Financial liberalization and Downside Market Risk: Evidence from an Emerging Economy

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Abstract
The study examines the impact of financial liberalization on downside risk in the Pakistani context. For this purpose, panel data of 24 banks listed on the Pakistan Stock Exchange (PSX) were collected over the period 2006-2017. The results were obtained by using static and dynamic panel estimation procedures. The study documents that financial liberalization enhances the investors' exposure toward downside risk. Consistent with prior studies, the behavior of financial liberalization is persistent across the different dimensions of downside risk. Theoretically, the findings mainly support Keynesian's hypothesis. Based on the results, it is recommended that individual participants in the market may take investment decisions thereby considering the liberation of financial policies in the presence of a weak financial system. Furthermore, the study also recommends that the regulatory authorities may design policies to strengthen the banking system and reduce the investors' vulnerability towards downside risk.

Keywords: *Downside Risk, Financial Liberalization, DCAPM*

Introduction

In most cases, situations of high volatility are observed in lieu of changing stances of monetary and fiscal policies that is why economic condition plays a vital role in economic instability and overall stock market fluctuations1. However, the effect of financial liberalization on the stock market volatility and aggregate output is also inevitable (Hye & Wizarat, 2013). In the early '70s, developing countries focused more on the development of infrastructure for economic prosperity. However, infrastructure expansion failed to attain the desired economic prosperity. Several economists like McKinnon (1973) considered financial repression as a major hurdle in economic growth. The league focused on financial liberalization in the early '80s. Nevertheless, the effect of financial liberalization also depends upon the attribute of a country. Bekaert, Harvey, and Lundblad (2006); Broner and Rigobon (2004) reported that financial liberalization is adversely pronounced

[1]The Financial liberalization refers to the liberation of financial policies related to banking sector and capital market

in those countries which have weak domestic stock markets and financial institutions. Likewise, Arestis and Demetriades (1999) documented that due to weak financial institutions, financial liberalization triggered financial destabilization. Several empirical studies intimidate that financial liberalization might be a major cause of financial crises. For instance, Arestis and Demetriades (1999) argued that the liberation of interest rate and capital account caused the crises of 199-98. Another empirical study like Demirgüç-Kunt and Detragiache (2002) had drawn the same conclusion that financial liberalization may trigger the financial crises because of financial institutions' greater freedom to total risk. The study analyzed the effect of financial liberalization on stock returns in CSE by taking 16 years of data. The study concluded that financial liberalization increases the stock market volatility. However, some studies have reported an insignificant effect on volatility following market liberalization. For instance, Spyrou and Kassimatis (1999) illustrated an insignificant effect on liberalization in Chile, Spain, India, Mexico, Philippines, Pakistan, and Taiwan. Similarly, Kwan and Reyes (1997) documented the adverse effect of liberalization on volatility in Taiwan.

Essentially, the basic question still stands there i.e. Does financial liberalization affect the different parts of volatility (Li, et al., 2020). Chu (2020); Wu et al. (2017) argued that liberating markets would affect the systematic and idiosyncratic part of the risk in different ways. This veracious debate would have subtle relevance for speculators and have greater implications for those investors who are seeking portfolio diversification across boarder (Gaies et al., 2020). The paper contributes to the extant literature in several ways. Firstly, the study used three measurements of risk that include Standard deviation, Systematic risk, and idiosyncratic risk to investigate the effect of financial liberalization on firm volatility. Secondly, the study used the different measures of Downside risk namely Semi-Standard deviation, Downside Systematic risk, and Downside idiosyncratic risk to entertain the causality effect. Finally, the study used extended data set for the investigation.

Literature Review

In the last few decades, the desire for reciprocity and risk-sharing among nations leads to financial liberalization (Hamdaoui & Maktouf, 2020; Gaies et al., 2020). Financial liberalization triggered the removal of restrictions on cross-border financial transactions up to large extent. Financial liberalization consists of Stock market reforms, Interest rate deregulation credit controls, Prudential Regulations, Removal of entry barriers, Privatization of financial institutions, External account liberalization, open market operations, debt management reforms, and non-performing loans (Bandiera et al., 2000). There is vast discord among economists on the possible benefits of financial liberalization (Li, et al., 2020). A traditional school of economists believes that financial liberalization may increase the foreign direct investment that would uplift the aggregate output and reduce the price fluctuations. These favourable economic events contribute to future economic growth. However, empirical evidence revealed mixed results for instance Bonfiglioli (2008) argued that financial liberalization neither increased neither the net cash inflow nor the investment growth. There are several debatable arguments regarding the

[2]Downside risk is refer to the risk based on semi-variance hypothesis. . The hypothesis is based on the rational that investors are more concerned with downside risk. Therefore the risk should be measured based on negative returns instead of takin both negative and positive returns to calculate the total risk, systematic risk and unsystematic risk

benefits of financial liberalization. One school of economists believed that financial liberalization spurs saving and economic growth (Haruna & Bakar, 2021). On contrary, economists believed that due to weak financial institutions, financial liberalization increases the volatility up to a large extent (Bandiera, Caprio, Honohan, & Schiantarelli, 2000). Prior studies support the positive effect of financial liberalizations, for example (Wu, Huang, and Ni, 2017; Ni, Liao, & Huang, 2015). Law, Azman-Saini, & Tan, 2014). Eichengreen, Gullapalli, and Panizza (2011) investigated the economic effect of market liberalization. They argued greater financial liberalization fosters economic growth. Quinn and Toyoda (2008) ascertained the relationship between economic growth and capital account liberalization. They found that capital account liberalization promotes economic growth. Likewise, Azman-Saini and Tan (2014) argued that financial markets development is related to liberalization. Similarly, Quinn (2003) documented that economies having liberalized policy of financial markets are more recovered in depression as compared to those economies which have a high level of a barrier for capital mobility. Kim, Kim, and Wang (2009) reported, high-level fluctuations can't be diagnosed by restricting the cross board transaction. The pertaining literature also embarks upon the association of market liberalization with stock return volatility. Stiglitz (2004) investigates the relationship between financial liberalization and stock market volatility. They found that financial liberalization directly influences stock price fluctuations due to asymmetric information. In other words, financial liberalization fosters volatility. Nonetheless, a study conducted by Wang (2007) depicts that due to financial liberalization, an increase in FDI reduced the stock market volatility when investors have enough information about financial assets. The study complements the boarding hypothesis of Merton (1987). Kwan and Reyes (1997) argued that in presence of heterogeneous expectations, broadening of the investor basis reduces stock market volatility.

In addition, there are two parallel debates regarding the firm-level volatility effect of financial liberalization. The strands have primarily focused on cross-listing firms as an indication of liberalization (Bley & Saad, 2011). Domowitz, Glen, and Madhavan (1998) scrutinized the firm-level liberalization i.e. cross-listing concerning volatility. The study examined that stock market volatility depends upon the level of information across the markets. Nevertheless, Umutlu, Salih, and Akdeniz (2010) reported the relationship of market liberalization with conditional volatility at the firm level using a sample size of cross-listing firms in US stock exchanges and observed insignificant effect on mean conditional variance. Similarly, Howe and Madura (1990); Lau, Diltz, and Apilado (1994), and Martell, Rodriguez, and Webb (2000) have found an insignificant effect of liberalization on stock returns volatility. The second debate is related to the relationship of financial liberalization on firm-specific volatility date-wise. Christoffersen, Chung, and Errunza (2006) contended the relationship between financial liberalization and firm-level risk through the date-wise methodology. The study found that the effect of financial liberalization varies across firm sizes. They argued that small firms have low decline, while large firms experience a large decline in volatility. Edison and Warnock (2003) criticize the nature of date- wise methodology as financial liberalization is a process and not a one-time event.

Moreover, the previous empirical studies also suggest the link of financial liberalization with various components of risk such as Total volatility, Systematic volatility, and idiosyncratic volatility. Foerster and Karolyi (1999) contended the most suitable explanation of the change in systematic risk due to financial liberalization. They argued that the paradigm shift from singularity to becoming an integral part of the integrated market would have a definite effect on market-wide risk. The greater emphasis of emerging markets on financial liberalization would make local factors less and keep the global events more relevant in determining the stock market volatility. The likely effect could be a reduction in volatility in the domestic market (Bekaert & Harvey, 1995). Ramchand and Sethapakdi (2000) analyzed the change in Stock beta in the US for firms issuing foreign equity. The study reported a systematic decrease concerning local index fluctuations. However, the systematic risk increases subject to a slight change in the foreign index. Foerster and Karolyi (1999) suggested a sharp decline in systematic risk in the local market in the post-cross-listing scenario and no change in global systematic risk.

Further, the change in idiosyncratic risk is also subject to financial liberalization in the presence of asymmetric information. Lang and Lundholm (1996) ascertained that analysts' coverage is linked with financial liberalization, the resultant increase in the production of the firm-specific level of information. Therefore, the financial market liberation unearths firm-level information that causes idiosyncratic volatility to increase (Xu &Malkiel, 2003). Likewise, Bae, Bailey, and Mao (2006) revealed that the level of information increases among the investors in presence of financial liberalization. Few other studies argued that liberalization encourages market participants across the board. This would result in the precision of public information and at the same time could produce market-wide information. Consequently, these simultaneous events would decrease idiosyncratic volatility. Thus the change in idiosyncratic volatility is subject to the level of symmetric information in the presence of financial liberalization (Umutlu, Akdeniz, et al., 2010). In nutshell, the causal effect of financial liberalization and idiosyncratic volatility is an empirical issue. Moreover, literature evidence, the financial liberalization effect on stock returns, cost of capital, and investment behavior. Empirical studies such as Han Kim and Singal (2000); Henry (2000) contended a direct relationship between financial market liberalization and stock returns.

Further, Bekaert and Harvey (2000) report an inverse relationship between the cost of capital and market liberalization. Bekaert and Harvey (1997) observed that traditionally liberalization is linked with low volatility. Chari and Henry (2004) suggested that the financial liberalization effect is dependent upon the correlation between local stocks and the global world. In other words, the strong association led to a greater impact of liberalization and vice versa. However, Thomas (2010) reported that mount of economics believe that financial liberalization has severe implications for the local economy. Specifically, market liberalization would spur economic growth in presence of strong financial, while in the existence of weak financial institutions market liberalization would adversely affect country growth**.** Therefore, large numbers of economies have or considering increasing barriers to cross-border transactions.

H1: Financial liberalization positively affects downside systematic risk.

Methods of the Study

The study aims to examine the effect of financial liberalization on downside total risk, downside systematic risk, and downside idiosyncratic risk. For this purpose, five proxies have been used to construct an index for financial liberalization through principal component analysis. The five proxies are foreign portfolio Investments, Credit to the private sector, Lending Rates and Deposit Rates. This study is aimed at finding whether or not financial liberalization affects the firm risk of private banks. Firm risk is broken down into three parts; total risk, systematic risk, and idiosyncratic risk. The underlying concept for this framework is based on two main theories, the theory of financial liberalization (McKinnon 1989, Shaw 1973) which calls for easing of restrictions imposed by governments, and the prospect theory (Kahneman & Tversky 1979).

Increased risk is a subsequence of liberalization, whereas the prospect theory shows the preference towards risk aversion.

Measurement of Variables

In this study financial Liberalisation was used as the main independent variable while Firm risk was the dependent variable.

Downside Total Risk

In this study, the firm risk is measured through downside systematic and idiosyncratic risk. In this method, downside variance or the semi-deviation of returns is measured by the formula

$$\sum i = \frac{\sqrt{E\{Min[R_i - \mu_i], 0\}^2}}{n-1}$$

Where R and μ represent returns and mean returns respectively.

Downside Systematic Risk

Studies on financial liberalization and systematic risk indicate that the two share a positive relationship. Financial liberalization introduces economies to increased access to finance, greater amounts of foreign capital, and an increase in stock and equity market growth. It also increases the exposure of economies and leaves them vulnerable to global market conditions.

The ith asset covariance to the market portfolio is represented by cosemivariance ($\sum IM$) as follows:

$$\sum iM = E\{Min[(R_i - \mu_i), 0]\ Min[(R_i - \mu_m), 0]\}$$

The $\sum IM$ is unbounded and scale-dependent. To obtain a uniform$\sum IM$, $\sum IM$ is divided by the product of ith bank semi deviation of returns and the market's semi deviation of returns, thus obtaining ith bank downside correlation.

$$\frac{\sum iM}{\sum i \sum M} = \frac{E\{Min[(R_i - \mu_i), 0]\ Min[(R_i - \mu_m), 0]\}}{\sqrt{\mathrm{E}\{\mathrm{Min}[R_i - \mu_\mathrm{i}), 0]^2\}\mathrm{E}\{\mathrm{Min}[(R_m - \mu_m), 0]^2\}}}$$

The $\sum IM$ is further divided by the market's semi-variance of returns, which enables us to obtain the downside β that could be articulated into a CAPM-like model based on downside risk.

$$\beta_i^D = \frac{\sum iM}{\sum i \sum M} = \frac{E\{Min[(R_i - \mu_i), 0]\ Min[(R_i - \mu_m), 0]\}}{E\{Min[(R_m - \mu_m), 0]^2\}}$$

Idiosyncratic Risk

The idiosyncratic risk is defined as a risk that is specific to each firm and is measured through the standard deviation of the error terms of the following equation

$$BR_i = \alpha + \beta_i^D MRP + \varepsilon_i$$

Financial Liberalisation

Financial liberalization is broken down into different proxies. These proxies include foreign portfolio investment, the extent of openness, deposit rate trends, lending rate trends, domestic

Table 01:Principal Component Analysis

Component	Eigen Value	Difference	Proportion	Cumulative
Comp 1	4.18667	2.84721	0.5981	0.5981
Comp 2	1.3346	.296599	0.1914	0.7894
Comp 3	1.04286	.758848	0.1490	0.9384
Comp 4	.284013	.160761	0.0406	0.9179
Comp 5	.123251	.105661	0.0176	0.9966
Comp 6	.0176008	.011453	0.0025	0.9991
Comp 7	.00614778		0.0009	1.0000

credit to the private sector, access to finance.

Foreign Portfolio Investment

Foreign Portfolio Investment is a result of financial liberalization. Investors are attracted to the higher interest rates post-liberalization, therefore increasing the inflow of money in the form of foreign investment (Yahya, Shujahat et al., 2015).

FPi=Log of Foreign Portfolio Investment

Trade openness

Trade openness has been the cause of a lot of increased financial activity, thus it is imperative to study whether or not it affects the downside risk of the banking sector (Ranciere, Tornell et al., 2006).

$$TrO = \frac{Imports + Exports}{GDP}$$

Domestic Credit to Private Sector

Bank credit to the private sector is a key financial indicator, alongside a measure for the degree of financial liberalization (Bekaert, Harvey et al., 2004). The bank credit to the private sector experiences growth as a result of liberalization (Marc 2018). The effect of financial liberalization on economic growth has been measured through the effect it holds on the costs of external financing to firms (Titus, Obiwuru et al. 2013).

DCPS=Domestic Credit to Private Sector/ GDP

Lending Rate

The early works of Shaw (1973) pointed out that financial liberalization is used as the removal of government ceilings on interest rates and other controls on financial institutions that resultantly increase interest rates and stimulate savings. This increases investments thereby propelling economic growth (Marc 2018) The study used lending interest rates and deposit interest rates as proxies for liberalization in lieu of similar studies regarding liberalization (Munir, Chaudhary et al. 2013; Kaminsky & Schmukler 2008).

LR= Lending Rates per Annum

Deposit Rate

The Bank deposit rate is used to analyze the yearly trends of rates set by the market (Reinhart and Tokatlidis 2008; Munir, Chaudhary et al. 2013). The same rates are offered by other commercial banks (Depken, Hollans et al. 2010). Deposit, rates carry the ability to alter the market value of different commercial banks. For instance, de-regularizing deposit rates in Hong Kong lead to a significant decrease in the market value of commercial banks, especially those institutions that had enjoyed a greater deposit to asset ratio before the de-regularisation. These banks had benefitted from interest rate rules implemented previously.

DR=Deposit Rates per annum

Firm Size

The size of a firm help's in determining whether or not the larger bank determines its susceptibility to risk. The firm size is calculated by taking the log of the book value of total assets (S & Machali, 2017).

$$FrmSize = log\, Total\ Assets$$

Profitability

Firm profitability is affected by many different factors. Geographical diversification is one of these factors. Studies have shown that while geographical diversification yields positive results for firms in developed economies, it also plays an important role for firms in emerging economies. The use of new kinds of information technology also impacts firm profitability. For instance, big data helps to create increased business value that in turn positively affects the profitability of any given firm (Raguseo, Vitari et al. 2020). The profitability of the firm is proxy by ROE, which is measured by net income to total equity (Hussain & Shah, 2017).

$$ROE = \frac{Net\ Income}{Total\ Equity}$$

Financial Leverage

Financial leverage is measured by the ratio of debt to total assets (Hussain & Shah 2017). However, it is suggested that the high proportion of bank loans and long-term debt in total liabilities can help levered firms to lessen the agency problems that a firm might have to face regarding contraction movements.

$$D_{Asset}\, Ratio = \frac{Debt}{Total\ Assets}$$

Model Specification

We tested the relationship between endogenous and exogenous variables via static and dynamic panel estimation to account for endogeneity within the variables. The established model is calculated separately for downside total risk, downside systematic risk, and downside idiosyncratic risk.

$$T_{risk} = \beta_0 + \beta_1 TRisk_{i(t-1)} + \beta_2 FLI + \beta_{it} \sum_{i=1}^{n} (size + roe + dta + \varepsilon_{it} \ldots (i)$$

Where T_Risk represents total risk at time t. FLi represents the financial liberalization index which consists of five proxies i.e foreign portfolio investment, trade openness, credit to the private sector, lending rates, and deposit rates.

$$Sys\_Risk = \beta_0 + \beta_1 sys\_risk_{i(t-1)} + \beta_2 FLI + \beta_{it} \sum_{i=1}^{n} (size + roe + dta + \varepsilon_{it} \ldots (ii)$$

Where Sys_Risk represents downside systematic risk at time t. FLi represents the financial liberalization index which consists of five proxies i.e foreign portfolio investment, trade openness, credit to the private sector, lending rates, and deposit rates.

$$Unsys\_Risk = \beta_0 + \beta_1 unsys\_risk_{i(t-1)} + \beta_2 FLI + \beta_{it} \sum_{i=1}^{n} (size + roe + dta + \varepsilon_{it}..(iii)$$

Where $Unsys\_Risk$ represents downside systematic risk at time t. FLi represents the financial liberalization index which consists of five proxies i.e foreign portfolio investment, trade openness, credit to the private sector, lending rates, and deposit rates. The idiosyncratic risk has been calculated with the error terms.

Statistical Techniques

The study aims to examine the association between financial liberalization and downside risk. Financial liberalization, being multidimensional is measured through several different proxies. These proxies include foreign direct investment, trade openness, access to finance, exchange rates, and money supply. Risk is measured through three proxies, namely total risk, systematic risk, and unsystematic risk. Making use of the Regression model with multiple variables which are highly correlated with each other will not yield the best estimators, therefore this study used the principal component analysis (PCA), The PCA is used in the presence of a large set of variables, and this method transforms the large set into a smaller set. However, a smaller set accounts for all the properties of the larger variable set. Principal component analysis (PCA) in a lot of ways forms the basis for multivariate data analysis. PCA is used with a well-selected set of variables and can also be used to make future predictions regarding data sets.

Two major methods may be employed to measure the effect of variables i.e. static panel data models and dynamic panel data models. In lieu of the variables of this study, both static models as well dynamic panel estimation techniques of sys-GMM are used to obtain results for this study. The sys-GMM removes the problems of endogeneity and serial correlation (Leitao 2012). One of the biggest recognized issues in financial literature is the credibility of causal relationships between variables estimation via OLS estimation techniques yields biased and inconsistent results and ignores time-invariant unobserved individual effects. In contrast, the GMM estimator is more efficient and shows a small sample bias. In addition, the GMM estimator moderates the effect of high persistence of variables that helps to improve the estimations. Therefore this study employed the GMM as a primary approximation technique (Nguyen, Locke et al. 2015).

Empirical Result and Discussion

Descriptive Statistics and Correlation Matrix

Table 02 shows the summary statistics for this research's variables. Total downside risk has a mean of 0.25 and a standard deviation of 15 percent. This indicates that data points are all located close to the mean of the data. The result is consistent with the work of (Toole, 2004), who demonstrated through an independent liberalization index that financial liberalization can be a catalyst to risk in developing countries. A similar mean reinforces the hypothesis that financial liberalization acts to increase total downside risk. Unsystematic risk shows a mean of 3.551, with a dispersion level of 2.658. This indicates that for all 24 firms the average downside idiosyncratic risk is 3.551 percent. Amongst all of the risk proxies unsystematic risk has the highest mean. This means is similar to that of previous studies (Huang, Wald, & Martellc, 2013; Campbell, Lettau, Malkiel, & Xu, 2001). This result indicates that firms in the banking system are vulnerable to risks associated with volatility and uncertainty within the system after financial liberalization. The downside systematic risk has a mean of 2.339, which is close to the calculation of (Hussain

& Shah, 2017), and a dispersion level of 5.957. This is also in lieu with the work of (Bird and Rajan 2001), who argue that financial liberalization can cause a banking crisis within a country. Moreover, Table 03 presents the results of the correlation matrix. The results reveal that the financial liberalization index is positively associated with all proxies of downside risk. Moreover, it can be observed that there is no issue of multicollinearity.

Table 02: Descriptive Statistic

Variable	Obs	Mean	Std Dev	Minimum	Maximum	Skewness	Kurtosis
D_total	245	0.257	0.151	0.07	0.791	4.5019	34.141
D_sys	245	2.339	5.957	0.012	38.136	7.0218	75.181
D_unsys	245	3.551	2.658	0.105	12.555	4.841	41.380
Fpi	245	-750.97	1248.47	-3835	608	0.502	1.8738
L_rate	245	12.026	2.154	8.21	15.54	-0.698	2.9428
D_rate	245	6.649	1.505	4.17	8.68	-0.886	2.5452
Cps	245	20.114	4.797	15.39	28.73	-0.767	1.5901
Topn	245	31.425	3.292	25.31	35.68	0.1659	1.4208
Size	245	19.345	1.164	15.208	21.711	1.2091	7.2394
Dta	245	0.901	0.059	0.502	0.984	9.2746	4.7603
ROE	245	0.011	1.018	-14.743	2.347	33.544	13.390

Table 03: Correlation Matrix

Variable	D.Total	D.Sys	D.unsys	FLIndex	Size	Dta	ROE
D_total	1						
D_sys	0.11	1					
D_unsys	0.95***	0.02	1				
FLindex	0.59***	0.021**	0.66***	1			
Size	-0.28***	0.02	-0.31***	-0.32***	1		
Dta	-0.08	0.04	-0.11	-0.16*	-0.46***	1	
ROE	-0.17**	0.03	-0.17**	-0.14*	0.18**	-0.09	1

Table 04: Financial Liberalisation and Downside Risk through Static Models

VARIABLES	Model 01	Model 02	Model 03
FLIndex	0.0620***	0.620**	1.236***
	(0.00557)	(0.305)	(0.0882)
Size	0.0371**	2.567***	0.802***
	(0.0178)	(0.975)	(0.282)
Dta	-0.00857	3.273	-1.722
	(0.218)	(11.94)	(3.447)
ROE	-0.00289	0.287	-0.0234
	(0.0076)	(0.416)	(0.120)
Constant	-0.452	-50.27***	-10.42**
	(0.288)	(15.8)	(4.561)
F(4,220)	29.46	2.87	63.92
Prob. (F Statistics)	0.000	0.000	0.000
Year Dummies	Yes	Yes	Yes
Observations	245	245	245
R-squared	0.427	0.05	0.538
Number of ID	21	21	21

Table 05: Financial Liberalization and Downside Risk through Sys-GMM (Dynamic Panel Estimation)

VARIABLES	Model 01	Model 02	Model 03
D_Total	0.380***		
	(0.0261)		
D_sys		-0.161***	
		(0.00747)	
D_unsys			0.389***
			(0.0248)
FLIndex	0.0106***	0.761***	0.316***
	(0.0035)	(0.126)	(0.0329)
Size	-0.152***	3.565***	-1.874***
	(0.0177)	(0.384)	(0.423)
Dta	0.522*	6.166	-1.717
	(0.280)	(9.435)	(7.122)
Roe	0.0119***	0.264	0.168***
	(0.00236)	(0.527)	(0.0385)
Constant	2.645***	-72.22***	40.18***
	(0.367)	(11.26)	(3.380)
Sargan Test(P Value)	1.000	1.000	1.000
AR(1) Test(P Value)	0.0008	0.0013	0.0001
AR(2) Test(P Value)	0.2366	0.1459	0.0667
Wald Test(P Value)	0.000	0.000	0.000
Year Dummies	Yes	Yes	Yes
Observations	224	224	224
Number of ID	21	21	21

Regression Results

This study aims to analyze the causal relationship between financial liberalization and downside total, systematic and idiosyncratic risk in a static and dynamic panel framework. Table 04 analyses the effect of the financial liberalization index on downside risk through a static panel estimation model. Model 1 depicts the positive effect of the financial liberalization index on downside total risk. The coefficient has a value of $\beta FINANLIB = 0.106$ at a significance level of 99%. This indicates that financial liberalization and downside total risk have a positive relationship. An increase in financial liberalization results in an increase in the total downside risk of a firm. This is robust with the work of (Weller, 2010). This also confirms H1 and propagates the base-broadening hypothesis. Furthermore, Model 2 shows the effect of financial liberalization on downside systematic risk. The coefficient depicts a value of $\beta FINANLIB = 0.620$ at a significance level of 99%.

This is indicative of the result that financial liberalization spurs downside risk within the whole banking system. Our results are consistent with the claim that the liberation of financial policies induces systematic risk in the banking sector (YunLuo, SaileshTanna, & Vitaa, 2016), (Jonung, 2008). Likewise, the positive financial liberalization (*βFINANLIB =0.0389)* and idiosyncratic risk is consistent with the notion that an upsurge in idiosyncratic risk is also subject to financial liberalization in the presence of asymmetric information. Lang and Lundholm (1996) ascertained the analysts' coverage is linked with financial liberalization, the resultant increase in the production of the firm-specific level of information (Xu & Malkiel, 2003).

Robustness Checks

The findings based on the static model confirm the positive influence of financial liberalization on downside risk. For robustness purposes, the study analyzed the financial liberation-downside risk relationship through a dynamic panel framework. GMM estimations provide consistent and unbiased coefficients in the case of endogenous relationships. Additionally, dynamic panel models effectively handle the problems of unobserved heterogeneity. Hence, we consider System GMM to account for any possible endogeneity of financial liberalization with downside risk in light of the extant literature. The results of post-estimation tests reveal that the model is properly specified and there is no issue of second-order serial correlation. The results of system GMM are presented in Table 05. It can be observed that the positive impact of the liberation of financial policies, is robust across total risk (*βFLIB = 0.0106, p<.05), systematic risk(β FLIB = 0.761, p<.05),* and unsystematic risk (*βCGINDEX = 0.316, p<.05) in BB dynamic panel estimations. The positive* and statistically significant coefficients of financial liberalization in dynamic panel estimation models suggest that the liberation of financial policies may further exacerbate the stability of the banking sector. The results are consistent with our previously established findings through static models. Our results are also consistent with the Keynesian hypothesis and contemporary empirical results of Roy and Shijin (2020).

Conclusion

This study aims to examine the effect of the liberation of financial policies on downside risk vis static and dynamic panel procedure in the Pakistani context. Our results reveal that financial liberalization is positively associated with downside risk in Pakistan. Our findings are consistent across the different proxies of risk such as total risk, systematic risk, and unsystematic risk. Our finding shared common grounds with Keynesians' hypothesis that contradicts the traditional view of liberalization benefits and argued that liberation of financial policies swiftly moves to the expansion of equity markets, induces market volatility which resultantly destabilization real economy. This research has significant managerial implications. It is recommended that policymakers should focus on structural reforms of the financial system to make the financial markets more resilient to protect investors from turmoil in financial markets, to absorb the tremendous macroeconomic shocks, and to achieve sustainable economic growth. Furthermore, the policymakers may take the necessary steps to strengthen the overall financial health of the institution, which would mitigate downside market risk and such measures taken in large-scale firms with high inter-market linkages can increase the strength of the overall financial system. The rise in globalization has formed an interdependent system with multiple models of action available for both developed and underdeveloped countries.

Besides the reliability and importance of this study, the study has some limitations. Our study covered a banking section of an individual developing country. Future studies may consider other developing or emerging countries because these countries are prevalent with different economic, political, cultural, religious, and ethnic attributes. To broaden the understanding of policy-makers, future studies may focus on the non-linear relationship between financial liberalization and downside risk in the Asia region.

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