Asian Journal of Accounting and Governance 26(2026) ISSN2180-3838
e-ISSN2716-6060
(http://dx.doi.org/10.17576/AJAG-2026-26-4)

Derivatives as Risk Hedging Instruments for Enhancing Firm Value

REHAN AFTAB, ASMA ZEESHAN, RAMEEZA ANDLEEB & SAJJAD HANIF

ABSTRACT

Amid persistent currency fluctuations and interest rate volatility across South Asian economies, firms face heightened exposure to financial risk that threatens value stability. In purview of this, the underlying work analyzes the effect of hedging techniques i.e. foreign currency derivatives, interest rate swaps, and commodity forwards on the value of firms operating in the South Asian region. The analysis draws on a sample of 116 non-financial listed firms from Pakistan, India, and Bangladesh over the period 2015 to 2024. A System-GMM approach is applied to secondary data obtained from the financial reports of sample companies, complemented by robustness checks to ensure the consistency of results. The findings reveal a strong impact of foreign currency derivatives, interest rate swaps, and commodity forwards on the value of sample firms, showing that firms employing derivative instruments achieve higher firm value through improved risk mitigation and financial stability. Theoretically, the study extends the Shareholder Wealth Maximization framework by establishing the value relevance of structured hedging in emerging markets. Managers should integrate these instruments into risk management frameworks to mitigate financial volatility and improve performance stability. Practically, the findings highlight the importance of stronger governance mechanisms, including enhanced risk disclosure and formalized hedging policies, to support effective financial risk management. This study uniquely provides empirical evidence on the value-enhancing role of multiple derivative instruments in the South Asian context using a System-GMM approach.

Keywords: Foreign currency derivatives; interest rate swaps; commodity forwards; firm value

INTRODUCTION

The financial innovations have driven new securities in the market other than the direct financial instruments. Derivatives are the outcome of changing financial landscape. The developments of financial products and securities have led to the creation of alternate financial securities to traditional security instruments (Aftab et al. 2026). The derivatives as indirect financial instruments are used for risk management rather than traditional financing techniques (Kamal & Awan 2025). The derivative securities obtain their value from an underlying asset. These instruments are basically risk hedging tools that arise from the title of principal asset (Khan et al. 2025; Figlewski 2017). The research work pertaining to the scope of derivatives is valuable due to the significance of the derivatives in modern financial landscape. The role of derivatives in the key area of risk management and their subsequent significance for organizations derive the need for research work to underpin the role these can play in the financial markets (Reyad et al. 2022).

The study of Amewu et al. (2023) come up with the implication of undertaking business risk management through derived instruments like currency derivatives. They summed up that the foreign currency derivatives lead to economic and financial benefits for the firms using them. Another contribution to the effectiveness and uses of derivatives comes from the work of Sittisawad & Sukcharoensin (2018), these authors presented the fact that volatility and liquidity are the driving factors in the market, which enables firms to use derivatives as financial instruments. According to the study of Luo & Wang (2018) financial derivatives are source for hedging risk, this leads to enrichment of firm's value. Derivatives being the tool for risk management are in use across diverse economies of the world including developed, emerging and developing economies. Firms operating at small and large scale are exposed to risk due to fluctuating prices in the commodities market and foreign exchange (Carter et al. 2017). This generates the need for risk hedging techniques to manage risks. Derivatives can manage both systematic and unsystematic risks (Chu et al. 2025).

Further, the COVID-19 disruptions intensified macroeconomic instability greatly, in terms of sudden depreciation of the country's currency, sudden perturbations in supply chains, and high uncertainty around interest rates, increasing the exposure of companies to financial risks. The author's theoretical postulation of the use of derivatives in volatile environments is strengthened through their key observations on short versus long-term derivative instruments, as well as their different cost structures and effectiveness (Clark & Judge 2009). The pandemic COVID-19 brought unprecedented shocks in the global and South Asian economies thus increasing the volatility of exchange rates, liquidity constraints and volatility in the interest rates. These shocks revealed increased financial hazards to firms, highlighting the need for strong hedging tools to protect the value of the firm and enhance its operational and financial capability.

The literature from different economies is reviewed to apprehend the context and basis of the problem requiring further examination. According to the study of Buston (2016) derivatives can potentially serve for stability of banks. The management

of risk using the credit derivatives leads to financial stability in contrast to non-usage of credit derivatives. Another study of Bae et al. (2018) in developed market examined foreign exchange risk management using foreign currency derivatives. The study concluded that firms with low level of exposure to the foreign exchange market can manage the associated risk and subsequently derive substantial firm value. The natural resources firms of Canada are examined for their use of financial derivatives for working capital management by Kieschnick & Rotenberg (2016). This study implied that financial derivatives are effectively used as tools for risk hedging and their adoption help in management of working capital. According to Chen et al. (2017), the acquirer using financial derivatives has strong implications in terms of long-term performance. Also, Ayturk et al. (2016), concluded that interest rate swaps and commodity forwards are significant tools for risk management under dynamic environments causing fluctuations in cash flows.

The reviewed evidence from varying economies highlights foreign exchange exposure and financing on floating interest rates as major risks for firms. The evidence also suggests fluctuation in commodities prices as potential risks to firms. It is explored that foreign currency derivatives are in use to manage the exposure of foreign currency. Also, the commodity derivatives are risk hedging measures to encounter price fluctuations in commodity markets. So, the studies pertaining to financial derivatives and their impact on firms are highly valued and reviewed. And it is important to study the adaptation of currency derivatives, interest rate swaps and commodity forwards for risk management of businesses with varying nature of activities and different sets of exposure.

This study contributes by examining the use of derivatives by firms in South Asian Markets including Pakistan, India and Bangladesh. The financial, services and manufacturing organizations are exposed to changes in prices over time which brings risk for them. The change in the foreign exchange rates is one considerable problem for companies engaging in foreign transactions (Gyntelberg et al. 2018). These economic sectors of the country need to manage their foreign currency risk for better operational and financial performance. Likewise, firms are obtaining credit financing on floating interest rates and the hence exposed to interest rate volatility (Oberoi 2018). Moreover, changes in the prices of commodities in market prompts firms to indulge in forward contracts. So, the problem is the management of prices risk, floating rate risk and foreign exchange risk as they jointly lead to financial problems for firms. Therefore, the current study attempts to address the issue of risk imposed due to volatility in cash flows. It analyzes the usefulness of derivatives like currency, interest rate swaps and commodity forwards for management of firm value.

An often-debated question on the improving role of derivative instruments in firms' value creation is especially relevant for the emerging markets context where macroeconomic volatility tends to be more relevant. There has been conflicting evidence in prior literature regarding the success and importance of corporate hedging. For example, Guay & Kothari (2003) question if derivatives are significant enough to significantly impact firm value because they typically make up a small percentage of the overall risk exposure on the firm’s balance sheet. More recent thinking on derivatives, however, focuses on the importance of derivatives for structured risk management strategies. Moreover, the success factor of hedging is not only derivative usage but also measures and behavioral issues. Lau (2026) brings in the idea of 'quantity risk', considers the performance of derivatives in terms of gains and losses and draws attention to the issue of ineffectiveness of hedges and gives a more nuanced way of thinking about the way that derivatives shape firm outcomes. This paper reviews the value implications of foreign currency derivatives, interest rate swaps, and commodity forward contracts in the South Asian context where business firms are much more vulnerable to financial volatility and an exogenous shock.

These three economies have been selected and theoretically and empirically justified. Pakistan, India, and Bangladesh are key markets in South Asia with growing links with the markets of the world, thus subjecting the firms to significant foreign exchange risks. Simultaneously, these economies are structurally distinct with respect to the size of the financial market, the amount of derivatives trading, and regulatory supervision over products in the derivatives, giving room to analyze whether hedging works in different institutional environments. From a theoretical point of view, this study is an advancement of the Shareholders' Wealth Maximization framework because the impact of derivatives on firms' value is displayed clearly in this study regarding how the derivatives can impact such value. Hedging activities increase the likelihood that cash will not be as volatile in the future, therefore providing more of a base of stability within their expected cash flow. Along with the provision of cash flow stability, reducing the amount of expected cash flow fluctuation, hedging also lowers the risk of financial distress and cost of external financing. This in turn enables companies to go ahead with investment opportunities that could not otherwise be pursued under uncertainty if the companies were to forgo chasing value creation opportunities while waiting to investigate them.

Moreover, this study highlights the general macroeconomic conditions of 2015–2024, which have faced wide fluctuations with exchange-rate depreciations and inflation shocks, along with interest rates fluctuations across South Asia. These events have sharpened firms' vulnerability to financial risks, making it even more critical for proper hedging strategies. These macroeconomic forces are integrated into the study's motivation, giving the analysis a dynamic approach to studying derivatives and placing corporate hedging amid a period of greater economic uncertainty. Lastly, the nature of the contribution of this study goes beyond geographical scope and yet points out directions for accounting practices, corporate governance and risk

disclosure. Financial reporting and disclosure requirements are required to be transparent, and to clearly show the distinction between hedging and speculative purpose, when derivatives are used.

LITERATURE REVIEW

THEORY RELATED TO RISK HEDGING AND FIRM VALUE

Shareholders wealth maximization theory governs derivatives and their usage as tool for risk hedging, (Butt et al. 2024). The value maximization is possible with the effective and timely management firm's future cash flow coming from various sources. Firm's management use hedging techniques to manage certain fluctuations in the cash flow. The cash flow of the company determines the value of the firm, hedging enables the streamlining of cash flow thus leading to attainment of expected value (Bartram 2019). The cost of financial distress occurs due to negative movement of cash flows, and the hedging of cash flows reduces financial distress costs. Therefore, the firm's value is sustained or improved with hedging risk associated with the cash flows of the company (Habib et al. 2020). This perspective of shareholders value maximization theory is captured in this study with analysis of risk hedging using financial derivatives and subsequent firm's value (Danisman & Demirel 2019).

Although the maximization of shareholders' wealth and financial distress frameworks offer a starting point to establish a rationale for hedging, there is a need for a more extensive linkage of the theory within agency theory, information asymmetry and governance theory. Derivatives can supplement the value of the firm by smoothing out cash flows and eliminating cash flow volatility, this reduces the underinvestment problem and expected distress costs. Under weak governance, agency theory implies that managers may have motives for derivatives use other than value maximization, which may include self-interests or speculations. Magnan & Markarian (2011) points out that in this respect, stressed market conditions could prove to be a risk with governance failures, impacting hedging effectiveness. In addition, accounting-minded viewpoints also note that the accounting for hedge transactions and fair value reporting impact management incentives and reported earnings fluctuations. Disclosure quality and risk management behavior influence the usage of derivatives and their relation to the firm value (Hwang 2002; Crawford et al. 1997).

FOREIGN CURRENCY DERIVATIVES AND FIRM VALUE

According to Jarrow (2019), the firms are dealing in foreign currency which leads to exchange rate risk. The currency derivative hedges against the risk due to foreign dealings (Amewu et al. 2023). Currency derivative instruments allow buying and selling of currencies in the future period at predetermined rates (Nguyen et al. 2018). The study of Bae et al. (2018) analyzed the foreign currency exposure and its impact on Korean firm's value, risk and performance. The study concluded that the use of currency derivatives for hedging seems viable for firms with manageable or sizable currency exposure.

Álvarez Espinoza and Hansen (2017) concluded that the non-financial firms to attain foreign loans are using foreign currency derivatives as hedging tool. The study states that the usage of foreign loans derives the need for using foreign currency derivatives. Ito et al. (2016) in their scholarly work examined the risk management of firms through foreign currency derivatives. To establish control over foreign currency exposure, the firms are frequently using derivatives instruments based on foreign exchange. It leads to better financial performance and enhanced firm value for companies. Another study of Luo (2016) empirically tested the impact of foreign currency derivatives on the value of firms. He concluded that the use of currency derivatives to manage risk leads to significant and improved corporate value. According to Luo & Wang (2018), the hedging of foreign currency leads to higher corporate value for the firms. Sialm & Zhu (2024) evaluated the usage level of derivatives for currency risk management. They concluded that financially distress firms are making effective use of currency derivatives for better control over risk. Chaudhry et al. (2014) also evaluated the usage of derivatives and their impact on firm's value through management of risk pertaining to currency exposure. They found that financial firms are using more derivatives than non-financial firms for risk management. Moreover, the concentrated owners are using derivatives to little extent while executives are supporting the use of derivatives (Asghar Butt et al. 2018).

Few papers report on the positive impact of currency hedging on firm value because it reduces exchange rate exposure, whereas other papers cite the lack of economic significance and the intention. It is argued that derivatives offer relatively small value impact for firms as they lead to a relatively low proportion of firms' exposures, as argued by Guay & Kothari (2003). Likewise, Lin et al. (2007) suggest that a firm can provide a speculative use of currency derivatives that could reduce or even eliminate the positive effects on the expected value. Later research introduces the idea of quantity risk and hedge ineffectiveness, suggesting that some hedging firms have more successful brands than others. The opposing results suggest that the link between foreign currency derivatives and the firm's value requires further empirical examination. Majority of the studies show positive impact of currency hedging on firm value. So, from the empirical evidence it is hypothesized that:

H_1 There is a positive impact of foreign currency derivatives on the value of firm.

INTEREST RATE SWAPS AND FIRM VALUE

Interest rate swaps are also used as derivative instruments because of the intent to hedge risk. It is the agreement between two parties, whereby both agree to exchange the cash flows with fixed and floating rate of interest (Gürkaynak et al. 2022). According to the study of Zhao & Moser (2017), the banks involved in lending make certain interest rate derivatives arrangement in the form of swaps, options and forwards to manage their systematic risk exposure. Similarly, the study of Luo (2016) conducted analysis of listed Chinses firm for 14 years on quarterly data. The researcher analyzed the impact of foreign currency and interest rate derivatives on the value of listed firms. They come up with the conclusion that the undertaking of financial derivatives for risk management leads to positive and improved implications for firm's value. The firms using hedging techniques have improved firm value in contrast to the non-hedging firms. Another study concluded the positive impact of interest rates swaps on Indian firm's value (Alam & Gupta 2018).

The interest rate swaps are typically linked to financial stability and to diminish the influence on interest rates volatility. But these are effective to the extent of the market conditions, accounting treatment, and specific financial structure of the business enterprise. Krug (2015) expresses concern at the excessive use of swaps; he also notes regulatory and systemic issues with the markets in derivatives. Fair value reporting frameworks, in addition, can cause greater volatility in earnings, which may offset the stabilizing effect of swaps. Lins et al. (2011) demonstrate that the fair valuation effect on a swap has more of an accounting than operational effect on firms' risk-management activities. These findings argue that interest rate swaps are sensitive to regulatory environment and financial reporting standards in determining the relation between interest rate swaps and firm value. The critical review of the literature suggests that hedging using interest rate swaps has an impact on the value of firms. Therefore, it is hypothesized:

H_2 There is a positive impact of interest rate swaps on the value of firm.

COMMODITY DERIVATIVES AND FIRM VALUE

The derivative instrument whose value depends on the underlying commodity is recognized as the commodity derivative (Chu et al. 2025). Commodity derivatives are widely used for risk hedging due to the fluctuations in the prices of the commodities. According to the study of Roncoroni et al. (2015), commodity derivatives are the effective risk hedging tools for companies having majority of the dealings in commodities as assets. Therefore, the undertaking of commodity derivatives seems a technique for hedging in commodities market. The use of derivatives for hedging, including both currency and commodity derivatives lead to effective management of working capital (Uluyol 2024). The management of working capital is determinant of firm value (Aktas et al. 2015). According to Kieschnick & Rotenberg (2016), hedging strategies in form of commodity forwards and other financial instruments are positively related to effective arrangement of short-term capital thus leading to enhancement in the value of firms. Villanueva-Villar et al. (2016) studied the non-financial firms, which are undertaking derivatives arrangements to manage foreign currency, interest rates and commodity prices fluctuation risks. Commodity derivatives seem to have positive and significant impact on value of sample firms.

Most cases of hedging price volatility of inputs, especially in import–sensitive economies, are for commodity derivatives. While margins are expected to pull in on growing hedges, there's more mixed empirical evidence. The potential benefits from hedging are cited as cost predictability in some studies while others suggest that there is a fall in firms' value if hedging is used in conjunction with aggressive investment strategies. A case in point is the research by Ullah et al. (2023) which indicates that firms' value could be adversely related to capital expenditure and hedging operations, indicating potential over investment or resources getting misused. Further, changes in accounting rules impact hedges in ways that Beisland & Frestad (2013) described that the rules can change the amount and effectiveness of the use of derivatives. This research calls attention to the importance of considering the strategic context and regulatory restrictions in assessing the results of commodity hedging. From review of literature in relation to commodity forwards and their possible impact on the value of firm, it is hypothesized for this study that:

H_3 There is a positive impact of commodity forwards on the value of firm.

CONTROL VARIABLES AND METHODOLOGICAL SYNTHESIS

The empirical analysis of Li et al. (2014) to examine the impact of financial derivatives on the value of firms concludes inclusion of few variables as control measures in the model. They suggested firm size, leverage and profitability should be controlled for better implications of the model and relevant empirical analysis. Firm size is one significant determinant of proactive approach to hedging decisions. The managers in the large firm are more vigilant to hedge risk against the fluctuations in the market. Whereas the managers in small firms with limited resources lack behind in the use of financial derivatives as risk hedging tool

(Luo & Wang 2018). Firms with operating losses are unable to attract investors. Therefore, the profitability of firm has an impact on the value of firm. So, the profitability measure of firms should be considered as control variable to the study (Luo & Wang 2018). Leverage means the debt in the capital structure has an impact on the corporate value (Meah 2019). Debt financing leads to tax savings thus can influence the value of firm and the firms with high level of leveraging can unnecessarily face financial distress (Li et al. 2014; Luo & Wang 2018).

In addition, there is methodological variation contributing to differences in findings in these strands. They use methods ranging from survey-based analysis, GARCH model, dynamic panel estimation, to the hedge-effectiveness framework. Each of these methodological differences' accounts for some of the disparate findings, since they each represent a different side of risk exposure and hedging behavior (Li et al. 2014; Luo & Wang 2018). Hence, a dynamic panel model (like System-GMM) could be found to be more appealing than other models in correcting the endogeneity problem as well as accounting for firm value persistence while remaining, however, to be interpreted in conjunction with the results from other approaches.

METHODOLOGY

RESEARCH DESIGN

This study follows quantitative research approach based on secondary data gathered from reliable sources. For empirical testing, the secondary data is collected from published sources of the companies. The figures related to variables are gathered from annual reports of the companies. Lau (2026) and Clark and Judge (2009) have adopted the same type of approach for data curation while working with derivatives, short-term and long-term hedging instruments and quantity risk. The data is collected for 10 years starting from 2015 to 2024. The data for the stated series comes from listed companies of three recognized stock exchanges in the South Asian region. Firms' details include 65 non-financial companies from KSE-100 index, 33 non-financial companies from NIFTY-50 index and 18 non-financial companies from DSE-30 index.

The timeframe is selected based on data availability; it was considered that data before 2015 would not be very useful for the analysis of this research because there is very limited data available for the analysis.

The study was limited to the period 2015 to 2024 to reflect significant changes in the macro-economic and financial environment in South Asian countries and was not only constrained by the availability of data. This initial year, 2015, is a pre-disruption of the massive regional and world-wide financial shock that followed the next decade and serves as a good pre-pandemic indicator. 2024 refers to the adjustment period after the COVID-19 crisis and represents a period of considerable exchange rate tension, inflationary pressures, interest-rate increases and commodity-price volatility in South Asian economies. The 10-year period thus brings together the pre-pandemic, the pandemic and the post-pandemic, enabling a thorough examination of whether derivative-based hedging has a beneficial effect on firm value in various markets. Apart from the baseline system-GMM application, the model is re-estimated to assess the robustness of the results while considering potential impact of the COVID-19 pandemic. A dummy variable for (2020–2021) is inserted for COVID-19 in the model.

The study utilizes balance panel of non-finance listed companies in Pakistan, India and Bangladesh from 2015 to 2024. The sample is deliberately selected to be representative and comparable by specific inclusion and exclusion criteria compared to convenience sampling. Firms included provided that: (i) they are continually listed throughout the sample period; (ii) they provide information on derivatives used in annual reports; (iii) there is no missing financial data on the variables used in the analysis. Financial companies were excluded because of the difference in the regulatory system and how derivatives are used. Further, firms that fail to disclose or have different disclosures of derivatives are being eliminated to ensure that data is reliable. It aligns with previous corporate finance research that use disclosure-based filtering to form a derivative-use sample. All continuous variables in financial data are winsorised at the 1st and 99th percentile to reduce the impact of extreme values that are typical of financial data for firms. In such a way, outlier values will not influence the resulting estimation results disproportionately as long as maintaining the general distribution of the data. Before estimation of every model, the winrosorization process is applied to all variables.

MEASURES OF VARIABLES

The following section has the measures for each variable used in the study. The measures for each variable are finalized based on the literature review and the availability of data for the selected sample. Data constraint restricted the use of variables and measures in this study. An important methodological development is in the measure of derivative variables. For this study, foreign currency derivatives, interest rate swaps and commodity forwards are represented by the reported fair values of derivative financial instruments (both derivative assets and derivative liabilities) in firms' annual financial statements. The fair value instead of notional value approaches show the economic exposure of derivative positions and the mark-to-market valuation principles and are consistent with such approaches in accounting. Log of all variables (to the base of e) is taken to alleviate skewness and to dampen the effects of extreme observations. All monetary figures are expressed in the same currency

(USD) to facilitate cross-country comparisons. Unlike Prasad's work on 'scaling by total assets,' this study follows previous work of Guay & Kothari (2003) that warns that scaling might understate the actual size of the derivatives position in the overall economy of a firm, especially when firm exposure levels are not comparable.

INDEPENDENT AND DEPENDENT VARIABLES

The independent variables, which include currency derivatives, interest rate swaps and commodity forwards are measured using the monetary values of these derivatives taken from the annual reports of the sample companies (Bartram et al. 2011). Moreover, Tobin Q as dependent variable is measured as the ratio of stock market value plus net liabilities divided by book value of tangible assets plus replacement prices of inventories (Allayannis et al. 2012). Its formula is:

$$Tobin\ Q = \frac{Market\ Value}{Assets\ Value}$$

CONTROL VARIABLES

The firm size being the first control variable in the study is measured using the log of total assets (Li et al. 2014; Luo & Wang 2018). The leverage of firms is measured using the broadly practiced technique that is debt ratio (Luo & Wang 2018):

$$Leverage = \frac{Total\ Liabilities}{Total\ Assets}$$

The returns on assets of a firm are also controlled as it is analyzed in literature that firms with high profitability leads to more value of Tobin Q. The net income after the reduction of dividend is divided by the average value of total assets to get return on assets (ROA) (Luo & Wang 2018; Li et al. 2014).

$$ROA = \frac{Net\ Income - Dividend}{Avg\ Total\ Assets}$$

MODEL SPECIFICATION

The estimation equation for this paper is devised for analysis using generalized method of moments (GMM) model. Dahir et al. (2018) conceptualized the use of dynamic or static models for empirical analysis of developed hypotheses. GMM model is employed to test the intended relationship as it is in accordance with the structure of data and empirical evidence (Kiviet et al. 2017). The estimations based on OLS, fixed and random effect might lead to problems recognized as endogeneity, so system-GMM estimation overcomes this flaw in the traditional estimators. So, the system-GMM equation including the variables pertinent to this study is given in equation 1.

$$TQ_{it} = \alpha_0 + \delta\, TQ_{it-1} + \beta_1(FCD)_{it} + \beta_2(IRS)_{it} + \beta_3(CF)_{it} + \emptyset X_{it} + \mu_{it}$$

In stated equation 1, TQ is Tobin's Q taken as the dependent variable. *i* is the cross section known as firm for the time *t*. $\delta\ TQ_{it-1}$ relates to lagged Tobin's Q value for a firm at given time. FCD is the value of foreign currency derivatives, IRS is the value of interest rate swaps and CF is the value of commodity forwards. *β1, β2* and *β3* are the coefficients to FCD, IRS and CF. Lastly, μ_{it} is the disturbance term. X_{it} refers to the inclusion of control variables in the model. Another redeveloped equation 2 containing the influence of firm specific effects and heterogeneity is:

$$TQ_{it} = \alpha_0 + \delta\, TQ_{it-1} + \beta_1(FCD)_{it} + \beta_2(IRS)_{it} + \beta_3(CF)_{it} + \emptyset X_{it} + \eta i + \mu_{it}$$

η_i here in equation 2 refers to the firm specific heterogeneity. Firm size and leverage are the firm specific variables counted for the firm specific heterogeneity. There are several econometric issues underlying the hedging–firm value relationship that justify the use of System-GMM. Firstly, reverse causality might be a problem: Risk management practices could occur in higher valued firms. Secondly, simultaneity is because of the use of derivatives, and the firm value can be determined simultaneously. Thirdly, omitted variable bias can arise, because firm-specific factors like firm management's risk preferences or governance are not observed. All these problems are overcome in System-GMM by using internal instruments based on the values of the endogenous variables one step behind. The study is based on the two-step System-GMM estimator using robust (Windmeijer-corrected) standard errors to enhance efficiency in line with best practices. The matrix of instruments collapses

and limits to allowable lag lengths to reduce instrument proliferation. The number of instruments is minimized to assure model validity given a lower number of instruments and lower number of cross-sectional units. The instruments are validated and no second-order autocorrelation is found in the data based on the results of the diagnostic tests such as Hansen's J-test to over identify restrictions and Arellano – Bond AR (1) and AR (2) tests to detect serial correlation. The analysis using system-GMM is organized in proceeding section.

RESULTS ANALYSIS AND DISCUSSION

The collected data is first analyzed using descriptive summary. The table 1 provided below contains the outcomes of the descriptive statistics for all variables being considered in the study.

TABLE 1. Descriptive statistics

	N	Mean	S.D	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic	Statistic
FCD	1160	2.978	0.988	-0.239	-0.262
IRS	1160	2.197	0.911	0.801	-0.758
CF	1160	1.934	0.912	0.232	0.922
TQ	1160	1.572	0.703	1.742	-0.335
FS	1160	14.233	1.983	0.532	1.234
Lev	1160	0.328	0.211	-0.621	0.631
ROA	1160	0.037	0.028	-0.315	-1.453

Note: $-2 < |S| < +2$, $-2 < |K| < +2$

In table 1, 1160 is the total number of observations for all variables included in the study (N = 1160). The normality is assessed using skewness and kurtosis. George and Mallery (2010) states values between + 2 and -2 as the acceptable criterion for normality. In the above table, the values of kurtosis and skewness for all variables are in the acceptable range ($-2 < S < +2$, $-2 < K < +2$). The central measure obtained is represented by mean values as presented in the table. After descriptive analysis in table 2, correlation analysis is presented.

TABLE 2. Correlation analysis

	FCD	IRS	CF	TQ	FS	Lev	ROA
FCD	1						
IRS	.634**	1					
CF	.659**	.660*	1				
TQ	.551**	.679**	.538**	1			
FS	.489*	.514**	.409*	.612**	1		
Lev	.589***	.490*	.611**	.534**	.471*	1	
ROA	.568**	.423*	.439***	.691**	.402**	.588*	1

Note: *** significant at 0.01 level, ** significant at 0.05 level, * significant at 0.1 level

The correlation analysis provided above resembles moderate level of correlation between variables in most of the bidirectional statistics. Moreover, the obtained values for correlation between variables are also statistically significant at three different levels of confidence intervals ($p < 0.01$, $p < 0.05$, $p < 0.1$). Primarily, it gives an indication of no multilinearity but to confirm this Variance Inflation Factor (VIF) statistics are presented in table 3.

TABLE 3. VIF test

Variables	VIF	Tolerance
FCD	2.09	0.462
IRS	1.94	0.534
CF	1.81	0.573
FS	2.26	0.427
Lev	1.71	0.590
ROA	1.89	0.526
Mean VIF	1.95	

The VIF values are in the acceptable range of 5. The values of all independent variables in the study are below 5, which indicates absence of multicollinearity. After the correlation and VIF analysis, the panel unit root test is conducted to check the stationarity of the variables included in the study. Table 4 shows the unit root statistics for all the variables.

TABLE 4. Panel unit root test (Levin–Lin–Chu and Im–Pesaran–Shin Tests)

Variables	LLC Statistic	p-value	IPS Statistic	p-value	Order of Integration
TQ	-3.842***	0.000	-2.917***	0.002	I(0)
FCD	-4.215***	0.000	-3.104***	0.001	I(0)

IRS	-3.566***	0.000	-2.788***	0.003	I(0)
CF	-2.943***	0.002	-2.301**	0.010	I(0)
FS	-3.128***	0.001	-2.544**	0.006	I(0)
Lev	-2.776***	0.003	-2.119**	0.017	I(0)
ROA	-3.654***	0.000	-2.862***	0.002	I(0)

Note: ***, ** denote significance at 1% and 5% levels respectively.

The panel unit root tests produced by LLC and IPS confirm that there are no unit roots at level for the all the variables, as their statistics are significant. This implies that there are no unit root violations thereby ruling out spurious regression concerns. No major deviations of variables from normality are observed, reinforcing the validity and suitability of the use of the System-GMM estimation approach. After panel unit root test, following table 5 shows outputs of Pesaran CD test.

TABLE 4. Pesaran CD test

Variable	Pesaran CD Statistic	p-value
TQ	7.241	0.000
FCD	6.573	0.000
IRS	5.002	0.000
CF	5.131	0.000
FS	6.221	0.000
Lev	4.818	0.000
ROA	6.331	0.000

The Pesaran CD test implies that the sample firms are found to be statistically dependent across section, a finding that implies that firms can have a simultaneous exposure to common regions and macroeconomic shocks. This is plausible as the financial and economic conditions of the South Asian countries interrelate with one another. The System-GMM estimator considers the potential for endogeneity of explanatory variables and for dynamic dependence among explanatory variables. Thus, cross-sectional dependence is claimed not to be a missing feature in the data but instead is recognized as a feature of the data. Finally, tests with various specifications measure the robustness of the main results to rule out that the estimated relationship between derivative use and firm value is due only to the common shocks. After Pesaran CD test, following is table 6 showing the outcome statistics of system-GMM. The dependent variable in the GMM estimation is Tobin Q.

TABLE 6. System-GMM Output TQ as DV

Dependent Variable: TQ		
Variables	Coefficient	z- statistic
TQ_{it-1}	0.623***	4.19
FCD	1.234***	3.91
IRS	5.031*	1.75
CF	0.931**	2.29
FS	8.219*	1.71
Lev	2.942**	2.09
ROA	1.435**	2.06
Constant	-4.352	-1.19
Model Statistics		
No. of Observations	1160	
No. of Groups	116	
No. of instruments	38	
Wald χ^2	409.75***	
Diagnostic Test		
AR (1): p-value	0.000	
AR (2): p-value	0.213	
Hansen test: p-value	0.131	

Note: *** significant at 0.01 level, ** significant at 0.05 level, * significant at 0.1 level.

At first, the Hansen test confirms the consistency of instruments as it fails to reject the null hypothesis. AR (1) statistics state the presence of first-order serial correlation (AR (1) = $p < 0.01$). Secondly, AR (2) statistics show absence of second order serial correlation as the results are insignificant. The main findings inferred from the application of GMM are pertaining to the coefficients and significance values of independent variables. The unit change in lagged Tobin Q of previous period advances the Tobin Q by 0.623 in the current period.

The foreign currency derivatives coefficient as 1.234 concludes with a positive impact on the value of firm. This effect is significant at 1 percent of confidence interval ($p < 0.01$). Firm's value enhances for companies using foreign currency derivatives as risk hedging measures. So, the analysis infers that active participation in foreign currency derivatives has strong implications for companies in terms of improvement in firm value. Luo (2016); Bae et al. (2018); Alam & Gupta (2018) in

terms of foreign currency derivatives usage have concluded the same impact that foreign currency instruments have significant role to play in enhancement of firm's value.

The interest rate swap coefficient as 5.031 infers positive impact on the value of firm. This effect is significant at 10 percent of confidence interval ($p < 0.1$). Firm's value increases for companies, which use interest rate swaps for hedging risk due to changes in interest rates. Alam & Gupta (2018); Villanueva-Villar et al. (2016); Xiao et al. (2016) in relation to interest rate swaps and firms value have the same findings as obtained in this study analysis. The commodity forward coefficient as 0.931 resembles positive impact on the firm's value. This effect is significant at 5 percent of confidence interval ($p < 0.05$). Firms value improves for companies engaging in forward contracts to reduce risk due to volatility in commodity prices. The analysis that commodity forwards lead to an impact on the value of firm is supported by Villanueva-Villar et al. (2016) and Kieschnick & Rotenberg (2016).

Firm size coefficient value of 8.219 shows positive and significant impact on the value of firm ($p<0.1$). It means companies with large presence in terms of their assets value have high level of firm value. Leverage coefficient value of 2.942 shows direct and significant impact on the firm's value ($p < 0.05$). It means companies with more availability of funds or high leverage ratio usually have high level of firm value. Profitability (ROA) coefficient value of 1.435 concludes a positive and significant impact on the firm's value ($p < 0.05$) showing companies with more profits have more firm value in contrast to other firms. The results of firm size, profitability and leverage in relation to the value of firm are consistent to the studies of Ibhagui & Olokoyo (2018); Vithessonthi & Tongurai (2015); Luo & Wang (2018) and Li et al. (2014).

After the baseline model, the system-GMM is re-estimated to examine the impact of pandemic while inserting the COVID 19 dummy for 2020 and 2021. The model estimations are presented in table 7.

TABLE 7. System-GMM Output TQ as DV

Dependent Variable: TQ		
Variables	Coefficient	z- statistic
TQ_{it-1}	0.512***	3.99
FCD	1.109***	4.01
IRS	5.001**	2.19
CF	0.871*	1.79
COVID D	−0.011	0.419
FS	7.919*	1.80
Lev	1.928**	2.11
ROA	2.513**	2.15
Constant	-3.241	-1.31
Model Statistics		
No. of Observations	1160	
No. of Groups	116	
No. of instruments	39	
Wald χ^2	412.66***	
Diagnostic Test		
AR (1): p-value	0.000	
AR (2): p-value	0.231	
Hansen test: p-value	0.147	

Note: *** significant at 0.01 level, ** significant at 0.05 level, * significant at 0.1 level.

The COVID-19 dummy is statistically insignificant ($\beta = -0.011$, $p = 0.419$), indicating that the pandemic did not exert a statistically discernible effect on firm value after controlling firm-specific dynamics and other explanatory variables. Moreover, the coefficients of the principal derivative variables remain stable in magnitude, sign, and significance, providing evidence that the main findings are not driven by pandemic-related disruptions.

ROBUSTNESS TESTS

Few robustness tests are employed in the study, which include changes in the measure and model specifications. Price to book ratio can be the measure the firm value in addition to the use of Tobin Q (Nezlobin et al. 2016). Table 8 provided below has the results of system-GMM using price to book ratio as dependent variable.

TABLE 8. System-GMM Output P/B as DV

Dependent Variable: P/B		
Variables	Coefficient	z- statistic
TQ_{it-1}	0.601***	4.01
FCD	1.102***	3.51
IRS	3.567**	2.31
CF	1.230**	2.39
FS	6.492**	2.21
Lev	2.201*	1.71
ROA	2.091*	1.67
Constant	-2.291*	-1.65

Model Statistics	
No. of Observations	1160
No. of Groups	116
No. of instruments	38
Wald χ^2	365.48***
Diagnostic Test	
AR (1): p-value	0.000
AR (2): p-value	0.288
Hansen test: p-value	0.182

Note: *** significant at 0.01 level, ** significant at 0.05 level, * significant at 0.1 level.

The model summary of system-GMM using P / B ratio states the consistent outcomes in terms of the relationship between independent variables and dependent variables as demonstrated by the system-GMM while using Tobin Q as measure of firm value. The significant value of lagged dependent variable proves the dynamism of model, and the other independent and control variables hold the same direction and significance as the prior model demonstrated. Another check to endorse the finding is pertinent to the use of alternate econometric model. Fixed effect regression estimate is also employed while examining the consistency of the findings obtained using system-GMM model. Table 9 has the outcomes of fixed effect model.

TABLE 9. Fixed effect regression

Dependent Variable: TQ			
Variables	Coefficient	Std. Error	t-statistic
FCD	0.657**	0.283	2.29
IRS	0.037***	0.012	3.37
CF	0.098*	0.055	1.74
FS	0.419*	0.239	1.72
Lev	0.029*	0.021	1.74
ROA	0.482***	0.141	3.51
Constant	1.318*	0.771	1.75
Model Statistics			
R^2	0.69		
F-statistic	44.99***		
Prob	0.000		

Note: *** significant at 0.01 level, ** significant at 0.05 level, * significant at 0.1 level.

The outcomes of fixed effect model show that foreign currency derivatives, interest rate swaps and commodity forwards lead to positive and significant impact on the value of firm. Firm size, profitability and leverage also have similar nature of findings as these variables hold positive and significant impact on the value of firm. It shows the consistency of results as obtained using the system-GMM approach.

KEY FINDINGS, ECONOMIC IMPACT AND DISCUSSIONS

The findings show that derivative usage is positively related to firm value using both measures. The sign and value of the lagged dependent variable is positive and highly significant, which suggests dynamic nature of firm value. The strength reflected by the size (about 0.60-0.62) implies that prior attained firm value has a significant impact on the present worth of the firm. Foreign currency derivatives have a consistently positive sign, and they are statistically significant among the key explanatory variables. Businesses with a forward-looking approach to exchange rate management can achieve more successful results with respect to stabilizing cash flows and safeguarding profit margins during periods of currency volatility (Oyewo 2026). This effect is not only statistically significant, but also has economic significance, as exchange-rate movements in South Asian economies over the period under study were very large.

The other results for interest rate swaps are similarly positive but have relatively larger coefficients, and some specifications exhibit less statistical precision. It indicates that the management of interest rate exposure helps towards financial stability, especially for those companies that have a high proportion of debt financing (Francisca 2025). Cetorelli & Gambera (2001) however suggest different significance levels due to differing financial structures and market conditions in different firms. Its relationship with high firm value shows that input price volatility could lead to more predictable operating costs in a firm that hedges volatility. Commodity forwards have a positive and significant relationship with firm value, suggesting that firms could benefit from more predictable operating costs if they hedge against the volatility of commodity prices. However, economic interpretation accounting for possible trade-offs should be considered. As pointed in previous articles, hedging can decrease uncertainty, but can be ineffective, or even counterproductive, if employed in excess or at a wrong time, especially when accompanied by a fast repurpose of funds (Beisland & Frestad 2013).

More importantly, these findings should be read along the macro-economic trends of South Asia between 2015 and 2024. During this time, exchange rates depreciated, inflationary pressures were felt and disruptions caused by the COVID-19 have reinforced the need for hedging activities. This finding indicates that the positive signs of the coefficients indicate a potential buffering effect against macroeconomic shocks by using derivatives, which will increase the resilience of firms. But the findings

do not mean that there is no speculating involvement. As indicated by Guay & Kothari (2003), companies can use derivative transactions for reasons other than hedging, potentially increasing rather than decreasing risk. In the South Asian context of Pakistan, India, and Bangladesh, which are characterized by the high prevalence of macroeconomic instability such as currency depreciation, inflationary pressures, and volatile interest rates, this mechanism is particularly significant.

Hedging is effective depending on the company's financial structure, the business exposed to risk, and available managerial experience (Beisland & Frestad 2013). Derivatives are more likely to provide benefits for the larger and more sophisticated companies, and not for the smaller company that may lack the technical know-how to engraft an effective hedging program. Also, there are few risks in the use of derivatives (Vu & Ngo 2025). Derivatives can add to the risk of a firm if they are not being used for hedging, since they can cause a firm to experience a financial loss with the transaction. In countries with little or no governance or legislation, this threat is especially acute. In this instance, incentives for managers can differ from those of shareholders and can result in market distortion from undue risk-taking (Pryshchepa 2021). To ensure that derivatives are used in the spirit of risk management rather than speculation, effective governance frameworks are key, including boards overseeing usage, risk management committees, clearly established hedging policies and internal control systems. South Asia-based companies should consider using a structured risk management framework that replaces simple risk management with a comprehensive approach to financial planning that incorporates the use of derivatives.

CONCLUSIONS

This study explores the weighing of the derivative instruments: foreign currency derivative, interest rate swaps, commodity forwards and their role in improving the firm value of South Asian economies. Across a variety of specifications, the findings give consistent evidence that derivative usage is positively related to firm value using a System-GMM approach on panel data. The result shows that besides other value-creating factors, hedging activity has primarily the function of cash flow stabilization and financial risk reduction. Macroeconomic volatility, including inflationary pressures and exchange-rate fluctuations across South Asian economies, further underscores the importance of derivative-based risk management for protecting firm value. Effective implementation of these value-enhancing strategies may be strengthened by sound risk governance and clearly defined that restrict derivatives to legitimate risk-management purposes. Overall, the findings demonstrate that derivative-based risk management can contribute to firm value and provide useful evidence for corporate risk-management decisions in South Asian emerging markets.

PRACTICAL IMPLICATIONS

This study has several practical implications for corporate managers, regulators and policy makers in the developing economies. Managers should implement structured and formal hedging policies consistent with specific foreign exchange, interest rate and commodity price exposures they can identify with their use of derivatives. The positive relationship between the value of these instruments and firm value implies that systematic use of derivatives can assist firms with their financial risk-management goals. Secondly, the conclusions indicate the need for clear disclosure of derivative-related financial transactions, especially with respect to the nature and quantity of derivative positions; however, it should be noted that the database is not enough to differentiate clearly between positions taken for hedging and those for speculative purposes. This means that increased disclosure helps to make derivative transactions clearer and more transparent for monitoring but does not necessarily equate to distinctions between the two types of use of these instruments, hedging or speculation. Finally, the robustness analysis using the COVID-19 dummy reveals that adding any dummies to the sample makes no significant changes to the key relationships in the sample, and the COVID-19 coefficient is insignificant, indicating that the pandemic did not materially affect the relationships estimated in the sample. Managers might therefore consider structured derivative use as part of financial risk management in general, however findings should not be interpreted as either means that derivatives work differently under specific conditions in the macro economy which were not explicitly modelled or an indication that derivatives do not work.

THEORETICAL AND ACADEMIC IMPLICATIONS

This research helps to fill gaps in several areas: it provides empirical base in an under-researched context as an emerging market, and it includes a full-fledged assessment of the respective use of derivatives. The findings broaden the Shareholder Wealth Maximization theory by establishing positive link between utilization of foreign currency derivatives, interest rate swaps, commodity forwards and firm value thus indicating that effective financial risk management can lead to creation of shareholder wealth. Finally, the study extends the work of the financial distress theory, by outlining that firm value is related to the adoption of derivative-based risk management, which can be indicative of a firm's risk management capacity and reduction of the forecasted costs of financial risk. Finally, the study adds to the existing risk management literature by studying

various classes of derivatives in the same empirical setting and providing empirical evidence of their linkages with firms' value in the South Asian emerging markets.

LIMITATIONS

The study has certain limitations; firstly, the amount of derivative usage is based on the data from financial statements, which may not perfectly distinguish between hedging uses and speculative activities. Secondly the analysis is restricted on listed firms, and the results are not generalizable to the smaller or unlisted firms. Thirdly, the study tests for key firm-level control variables, yet unobserved items, like a manager's risk tolerance or organization quality, could affect the findings. Future studies would look to overcome these limitations by including robust measures of the effectiveness of hedges, as well as governance indicators, and risk exposure from the firm level.

REFERENCES

Aftab, R., Andleeb, R., Hanif, S., Zeeshan, A., Mushtaq, M. & Manzoor, A. 2026. Does bank size matter in the fintech–risk nexus? Evidence from South Asian banking sector. *Asia-Pacific Financial Markets*: 1–20.

Aktas, N., Croci, E. & Petmezas, D. 2015. Is working capital management value-enhancing? Evidence from firm performance and investments. *Journal of Corporate Finance* 30: 98–113.

Alam, N. & Gupta, A. 2018. Does hedging enhance firm value in good and bad times? *International Journal of Accounting & Information Management* 26(1): 132–152.

Allayannis, G., Lel, U. & Miller, D.P. 2012. The use of foreign currency derivatives, corporate governance, and firm value around the world. *Journal of International Economics* 87(1): 65–79.

Álvarez Espinoza, R. & Hansen, E. 2017. *Corporate currency risk and hedging in Chile: Real and financial effects.* IDB Working Paper Series No. IDB-WP-769. Inter-American Development Bank.

Amewu, G., Abor, J.Y. & Murinde, V. 2023. Derivative markets for oil and gas transactions. In *The Economics of the Oil and Gas Industry: Emerging Markets And Developing Economies* by J.Y. Abor, A. Karimu & R. Brännlund (Eds.). 250–263. Routledge.

Asghar Butt, A., Nazir, M., Arshad, H. & Shahzad, A. 2018. Corporate derivatives and ownership concentration: Empirical evidence of non-financial firms listed on Pakistan Stock Exchange. *Journal of Risk and Financial Management* 11(3): 1-15.

Ayturk, Y., Gurbuz, A.O. & Yanik, S. 2016. Corporate derivatives use and firm value: Evidence from Turkey. *Borsa Istanbul Review* 16(2): 108–120.

Bae, S.C., Kim, H.S. & Kwon, T.H. 2018. Currency derivatives for hedging: New evidence on determinants, firm risk, and performance. *Journal of Futures Markets* 38(4): 446–467.

Bartram, S.M. 2019. Corporate hedging and speculation with derivatives. *Journal of Corporate Finance* 57: 9–34.

Bartram, S.M., Brown, G.W. & Conrad, J. 2011. The effects of derivatives on firm risk and value. *Journal of Financial and Quantitative Analysis* 46(4): 967–999.

Beisland, L.A. & Frestad, D. 2013. How fair-value accounting can influence firm hedging. *Review of Derivatives Research* 16(2): 193–217.

Buston, C.S. 2016. Active risk management and banking stability. *Journal of Banking & Finance* 72: 203–215.

Butt, A.A., Rizavi, S.S., Nazir, M.S. & Shahzad, A. 2024. Corporate derivatives use and firm value: Conditional role of corporate governance. *South Asian Journal of Business Studies* 13(2): 262–281.

Carter, D.A., Rogers, D.A., Simkins, B.J. & Treanor, S.D. 2017. A review of the literature on commodity risk management. *Journal of Commodity Markets* 8: 1–17.

Cetorelli, N. & Gambera, M. 2001. Banking market structure, financial dependence and growth: International evidence from industry data. *The Journal of Finance* 56(2): 617–648.

Chaudhry, D., Mehmood, M.S. & Mehmood, A. 2014. Determinants of corporate hedging policies and derivatives usage in risk management practices of non-financial firms. *Wulfenia Journal* 21(7): 293–310.

Chen, Z., Han, B. & Zeng, Y. 2017. Financial hedging and firm performance: Evidence from cross-border mergers and acquisitions. *European Financial Management* 23(3): 415–458.

Chu, Y., Shao, L. & Yang, L. 2025. Explaining the diversity in findings on derivatives uses and firm value: Insights from firms' commodity futures use. *Pacific-Basin Finance Journal* 89.

Clark, E. & Judge, A. 2009. Foreign currency derivatives versus foreign currency debt and the hedging premium. *European Financial Management* 15(3): 606–642.

Crawford, L.E., Wilson, A.C. & Bryan, B.J. 1997. Using and accounting for derivatives: An international concern. *Journal of International Accounting, Auditing and Taxation* 6(1): 111–121.

Dahir, A.M., Mahat, F.B. & Ali, N.A.B. 2018. Funding liquidity risk and bank risk-taking in BRICS countries: An application of system GMM approach. *International Journal of Emerging Markets* 13(1): 231–248.
Danisman, G.O. & Demirel, P. 2019. Corporate risk management practices and firm value in an emerging market: A mixed methods approach. *Risk Management* 21(1): 19–47.
Figlewski, S. 2017. Derivatives valuation based on arbitrage: The trade is crucial. *Journal of Futures Markets* 37(4): 316–327.
Francisca, A.Y. 2025. Optimizing debt capital markets through quantitative risk models: Enhancing financial stability and SME growth in the US. *International Journal of Research Publication and Reviews* 6(4): 4858–4874.
George, D. & Mallery, P. 2010. *SPSS For Windows Step by Step: A Simple Guide and Reference*. 10th ed. Allyn & Bacon.
Guay, W. & Kothari, S.P. 2003. How much do firms hedge with derivatives? *Journal of Financial Economics* 70(3): 423–461.
Gürkaynak, R., Karasoy-Can, H.G. & Lee, S.S. 2022. Stock market's assessment of monetary policy transmission: The cash flow effect. *The Journal of Finance* 77(4): 2375–2421.
Gyntelberg, J., Loretan, M. & Subhanij, T. 2018. Private information, capital flows, and exchange rates. *Journal of International Money and Finance* 81: 40–55.
Habib, A., Costa, M.D., Huang, H.J., Bhuiyan, M.B.U. & Sun, L. 2020. Determinants and consequences of financial distress: Review of the empirical literature. *Accounting & Finance* 60: 1023–1075.
Hwang, A.L. 2002. Comparative analysis of accounting treatments for derivatives. *Journal of Accounting Education* 20(3): 205–233.
Ibhagui, O.W. & Olokoyo, F.O. 2018. Leverage and firm performance: New evidence on the role of firm size. *The North American Journal of Economics and Finance* 45: 57–82.
Ito, T., Koibuchi, S., Sato, K. & Shimizu, J. 2016. Exchange rate exposure and risk management: The case of Japanese exporting firms. *Journal of the Japanese and International Economies* 41: 17–29.
Jarrow, R. 2019. *Modelling Fixed Income Securities and Interest Rate Options*. Chapman and Hall/CRC.
Kamal, S.S. & Awan, S.H. 2025. Engineering financial resilience: Structuring turnaround and maintenance financing using derivatives and structured instruments. *Advance Journal of Econometrics and Finance* 3(3): 143–153.
Khan, S., Shoaib, A., Aftab, R., Yasir, M. & Saeed, M.B. 2025. Financial frictions and stock return: A novel least minus more frictional factor for asset pricing models in emerging economies. *PLOS ONE* 20(7).
Kieschnick, R. & Rotenberg, W. 2016. Working capital management, the credit crisis, and hedging strategies: Canadian evidence. *Journal of International Financial Management & Accounting* 27(2): 208–232.
Kiviet, J., Pleus, M. & Poldermans, R. 2017. Accuracy and efficiency of various GMM inference techniques in dynamic micro panel data models. *Econometrics* 5(1).
Krug, A.K. 2015. Investing and pretending. *Iowa Law Review* 100(4): 1559–1618.
Lau, C.K. 2026. Derivative gains/losses: Quantity risk, corporate hedge effectiveness and earnings. *International Journal of Finance & Economics* 1(3): 4111–4126.
Li, H., Visaltanachoti, N. & Luo, R.H. 2014. Foreign currency derivatives and firm value: Evidence from New Zealand. Journal of Financial Risk Management 3(3).
Lin, J.B., Pantzalis, C. & Park, J.C. 2007. Corporate use of derivatives and excess value of diversification. *Journal of Banking & Finance* 31(3): 889–913.
Lins, K.V., Servaes, H. & Tamayo, A. 2011. Does fair value reporting affect risk management? International survey evidence. *Financial Management* 40(3): 525–551.
Luo, H.R. & Wang, R. 2018. Foreign currency risk hedging and firm value in China. *Journal of Multinational Financial Managemen*t 47: 129–143.
Luo, R.H. 2016. Foreign currency derivatives and corporate value: Evidence from China. *The Journal of Developing Areas* 6(1): 117–129.
Magnan, M. & Markarian, G. 2011. Accounting, governance and the crisis: Is risk the missing link? *European Accounting Review* 20(2): 215–231.
Meah, M.R. 2019. The efficiency of corporate governance on capital structure: An empirical study from listed manufacturing firms in Bangladesh. *Asian Journal of Accounting and Governance* 11(1): 13–23.
Nezlobin, A., Rajan, M.V. & Reichelstein, S. 2016. Structural properties of the price-to-earnings and price-to-book ratios. *Review of Accounting Studies* 21(2): 438–472.
Nguyen, Q., Kim, T. & Papanastassiou, M. 2018. Policy uncertainty, derivatives use, and firm-level FDI. *Journal of International Business Studies* 49(1): 96–126.
Oberoi, J. 2018. Interest rate risk management and the mix of fixed and floating rate debt. *Journal of Banking & Finance* 86: 70–86.
Oyewo, B. 2026. Managing exchange rate volatility through strategic management accounting: Implications for competitive advantage. *Journal of Risk and Financial Management* 19(7): 1-43.

Pryshchepa, O. 2021. Disciplining entrenched managers through corporate governance reform: Implications for risk-taking behavior. *Corporate Governance: An International Review* 29(4): 328–351.
Reyad, H.M., Zariyawati, M.A., Ong, T.S. & Muhamad, H. 2022. The impact of macroeconomic risk factors, the adoption of financial derivatives on working capital management, and firm performance. *Sustainability* 14(21): 1–19.
Roncoroni, A., Fusai, G. & Cummins, M. 2015. *Handbook of Multi-Commodity Markets and Products: Structuring, Trading and Risk Management*. John Wiley & Sons.
Sialm, C. & Zhu, Q. 2024. Currency management by international fixed-income mutual funds. *The Journal of Finance* 79(6): 4037–4081.
Sittisawad, T. & Sukcharoensin, P. 2018. Success factors of financial derivatives markets in Asia. *Asia-Pacific Financial Markets* 25(2): 71–86.
Stulz, R.M. 2022. Rethinking risk management. *Journal of Applied Corporate Finance* 34(1): 32–46.
Ullah, S., Irfan, M., Kim, J.R. & Ullah, F. 2023. Capital expenditures, corporate hedging and firm value. *The Quarterly Review of Economics and Finance* 87: 360–366.
Uluyol, B. 2024. Financial derivative instruments and their applications in Islamic banking and finance: Fundamentals, structures and pricing mechanisms. *Borsa Istanbul Review* 24: 29–37.
Villanueva-Villar, M., Rivo-Lopez, E. & Lago-Peñas, S. 2016. On the relationship between corporate governance and value creation in an economic crisis: Empirical evidence for the Spanish case. *BRQ Business Research Quarterly* 19(4): 233–245.
Villanueva-Villar, M., Rivo-Lopez, E. & Lago-Peñas, S. 2016. On the relationship between corporate governance and value creation in an economic crisis: Empirical evidence for the Spanish case. *BRQ Business Research Quarterly* 19(4): 233–245.
Vu, T.H. & Ngo, T.T. 2025. Unraveling dynamic interplay between diversification and bankruptcy risk in an emerging market: A GMM-PVAR approach. *Risk Management* 27(4): 1–33.
Xiao, C., Zhang, Y. & Fu, Z. 2016. Valuing interest rate swap contracts in uncertain financial market. *Sustainability* 8(11): 1–14.
Zhao, F. & Moser, J. 2017. Bank lending and interest-rate derivatives. *International Journal of Financial Research* 8(4): 23–37.

Rehan Aftab*
FAST School of Management
National University of Computer and Emerging Sciences
A.K. Brohi Road, H-11/4, Islamabad, PAKISTAN.
Email: rehan.aftab@nu.edu.pk

Asma Zeeshan
Department of Accounting and Finance
Bahria University
Shangrilla Rd, E-8/1, Islamabad, PAKISTAN.
Email: asmaz.buic@bahria.edu.pk

Rameeza Andleeb
FAST School of Management
National University of Computer and Emerging Sciences
A.K. Brohi Road, H-11/4, Islamabad, PAKISTAN.
Email: rameeza.andleeb@isb.nu.edu.pk

Sajjad Hanif
FAST School of Management
National University of Computer and Emerging Sciences
A.K. Brohi Road, H-11/4, Islamabad, PAKISTAN.
Email: sajjad.hanif@nu.edu.pk

*Corresponding author