Macroeconomic Factors Influencing Market Capitalization of Pakistan Stock Exchange (PSX)

Muhammad Zubair Saeed*[1], Sobia Sultana[2], Zujaj Ahmed[3], Muhammad Talha Aziz[4], Kainat Fatima[5]

[1*] Assistant Professor, Department of Economics, National College of Business Administration and Economics, Sub Campus Multan, Punjab, Pakistan.

[2] M.B.A Finance, Department of Business Administration, National College of Business Administration and Economics, Sub Campus Multan, Punjab, Pakistan.

[3] Lecturer & Ph.D. Scholar, Department of Business Administration, National College of Business Administration and Economics, Sub Campus Multan, Punjab, Pakistan.

[4] M.Phil. Economics, Department of Economics, Institute of Southern Punjab, Multan, Punjab, Pakistan.

[5] M.Phil. Scholar, Department of Economics, National College of Business Administration and Economics, Multan, Punjab, Pakistan.

Corresponding author: zubairdgkhan@gmail.com

Stock exchanges worldwide are discovering the best possible outcomes that can increase trading options in financial assets for potential investors. The principal purpose of the study is to provide an efficient and stable picture of market capitalization of Pakistan Stock Exchange (PSX) with various macroeconomic variables, which can be helpful to local and foreign investors. The study analyzed the secondary data from 1992 to 2021. Based on the theoretical background, various diagnostics were applied, precisely (ARDL) Autoregressive Distributed Lag methodology. Empirical outcomes confirmed that hypotheses regarding (FPE) Foreign Portfolio Equity, Inflation, (FDI) Foreign Direct Investment, and (GFCF) Gross Fixed Capital Formation affect market capitalization of PSX with significant positive behavior. Only Exchange Rate has significant negative relationship with PSX market capitalization. This study suggests that PSX-listed companies and policymakers require significant attention to improve their operations and increase the market capitalization of firms to catch the capital from potential investors. The government should watch the exchange rate and inflation-controlling factors for the sustainable development of Pakistan in the long run. However, this study has various limitations, such as limited time, resources, and specific data.

1. Introduction

Market capitalization is an important metric used by investors, analysts, and stock market participants to assess a company's size, relative value, and the accumulative market value of a specific stock exchange. Investors analyze the company and stock exchange status by focusing on market capitalization. The capital market encompasses diverse tradable assets, including stock market and the other platforms for exchanging financial products or instruments. The objective of this research was to cover the vent in the literature by investigating the impact of macroeconomic factors on the stock market capitalization and performance of entire market PSX, including non-stock components such as bonds and money market instruments. However, while both private and public trading of stocks is possible, it is primarily stock market that enables stockholders and economic establishments to trade in stocks. Various studies also focused on the free-floating of shares (Chen, 2020; Investopedia, 2021).

The capital market, which mainly comprises the stock and bond markets, is essential in economic capacity building and a country's economic development. capital markets' utmost common arrangement are stock and bond markets. Capital markets comprise two distinct types of markets - primary and secondary. These markets facilitate trading various financial securities, such as bonds, derivative contracts like options, futures, and various debt instruments. In the primary capital market, new funds are generated by issuing and selling stocks and bonds to investors. The secondary capital market, on the other hand, enables traders and investors to trade these securities among themselves. However, in contrast to the primary market, the firm obtains no additional capital in the secondary market (Investopedia, 2021).

The financial and economic environment is a game-changer, linking potential investors and business companies that move toward capital accumulation. Stock exchanges bring all direct and indirect parties together to accumulate resources and enhance economic activity. Bai et al., (2021) categorize stock exchanges as crucial and leading indicator in its role, on the other hande Altan et al., (2021) discussed financial markets and found worthy in market capitalization. It is thought to be the utmost effective stock market valuation indicator which ulyimwtely boosts up investors' assurance (Azeem et al., 2023).

Almost all economic and financial scholars, analysts and top dogs come to an agreemen that financial advancement, particularly the progress of stock markets, is indispensable to endorse economic advancement. Consideration to stock markets is carried out within the context of the up-to-date leadership of regional and international firms to increase the part of these marketplaces in financial arrangement of any republic, since financial marketplaces are one among significant networks for activating savings in the most effectual and profitable segments of economy (Murinde et al., 2012; Chiad et al., 2022).

It is vital to recognise the connection between stock market and macroeconomic factors, since macroeconomic aspects have a countless impact on profitability and performance of stock market. Variables of macroeconomic are chunk of the hazard aspects in equity markets (Chen et al., 1986; Chiad et al., 2022). Decisive part of stock markets is performed in the economic advancement of the country. These mediators guarantee the stream of capitals as of surplus to infrequent economic mediators. These deliver official arbitration to activate money and network proficiently into gainful investment plans. Stock markets permit companies to elevate resources for their investments and inspire investments by growing sum of financial tools and minimizing hazard through portfolio modification. Thus, an upsurge in savings and an effectual

allocation of investment among investment prospects contributes to economic development (McKinnon, 1973; Levine, 1998; Misati, 2007; Chiad et al., 2022).

In the last decade, the stock exchanges and their market capitalization has engrossed the consideration of various economists and scholars. A study (Chiad et al., 2022) showed that a well-developed stock exchange promotes the economic growth of a nation by increasing capital accumulation and allowing better investments of resources. The Pakistan Stock Exchange (PSX) is an emerging market in the Asian region and has many potential opportunities for local and foreign investors. Initially, there were three stock exchanges in Pakistan: Karachi Stock Exchange, Lahore Stock Exchange, and Islamabad Stock Exchange. In 2016, the competent authorities of Pakistan merged the above three stock exchanges into one Pakistan stock exchange (Pakistan Stock Exchange 2023).

With an enviable reputation as Asia's most efficient stock exchange, PSX hopes to rank among the best stock exchanges in the world. From 2012 to 2017, PSX has experienced an annual growth of 26% in all indicators every year. Having increased its reliability and efficiency to a level comparable to other stock exchanges worldwide, PSX hopes to restore this status. As the only significant institution promoting national capital accumulation, it is at the forefront of Pakistan's economy. After 2019 during the pandemic huge fluctuations were seen in PSX stocks. Even impacts on the PSX have been seen with huge volatility while the Afghanistan-US war ended and the Taliban took over the government positions.

As per the information up to January 2022, with a market price of PKR 7,756 billion (US$27 billion), there were over 375 companies listed on PSX. The market capitalization of Pakistan in March 2023 was US$21.539 billion compared to US$24.139 billion in the previous month. Data reached an all-time high of US$96.158 billion in May 2017 and an all-time low of US$4.459 billion in September 2001 (Pakistan Market Cap 2022 & 2023). However, huge fluctuations might be seen, and investors must be aware of the Pakistan Stock Exchange Market knowledge before investing. This research aims to test the various macroeconomic indicator's impacts on the market capitalization of PSX because any stakeholder may be interested and be updated by this study on PSX's current economic positions and plan to invest in this potentially growing South Asian market.

As per various studies, few examinations are accessible and done on PSX efficiency and indicators close to 2021 and 2022 regarding Market Capitalization (MC). So, a recent picture of PSX factors must be judged by testing the different macroeconomic factors with MC. Thus, we proposed this work ought to be expected to improve the information on Pakistan Stock Exchange for its functions and effectiveness in helping potential investors. Our research will help every investor who wants to make money and profits by doing business in a developing country like Pakistan, specifically in PSX.

2. Literature Review

According to a study on market capitalization discusses to the total worth of a company's unsettled shares and to resolute by increasing the current share worth by the number of shares unsettled. This metric is commonly used by market analysts to estimate the size of a company since many stock market indices are based on market capitalization (Chen J., 2020). As Chen (2020) and Maverick (2019) point out, stock price is a factor in market capitalization and can fluctuate significantly over time.

Azeez and Obalade (2018) discussed the the association between macroeconomic determinants and stock market development in both the short and long term, that

macroeconomic elements include GDP, stock market liquidity, banking sector development, foreign direct investment, inflation rate and savings rate, and concluded that all macroeconomic variables, with the exception of the savings rate, were significant in determining the development of the stock market. Kuvshinov and Zimmermann (2022) examined dribvers and trends of long-term stock exchange advancement in seventeen progressive economies. According to their results, between 1870 and 1980, stock market capitalization grew in line with gross domestic product (GDP) of these countries. But in the following decades, the relation of market capitalization to GDP tripled and remained consistently high compared to the past. This was due to the rise in share prices. They showed that the most important driver of this structural shift was the receipt of dividends and the shift of profits towards listed companies, with the share of profits of listed firms in both GDP and income from capital expansion doubling and reaching its peak level in 146 years.

A study (Raza et al., 2019) examined investor belief's impact on stock market subsitization in different PSX sectors using statistics from 1972-2014. The EGARCH model showed that the energy, fuel and chemicals sectors are more affected by investor sentiment than others due to the large giant organizations in these sectors. In addition, it is concluded that noise traders are without logical traders and follow news and trends. In addition, it reveals that noise traders are irrational and follow news and tendencies. To help individual investors become financially literate, developing various educational and outreach programs is recommended. This method can increase informed investors' share and reduce talkative traders' influence.

A study (Igoni et al., 2020) examined the interactions between the performance of stock market of Nigeria and macroeconomic variables of the exchange rate, inflation rate, interest rate and gross domestic product. The results eleborated a long-term connection between the three investigated variables and the success of stock market of Nigeria. Also noted in the Error Correction Model (ECM) results were the continued importance of GDP as substantial variable that responds positively to performance of stock market, negative impact of Inflation, and positive response of interest rates and foreign reserves to changes in stock market capitalization trends. Additionally, exchange rate and market capitalisation are independent of one another. To regulate and encourage the intended performance of tock market of Nigeria, GDP and inflation rate are crucial policy factors of relevance.

According to a research by Hussain et al., (2021), the market capitalization of the oil industry is one of the essential petroleum sectors in all oil-producing countries, including Saudi Arabia, the United States, Malaysia, and Pakistan. The oil industry has gained importance worldwide due to significant economic support for power generation, shipping, automobiles, weapons and ammunition, and aircraft. This research inspected the influence of profitability, growth, and leverage on return on assets (ROA) on increasing market capitalization. Capital market is crucial for the development of the economy of a country and the maximum use of its potential. However, the success of capital market growth depends on financial aspects in each country. The researcher used secondary data from 1998 to 2018 to examine various economic variables' impact on Nigeria's capital market performance. The International Monetary Fund, the World Development Indicators (WDI), and the 2018 CBN Statistical Bulletin were used to obtain this information. The regression study showed that capital market capitalization (CMC) is slightly negatively affected by both the exchange rate and Inflation.

On the other hand, interest rate changes hit CMC hard. In addition, studies show that the CMC significantly positively affects GDP or gross domestic product. The research argues, among other things, that economic growth must be sustainable for the capital market to continue to

expand. However, the country's relevant authorities must retain control over economic performance, including Inflation, interest rates, and exchange rates (Omodero & Cordelia, 2019). The capital market is considered effectual if it fully and suitably replicates all the necessary information in defining the prices of securities. Formally, a market is considered effectual regarding any information if disclosing this information to all participants does not affect the prices of securities (Malkiel, 1989; Malkiel, 2005; Yen & Lee, 2008).

The environmental effectiveness of domestic capital accumulation is higher in low-emission sates than in high-emission staes. On the other hand, foreign capital does not significantly impact emission levels in all quantiles (Destek, 2023). A study (Shehzad et al., 2021) examined the impact of Objective Oriented Investment Behavior (OOIB) and Financial Risk Attitudes (FRA) on the investors of Pakistani. A moderator variable "Financial self-efficacy (FSE)" was used and financial satisfaction (FS) was also added, both as two new constructs. Through face-to-face interviews and an online survey, 300 hands-on responses were obtained from active investors using a quantitative and cross-sectional methodology. Smart PLS was used to gauge the predictive association between the constructed variables. The analysis shows that FRA favorably affects OOIB among Pakistani investors, showing that market capitalization can increase by searching for potential investors. The findings demonstrated the significance of macroeconomic determinants for the stock market's growth, including liquidity, institutional quality, domestic savings, per capita income and bank development. The same findings, meanwhile, failed to demonstrate a substantial connection between stock market expansion and Inflation, macroeconomic stability, or private capital flows (Aduda et al., 2012; Chiad et al., 2022).

The ARDL model tests macroeconomic factors that affect Bahrain's stock market growth. Stock market capitalization concerning proportion of GDP was utilized to indicate stock market development, and monthly data were used. According to the study's findings, the Bahrain stock market's growth is primarily influenced by income levels, domestic investment, the expansion of the private capital flows, banking system and liquidity on the stock market. The growth of banking and financial systems is influenced by central bank policy and individual behaviour. For instance, monetary policy affects the money supply and equity investment activity, which have an impact on how the stock market develops (Abdelbaki, 2013; Chiad et al., 2022).

A thorough analysis of the literature on the factors that influence stock market growth was published in 2019 by Ho et al. The categories of recent research include theoretical and quantitative research. Studies based on empirical literature have demonstrated that macroeconomic and institutional drivers can be split into two broad groupings regarding how the stock market develops. According to theoretical and practical studies, macroeconomic conditions can impact the stock market's growth in numerous ways. The stock market's growth is regulated through real income and its pace of expansion, interest rates, banking industry, and private net capital flows, all of which can either support or obstruct this process. Inflation and exchange rates harm the development of the stock market. Reseach says that as regards of institutional factors, it is suggested that various permissible resources and the creation of the stock market posses a impact on stock exchange growth whether positive or negative (Chiad et al., 2022; Ho et al., 2019).

However, legal factors, corporate governance, protection of investors, financial alleviation and trade receptiveness, positively affect the stock market's growth. Ho & Odhiambo (2018) analyzed macroeconomic growth drivers of Philippine stock market from 2001 to 2016. Numerous macroeconomic factors were chosen: exchange rate, inflation rate,

banking sector development, economic growth, stock market liquidity and trade openness. The associated ARDL test score was used. The results showed that trade openness harmed the growth of the Philippine stock market in the long run. In contrast, in the short term, development of banking sector and the exchange rate positively influenced development Philippine stock market (Chiad et al. et al., 2022; Xing-Yu et al., 2018).

2.1 Proposed Framework and Hypothesis Development

Observational readings revealed that the market capitalization of PSX is essential to test with various macroeconomic variables. The Author has proposed a research framework based on market capitalization and other influencing variables.

Figure No 1: Research Framework Factors Influencing PSX Market Capitalization Hypotheses of the Study
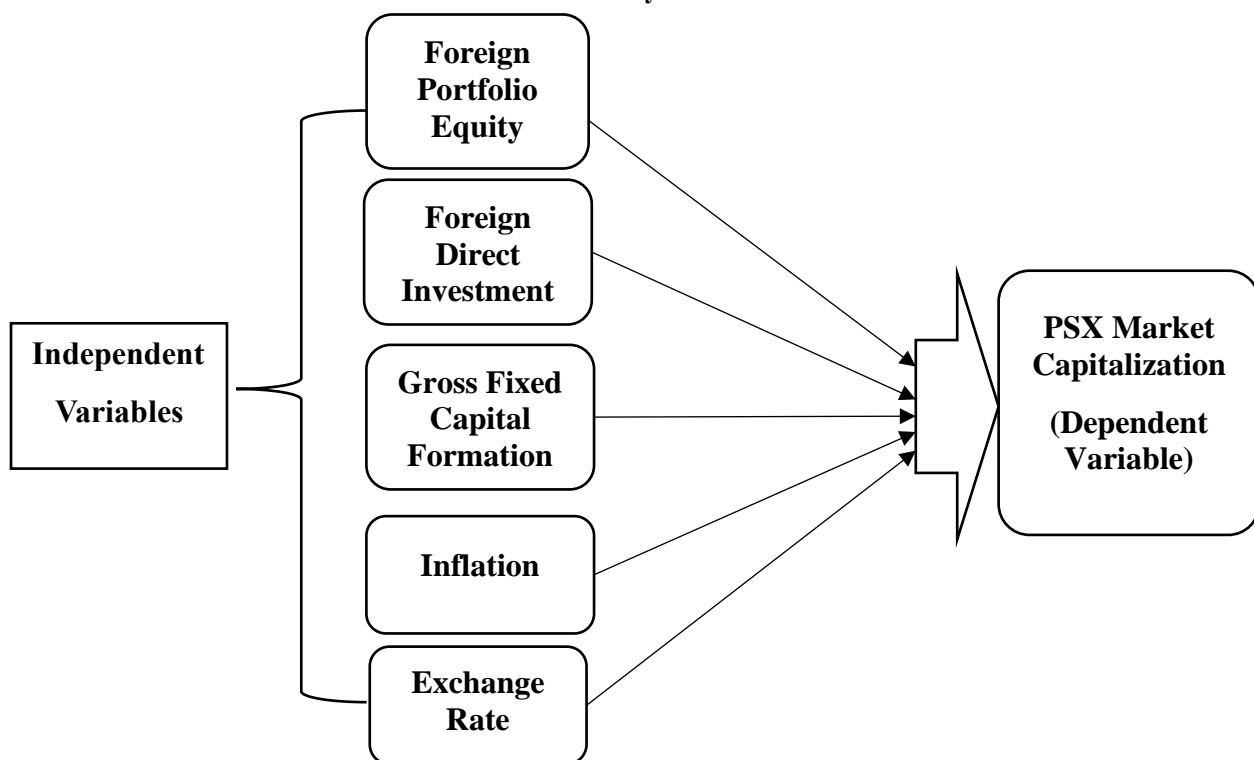
In addition, following hypotheses have been put forward to test the relationships between various macroeconomic variables specifically more important.

H_0: *There is no significant relationship between Foreign Portfolio Equity and Market Capitalization.*
H_1: *There is a relationship between Foreign Portfolio Equity and Stock Market Capitalization*
H_0: *There is no significant relationship between Foreign Direct Investment and Market Capitalization.*
H_2: *There is a relationship between Foreign Direct Investment and Market Capitalization.*

H_0: *There is no significant relationship between Exchange Rate and Market Capitalization*

H_3: *There is no significant relationship between Exchange Rate and Market Capitalization*

Table No 1: Variables' Descriptions

Sr.No.	Variables	Description & Calculation
Dependent Variables		
1	Market Capitalization (MC)	Total number of shares issued by the company. Price of each share on the market at present
Independent Variables		
2	Foreign Direct Investment (FDI)	Direct Foreign Investment + Indirect Foreign Investment
3	Foreign Portfolio Equity (FPE)	Foreigners who have invested in PSX Equity
4	Inflation (INF)	The Consumer Price Index (CPI) serves as a stand-in for Inflation.
5	Gross Fixed Capital Formation (GFCF)	Gross domestic product - Confidential Last Utilization Use Government Last Utilization exp-net Commodities [Closing-Opening Stock]
6	Exchange Rate (XR)	Exchange Rate=Money After EX/Money Before Exchange

The above table describes the different variables used in the research model. This description is retrieved from the sources of data.

3. Data Sources and Research Methodology

Since information is available for further examination, this study relies on optional and available information collection sources. As a sample, this study focuses on the data from 1992 to 2021 of 30 years. The data in this study is derived from different sources mentioned below;

  i. Pakistan Stock Exchange (PSX) Data Base Portal
  ii. W.D.I. Indicators
  iii. Pakistan Statistical Bureau

In this research, various econometric methods have been used to test the relationships among various variables collected by secondary data. We know that for Time Series Analysis, Unit Root Test is the base to test the stationary data; further diagnostics may be applied based on the nature of the data. We started with descriptive statistics, Unit Root, Correlation, Hetrokediasticity, Auto Regressive Distribution Lag (ARDL), and other diagnostics for analysis. ARDL methodology is a prevalent and authentic technique extensively practiced in time series data evaluation to test trends and relationships, many studies implemented this technique in their research (Wang, 2022; Murshed, 2021; Chandio et al., 2020; Sarkodie & Owusu, 2020).

The following econometric model has been designed.

3.1 Econometric Model

$$MC = \alpha + \beta_1(FPE) + \beta_2(FDI) + \beta_3(GFCF) + \beta_4(XR) + \beta_5(INF) + \mu \text{ ....(Equation-1)}$$

Whereas;

  MC= Market Capitalization
  FPE= Foreign Portfolio Equity

FDI= Foreign Direct Investment
GFCF= Gross fixed capital formation
INF= Inflation
XR= Exchange Rate
β = Slope
μ = Error Term

So, by following the above econometric model, we run the regression analysis and different diagnostics in statistical software E-Views to test the relationship between market capitalizations with other independent variables mentioned above.

4. Analysis, Discussion & Result Interpretations

This section will discuss the empirical results of data analysis using different econometric techniques. These results will give strengths and weaknesses of different macroeconomic variables with the market capitalization of PSX. Different diagnostics and their result interpretations are as follows;

Table No 2: Results of the Correlation Matrix

	MC	FPE	GFCF	INF	FDI	XR
MC	1.000000					
FPE	-0.016100	1.000000				
GFCF	-0.311807	0.442638	1.000000			
INF	0.092695	0.200326	0.337880	1.000000		
FDI	0.548631	-0.148231	-0.108645	0.377159	1.000000	
XR	0.550082	-0.385672	-0.746062	-0.144955	0.458647	1.000000

The pairwise coefficients of the factors generally recognize the issue of multicollinearity between factors. A high connection coefficient demonstrates a multicollinearity issue between factors. The correlation matrix of all variables is presented in Table 2. The pairwise correlation matrix is represented in the correlation matrix. It shows that MC correlates with F.P.E., G.F.C.F., I.N.F., FDI, and X.R. at (-0.016100), (-0.311807), (0.092695), (0.548631), and (0.550082) respectively, which present fewer multicollinearity problems. . The table shows that the dataset does not contain any multicollinearity.

Table-3: Results of A.D.F Unit Root Test

Variables	At Level		At First difference		Conclusion
	Intercept	Trend & Intercept	Intercept	Trend & Intercept	
MC	_____	_____	-6.069742 (0.0000)	_____	I(I)
FPE	-4637753 (0.0008)	_____	_____	_____	I(0)
GFCF	_____	_____	-4.748536 (0.0006)	_____	I(1)
FDI	_____	_____	-3.763793 (0.0080)	_____	I(1)
INF	-2.561050 (0.0117)	_____	_____	_____	I(0)
XR	_____	_____	-6.805189 (0.0000)	_____	I(1)

The Expanded Dickey-Fuller (A.D.F.) unit root test is used to avoid producing false positive results from relapses and to choose the appropriate econometric philosophy. Table 3 presents the results of the Expanded Dickey-Fuller (A.D.F.) test to determine whether the factors are stationary. The conclusions of the analysis show that none of the variables is stationary at the level. The data obtained showed that at the first difference between MC, G.F.C.F., FDI and X.R. are stationary. At the level and intersection other variables F.P.E. and I.N.F. are stationary. According to a study (Nkoro & Aham, 2016), the ARDL cointegration method is better when dealing with variables that integrate with different orders, I(0), I(1), or a combination thereof, and is reliable when there is only one long-term relationship between the fundamental variables in a small sample. According to A.D.F. Thus, we can conclude that the time series is not stationary in the same sequence. With a blend of I(0) and I(1) series, the A.R.D.L approach can, in our examination, estimate the best relationship between variables of a complex nature.

TableNo 1: Results of Breusch – Godfrey Serial Correlation Test

Breusch – Godfrey Serial Correlation Test			
F-Statistic:	0.174348	Prob. F(2,22):	0.8412
Obs* R^2:	0.483677	Prob. Chi-Square:	0.7852

The Sequential Connection L.M. test addresses the problem of autocorrelation. According to the results of this test, a significant value reveals the persistence of autocorrelation, while an insignificant value reveals the absence of autocorrelation. Following are the results of the Sequential Connection L.M. test: The results demonstrate that issue of autocorrelation doesn't arise in the informational collection, demonstrating that the likelihood upsides of the L.M. test are unimportant (0.8412).

Table No 5: Results of Breusch – Godfrey Test

Breusch – Pagan – Godfrey Test:			
F-Statistic:	1.074781	Prob. F(12,16):	0.4048
Obs* R^2:	6.565448	Prob. Chi-Square:	0.3629
Scaled explained SS	18.00957	Prob. Chi-Square:	0.0062

Using the Breusch-Pagan-Godfrey test, problematic heteroscedasticity is assessed. In this test, heteroscedasticity is either present or absent, depending on whether the number is significant or not significant. The results of the Breusch-Pagan-Godfrey analysis test are revealed in paragraphs above. It follows from the data that the probability values of the heteroscedasticity test are negligible (0.4048). This shows that the problem of Heteroscedasticity does not exist in the data set.

TableNo 2: Long Run Results of A.R.D.L

Dependent Variable: MC				
Method: A.R.D.L. Co-integrating and Long Run Form				
Selected Model: A.R.D.L. (1, 1, 0, 3, 3)				
Observations after adjustment 30 (1992 – 2021)				
Long Run Coefficients				
Variables:	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
FDI	0.194320	0.079013	2.459349	0.0435
FPE	0.037829	0.292123	0.129496	0.0206
GFCF	0.172499	0.090641	-1.903102	0.0688
INF	0.172197	0.037480	4.594336	0.0025
XR	-0.027392	0.004436	6.175247	0.0005
C	4.270490	1.738956	2.455778	0.0437

Based on the nature of data and after the stationary test, A.R.D.L is applied to test long-term association of various variables and market capitalization. In Table 6 above, some macroeconomic variables showed impact on market capitalization the value of coefficient of Foreign Direct Investment (FDI) explains positively significant (0.0435) impact on Market Capitalization (MC). Empirical inference shows that an upsurge in FDI by 1 unit will result in a percentage increase in MC by 0.194320. The value of coefficient of Foreign Portfolio Equity (F.P.E.) demonstrates a positively significant (0.0206) impact on Market Capitalization (MC). The empirical outcome demonstrates that a 1-unit increase in foreign portfolio Equity will lead (0.037829) percentage increase in MC.

The value of coefficient of Gross Fixed Capital Formation (G.F.C.F.) shows a insignificant (0.0688) positive impact on Market Capitalization (MC). The empirical finding shows that a one-unit increase in gross fixed capital formation (G.F.C.F.) would increase MC by 0.172499. The value of the coefficient of Inflation (I.N.F.) also shows a significant (0.0025) negative impact on Market Capitalization (MC). The empirical outcome shows that a 1-unit increase in the Inflation Rate will lead to a (0.172197) percentage increase in MC. Usually, Inflation impacts the majority of factors negatively, but here it impacted positively but it influenced a little.

The value of the coefficient of Exchange Rate (X.R.) shows a significant (0.0005) negative impact on Market Capitalization (MC). The empirical outcome demonstrations that the exchange rate (E.R.) will increase by one unit to (-0.027392) percentage decrease in Market Capitalization. As we know, the currency of Pakistan has recently decreased in terms of major foreign currencies like US$, Euro, and Chinese Yuan, etc.. That's why here we may see that the exchange rate of Pakistani rupees impacts adversely compared to other factors.

Table No 3: Results of the A.R.D.L. Bound Test

A.R.D.L. Bound Test		
Observations: 30 After Adjustment		
Null Hypothesis: No Long Run Relationship Exist		
Test Statistic:	Value	k
F-Statistic:	4.508159	5
Critical Value Bounds		
Significance	I_0 Bound	I_1 Bound
10%	2.25	3.36
5%	2.63	3.78
2.5%	2.95	4.17
1%	3.42	4.67

After the A.R.D.L. estimation, the authors decided to test the computed and tabulated F-Statistics. The Bound test shows the long-run co-integration among variables. Some studies (Odhiambo, 2009; Belloumi, 2014) used ARDL bounds testing in their research to test cointegration, In fact, Pesaran et al. (2001) created this method, which is extremely reliable even with a small sample size. According to his research, a minimum of 30 observations is required. If calculated F-statistic is greater than upper bound, there is likely to be long-term relationship between variables, called cointegration.

Table 7 above showed results of Bound Test, calculated value of F-statistic is 4.508159, which at a 10% significance level is above the upper limit of 3.35. Thus, there is cointegration or long-term partnership. Also, the value of F-statistic is more impressive than the upper bound of the 5% significance level. This is how long-term relationships exist.

4.1 Stability Tests

To assess stability of the estimated coefficients, authors computed cumulative sum of recursive residuals (CUSUM) and their quadratic cumulative sum (C.U.S.U.M.Q.) are also used. In light of CUSUM and C.U.S.U.M.S.Q.both fall within the boundaries of a 5% significant level, the results demonstrate that the situation is stable.

Figure No 2: Recursive residuals' cumulative sum (CUSUM)
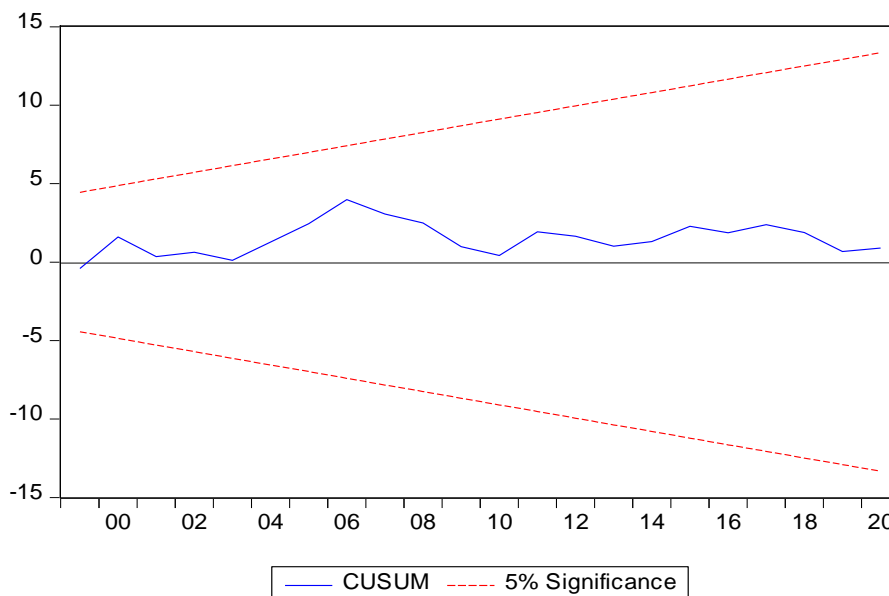
To check if a process is straying from its mean, utilize the CUSUM chart and test. The process's mean value is the CUSUM chart's focal point. When the sums of the standardized deviations cumulatively surpass a specific range, the process is considered "out of control.". In this analysis, the line is not surpassing the specific range.

Figure 3: Cumulative Sum of Recursive Residual Square (C.U.S.U.M.S.Q.) results
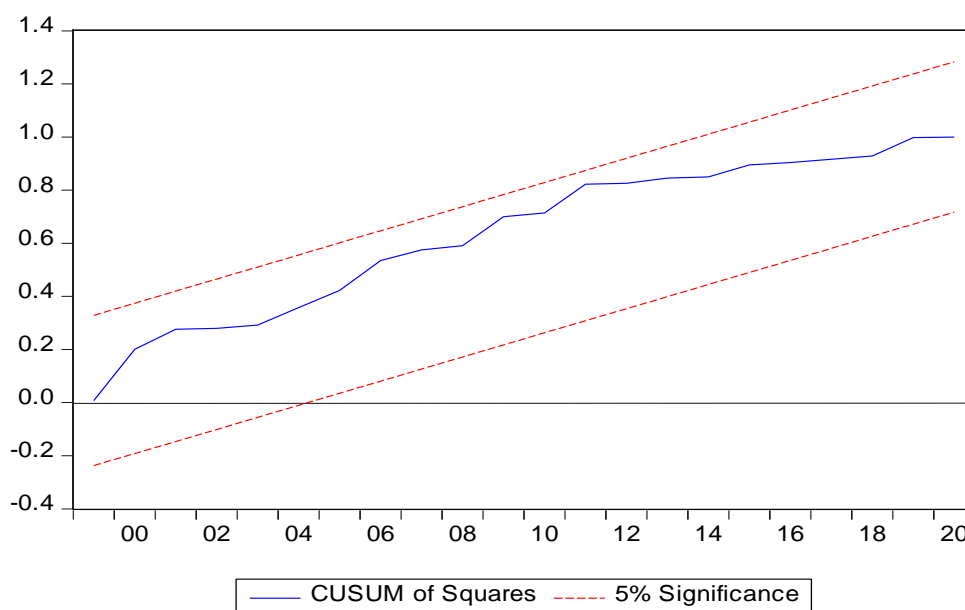
Whether or not the regression error variance is included in the set of changing limitations, especially towards the end of the sample, the C.U.S.U.M.S.Q test should be used instead because it is highly effective at detecting changes in the conditional model parameters. It is also in the specific range.

5. Conclusion and Policy Recommendations

Stock markets worldwide are discovering the best possible results that can increase trading efficiency, reduce risk in stable markets and increase investment opportunities. No doubt, the operations of a stock exchange include very hectic and challenging processes that are time intensive and subject to numerous risks.

This research showed an efficient and stable picture of the Pakistan Stock Exchange Market Capitalization that can be useful for local and international investors. This study estimated the impact of multiple macroeconomic factors and the performance of the Pakistan Stock Exchange from 1992 to 2021. Empirical data supported assumptions regarding foreign portfolio equity, foreign direct investment, Inflation, and gross fixed capital formation positively impacting Pakistan's Stock Exchange market capitalization. Only the variable Exchange Rate proved a significantly negative relationship with the market capitalization of PSX.

While we compared our results with other related studies, Igoni et al. (2020) concluded that Inflation negatively impacts market capitalization, but our results are adverse compared to Igoni's study. In terms of exchange rate behavior was the same. As mentioned by Chiad et al., (2022) that equity markets act a piovital role in the progress and development of economy, and we should have control of the exchange rate. So, our studies concluded that the exchange rate

should be controlled by policymakers that will adjust Stock Market Capitalization towards equilibrium and sustainable growth.

This research proved that the listed companies in PSX require considerable attention to boost their operations effectively and efficiently to raise the market capitalization of corporations. The study has concluded that the exchange rate has affected the market capitalization adversely. Very dynamic behavior has been seen in the last decade. Even in the last two years, the KSE-100 index of PSX has decreased from 48726 points in June 2021 to 42142 points in June 2023.

These results widely reflected various indicators that affect the functioning of the PSX's market capitalization and its components, like KSE-100, KSE-30, KMI (KSE Meezan Index) index, PSX Dividend 20 Index, etc. This innovative study contributes to the literature regarding various indicators affecting Pakistan Stock Exchange and its Market Capitalization. However, various limitations were there to conduct this research, like limited time, resources, and specific data. Suppose we emphasize time, resources, and more recent data, then results may be more purified. In that case, we may retrieve more accurate results by various diagnostics and estimations to know the most recent picture of the Pakistan Stock Exchange Market Capitalization.

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