investors' returns. As such, earning is a significant factor in determining the dividend. A firm with steadier and bigger profitability might declare a larger dividend than one with less revenue. Organizations generally try to distribute dividends per share in an equitable manner. Every year, a steady dividend is paid out. If the organization's prospective revenue growth exceeds its current revenue, a change is implemented. Businesses that hold enough cash from their income to cover their necessary investment may have excellent development opportunities. Compared to corporations that are not in development, rising organizations announce a lesser dividend. As decisions about dividends are linked to decisions about investments and financing for a company, their impact on the firm's value is the most hotly contested topic in the finance community (Nasin & Hasan, 2018). Some more factors are similar to A financial outflow is cash flow, or dividends. The company needs consistent cash flow to fund its dividend payments. Without it, it would be impossible to pay them. Investor Choices: The administration must keep the investor choices in mind when declaring dividend payments. Certain stockholders require dividend payments to be made in an amount greater than zero. Such investors have preferences that the organizations should take into account. Comparing the dividend tax rate to the capital gain tax rate that applies to a rise in the share market price will help you with taxation. Conversely, shareholders will favor higher payouts if the dividend tax rate is lower. the stock market, the stock market is generally

impacted positively by dividend growth; however, it may be adversely affected by a reduction in dividends or by no increase at all. Thus, it is important to keep this in mind when choosing dividends. Large and reputable companies typically have easy access to the capital market, which means they may rely less on retained revenues to fund their expansion. Compared to smaller firms, these ones typically offer bigger dividends. Contractual and Legal Restraints: Occasionally, while extending loan to an organization, the lending party may impose terms and restrictions on the dividend repayment in the future. The organizations must ensure that the profit payout does not in any way violate the terms of the loan agreement. Certain provisions of the Companies Act restrict what can be paid out as profit. When announcing dividends, these arrangements must be adhered to. Individual shipping companies may make poor investment choices, which can lead to unstable freight prices and market imbalances that impair the shipping industry's welfare and performance (Fan & Luo, 2013). Companies may choose to invest the extra cash flow, keep it as a safety net, free financial flow distributed as dividends, or Use it for debt repayment or equity financing. According to (Chang, Dasgupta, Wong, & Yao, 2014), how businesses employ internally produced capital may have an impact on how quickly they recover from a recession and increase their profitability. The amount of cash flow over the minimal required to fund all projects with a net positive present value is known as free cash flow (Jensen, 1986). The free cash free hypothesis states that because of the conflict of interest between stakeholders and management, businesses with free cash flows typically have higher agency costs (Zhang, Cao, Dickinson, & Kutan, 2016). (Baker & Kapoor, 2015) Found that the important determinants are earnings and patterns of the past dividend's payouts for a new dividend decision.

Despite weak investment possibilities are shown by a negative net present value, where firm managers are incentivized to invest rather than distribute dividends. Because capital providers bear greater risk as a result of the uncertainty, firms with unpredictable cash flow find it more difficult to get external financing and have raised project capital expenditures for investments (Drobetz, Haller, & Meier, 2016). This puts businesses under additional financial pressure

and forces them to rely on internally produced cash flow, which has an impact on investments and dividends (Chaya & Suh, 2009); (Minton & Schrand, 1999). While empirical research on the shipping sector is comparatively less researched, the FCF problem has been seen in various industries (Drobetz, Haller, & Meier, 2016), (Fan & Luo, 2013) (Drobetz, Gounopoulos, Merikas, & Schroeder, 2013). (Trisanti, 2018) Showed that significantly relation between dividend payout and sales, debt financing and to profitability.

II. REVIEW OF LITERATURES

Here's a brief literature review on making investment and dividend decisions in public sector enterprises in India, as well as relevant studies on similar topics in other companies:

Role of Working Capital Management is critical for ensuring that firms can meet their short-term obligations and operate efficiently. According to (Charitou & Vafeas, 1998), there is a significant empirical relationship between operating cash flows and dividend changes, indicating that earnings, a component of operating cash flow, are highly related to dividend payouts. In a study (Ganesan & Saravanakumar, 2018) Analyzed the performance of working capital in selected Indian cement companies, highlighting its impact on growth. (Oladipupo & Ibadin, 2013) examined the connection between working capital management and payout ratios, concluding that while working capital management strategies impact dividend payouts, they have a minimal effect on overall dividend policy decisions.

Investment Decisions in PSEs, also known as capital budgeting decisions, involve the allocation of resources to projects expected to generate long-term returns. In a study (Baker & Wuglor, 2005) analyzed the investment decisions of publicly traded U.S. companies and found that factors such as cash flow, profitability, and growth opportunities significantly influence these decisions. Tamsila et al. (2018) noted the positive impact of company cash flow on investment levels, suggesting that liquidity access plays a crucial role in investment decisions. (Yeo, 2018) Explored the shipping industry and found that free cash flow influences both investment and dividend decisions, with higher cash flow leading to

increased investments and reduced dividend payments.

In PSEs *Dividend policy decisions* are crucial as they determine the distribution of profits to shareholders. (Nasin & Hasan, 2018) Found a dividend policy's beneficial impact on figuring out working capital needs. (Trisanti, 2018) Studied Indonesian manufacturing firms and concluded that profitability, sales, and asset growth positively influence dividend payouts, while debt has a negative effect.

The (Modigliani & Miller, 1958) theorem posits that investment decisions are driven by free cash flow and in the absence of sufficient cash flow investments are financed through debt or equity. (Jensen, 1986) Discussed the agency problem where managers might prioritize personal gains over shareholder value, leading to potential overinvestment in projects with negative net present value. (Ang, Cole, & Lin, 2000) Highlighted managers could use free cash flow to increase their control over a firm's assets, potentially reducing dividend distributions.

Empirical studies have shown varying impacts of cash flow on investment and dividend decisions. (Gilchrist & Himmelberg, 1995) Found that firms with limited access to capital markets exhibit sensitivity in their capital investments to cash flow fluctuations. Chang et al. (2014) showed that businesses with limited resources devote a larger portion of their extra cash flow to cash reserves, while larger firms tend to increase investments. Deng et al. (2013) identified a nonlinear relationship between investment and dividend decisions under varying levels of cash flow uncertainty. The cost of capital is influenced by factors such as taxation, issuance expenses, and agency disputes related to debt and equity (Lewellen & Lewellen, 2016). A company may decide to invest more when cash flow is strong since internal funds are typically less expensive than external funds, which could encourage management to use internal funds excessively when they are less expensive. While cash is the sole asset that managers can utilize at will, a company's worth also includes other assets like real estate, machinery, brand, and cash. Nevertheless, not all currency is available for use; the amount that is known as the operating money. In contrast to ineffective asset use, which lowers company value, effective asset utilization and investment lead to a rise in firm value. It is important to remember that

managers may gain more from a company's expansion than investors (Brush, Bromiley, & Hendrickx, 2000). Managers are prompted by free cash flow to spend available capital on projects that might or might not increase the company's worth. Agency theory suggests that top managers might prioritize personal gain over maximizing value for shareholders by making decisions that involve investing in projects with negative net present value using internal Free Cash Flow (Jensen, 1986). The presence of debt can decrease free cash flow as a result of paying interest. The relationship between investment and debt maturity is influenced by changes in the availability of investment options. The ideal leverage ratio is often countercyclical, but when potential volatility for expansion is higher, the gap in leverage ratios between enterprises gets wider (Jeon & Nichihara, 2015). In the context of the agency issue, the obligation to service debt helps deter managers from over investing for personal gain, as they are committed to making interest payments (Jensen, 1986). (Flannery, 1986) Illustrates that debt can indicate a manager's willingness to utilize cash flow or be subject to monitoring by lenders. When investment projects' worth surpasses finances produced domestically, enterprises may need to seek external funding. It is probable that less successful businesses will encounter challenges in funding fresh initiatives in investing. However, debt on its own may result in agency expenses. For financially constrained firms, raising external finance can be costly. In such cases, these firms may rely heavily on internal money matters. (Gilchrist & Himmelberg, 1995) Discover that businesses with little or no access to financing markets on internal finance exhibit sensitivity in their capital investments to fluctuations in cash flows. (Chang, Dasgupta, Wong, & Yao, 2014) Categorize financially strapped company based on their size, with smaller firms being more financially constrained. They find that financially constrained firms allocate more of their extra cash flow towards fund holdings compared with less constrained firms. On the other hand, larger firms allocate more of their extra cash flow towards investment. The authors contend that whereas organizations with less constraint typically overinvest, those with greater cash flow typically make more investments. Increased sales had a ripple effect on upper management, who are incentivized to

promote and retain skilled staff in addition to the potential for purchasing new vehicles and equipment (Kaplan & Norton, 1996). Lastly, corporate dividend policy is designed to provide investors with insights into a company's earnings prospects, as highlighted by (Brook, Charton, & Hendershott, 1988). The evaluation of dividend policy involves analyzing changes in cash flow. However, businesses must rely more on internally generated cash flow in an imperfect capital market because they cannot get limitless money for both investments and payouts. Once such money when cash flow is unpredictable, businesses must choose whether to reduce investments, dividends, cash reserves or outside funding (Deng, Li, Liao, & Wu, 2013). The underlying premise of the majority of earlier studies is that dividends are less significant than other considerations when making investment decisions. Nonetheless, research indicates that businesses prioritize dividend decisions over investment decisions (Lintner, 1956) or handle both at the same time (Brav, Graham, Harvey, & Michaely, 2005). Preserving dividends holds equal significance to investing and managers are hesitant to cut them (Brav, Graham, Harvey, & Michaely, 2005). Contrary to the empirical findings of earlier research, here decisions about investments and dividends are connected, and dividends are now paramount. It is shown that investments and dividends are interdependent by (Dhrymes & Kurz, 1967). (Baker & Kapoor, 2015) Surveyed the NSE listed 500 companies India about factors influencing dividend payout decisions and repurchasing share and found that the important determinants are earnings and patterns of the past dividend's payouts to new dividend decision. (Benarjee & Rangamani, 2016) Studied dividend policy of public sector bank with compare to dividend policy of private sector banks in India and this study showed that public and private sector both banks are significantly same in dividend payout ratio.

III. RESEARCH GAP

Despite extensive research, there are gaps in understanding the specific dynamics of working capital management in Indian PSEs. While studies have explored the general impact of cash flow on investment and dividend decisions, there is a need for

more focused research on how these decisions are interrelated within the unique context of Indian PSEs. Furthermore, the implications of maintaining a robust working capital on the financial stability and growth of these enterprises warrant deeper investigation. The literature review highlights the critical role of working capital management in influencing investment and dividend decisions in public sector enterprises. By examining various theoretical perspectives and empirical studies, it underscores the importance of efficient working capital management in supporting strategic growth and financial stability. The identified gaps and inconsistencies in the existing literature set the stage for further research into optimizing working capital to enhance the performance and economic contribution of Indian PSEs.

There is a lack of focused research on how working capital management specifically impacts Indian PSEs, despite the general understanding of its importance in overall business operations. While there are studies on the general impact of cash flow on investment and dividend decisions, there is limited research on how these decisions are interrelated within the unique context of Indian PSEs. The literature does not sufficiently explore the implications of maintaining a robust working capital for the financial stability and long-term growth of Indian PSEs. There is a need for deeper investigation into how agency problems, such as managers prioritizing personal gains over shareholder value, specifically affect investment and dividend decisions in Indian PSEs. The existing studies suggest nonlinear relationships between investment and dividend decisions under varying degrees of cash flow uncertainty, but further research is needed to understand these dynamics in the context of Indian PSEs.

IV. OBJECTIVE

This study is an attempt to show how the working fund components influence the investment and dividend decisions and vice versa with interrelation among them in the public sector enterprises in India. Based on the identified research gaps, the following research objective is formulated and selected:

To investigate the impact of working fund allocation on relationship between decisions about investments,

dividends in Indian public sector enterprises (PSEs).

V. HYPOTHESIS

Based on the research objective, hypotheses formulated as under showed:

H₀: The allocation of working funds significantly not influences the interrelationship between investment and dividend decisions in Indian public sector enterprises (PSEs).

H₁: The allocation of working funds significantly influences the interrelationship between investment and dividend decisions in Indian public sector enterprises (PSEs).

VI. MATERIALS & METHODS

The Study based on secondary data collection. Data source is considered for 10(Ten) years (from 2012-13 to 2021-22) from the financial statements and annual reports of Indian Maharatnas (PSEs), which are the top-performing Public Sector Enterprises, databases such as official websites of Maharatnas, Government publications such as Public Enterprises Annual Survey Reports published by Ministry of finance, Dept. of Public Enterprises. In this study following variables are selected and used: To analyze the data, Statistical software's like R and Python is used. Data are analyzed to understand the internal relationship between decisions on investment and dividend and the allocation of working funds in Indian public sector enterprises (PSEs).

For analyzing the data, the following research design is formulated: Descriptive statistics and Correlation Study is done to describe the characteristics of the variables and to investigate the relationships between them. Quantitative Analysis is done to statistically analyze the numerical data collected from financial statements and other sources. Pearson or Spearman correlation is used to assess the relationship strength and orientation between investment decisions, dividend decisions, and working fund allocation.

To determine the impact of working fund allocation on investment and dividend decisions this study will use multiple regressions.

VII. FINDINGS & DISCUSSIONS

The table.1 presents statistical measures of several financial metrics for different Decision-Making Units (DMUs) such as NTPC, ONGC, SAIL, CIL, GAIL, BHEL, IOCL, BPCL, HPCL, and PGCIL. The metrics include Dividend Per Share (DPS), Earnings Per Share (EPS), Dividend Payout Ratio (DPR), Dividend Yield Ratio (DYR), Current Ratio (CR), Liquid Ratio (LR), Actual Liquid Ratio (ALR), Cash Current Asset Ratio (CCAR), Debt Ratio (DR), Equity Multiplier (EqM), Interest Coverage Ratio (ICR), Debt to Equity Ratio (DER), Net Profit Margin (NPM), and Return on Assets (ROA). The statistical measures used are Mean, Median, Mode, Standard Deviation (SD), Range, and Coefficient of Variation (CV). Here is the interpretation of the data: as key observations of consistency in NTPC that the CVs for most metrics are relatively low, indicating stability in financial performance. Mean of DPS is 4.54, and EPS is 12.46, with a moderate DPR of 0.36. In ONGC it has a high mean EPS of 18.21 and a substantial equity multiplier of 77.29, suggesting significant leverage and DPR is stable at 0.39. In SAIL, high CV for metrics like DPS (1.49) and EPS (2.14), indicating variability in earnings and dividends and mean of dividend payout (DPR) is relatively low at 0.17. In CIL the mean DPR is 0.9, which is the highest among all DMUs and Substantial Leverage with high equity multiplier (10.49) and a significant ICR (117). In GAIL, showing moderate performance in terms of EPS (8.43) and DPS (2.83) with a mean DPR of 0.34 and the low DR (0.25) indicates better asset utilization. In BHEL shows low earnings and profitability with low mean EPS (2.45) and RONW (2.83) and high volatility with high CV in earnings and dividends. In IOCL shows negative mean of DPR, which indicates that IOCL has periods of not paying dividends. And moderate leverage the equity multiplier is 61.87, and DR is 0.37. In BPCL shows high dividend and earnings with high mean DPS (9.43) and EPS (17.31). High SD and CV indicate significant fluctuations in performance. In HPCL shows high leverage by equity multiplier is 133.9, indicating heavy use of debt and reasonable dividend: Mean DPS of 7.83 with a DPR of 0.41. In PGCIL, lower CVs in most metrics indicate stability and moderate dividend and earnings with mean of DPS is 3.89, and EPS is 9.25.

Current Ratio (CR), Liquid Ratio (LR), and Absolute Liquid Ratio (ALR) reflect the capacity of the

company to fulfill its immediate responsibilities. Generally high ratio numbers signify strong liquidity, which can support investment decisions and consistent dividend payments. The leverage ratios (DR and Eq M) impact investment decisions, as higher leverage can amplify returns but also increase risk. Companies like ONGC and HPCL show high leverage, which may affect their investment and dividend policies. A higher interest coverage ratio (ICR) indicates better ability to meet interest obligations, supporting both investment capacity and the ability to pay dividends. CIL shows a very high ICR, suggesting strong financial health in terms of debt servicing.

The table provides a comprehensive overview of the financial health and performance of each DMU. Companies with higher stability in earnings and efficient working capital management are better positioned to make sound investment decisions and maintain consistent dividend policies. High leverage can amplify returns but also increases risk, which needs careful management. Working capital metrics like CR, LR, ALR, and CCAR are crucial in understanding the liquidity and operational efficiency of these companies, affecting their overall financial strategies.

A multiple regression analysis is formed to understand the interrelationship between investment (e.g., Capital Expenditure) and dividend decisions (e.g., Dividend per Share) and the impact of working funds allocation (e.g., Net Working Capital) on both decisions: Where the Dependent Variables like the Capital Expenditure (Cap Exp.) for Investment Decision and the Dividend per Share (DPS) for Dividend Decision. And the Independent Variable for Working Funds Allocation is Net Working Capital (NWC) and the other potentially relevant variables are Total Assets (TA), Net Income (NI), Total Revenue (TR), etc. Conducting separate regression analyses for each dependent variable (Cap Exp. and DPS) using the chosen independent variables.

Here is the detailed regression model for the interrelation between investment decisions (Cap Exp.) and dividend decisions (DPS):

Findings for Investment Decision model analysis in Table no.2: Model Summary: Prob (F-statistic): 0.119, F-statistic: 1.886, R-squared: 0.074, Adj. R-squared: 0.035, And Coefficients are Constant: -608,400 (p = 0.682), NWC: 0.5903 (p = 0.375), TA:

0.1496 (p = 0.036), NI: -0.0978 (p = 0.941), TR: -0.0571 (p = 0.348).

This model explains 7.4% of the variance in Capital Expenditure, which is relatively low. Total Assets (TA) is a significant predictor (p = 0.036), positively associated with Capital Expenditure. Net Working Capital (NWC), Net Income (NI), and Total Revenue (TR) are not significant predictors for Capital Expenditure in this model.

Findings of the Dividend decision model analysis in Table no.3: Model Summary: 0.421 R-squared, 0.397 Adj. R-squared probabilities (F-statistic): 1.13e-10, F-statistic: 17.26. And the Coefficients: Constant: 4.6527 (p = 0.000), NWC: -5.366e-07 (p = 0.211), TA: -2.31e-07 (p = 0.000), NI: 6.912e-06 (p = 0.000), TR: -2.897e-08 (p = 0.458).

The model analysis explains 42.1% of the variance in Dividend per Share, which indicates a moderate fit. Total Assets (TA) and Net Income (NI) are significant predictors (p = 0.000), with TA negatively and NI positively associated with Dividend per Share. Net Working Capital (NWC) and Total Revenue (TR) are not significant predictors for Dividend per Share in this model. In Conclusion, Total Assets (TA) plays a significant role in both investment and dividend decisions. Net Income (NI) significantly impacts dividend decisions but not investment decisions. Net Working Capital (NWC) and Total Revenue (TR) do not significantly impact either decision based on the current model.

Findings of the interrelation model analysis in Table no.4: Model Summary: 0.422 R-squared, 0.391 Adj. R-squared F-statistic = 13.72; probability (F-statistic) = 4.67e-10. The model indicates a moderate fit with an R-squared of 0.422, explaining 42.2% of the variance in Dividend Per Share (DPS).

Cap Exp. (Capital Expenditure): The coefficient is positive (2.724e-08), but not statistically significant (p = 0.682), indicating no significant direct relationship between investment decisions and dividend decisions in this model. NWC (Net Working Capital): The coefficient is negative (-5.527e-07), but not statistically significant (p = 0.201). TA (Total Assets): The coefficient is negative (-2.35e-07), and statistically significant (p = 0.000), suggesting that higher total assets are associated with lower DPS. NI (Net Income): The coefficient is positive (6.914e-06), and statistically significant (p = 0.000), indicating that higher net income is associated

with higher DPS. TR (Total Revenue): The coefficient is negative but not statistically significant ($p = 0.487$).

In Conclusion of interrelation analysis for Investment decision found the Total Assets (TA) significantly impact Capital Expenditure. And for Interrelation between Investment and Dividend Decisions, the Total Assets (TA) and Net Income (NI) significantly impact Dividend per Share (DPS). Capital Expenditure (Cap Exp.) does not have a significant direct impact on DPS in this model.

Performing another regression analysis to investigate the interrelationship between investment decisions (Cap Exp.), dividend decisions (DPS, DPR, DYR), and working fund allocation (NWC) in table no. 5 and showed: The regression analysis provided investigates the interrelationships between investment decisions (Cap Exp.), dividend decisions (DPS, DPR, DYR), and working fund allocation (NWC) in Indian public sector enterprises. Each variable's coefficients, standard errors, t-values, p-values, and confidence intervals are included in the results. With all other variables held constant, the coefficients show how the dependent variable changes when the predictor variable changes by one unit. Standard errors indicate an average distance that observed values fall from the regression line.

The p-values are used to ascertain the coefficients' statistical significance. The p-value less than 0.05 typically indicate that the coefficient is significantly different from zero. In this analysis, all p-values are greater than 0.36, suggesting that none of the coefficients are statistically significant at conventional levels. The 95% confidence intervals for the coefficients suggest a wide range of possible values, which includes zero in all cases. This further supports the lack of statistical significance.

None of the variables (Cap Exp., DPS, DPR, DYR, and NWC.) show a correlation that is 95% confident in being statistically significant with the dependent variable. This is indicated by high p-values and confidence intervals that include zero. The large standard errors and wide confidence intervals suggest a high level of uncertainty in the estimates. This could be due to variability in the data or insufficient sample size.

Hypothesis Testing on interrelationship: Conduct a correlation analysis as following to understand the interrelationship between investment decisions (Cap

Exp.), dividend decisions (DPS, DPR, DYR), and working fund allocation (NWC).

Correlation between Investment Decision (Cap Exp) and Dividend Decisions (DPS, DPR, DYR) in Table no 6: Very low correlation (0.0095), suggesting no significant relationship between capital expenditure and dividends per share. Negative correlation (-0.0584), indicating a weak inverse relationship as capital expenditure increases; the dividend payout ratio slightly decreases. Low positive correlation (0.0298), implying a negligible direct relationship. Correlation between Investment decision (Cap Exp) and Working fund allocation (NWC) showing low positive correlation (0.0508), indicating a slight direct relationship; higher capital expenditure might slightly increase net working capital.

Dividend Decisions (DPS DPR DYR) and the Correlation among dividend Metrics: DPS and DPR showing moderate positive correlation (0.3799), suggesting a moderate direct relationship; higher dividends per share are moderately associated with a higher dividend payout ratio. DPS and DYR showing very high correlation (0.8980), indicating a strong direct relationship; as dividends per share increase and the dividend yield ratio also increases significantly. DPR and DYR show moderate positive correlation (0.3312), suggesting a moderate direct relationship.

Correlation with Working Fund Allocation (NWC): DPS and NWC shows very low correlation (0.0363), suggesting no significant relationship. Correlation between DPR and NWC is a low positive correlation (0.2942), indicating a slight direct relationship; a higher dividend payout ratio might slightly increase net working capital. DYR and NWC shown Negative correlation (-0.0974), suggesting a weak inverse relationship higher dividend yield ratios might slightly decrease net working capital. Key insight Capital Expenditure (Cap Exp) has minimal to no significant correlation with dividend decisions and only a slight correlation with working fund allocation. Dividend Decisions are strongly interrelated, especially between DPS and DYR. Working capital allocation (NWC) shows very low to weak correlations with both investment and dividend decisions, indicating that it might be influenced by other factors not considered in this analysis.

VIII. CONCLUSION

Understanding the interrelationship between investment and dividend decisions can help managers of public sector enterprises (PSEs) optimize their financial strategies, leading to better allocation of resources and improved financial performance. Insights into how working funds are allocated can highlight areas for improving corporate governance practices, ensuring that managers act in the best interests of shareholders and stakeholders. Knowledge of these interrelationships' aids in strategic planning, allowing PSEs to balance investments and dividends more effectively, thus achieving long-term growth while satisfying shareholder expectations. By investigating these relationships, businesses can better understand potential risks associated with fund allocation and make more informed decisions to mitigate these risks. A clear understanding of the financial practices in PSEs can increase investor confidence, as transparent and well-managed financial strategies are attractive to investors.

In relevance to society PSEs play a significant role in the Indian economy. Improved financial management within these enterprises can contribute to overall economic stability and growth, benefiting society at large. Transparent and efficient financial practices in PSEs can enhance public trust in these institutions, which is crucial for maintaining public support and legitimacy. Effective allocation of working funds ensures that resources are used efficiently, leading to better service delivery and infrastructure development, which directly benefits the public. Optimized investment decisions can lead to the expansion and growth of PSEs, creating more job opportunities and contributing to societal welfare.

Investigating these relationships helps identify and address financial challenges faced by PSEs, such as liquidity issues and suboptimal investment strategies. The findings can inform policymakers in designing regulations and policies that support better financial management practices in PSEs, contributing to the overall health of the sector. The study provides benchmarks for other enterprises, both public and private, on effective fund allocation and financial decision-making strategies. By offering empirical data on the linkages between dividend choices, working money allocation, and investment in the

context of Indian PSEs, the study adds to the body of knowledge in academia. The findings can raise awareness among various stakeholders, including managers, shareholders, policymakers, and the general public, about the critical aspects of financial management in PSEs.

The investigation into the correlation between decisions of investment and dividend and the working capital management in Indian public sector enterprises is highly relevant to both the business world and society. It provides essential insights for improving financial decision-making, enhancing corporate governance, and contributing to economic stability and public trust. This research not only aids PSEs in optimizing their financial practices but also supports policymakers in crafting effective regulations, ultimately benefiting the broader society.

IX. LIMITATIONS OF THE STUDY

This study faces several limitations that must be acknowledged. Firstly, data availability and quality are concerns, as financial statements and reports of Indian public sector enterprises (PSEs) may contain inconsistencies, missing information, or variations in reporting that could impact the accuracy of the analysis. Additionally, the availability of historical data might be limited, affecting the ability to perform longitudinal analysis. Secondly, the findings may be specific to Indian PSEs and may not be able to generalize to private sector enterprises or PSEs in other countries due to unique regulatory, economic, and operational environments. External economic conditions, such as economic downturns, political instability, or global market trends, are not fully accounted for, which can independently influence investment and dividend decisions. Differences in corporate governance practices among PSEs could lead to variability in the results, as governance quality can significantly impact financial decision-making and fund allocation. Investment and dividend decisions often involve managerial discretion and subjective judgment, which may not be fully captured by quantitative data. Changes in government policies, regulations, and interventions specific to the public sector may also influence the financial decisions of PSEs, adding complexity to the analysis. Sector differences within the public sector may affect the generalize ability of the findings, as different

industries may have different financial dynamics and constraints. The impact of working fund allocation on investment and dividend decisions might not be immediate, and time lags could complicate the interpretation of the relationships. Non-financial factors such as political influence, social responsibility, and organizational culture might play a significant role in decision-making processes but are difficult to quantify and incorporate into the study. The chosen statistical models and methodologies might have inherent limitations and assumptions that could affect the robustness and validity of the findings. Lastly, the sample size and representativeness of the selected PSEs may limit the generalize ability of the results to the entire population of Indian PSEs.

In conclusion, while this study aims to provide valuable insights into the relationship among the decisions of investment and dividend and working funds distributions in Indian PSEs, these limitations highlight the need for cautious interpretation of the results. Future research could address these limitations by incorporating more comprehensive data, exploring additional qualitative factors, and using advanced methodologies to enhance the robustness and generalize ability of the findings.

TABLES:

Table1. Statistical measures of several financial metrics for different Decision-Making Units

DMU	Statistical Measures	DPS	EPS	DPR	DYR	CR	LR	ALR	CCA R	DR	EqM	ICR	DER	NPM	ROA
NTP C	Mean	4.54	12.46	0.36	1.7	1.1	1.03	0.25	0.18	0.62	25.28	4.68	5.26	13.47	43.6
	Median	4.55	11.72	0.38	1.7	1.06	1.03	0.09	0.1	0.62	25.28	4.66	5.26	13.12	6.11
	Mode	4.55	10.23	0.43	1.7	0.97	1.03	-0.23	-0.06	0.62	25.28	4.62	5.26	12.43	-68.9
	SD	1.59	2.28	0.08	0.57	0.36	0.27	0.29	0.17	0.07	14.42	1.85	4.33	2.16	62.2
	Range	4.93	7.11	0.23	1.66	1.09	0.89	0.78	0.41	0.2	40.54	5.87	10.74	7.76	140
	CV	0.35	0.18	0.22	0.33	0.32	0.27	1.17	0.94	0.12	0.57	0.39	0.82	0.16	1.42
ONG C	Mean	6.5	18.21	0.39	4.02	1.09	0.93	0.32	0.21	0.54	77.29	21.1	0.17	16.97	65.7
	Median	6.41	18.21	0.38	3.96	1.09	0.93	0.14	0.12	0.6	78.3	10.5	0.11	20.1	11.1
	Mode	6.22	18.21	0.37	3.85	1.09	0.93	-0.22	-0.05	0.72	80.32	-10.6	-0.01	26.35	-98.2
	SD	1.79	7.96	0.11	1.11	0.57	0.38	0.32	0.18	0.08	9.21	26.4	0.22	8.04	92.4
	Range	6.87	27.6	0.3	4.24	1.31	0.94	0.75	0.42	0.2	33.5	73.4	0.51	21.67	218
	CV	0.28	0.44	0.28	0.28	0.52	0.41	0.98	0.87	0.16	0.12	1.25	1.31	0.47	1.41
SAIL	Mean	1.82	5	0.17	1.45	0.75	0.5	0.04	0.04	0.47	26.09	2.77	2.2	2.38	34.5
	Median	1.25	5.13	0.17	1.45	0.68	0.5	0.02	0.02	0.47	26.09	2.62	2.2	3.43	2.61
	Mode	0.11	5.38	0.17	1.45	0.54	0.5	-0.03	-0.02	0.47	26.09	2.32	2.2	5.54	-61.1
	SD	2.71	10.71	0.17	1.79	0.21	0.15	0.05	0.05	0.12	3.36	3.53	1.71	6.04	55.3
	Range	8.9	39.75	0.41	5.6	0.68	0.52	0.16	0.13	0.35	10.65	12.7	4.37	20.87	135
	CV	1.49	2.14	0.98	1.23	0.28	0.31	1.26	1.17	0.25	0.13	1.27	0.78	2.54	1.6
CIL	Mean	18.5	22.63	0.9	5.77	2.2	2.07	1.31	0.46	0.36	10.49	117	0.06	264.5	59.2
	Median	16.7	22.63	0.9	5.77	2.28	2.26	0.75	0.34	0.22	4	48.9	0	92.11	59.5
	Mode	13.1	22.63	0.9	5.77	2.45	2.64	-0.37	0.1	-0.05	-8.98	-87.7	-0.12	-252.7	59.9
	SD	5.76	5.77	0.39	2.78	1.28	1.19	1.21	0.28	0.31	11.13	249	0.08	426.5	14.4
	Range	17.0	17	1.02	8.56	3.91	3.57	3.78	0.72	0.7	26.13	721	0.2	1118	48.8
	CV	0.31	0.26	0.43	0.48	0.58	0.58	0.93	0.61	0.87	1.06	2.13	1.38	1.61	0.24
GAIL	Mean	2.83	8.43	0.34	1.72	0.93	0.8	0.19	0.18	0.25	30.51	33	2.68	8.55	42.5

X. RECOMMENDATIONS

It may be beneficial to collect more data or consider different modeling techniques to reduce uncertainty and potentially uncover significant relationships for further investigation. Including other potentially influential variables might help in understanding the dynamics better and could control for confounding effects. Conducting robustness checks by using different subsets of data or alternative regression models could provide more insights and validate the current findings. Based on the provided regression analysis, there is no evidence to suggest a significant interrelationship between investment decisions, dividend decisions, and working fund allocation in the context of Indian public sector enterprises. Further analysis with additional data or alternative approaches may be required to draw more definitive conclusions. Can be conducted additional tests including causality tests to better understand the direction of relationships and to be expanded the dataset to include more variables that might affect or be affected by investment and dividend decisions, such as market conditions, sector performance, and economic indicators.

	Median	2.6	7.09	0.34	1.7	1.01	0.85	0.19	0.18	0.26	30.51	32.1	1.78	8.33	9
	Mode	2.14	4.42	0.34	1.66	1.18	0.96	0.19	0.18	0.28	30.51	30.3	-0.02	7.9	-58.1
	SD	1.66	4.68	0.1	0.7	0.22	0.14	0.07	0.07	0.07	9.75	24	3.12	2.98	57.4
	Range	5.6	15.64	0.32	2.5	0.63	0.45	0.19	0.2	0.19	27.37	72.7	7.49	9.02	141
	CV	0.59	0.56	0.28	0.4	0.24	0.18	0.36	0.36	0.29	0.32	0.73	1.16	0.35	1.35
BHE L	Mean	1.19	2.45	0.38	0.91	1.86	1.68	0.4	0.22	0.77	107.6	15.1	0.16	1.15	25.6
	Median	0.95	1.28	0.2	0.6	1.86	1.71	0.4	0.22	0.81	105.1	7.23	0.18	1.93	4.75
	Mode	0.47	-1.05	-0.16	-0	1.86	1.77	0.4	0.22	0.89	100.2	-8.45	0.23	3.49	-37
	SD	1.14	7.25	0.5	1.24	0.27	0.12	0.1	0.04	0.18	26.91	25.5	0.09	8.07	37.1
	Range	3.6	25.98	1.65	4.1	0.66	0.37	0.24	0.12	0.5	68.3	83	0.26	29.04	85.1
IOCL	CV	0.96	2.96	1.31	1.36	0.15	0.07	0.24	0.16	0.23	0.25	1.69	0.59	7.01	1.45
	Mean	5.06	9.32	-0.03	3.61	0.78	0.44	0.07	0.07	0.37	61.87	5.77	5.4	2.77	40.8
	Median	4.4	9.32	0.36	3.61	0.81	0.41	0.07	0.07	0.27	54.69	6	4.29	2.77	7.37
	Mode	3.08	9.32	1.14	3.61	0.87	0.35	0.06	0.08	0.08	40.32	6.46	2.08	2.76	-59.4
	SD	4.09	6.37	1.54	2.75	0.21	0.2	0.02	0.04	0.23	29.43	3.87	5.49	1.89	59
BPC L	Range	12.6	18.41	5.27	9	0.57	0.57	0.06	0.1	0.57	74.12	11.7	13.28	6.12	145
	CV	0.81	0.68	-53	0.76	0.27	0.45	0.25	0.56	0.63	0.48	0.67	1.02	0.68	1.45
	Mean	9.43	17.31	0.51	3.63	0.81	0.39	0.15	0.14	0.38	82.57	11.2	7.58	2.77	74.1
	Median	7.65	17.98	0.46	2.7	0.83	0.39	0.12	0.14	0.26	82.57	11.2	7.58	2.77	8.74
	Mode	4.09	19.31	0.36	0.84	0.87	0.39	0.05	0.14	0.03	82.57	11.2	7.58	2.77	-122
HPC L	SD	10.4	9.97	0.29	3.41	0.18	0.13	0.06	0.07	0.24	19.64	6.95	7.86	1.73	109
	Range	36.2	32.92	0.81	11.8	0.53	0.42	0.18	0.23	0.63	64.03	20.9	20.26	5.95	248
	CV	1.11	0.58	0.57	0.94	0.22	0.33	0.4	0.51	0.64	0.24	0.62	1.04	0.63	1.47
	Mean	7.83	22.55	0.41	2.88	0.82	0.48	0.13	0.1	0.45	133.9	9.85	15.75	1.95	79.1
	Median	7.9	22.55	0.37	2.6	0.82	0.43	0.13	0.1	0.45	109	9.85	6.18	1.95	7.32
PGCI L	Mode	8.04	22.55	0.29	2.04	0.82	0.33	0.13	0.1	0.45	59.29	9.85	-13	1.95	-136
	SD	4.79	15.81	0.12	1.52	0.26	0.25	0.09	0.07	0.2	71.29	6.23	18.98	1.21	122
	Range	13.9	46.6	0.32	4.6	0.7	0.79	0.26	0.2	0.52	171.9	16.1	45.51	4.13	291
	CV	0.61	0.7	0.3	0.53	0.32	0.51	0.69	0.74	0.45	0.53	0.63	1.21	0.62	1.54
	Mean	3.89	9.25	0.37	1.43	0.53	0.57	0.13	0.25	0.74	37.6	2.72	9.6	29.95	39.2
PGCI L	Median	2.7	8.82	0.33	1.14	0.47	0.49	0.13	0.24	0.75	37.21	2.59	9.6	28.61	3.86
	Mode	0.31	7.96	0.25	0.56	0.36	0.33	0.13	0.21	0.77	36.43	2.33	9.6	25.94	-66.8
	SD	3.18	4.22	0.13	0.92	0.14	0.22	0.04	0.11	0.02	9.13	0.4	8.23	3.94	57.6
	Range	9.89	13.2	0.41	2.92	0.43	0.69	0.16	0.36	0.06	25.06	1.18	19.44	13.62	131
	CV	0.82	0.46	0.36	0.64	0.27	0.38	0.34	0.42	0.02	0.24	0.15	0.86	0.13	1.47

Table 2, Regression Table for Investment Decision (Cap Exp.):

Variables	Coefficient	Std. Error	t-value	P> t	[0.025	0.975]
Constant	-608,400	1,480,000	-0.411	0.682	-3,540,000	2,330,000
NWC	0.5903	0.662	0.892	0.375	-0.724	1.904
TA	0.1496	0.07	2.125	0.036	0.01	0.289
NI	-0.0978	1.32	-0.074	0.941	-2.718	2.523
TR	-0.0571	0.061	-0.943	0.348	-0.177	0.063

Table 3, Regression Table for Dividend Decision (DPS):

Variables	Coefficient	Std. Error	t-value	P> t	[0.025	0.975]
Constant	4.6527	0.951	4.894	0	3	7
NWC	-5.37E-07	4.26E-07	-1.261	0.211	-1.38E-06	3.08E-07
TA	-2.31E-07	4.53E-08	-5.102	0	-3.21E-07	-1.41E-07
NI	6.91E-06	8.49E-07	8.143	0	5.23E-06	8.60E-06
TR	-2.90E-08	3.89E-08	-0.745	0.458	-1.06E-07	4.83E-08

Table 4, Regression Table for Interrelation between Investment (Cap Exp.) and Dividend Decisions (DPS)

Variables	Coefficient	Std. Error	t-value	P> t	[0.025	0.975]
Constant	4.6693	0.956	4.886	0	2.772	6.567
Cap Exp.	2.72E-08	6.63E-08	0.411	0.682	-1.04E-07	1.59E-07
NWC	-5.53E-07	4.29E-07	-1.287	0.201	-1.40E-06	3.00E-07
TA	-2.35E-07	4.65E-08	-5.051	0	-3.27E-07	-1.43E-07
NI	6.91E-06	8.53E-07	8.11	0	5.22E-06	8.61E-06
TR	-2.74E-08	3.93E-08	-0.698	0.487	-1.05E-07	5.05E-08

Table 5, Regression table for interrelationship between investment decisions (Cap Exp.), dividend decisions (DPS, DPR, DYR), and working fund allocation (NWC).

Variable	Coefficient	Std. Error	t-value	P> t	[0.025	0.975]
Constant	945565.72	1290607	0.732652	0.465575	-1616613	3507744
DPS	-135341.59	298450.5	0.453481	0.651237	-727840.8	457157.6
DPR	-1477149.3	1644724	-0.898114	0.371396	-4742340	1788041
DYR	589912.9	828009	0.7124475	0.477934	-1053893	2233719
NWC	0.4938061	0.541834	0.9113612	0.364412	-0.581869	1.569482

Table 6, Correlation analysis between investment decisions (Cap Exp.), dividend decisions (DPS, DPR, DYR), and working fund allocation (NWC).

	Cap Exp.	DPS	DPR	DYR	NWC
0.000	1.000	0.009	-0.058	0.030	0.051
1.000	0.009	1.000	0.380	0.898	0.036
2.000	-0.058	0.380	1.000	0.331	0.294
3.000	0.030	0.898	0.331	1.000	-0.097
4.000	0.051	0.036	0.294	-0.097	1.000

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