Corporate Performance Measures and Shareholder Value Creation: Empirical Evidence from the Capital-intensive Sectors of Pakistan

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Abstract: *This study aims to investigate the value creation of capital-intensive firms in Pakistan. The effect of corporate performance measures, including efficiency, liquidity, financial leverage, and dividend payout, on shareholder value are examined here. This study incorporates the capital-intensive sectors of Pakistan which are commonly ignored and have been severely affected by the financial crisis and economic downturn. In this study, panel regression models were used to find the impact of corporate performance measures on shareholder value for the oil and gas, chemicals, and cement sectors listed on Pakistan Stock Exchange. Data analysis techniques that were used are descriptive statistics test, correlation, and fixed effect regression on a sample of 46 companies generated through census sampling for the period of 2013 to 2022. The results reveal that except for financial leverage, a positive relationship between corporate performance measures and shareholder value was observed. An increase in total asset turnover, current ratio, quick ratio, and dividend payout ratio, and a decrease in debt-to-equity ratio increased shareholder value. This finding show that capital-intensive sectors can create more value if they enhance their efficiency, liquidity and dividend payout, and reduce their debts. This will make them more competitive, profitable, and sustainable in the long run.*

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1.   Introduction

In Pakistan, maximising shareholder value is a critical issue due to the dynamic and competitive nature of the national and international business environment. In recent years, this concept has received increased attention with the Securities and Exchange Commission of Pakistan making it mandatory for all companies to act in the best interests of their shareholders by implementing the Code of Corporate Governance. However, many companies still fail to provide value to their shareholders. Shareholder value cannot be created alone, as it is dependent on how well a company performs. As corporate performance has a direct impact on shareholder value, companies need to optimise their performance by expanding their growth and investments, controlling costs, and increasing operational efficiency.

Pakistan's economy is diverse, consisting of both capital and labour-intensive sectors (Sahbudak & Sahin, 2016). Capital-intensive sectors in Pakistan cover the major manufacturing sectors like energy, telecommunication, automobile, chemicals, steel, and construction, and serve as the backbone of the economy (Lin & Ahmad, 2016). As a consequence of the global financial crisis of 2008, the corporate performance of the country's major and capital-intensive sectors was significantly impacted. These companies came under sustained assault due to pressures from managerial communities, financial elites, and financial markets (Sheikh et al., 2020). Moreover, investors' demands also changed the managerial perspectives of these companies, shifting their focus from long-term growth to short-term gains and quick returns on investment, which further compromised shareholders' interests. These sectors invest heavily in fixed assets due to the nature of their operations, which causes the majority of their funds to be invested in their long-term assets. Moreover, in order to meet this extra demand of funds, they have to rely majorly on costly debt financing, which also affects their liquidity and dividend payments (Carvalho et al., 2022).

The current dilemma that the capital-intensive sectors of Pakistan are facing is their inability to create value for their shareholders and attract investments from potential investors due to their unsatisfactory performance and low profitability. This has caused investors to move their investments away from these sectors, causing companies to rely majorly on debts which weaken their financial position (Bilal & Tanveer, 2023). Therefore, there is

a need to identify which corporate performance measures can actually help these sectors enhance value for their shareholders.

Previous studies have discussed the concept of shareholder value in general contexts around different economies, but it has not been studied in the capital-intensive sectors in developing countries, especially Pakistan (Aziz & Abbas, 2019). Therefore, this study seeks to fill this gap by investigating the effect of corporate performance measures on shareholder value, specifically tailored to firms operating within Pakistan's capital-intensive sectors. As such, a comparison will be made between three capital-intensive sectors in Pakistan, i.e., oil and gas, chemicals, and cement. Given the capital-intensive nature of the sectors in this study, decisions regarding their corporate performance measures play a pivotal role in the creation of shareholder value. Financial managers within these sectors need to carefully design policies regarding asset management, liquidity, debt financing, and dividends, as these decisions directly impact the sector's overall financial health and ultimately shareholder value.

The remaining sections of this paper are structured as follows: Section 2 presents the relevant literature and theory. Section 3 covers the methodology and estimated models, while section 4 contains the findings and analysis. Section 5 concludes with a summary, implications, limits, and suggestions for further research.

2. Literature Review

2.1 Shareholder value

Shareholder value maximisation is a fundamental principle in modern corporate finance and management. It refers to the primary goal of a company to enhance the wealth of its shareholders by making decisions and taking actions that increase the value of their investments in the company (Inkpen & Sundaram, 2022). Managers of a company fulfil the duty of giving justifiable returns to shareholders on their investment. This focus on corporate performance and shareholder value can ultimately lead companies to increase their profitability and achieve sustainable growth (Taliento & Netti, 2020).

However, there are contrasting views on this concept. Taking care of the interests of investors is a difficult task because they have an extensive

set of values influencing business decisions (Collier, 2021). Moreover, concentrating just on the interests of shareholders is considered to be biased against other stakeholders. The concept of shareholder value emerged in the corporate world in 1970, when Milton Friedman spoke about the primacy of shareholders, which then became a dictum over time. Friedman's doctrine emphasises that the primary objective of a business is to generate profits for its shareholders through lawful and ethical means. According to Friedman, businesses should focus on profit-making activities and avoid taking on responsibilities that are not directly related to their economic mission, leaving other societal concerns to individuals and government (Cheffins, 2020).

2.2   Agency theory

The concept of shareholder value was further supported in the 1970s by the emergence of agency theory, a framework used to analyse the relationship between the owners (shareholders) and managers of a company. According to this theory, there may be a conflict of interest between shareholders, who seek to maximise their returns, and managers, who may prioritise their own interests (Lubisa et al., 2019). The agency problem arises because managers are not the owners of the company, and therefore do not bear the full financial consequences of their decisions (Lopatta et al., 2020). This can lead to decisions that benefit managers at the cost of shareholder interests (Chari et al., 2019). Agency theory has been instrumental in bringing shareholder interests to the forefront of corporate decision-making, and has put a greater emphasis on transparency and accountability in the corporate world (Cwiek et al., 2023).

Since the emergence of the concept of shareholder value, attempts have been made to explore it from different perspectives, but research has mainly focused on traditional performance measures (Ahmad et al., 2023). Over the last few years, a lot of criticism has been levelled at the inefficiency of these measures due to their inability to determine the firm's shareholder value (Battilana et al., 2022; Kaplan, 2020). In recent years, new and efficient measures have been introduced, like economic value added (EVA), market value added (MVA), cash value added (CVA), shareholder value added (SVA), cash flow return on investment (CFROI) and discounted economic profit (DEP) (Battilana et al., 2022; Dobrowolski et al., 2022). In this study, MVA is considered as a proxy for measuring shareholder value.

2.3   Market value added

Market value added (MVA) is defined as the difference between the market value of the firm and the amount of capital invested by its investors (Carini et al., 2017). The capital invested here means the book value of the owners' equity as presented in the balance sheet of the company (Masyiyan & Isynuwardhana, 2020). MVA considers the valuation (the degree of wealth enhancement of the shareholders) and performance (the quality of capital management). When the market value exceeds the capital from investors, the company is said to be creating value for shareholders. On the other hand, if the market value is lower than the capital invested, then the MVA is negative, and the company is believed to be destroying value (Carini et al., 2017). Thus, for maximising shareholder value a company needs to increase its MVA (Apreku-Djan et al., 2022).

2.4   Efficiency

Efficiency, or assets management, is the ability of managers to utilise and manage assets in a way that improves the performance of the company. When a company effectively utilises its assets, it can generate higher returns for its shareholders, enhance its competitive position, and attract more investors (Kurniawan, 2021). Asset turnover ratio measures the efficient utilisation of assets by a company to generate sales (Alipour & Pejman, 2015). Furthermore, investors place a lot of importance in asset turnover ratio when analysing a company for future prospects (Widodo, 2018). The higher the ratio compared to internal trends or competitors' results, the more efficiently the company's assets are being utilised (Hasangapon et al., 2021). If this ratio is less than the industry norm, then it negatively affects the firm performance and hence would decrease shareholder value(Hong & Najmi, 2020). Therefore, the following hypothesis is developed:

H_1:   There is a positive and statistically significant relationship between assets turnover ratio and market value added.

2.5   Liquidity

Liquidity is the ability of the company to pay off its current liabilities (Yanti

&Darmayanti, 2019). A company which has high liquidity can easily pay its short-term debts. Current ratio and quick ratio are commonly used to measure the liquidity of a firm. Current ratio is defined as the ratio of current assets to short-term liabilities. Quick ratio, or the acid test, is defined as the ratio of debtors and cash to short-term liabilities (Callaoet al., 2007). For better liquidity, current assets should be greater than current liabilities (Ningsih & Sari, 2019). If the company maintains an optimal level of liquidity, its business operations remain viable. The liquidity of a firm can help to fight financial crises. A company in a good financial position is valued highly by investors because it increases the value of the shares (Jihadi et al., 2021). Therefore, the following hypotheses are developed:

H_2: There is a positive and statistically significant relationship between current ratio and market value added.

H_3: There is a positive and statistically significant relationship between quick ratio and market value added.

2.6 *Dividend payout*

The decisions made by the management of the company should always be in favour of shareholders as they are actually the prime owners. One such decision is to distribute profits in a way that is beneficial for the company as well as for its shareholders (Tijjani et al., 2019). Management has to consider how much of income should be given to investors in the form of dividends, and how much should be retained for reinvestment in the company (Valeeva et al., 2022). Dividend payout by a company reflects the earnings made on the capital invested by the shareholders (Banerjee & Mishra, 2019). The foremost reason for its importance is its strong relationship with the maximisation of shareholder value (Tijjani, 2019). In order to satisfy shareholders and entice investors, the company needs to offer them a justifiable return on their investments. They get the value in the form of higher dividend income (Kengatharan, 2021). This sends a positive signal to investors that the company is performing well and creating value (Driver et al., 2020; Lawal & Onobruke, 2020). Therefore, the following hypothesis is developed:

H_4: There is a positive and statistically significant relationship between dividend payout and market value added.

2.7 Financial leverage

In financial decisions, the effect of financial leverage on shareholder value is an important relationship. Financial leverage is the ratio of current assets to the investor's capital (Abubakar, 2020). The use of financial leverage acts as a controlling tool to discourage opportunistic behaviour by managers (Adu-Ameyaw et al., 2021). Companies need to achieve an optimal debt level for their long-term survival and growth (Al-Slehat et al., 2020). In Pakistan, the debt markets are less developed, and it is very costly for companies to obtain loans due to its high costs (Ullah et al., 2020). It is suggested that companies in Pakistan should use less debt because it negatively affects company performance. Rather, they should depend more on cheap and reliable sources of finance, like internal financing, to avoid insolvency risk (Aziz & Abbas, 2019). It is also found that when the firms increase the level of debt to grow and expand, it encounters high financial risks and costs for shareholders (Paeleman et al., 2023). Therefore, the following hypothesis is developed:

H_5: There is a negative and statistically significant relationship between financial leverage and market value added

2.8 Research framework

This study aims to find the effect of all independent variables, which are efficiency, liquidity, dividend payout, and financial leverage on the dependent variable, shareholder value, with firm size and return on equity (ROE) used as control variables. Figure 1 shows the conceptual framework of the study.

Figure 1: Conceptual Framework
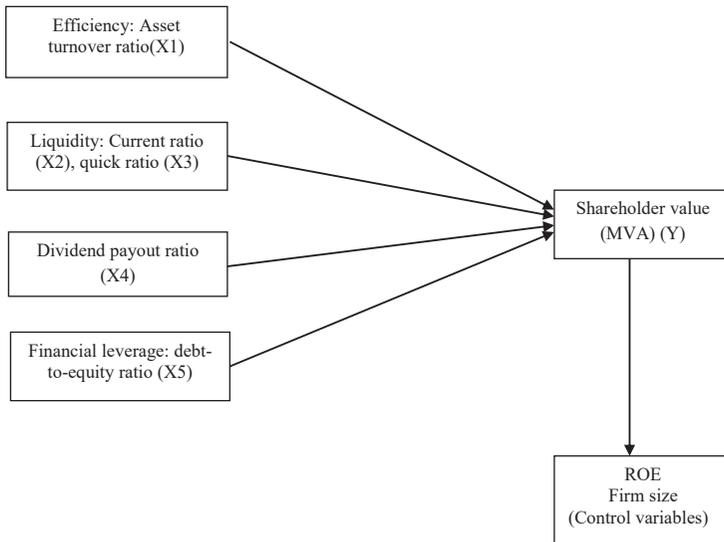
3. Methodology

3.1 Data and sampling

This study is analytical in nature and looks into three major industries in Pakistan. The population taken for this research study includes the oil and gas, chemicals and cement sectors based on their high capital intensity and market capitalisation on the Pakistan Stock Exchange (PSX). The companies listed on the PSX are considered because the data of listed companies is believed to be reliable for analysis (Waqar et al., 2022). The oil and gas sector has the highest market capitalisation. Chemicals come in second position followed by the cement sector in terms of market capitalisation, after banking and food producers (Ma et al., 2023). The banking sector is ignored because it is a financial sector, as well as the food sector because it is not capital intensive.

The sample is drawn from the selected population through census sampling technique and consists of 43 companies from these two sectors. The time period considered is from 2013 to 2022. This time period is taken because Pakistan's economy only started to overcome the adverse effects of the 2008 global financial crisis after 2012 (Wen et al., 2022). The Covid-19

pandemic also had a significant impact on the overall performance of these sectors (Rasheed et al., 2021). But these sectors managed to quickly recover from that decline as compared to previous crises (Mushafiq, 2023). Therefore, the sample time period is up to 2022 and is devoid of any confounding effects of the financial crisis, which might impact empirical estimations.

3.2 Shareholder value and corporate performance measures

The dependent variable shareholder value is measured through the proxy of MVA. An increasing trend in the value of MVA would indicate that the company is generating higher returns on the funds invested by shareholders (Tarumidi & Mirosea, 2023). This means that the company is creating value for their shareholders in the form of regular dividends and a high market value per share. The company would be seen as having a good internal performance, efficiently managing its assets and is in a good liquid position. This will send positive signal in the market and will attract potential investors to the company. In previous studies, corporate performance is measured by a number of variables. In this study, in view of the nature of the sample taken, total asset turnover ratio, current and quick ratio, dividend payout ratio and debt-to-equity ratio are taken as independent variables. In addition, firm size and ROE are taken as control variables. The details and measurement of the variables used in this study are reported in Table 1.

Table 1: Measurement of Variables

Variables	Measurements	References
Efficiency ratio Total asset turnover ratio	TATO = Sales/ total assets	Kengatharan, 2021; Sausan et al., 2020
Liquidity ratios Current ratio Quick ratio	CR = Current assets/ current liabilities QR = (Current assets – inventory)/ current liabilities	Alshatti, 2014; Husna & Satria, 2019
Dividend payout ratio	DPO = Total dividend/ net income	Kengatharan, 2021
Financial leverage (debt-to-equity ratio)	DTE = Total debt / total equity	Chikalipah, 2019; Matsoma, 2022; Senol et al., 2017
Market value added	MVA = Market value–total capital invested	Alipour & Pejman, 2015; Nakhaei, 2016
Firm size	Natural log of total assets	Aguguom & Ajayi, 2020
ROE	Net profit/ Shareholder's equity	Saleem & Alifiah, 2017

3.3   *Panel data regression model*

This study uses panel data regression to analyse the effect of corporate performance measures on shareholder value. Panel data regression captures both cross-sectional and time-series analyses efficiently (Loang, 2023). In order to meet the basic assumptions of the econometric model, diagnostic tests are performed first, which are discussed in the results section. This model gives an evaluation of the relationship between corporate performance and shareholder value. The regression equation is as follows:

$$MVA_{i,t} = \alpha_o + \beta_1 TATO_{it} + \beta_2 CR_{it} + \beta_3 QR_{it} + \beta_4 DE_{it} + \beta_5 DPO_{it} + \beta_6 FS_{it} + \beta_7 ROE_{it} + \mu_{it} \quad (1)$$

where MVA_{it} represents the MVA of a company i at time period t, α_o the intercept of the equation, β_i the coefficient of explanatory variables, $TATO_{it}$ the total asset turnover of a company i at time period t, CR_{it} the current ratio of a company i at time period t, QR_{it} the quick ratio of a company i at time period t, DE_{it} the debt to equity ratio of a company i at time period t, DPO_{it} the dividend payout ratio of a company i at time period t, and μ_{it} the error term. The final data on all the variables is analysed with the help of Gretl and SPSS software.

4.   Result and Discussion

The analysis is performed by first meeting the ordinary least squares (OLS) assumptions through tests for linearity, normality, multicollinearity and heteroscedasticity. Then, a combined regression is run for the three sectors followed by analysis for each of the three sectors separately to make a comparison in the relationships among the dependent and independent variables.

4.1   *Linearity test*

In order to check the linear relationship between the independent and the dependent variables, a scatter plot is developed. The scatter plot shows no evidence contrary to the linearity assumption (see Appendix Figure 1).

4.2 Descriptive statistics

Descriptive statistics are used to get the feel of the data. In this analysis, the mean, standard deviation, minimum and maximum values are computed. Table 2 shows the descriptive statistics of the variables.

Table 2: Descriptive Statistics

Variables	Min. value	Mean	Max. value	Std. dev
MVA	6.83	15.35	20.51	2.34
TATO	0.02	1.14	6.35	1.11
CR	0.43	1.93	8.74	1.2
QR	0.01	1.26	8.21	1.14
DPO	0.01	0.5	2.29	0.37
D/E	-2.29	-0.15	1.41	0.8
FS	-2.41	2.62	6.11	1.49
ROE	-4.24	0.31	3.99	0.78

Source: Data processed by IBM SPSS statistics 25, 2022.

The mean value of MVA for all the companies is 15.35. The average asset turnover for the sample companies is 1.14. A low ratio of TATO in this study does not necessarily mean poor performance, but rather the nature of capital-intensive industries (the investment in assets is usually immense, which affects this ratio). The current and quick ratios reflect the ability of the company to pay off debt obligations over the period of the next 12 months. The higher these ratios are, the more a company is in a good liquidity position. The average current ratio of the companies is 1.93, which is very close to the acceptable ratio of 2. The average quick ratio is 1.26, and a quick ratio of 1 is commonly considered to be good.

The dividend payout ratio between 0.25 and 0.50 is considered to be good. The average dividend payout ratio is 0.50. The average debt-to-equity ratio for the sample companies is -0.15. The lower this ratio the better, as it means that the company is relying less on debt to meet its external finance needs and that it has a lower risk of insolvency. Firm size and ROE taken as the control variables have mean values of 2.62 and 0.31 respectively. Firm size is a continuous variable, and is usually taken as the natural logarithm of the company's total assets (Chen & Chen, 2011). ROE is the ratio of net profit to the book value of equity (Alipour & Pejman, 2015).

4.3 Correlation analysis

Table 3 shows the correlation analysis, which illustrates the degree of relationship between the quantifiable variables.

Table 3: Correlation Matrix

	MVA	TATO	CR	QR	DPO	DTE	FS	ROE
MVA	1							
TATO	0.140*	1						
CR	0.196*	-0.123*	1					
QR	0.242**	-0.039	0.569**	1				
DPO	0.456**	-0.118*	0.129*	0.205**	1			
DTE	-0.178*	-0.117*	-0.021	-0.063	-0.121*	1		
FS	0.063	-0.310**	0.163*	0.172*	0.404**	0.113*	1	
ROE	0.041	0.134*	0.102	0.086	0.021	0.174*	0.034*	1

Notes: **correlation is significant at 0.01 levels (two-tailed), * correlation is significant at 0.05 levels (two-tailed).

There is a positive relationship between corporate performance and shareholder value. When a company has a good financial performance, it creates value for its shareholders. The only difference is when there is an inverse relationship between financial leverage and shareholder value. A company with a low debt-to-equity ratio is less subject to liquidation risk and creates value for its shareholders. MVA has the highest correlation with dividend payout ratio, with a correlation coefficient of 0.456, indicating a significant positive correlation. When the dividend payout ratio of a company is high and regular, the MVA will increase, showing shareholder value creation. The positive values of QR and CR show that when the company is in a good liquid position and has the ability to readily pay off its debt obligations, value is created for its shareholders.

The correlation coefficient between MVA and asset turnover ratio is found to be 0.051. TATO measures how efficiently a company utilises and manages its total assets to make sales. This result shows that when the TATO ratio of a company increases, so does the MVA. The correlation coefficient between MVA and debt-to-equity ratio is -0.178. Debt-to-equity is negatively correlated with MVA. This negative relationship means that when the debt-

to-equity ratio is high, meaning the company is relying more on debt for financial needs, its MVA will fall and will not be able to create value for its investors. Moreover, from Pearson's correlation, multicollinearity can also be checked. If the correlation coefficient among the variables is greater than 0.5, there is a problem of multicollinearity. The results show that all correlation coefficients have values less than 0.5, indicating no multicollinearity.

4.4   Multicollinearity test

In addition to the correlation matrix between the individual variables (explanatory variables), multicollinearity can also be tested through variance inflation factor (VIF) and tolerance value tests (Susilo et al., 2020). Table 4 shows the values for VIF and tolerance test for the variables. The result shows that there is no evidence for multicollinearity between the variables, as VIF values are less than 10, and tolerance values are more than 0.10.

Table 4: VIF and Tolerance Test

Variables	VIF	Tolerance
MVA	1.16	0.8594
TATO	1.42	0.7018
CR	1.07	0.9386
QR	1.01	0.9875
DPO	1.48	0.6754
D/E	1.26	0.7944
FS	2.60	0.3849
ROE	1.29	0.7723

4.5   Heteroscedasticity test

In order to check for heteroscedasticity, the Breusch-Pagan test was applied. The rule of thumb for this test is that, the models having p-value less than 0.05 have problem of heteroscedasticity (Uyanto, 2022). The value for chi-squared (1) is 118.34 with a p-value of 0.061. According to the results shown in Table 5, the p-value of the model is insignificant so there is no heteroscedasticity issue in the model.

Table 5: Combined Regression of Sectors, Fixed-Effects

	Coefficient	**Std. error**	**t-ratio**	**p-value**	
Constant	-1.605	0.898	-1.788	0.075	*
TATO	0.316	0.130	2.423	0.016	**
CR	0.144	0.049	2.915	0.061	*
QR	0.618	0.065	9.376	<0.000	***
DPO	0.517	0.073	7.092	<0.000	***
DTE	-0.424	0.075	-5.601	<0.000	***
FS	0.018	0.007	2.589	0.010	**
ROE	0.035	0.160	2.284	0.087	**
Dummy	0.547	0.143	3.810	0.000	***
Mean dependent variable		13.25	Std. dev. dependent variable		2.235
Sum squared residual		552.90	Std. error of regression		0.540
R^2		0.536	Adjusted R^2		0.524
F		45.018	p-value(F)		2.30e-36
Rho		0.074	Durbin-Watson		1.852

Note: The estimation uses 460 observations, 46 cross-sectional units, and the time-series length = 10.

4.6 *Regression analysis*

All the basic assumptions of ordinary least square (OLS) regression were adequately fulfilled through diagnostic tests. As the study used panel data, it should be first checked whether the OLS model or fixed/random effect model should be applied. Hausman's test helps to differentiate between a fixed and random effect model. Fixed effect controls the characteristics of those categories that might affect the dependent variables and are not included in the study, but the OLS model cannot do so and results in omitted variables bias (Amini et al., 2012). Firstly, the analysis is performed for all the three sectors jointly and then separate analysis is done for each sector. *F*-test is applied to check for the assumption of OLS of the group having a common intercept. The results reveal that the null hypothesis is rejected so a fixed effect is applied and OLS is ignored. Table 5 shows the impact of corporate performance measures on market value added through regression analysis.

The coefficients here show the variation in the dependent variable MVA due to the individual independent variables. The result shows that all the independent variables show significant relationships. The *R*-squared value

shows that the 53% variation in MVA is brought about by TATO, CR, QR, DPO, and DTE and this lowers the specification bias of the model taken in the study. F-stat shows the joint significance of β of all independent variables. Here, F-stat is 29.25 which show that all independent variables jointly influence the dependent variable MVA. The Durbin-Watson value is close to 2, showing no serial autocorrelation, thus satisfying the OLS assumption. The dummy variable used to make a comparison among the sectors taken is also significant here, which shows that the three sectors, oil and gas, chemicals and cement, differ in the impact of corporate performance measures on MVA.

4.7   Sector-wise analysis

4.7.1 Oil and gas sector

This model shows the relationship among the MVA and corporate performance measures for the oil and gas sector. The application of F-test reveals that the null hypothesis is rejected so fixed effect model is applied on the data. Table 6 shows the relationship of MVA with corporate performance measures for the oil and gas sector.

Table 6: Fixed-effects, Oil and Gas Sector

	Coefficient	Std. error	*t*-ratio	*p*-value	
Constant	4.426	6.325	0.699	0.486	
TATO	0.421	0.226	1.864	0.066	*
CR	0.259	0.488	1.868	0.088	***
QR	0.340	0.096	3.539	0.000	**
DPO	0.568	0.232	2.423	0.029	*
DTE	-0.415	0.712	-1.717	0.081	*
FS	0.012	0.020	0.622	0.535	
ROE	0.039	0.016	2.484	0.015	**

Mean dependent variable	16.452	Std. dev. dependent variable	2.189
Sum squared residual	71.557	Std. error of regression	1.041
R^2	0.811	Adjusted R^2	0.773
F	21.789	p-value(F)	5.65e-19
Rho	0.089	Durbin-Watson	1.821

The estimated coefficients for all the independent variables show significant relationships. The R-squared value is 0.81 which shows that the independent variables bring 81% variation in MVA and 19% impact is of other factors not included in this study. The independent variables jointly influence MVA with an F-stat of 21.78 with a probability of 1%.

4.7.2 Chemical sector

This model presents the analysis done to show the impact of corporate performance measures on MVA in the chemicals sector. The analysis is done by applying the fixed effect model and rejecting the null hypotheses. Table 7 shows the relationship of corporate performance measures with MVA for chemical sector.

Table 7: Fixed-effects, Chemicals Sector

	Coefficient	Std. error	t-ratio	p-value	
Constant	8.206	3.871	2.120	0.037	**
TATO	0.088	0.125	2.706	0.044	*
CR	0.113	0.155	2.729	0.046	*
QR	0.219	0.082	2.655	0.009	***
DPO	0.114	0.196	1.723	0.093	*
DTE	-0.177	0.296	-1.644	0.071	**
FS	0.002	0.005	0.531	0.597	
ROE	0.006	0.001	3.144	0.056	**
Mean dependent variable		15.174	Std. dev. dependent variable		2.223
Sum squared residual		43.270	Std. error of regression		0.809
R^2		0.889	Adjusted R^2		0.867
F		40.769	p-value(F)		2.02e-26
Rho		0.022	Durbin-Watson		1.955

The estimated coefficients are showing significant relationships with MVA. The R-squared value is 0.89% with an adjusted value of 87%, which shows that the independent variables TATO, CR, QR, DPO, and DTE bring 89% variation in MVA and 11% impact is of other factors which are not considered in this study. The F-stat shows that the joint significance of all the coefficients is 40.76 significant at 1% level of significance.

4.7.3 Cement sector

The model shows the relationship among the MVA and corporate performance measures for the cement sector. The application of *F*-test reveals that the null hypothesis is rejected so fixed effect model is applied on the data. Table 8 shows the relationship of MVA with corporate performance measures. The estimated coefficients show significant relationship.

Table 8: Fixed-effects, Cement Sector

	Coefficient	Std. error	*t*-ratio	*p*-value	
Constant	5.594	6.158	0.908	0.366	
TATO	0.040	0.071	1.931	0.042	*
CR	0.003	0.003	1.212	0.049	*
QR	0.803	0.133	6.031	<0.00001	***
DPO	0.846	0.354	2.370	0.026	**
DTE	-0.25	0.124	-2.075	0.041	**
FS	0.021	0.030	0.704	0.483	
ROE	0.015	0.005	3.118	0.062	*
Mean dependent variable		14.456	Std. dev. dependent variable		2.016
Sum squared residual		105.05	Std. error of regression		1.261
R^2		0.673	Adjusted R^2		0.608
F		10.450	*p*-value(*F*)		1.52e-11
Rho		0.187	Durbin-Watson		1.626

The *R*-squared value is 0.67, which shows that the independent variables bring 67% variation in MVA. The joint significance of the coefficients shown by the *F*-stat is 10.45 significant at 1% level of significance.

5. Discussion

The majority of the studies in the literature examine the interrelationships between corporate performance and shareholder value. The lack of insights in the context of efficient value measures for shareholders in capital-intensive sectors acts as a motivation to bridge the gap in the literature. Shareholder value creation is the primary goal of companies. When a company performs well and creates value for its investors, it benefits the investors as well as the economy (Apreku-Djan et al., 2022). This study argues that in capital-

intensive sectors, the value created for shareholders of a company is dependent on its corporate performance. Pakistan faces great business, legal and political challenges, under which capital-intensive companies have to strive extraordinarily hard to maintain a competitive position in the market.

The analysis shows a positive relationship between all corporate performance measures with shareholder value except for financial leverage. When companies from these three sectors have high sales revenue, meaning a good TATO, the expectations of future earnings will also increase, which improves the value of the company and hence creates value for the shareholders. This relationship is also been confirmed by past research (Lumapow &Tumiwa, 2017; Makori & Jagongo, 2013). Companies with high liquidity have large amounts in their current assets arising from large cash inflows. These cash inflows are used for funding operating and financing activities, and thus such companies depend less on debt capital and value is created for their investors. These results are also in line with the past studies (Hong & Najmi, 2020; Hutson & O' Driscoll, 2010)

Moreover, when a company pays off the dividend, it provides value to its shareholders instead of its creditors, as the cash available for paying off the debt is now utilised in giving dividends to shareholders (Banerjee & Mishra, 2019; Tripathi, 2023). A negative relationship of debt to equity is found with MVA. This means that when financial leverage increases, it decreases shareholder value. Companies with greater profit rely less on external financing, so financial leverage has a negative relationship with the shareholder value (Appiah et al., 2020; Klöckner et al., 2022). Moreover, the significance of the dummy variable suggests that all the three sectors have differences in creating value for their shareholders.

Overall, this research adds to the growing body of literature on shareholder value by providing fresh evidence of value measurement among capital-intensive firms. Moreover, the connection between agency theory and shareholder value lies in how agency problems can affect a company's ability to create value for its shareholders. When agency problems are effectively managed, the company is more likely to make decisions that enhance shareholder value. This involves making strategic choices that prioritise long-term growth, profitability, and sustainability over short-term gains. Therefore, according to the study findings, if the company works on improving financial performance, it will resolve agency conflicts between the management and shareholders, resulting in the creation of value. When

the company optimally utilises its major assets, including fixed assets, and efficiently manages the inventory and accounts receivables to produce sales revenue, it has a higher income. This income keeps it in a good liquid position and helps in paying dividends to shareholders, thus creating value for them. The results are of great help for owners, managers and analysts to make decisions and improve corporate performance.

The inclusion of MVA in the analysis can provide an additional insight for the evaluation of company performance and value creation. The limitation of this study is that the data in the annual reports of the companies and those published by the State Bank of Pakistan differed, which created difficulties in performing analysis. A few of the companies from the study population had incomplete and missing data on the variables studied, so they had to be ignored and were not included in the analysis. This made the sample size smaller.

Based on the results of the study, future researchers can include more sectors for a more comprehensive analysis. The study recommends that the oil and gas, chemical and cement sectors should continue paying attention to enhancing their efficiency, liquidity and dividend payout and decreasing their financial leverage to create value for their shareholders and to attract more investment. Therefore, shareholder value is of paramount importance in capital-intensive sectors. It guides companies in making strategic decisions about capital allocation, risk management, operational efficiency, and strategic investments. By consistently delivering value to shareholders, companies in capital-intensive sectors can secure their financial stability, growth prospects, and long-term sustainability.

Authors' Contributory Statement

Both the authors made valuable contributions to the research article. The first author made contributions in the conceptualization/ formulation of ideas, development/ design of methodology, data collection, formal analysis/ techniques, and writing of the original draft. On the other hand, the second author contributed in the data collection and writing of the original draft.

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Appendix

Figure 1: Scatter Plot