

# Financial Markets' Behavior

# 2

Volatility in domestic financial markets remained elevated during CY23. The stress was driven by FX and equity markets. Despite material improvement in current account balance, PKR remained under pressure owing to political uncertainty, external debt re-payments and weak external financing. Nonetheless, demand containment measures coupled with administrative and regulatory measures in FX market as well as IMF SBA program helped contain volatility in the second half of CY23. Equity market – after remaining subdued – surged in H2CY23 owing to healthy emerging developments. Exchange rate stability, expectations of softening in monetary policy stance, and declining political uncertainty primarily lifted investors' confidence. Also, domestic equity market outperformed among regional group of countries during the year under review. Money market continued to operate smoothly under effective monetary operations. Despite strong government borrowings pressures on the banking sector, Overnight Repo Rate (ONR) remained tilted towards Reverse Repo Rate. Substantial slowdown in private sector advances coupled with healthy deposit mobilization and OMOs injections kept ONR volatility at a lower level.





## 2 Financial Markets' Behavior

*Global financial markets remained steady and witnessed lower volatility....*

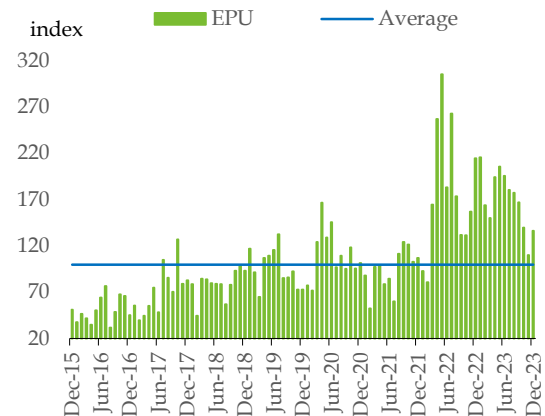
Global financial markets smoothly navigated banking turmoil in the US in the first half of CY23 and continued to exhibit relatively lower stress for most part of the CY23. Equity prices in the U.S., Euro area and Japan observed noticeable increase, while corporate credit spreads tightened.<sup>1</sup>

The lower volatility in financial markets was driven by increased investor expectations about softening in monetary policy stance by major central banks in advanced countries. Such upbeat expectations helped ease global financial conditions despite elevated interest rates as manifested in higher equity valuations. In emerging markets as well, higher equity valuations and expectations of a rate cut kept financial conditions easy during CY23.

*Stress in domestic financial markets persisted, though the conditions improved towards the end of the year with the improvement in economic outlook ...*

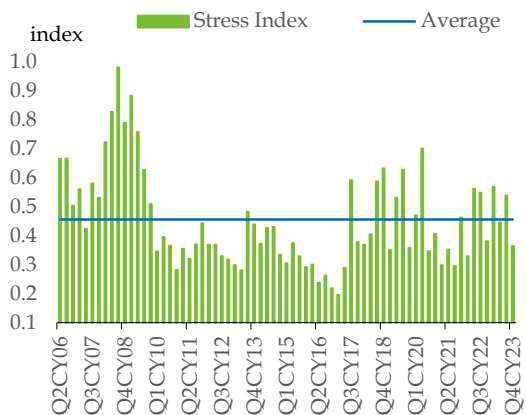
In the wake of weak economic conditions and challenging external account, overall stress in the domestic financial markets remained elevated during the reviewed year. Nonetheless, with the emergence of tentative signs of economic recovery and other upbeat developments like IMF SBA agreement during H2CY23, ebbing inflationary pressures, the economic outlook and market sentiments improved that was also reflected in an increase in business confidence index<sup>2</sup> and receding economic policy uncertainty (see **Figure 2.1**). Accordingly, strain in domestic financial markets moderated towards the end of CY23 (**Figure 2.2 and 2.3**).

**Economic Policy Uncertainty Index** **Figure 2.1**



Source: State Bank of Pakistan

**Financial Markets Stress Index** **Figure 2.2**



Source: SBP Staff Calculations

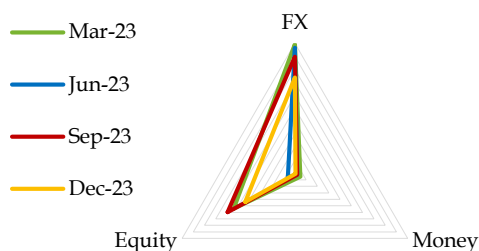
Within financial markets, FX market mainly contributed in the overall volatility followed by equity and money markets during CY23. The Rupee witnessed significant appreciation towards the end of the year, however, on YoY basis it depreciated against USD by another 19.7 percent during CY23 to reach Rs 281.9 per USD (22.0 percent in CY22) while KSE-100 index surged by 54.5 percent during CY23 compared to a decline of 9.4 percent in CY22. Money market witnessed bouts of volatility during

<sup>1</sup> IMF. (2023). Global Financial Stability Review. October

<sup>2</sup> BCI increased to 53.0 in December 2023; the highest level since June 2022

March 2023 and July 2023, however, it continued to function in an orderly manner due to SBP's effective monetary operations to ensure liquidity and keep the interest rates within the bounds of monetary policy.

**Financial Markets Stability Map** **Figure 2.3**



**Note:** Volatility in the respective markets is calculated using Exponential Weighted Moving Average (EWMA) method. Daily Overnight repo rate, KSE-100 index and Exchange Rate (PKR/US\$) are used as indicators for the money, equity and foreign exchange markets, respectively.

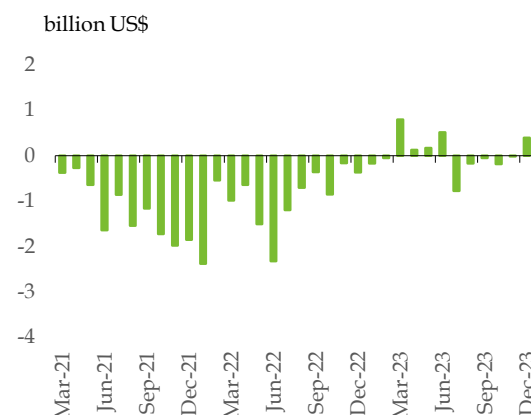
Source: State Bank of Pakistan

## 2.1 FX Market

*Despite material improvement in current account balance, FX market continued to remain volatile...*

Current account balance, which underpinned a challenging macroeconomic environment in previous two years, exhibited noticeable improvement during CY23.<sup>3</sup> The current account shrank to USD 0.4 billion compared with a deficit of USD 12.2 billion in CY22 (**Figure 2.4**). A sizable import containment,<sup>4</sup> through demand management policies and regulatory measures coupled with remittances inflows, which though moderated during the year,<sup>5</sup> helped improve current account balance.

**Trend in Current Account Balance** **Figure 2.4**



Source: State Bank of Pakistan

Nevertheless, Rupee volatility against USD, on average, remained higher in CY23 as compared to CY22 (**Figure 2.5**), as high external debt servicing and reduced financial inflows kept external account under pressure in the reviewed year (**Figure 2.6, 2.7 and 2.8**).<sup>6</sup> Also, high global interest rates coupled with the country's high risk premium (as reflected in CDS spread) during CY23 made it challenging to tap international markets (**Figure 2.9**). Moreover, continued appreciation of USD against major global currencies during CY23 also added pressure on local currency (**Figure 2.10**).

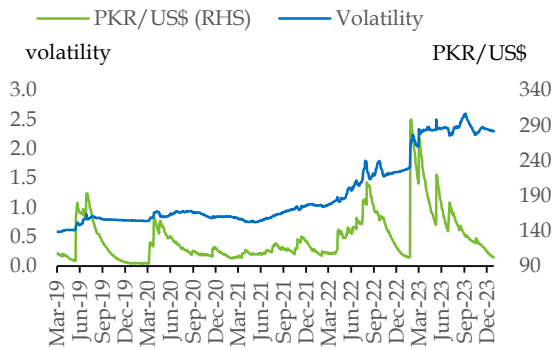
<sup>3</sup> On average, current account deficit amounted to USD 12.3 billion for CY21-22.

<sup>4</sup> Imports contracted by 26.6 percent in CY23

<sup>5</sup> Workers' remittances amounted to USD 26.4 billion in CY23 against USD 29.9 billion in CY22.

<sup>6</sup> External debt servicing (including principal and interest) amounted to USD 17.9 billion in CY23 as compared to USD 19.3 billion in CY22. Moreover, official external inflows amounted to USD 10.9 billion – lower than USD 11.9 billion received in CY22.

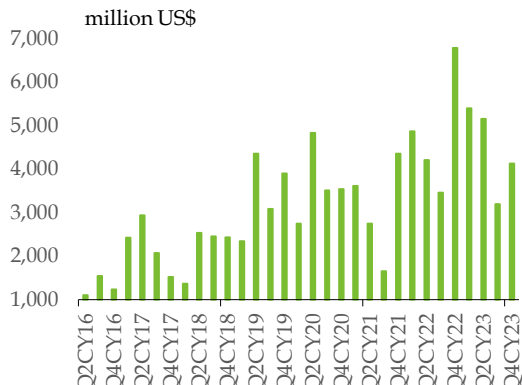
Exchange Rate and its Volatility\* Figure 2.5



\*Volatility is measured using Exponential Weighted Moving Average Method based on daily data

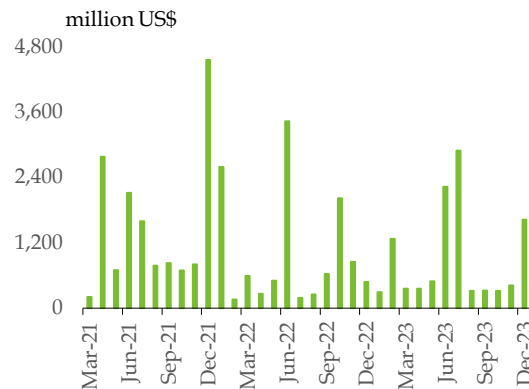
Source: State Bank of Pakistan

Trend in External Debt Servicing (Principal and Interest) Figure 2.6



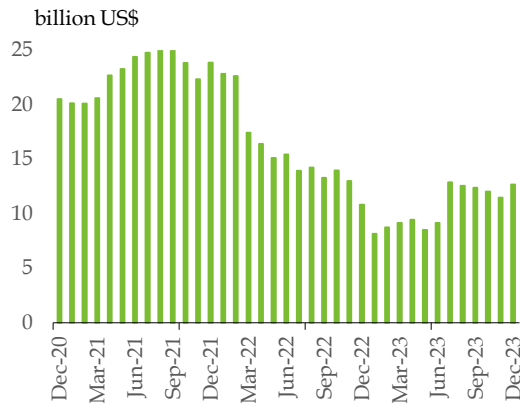
Source: State Bank of Pakistan

Trend in External Official Inflows Figure 2.7



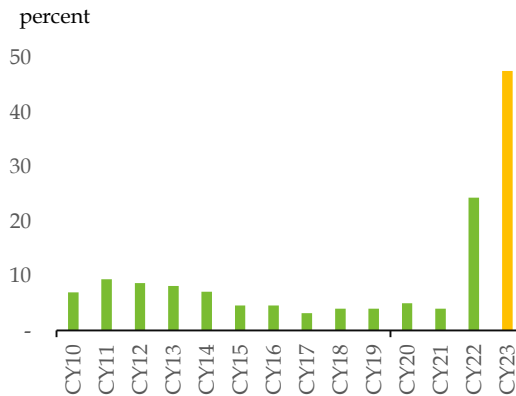
Source: Economic Affairs Division

Trend in Country's FX Reserves Figure 2.8



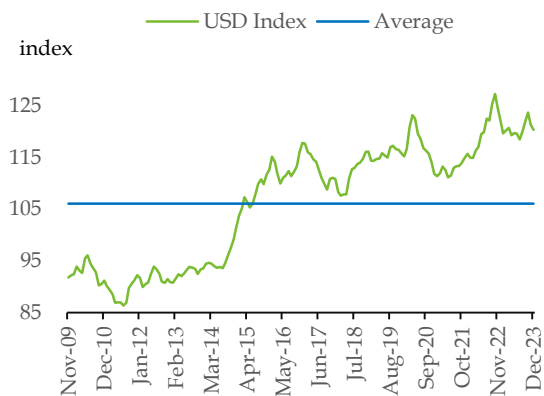
Source: State Bank of Pakistan

Pakistan's 5 year CDS (yearly average) Figure 2.9



Source: Bloomberg

Trend in Nominal Broad USD Index Figure 2.10



Source: Federal Reserve Bank of St. Louis

However, volatility subsided in H2CY23...

Further analysis reveals that stress in the FX market remained elevated in the first half of

CY23 – particularly early months witnessed a spike in volatility. Rupee depreciated against USD by 20.8 percent during H1CY23 while the next half recorded an appreciation of 1.5 percent. A delay in 9<sup>th</sup> IMF Review under EFF program – causing multilateral and bilateral creditors to hold their financing – the external debt re-payment pressures and inadequate financial inflows, kept FX liquidity conditions tight and the volatility high in H1CY23.

However, volatility in the FX market gradually receded during H2CY23 mainly on account of securing the nine-month Stand-By Arrangement (SBA) with the IMF – which improved the prospects of multilateral and bilateral inflows – and administrative measures<sup>7</sup> as well as policy reforms in exchange companies (ECs) in the FX market leading to improved liquidity. It is noteworthy that due to administrative measures, Rupee consistently appreciated against USD between September 05 and October 16, strengthening by 10.9 percent.

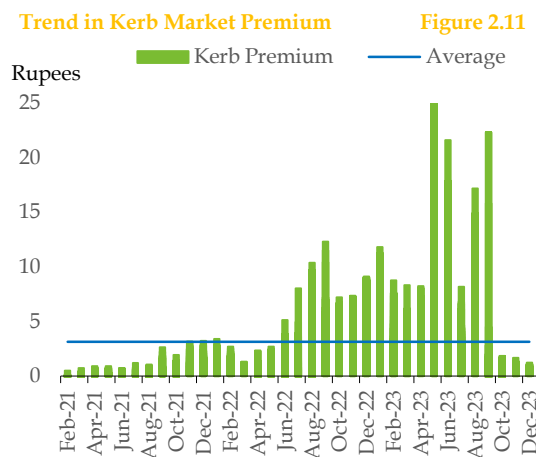
Backed by such developments, SBP’s FX reserves increased to USD 8.2 billion by end December 2023 from USD 4.4 billion at end June 2023. Resultantly, SBP moved to reduce its foreign currency swaps/forward liabilities. From end August 2023 to end December 2023, SBP’s net Swaps position declined by USD 1.0 billion to USD -3.6 billion.

*Before declining in Q4CY23, open-market premium significantly increased....*

The gap between open market and inter-bank market exchange rates widened momentarily to a marked extent during Q2CY23 and Q3CY23 (**Figure 2.11**). The average open market premium<sup>8</sup> was recorded at Rs 10.1 and Rs 6.0 in these quarters, respectively, which is higher than the average premium in normal circumstances.<sup>9</sup> The rising uncertainties

associated with prospects of securing IMF program and tight liquidity conditions in the FX market drove-up the premium.

Nonetheless, the inter-bank and open market exchange rates aligned<sup>10</sup> in Q4CY23, primarily due to the actions taken to curb illicit activities in the FX market and SBP’s initiatives. The normalization of kerb premium helped improve workers’ remittances hence supported FX reserves.<sup>11</sup>



Source: State Bank of Pakistan

*Continued pressure on local currency also reflected in increased forward premium during first half which though eased in later part of the year...*

The prevailing macroeconomic stress was also reflected in the price of financial instruments such as forward currency contract. On average, 6-month forward premium increased to Rs 11.5 in CY23 from Rs 5.7 in previous year. Within the reviewed year, forward premium observed divergent episodes of spike and sharp decline (**Figure 2.12**). For instance, spike in forward premium during Q1CY23 manifested growing interest rates differential between KIBOR and Secured Overnight Financing Rate (SOFR) owing to significant monetary policy tightening

<sup>7</sup> It refers to the actions by law enforcement agencies

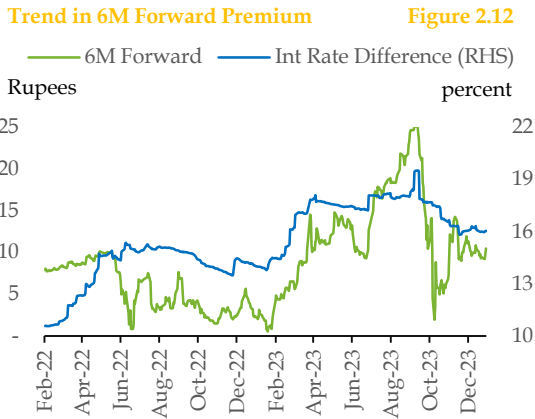
<sup>8</sup> The premium has been calculated from selling rates of the inter-bank and open market

<sup>9</sup> The premium rose, on average, to Rs 5.5 in CY23, from Rs 3.0 in CY22

<sup>10</sup> The average gap between inter-bank and open market exchange rates declined to Rs 0.73 only in Q4CY23,

<sup>11</sup> SBP’ FX reserves increased to USD 8.2 billion by end December 2023 from USD 7.6 billion at end September 2023.

by SBP.<sup>12</sup> Also, deteriorating inflation outlook and tight FX liquidity conditions help explain noticeable increase in forward premium during this period.



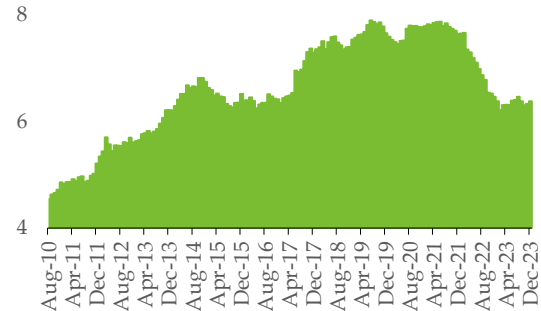
Source: State Bank of Pakistan

From late June 2023 to early September 2023, forward premium again rose noticeably. Nonetheless, it showed sharp decline afterwards until early October 2023. The marked fall in the premium was mainly driven by administrative actions and regulatory measures which helped improve FX liquidity and built expectations of appreciation in Rupee, which in turn further expedited the forward booking of FX inflows and provided further liquidity in the inter-bank market causing a decline in the premium.

*FE-25 deposits' build-up momentum remained weak....*

Foreign currency deposits observed gradual and consistent decline from September 2021 to February 2023, reflecting increasingly uncertain macroeconomic environment.<sup>13</sup> Although CY23 observed some improvement in these deposits, the build-up momentum remained weak possibly due to elevated domestic uncertainties and the impact of increased open market premium (**Figure 2.13**).

**Trend in FE-25 Deposits** **Figure 2.13**  
billion US\$



Source: State Bank of Pakistan

## 2.2 Money Market

*Monetary policy further tightened during H1CY23 and then remained steady as SBP adopted a measured approach....*

In the wake of persistent and broad-based inflationary pressures,<sup>14</sup> along with unfavorable external account dynamics, SBP further increased policy rate by 600 basis points to reach 22.0 percent during the reviewed year. The aggressive tightening was witnessed only in the first half of the year while the second half observed no change in monetary policy stance as inflation pressures moderated relative to H1CY23, though still elevated (**Figure 2.14**).

*Accordingly, the market dynamics and expectations changed over the year, while SBP's monetary operations remained relatively more active....*

Besides lower volatility, the average gap between ONR and policy rate turned negative<sup>15</sup> during CY23 manifesting ample availability of liquidity even though the government's reliance

<sup>12</sup> Policy rate further increased by 400 bps in Q1CY23

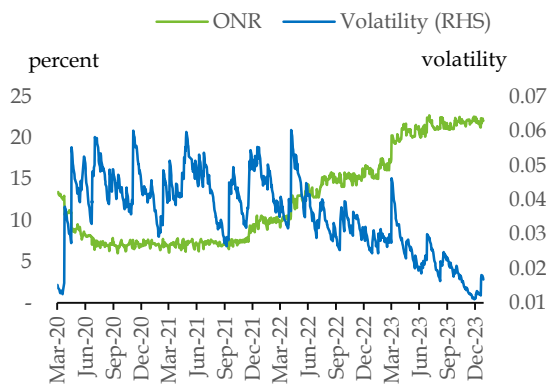
<sup>13</sup> FE-25 deposits fell by USD 1.6 billion in this period

<sup>14</sup> National-CPI and core inflation averaged (YoY) at 30.9 percent and 18.3 percent, respectively during CY23.

<sup>15</sup> Average gap between ONR and policy rate turned -0.24 as compared to positive gap of 0.02 in CY22. In H1 and H2 of CY23, the gap remained negative at 0.26 and 0.23 respectively. Moreover, on 153 instances, the gap was negative while it was positive on 52 instances during CY23

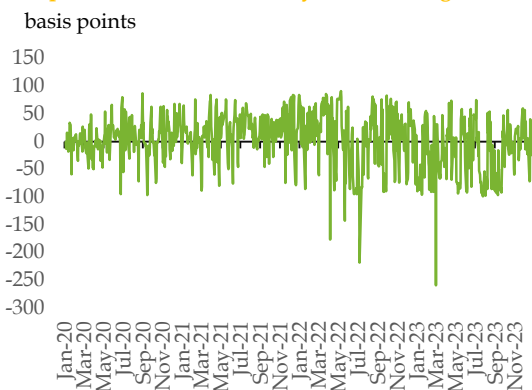
on bank credit for budgetary support increased two times (Figure 2.15).<sup>16</sup>

Trend in ONR and its Volatility Figure 2.14



Source: State Bank of Pakistan

Gap between ONR and Policy Rate Figure 2.15

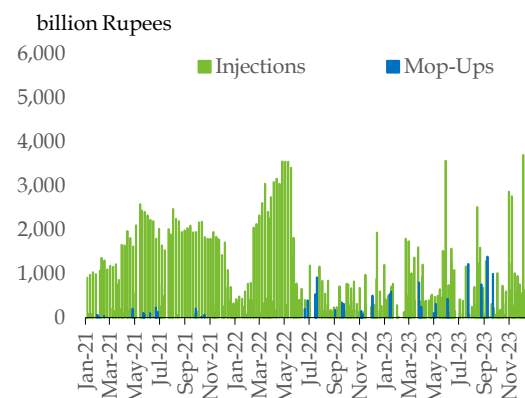


Source: State Bank of Pakistan

A number of factors explain this development. First, private sector credit remained subdued<sup>17</sup> – driven by weak economic activity – providing liquidity cushion to the banks. Second, deposits mobilization rebounded, posting 24.2 percent growth in CY23 as compared to just 8.0 percent rise in CY22. Third, the average size of Open Market Operations (OMOs) injections in CY23 was lower than last

year<sup>18</sup>, though the frequency<sup>19</sup> and average tenor<sup>20</sup> of the OMOs injections were higher in CY23 (Figure 2.16).

OMOs Injections and Mop-ups Figure 2.16



Source: State Bank of Pakistan

However, the liquidity profile of the market varied along the time as well as institutions, as SBP also conducted 13 mop-ups of Rs 7.6 trillion in total during CY23. Similarly, with an expectation of increase in policy rate – particularly in September 2023 – banks increasingly availed SBP floor facility to temporarily park the funds with a view to avail the opportunity of investing at higher rate. The banks parked, on average, their excess liquidity with SBP worth Rs 214 billion during CY23 (Rs 154 billion in CY22) availing floor facility 237 times during the reviewed year as compared to only 85 times in previous year.<sup>21</sup>

*In line with sharp monetary tightening, yield curve shifted upward particularly at the short-end; however, a change in market expectations due to ease in inflation lowered the curve in last quarter ...*

Yield curve of government securities increasingly shifted upward owing to sharp monetary tightening – until September 2023.<sup>22</sup>

<sup>16</sup> Government budgetary borrowing from the banks increased by Rs 7,140 billion in CY23 from Rs 3,361 billion in CY22.

<sup>17</sup> Domestic private sector advances declined by 2.4 percent in CY23 against 16.4 percent increase in CY22.

<sup>18</sup> Average OMOs injections were recorded Rs. 539 billion in CY23 against Rs.783 billion in CY22

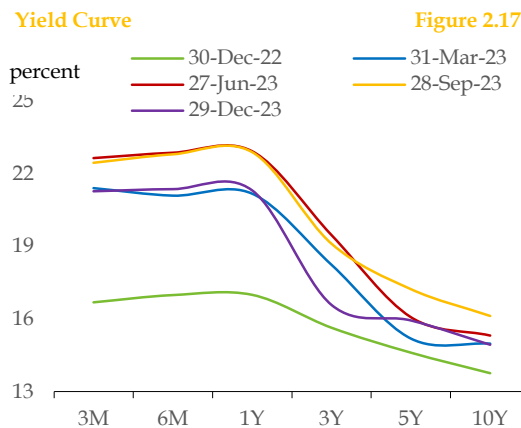
<sup>19</sup> SBP injected 162 times in CY23 compared to 102 times in CY22.

<sup>20</sup> Average tenor of injections increased to 28 days from 20 days in CY22.

<sup>21</sup> In total, banks parked Rs 50,778 billion with SBP during CY23 against Rs 13,106 billion in CY22

<sup>22</sup> Yields on 3M, 6M, and 1Y government securities increased by 577 bps, 582 bps and 590 bps respectively between end December 22 and end September 2023.

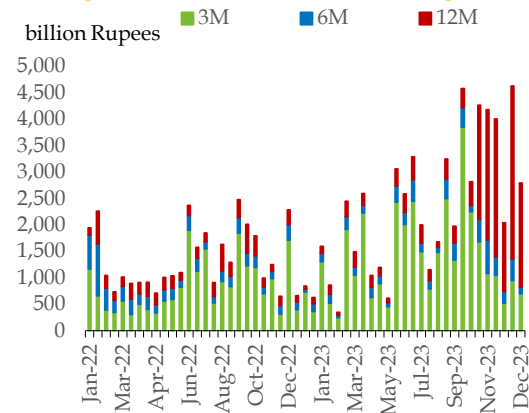
However, the yield curve shifted downward by December 2023 when compared to September 2023 situation (Figure 2.17).<sup>23</sup> In the absence of further increase in policy rate in H2CY23 and softening inflation, along with relatively improved macroeconomic environment, led market participants to assume that interest rates had peaked.



Source: Mutual Funds Association of Pakistan

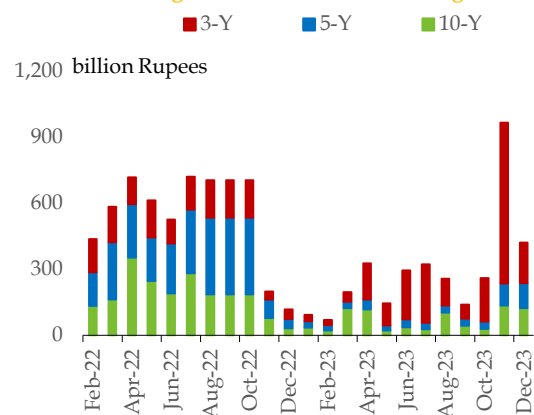
It is noteworthy that banks – having major investments in Available for Sale (AFS) and Held for Trading (HFT) categories<sup>24</sup> – are exposed to mark to market losses in case of upward shift in yield curve. Along the monetary tightening cycle, banks' revaluation deficit on treasury holding increased to Rs. 235.8 billion by end December 2022. The deficit further surged to Rs 307.2 billion by end September 2023 due to sharp increase in interest rate but afterwards steadily reduced to Rs 126.7 billion by end December 2023, as the yield curve shifted downward.<sup>25</sup> This was also manifested in banks' gain on sale of government securities on HFT which increased to Rs 6.1 billion in CY23 as compared to Rs. 2.2 billion in CY22.<sup>26</sup>

**Bidding Behavior in T-bills Auctions** Figure 2.18



Source: Sate Bank of Pakistan

**Banks' Bidding for Fixed Rate PIBs** Figure 2.19



Source: State Bank of Pakistan

*...keeping banks' interest in short-term and floating rate instruments*

Banks continued to show higher interest in Market Treasury Bills (MTBs) and floating rate Pakistan Investment Bonds (PIBs)<sup>27</sup> during CY23 due to high interest rate expectations. Within MTBs, however, banks' bidding noticeably increased for 12M TBs during Q4CY23 reflecting

<sup>23</sup> For instance, 3M and 3Y yields in secondary market declined by 118 bps and 253 bps between end September 2023 and end December 2023.

<sup>24</sup> As of end December 2023, banks held 88 percent and 3 percent of total investments in AFS and HFT categories.

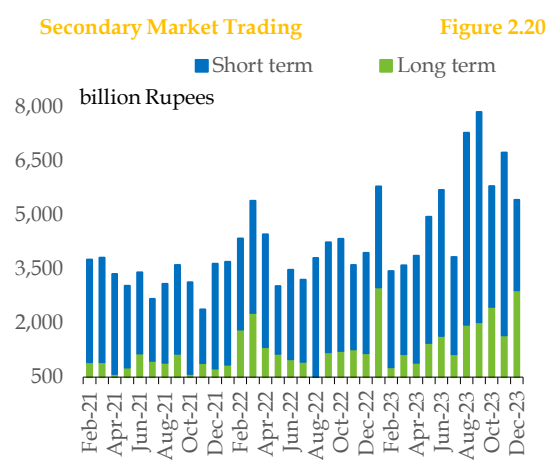
<sup>25</sup> This is due to the fact that the value of government securities in secondary market is determined by PKRV rates. When PKRV rates rise, prices of the securities decline and vice versa.

<sup>26</sup> Trading gains on sale of government securities were negative in first three quarters of CY23.

<sup>27</sup> Banks offered Rs. 5,209 billion in auctions for floating rate quarterly PIBs against government target of Rs. 3,450 billion in CY23. Similarly, in case of floating rate semiannual PIBs, banks offered Rs. 7,517 billion against target of Rs. 2,390 billion.

expectations of possible monetary easing in near future (**Figure 2.18**). The impact of increased yield curve inversion and expectations that policy rate has peaked was also visible in banks' bidding for fixed rate PIBs, which increased towards the end of the year (**Figure 2.19**).

The trading of government securities in secondary market was in sync with primary market dynamics as trading remained concentrated in short-tenor securities owing to rising interest rate environment (**Figure 2.20**). Moreover, the total volume of the secondary market trading surged by 35.1 percent to reach Rs. 64,346 billion<sup>28</sup> in CY23 which was encouraging for market efficiency and depth.



Source: State Bank of Pakistan

*The rollover risk of the government has reduced over-time while banks sensitivity to changes in interest rates remained contained as the repricing duration of their fixed-income portfolio is quite low ...*

The rollover risk of the government has been steadily declining over-time reflecting consistent improvement in debt maturity profile of the government. The share of MTBs in total federal government securities declined to 24.2 percent (65.9 percent in CY18) while PIBs share increased to 58.9 percent in CY23 (28.1 percent in CY18).

It deserves an emphasis that due to reduced repricing duration and ample capital cushion, banks' resilience to adverse shocks in interest rates remained intact. The results of sensitivity (stress testing) analysis shows that under the most severe shock scenario (i.e. parallel upward shift in the yield curve by 300 basis points), CAR of most of the banks remains well above the minimum requirement (**for detail see the section on Market Risk in Chapter 3 on Banking Sector**).<sup>29</sup>

### 2.3 Equity Market

*KSE-100 index rebounded in H2CY23....*

The benchmark KSE-100 index surged by 54.5 percent in CY23 against a contraction of 9.4 percent in CY22. The index reached 66,130 in December 2023. However, within the reviewed year, equity market dynamics rapidly changed. In first half of CY23, the index increased only by 2.6 percent while in H2CY23 it recorded an impressive increase of 50.7 percent. Accordingly, market capitalization increased by 39.4 percent in CY23 (15.4 percent decline in CY22). Moreover, Price to Earning (P/E) ratio – that had been steadily declining over the years – further declined to 4.2 in CY23 (4.6 in CY22).<sup>30</sup>

The volatility of the index, on average, remained higher during the reviewed year. It spiked in early months of CY23 and bouts of volatility were also witnessed in H2CY23 (**Figure 2.21**). Rising stress in the early period of CY23 was driven by a number of factors such as sharply rising inflation, policy rate increase of 400 basis points (100 bps in January 2023 and 300 in March 2023), a deteriorating Rupee-USD parity (**Figure 2.22**), evolving political situation, delay in 9<sup>th</sup> IMF program review and downgrade in country's credit rating. The resultant bearish sentiment in the wake of such environment kept

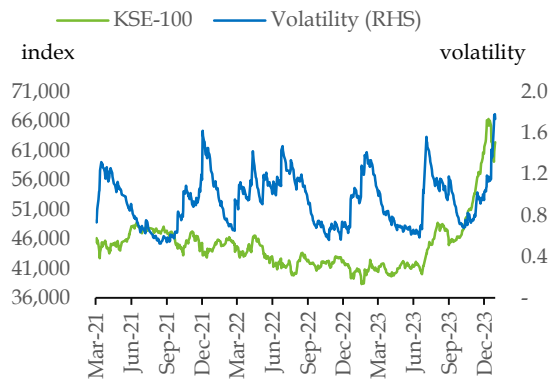
<sup>28</sup> It represents realized value of the traded securities.

<sup>29</sup> For details see, Stress Testing Results of the Banking System available at <https://www.sbp.org.pk/ecodata/fsi/qc/2023/Dec.pdf>

<sup>30</sup> Average P/E ratio was 8.6 and 6.9 in CY20 and CY21 respectively.

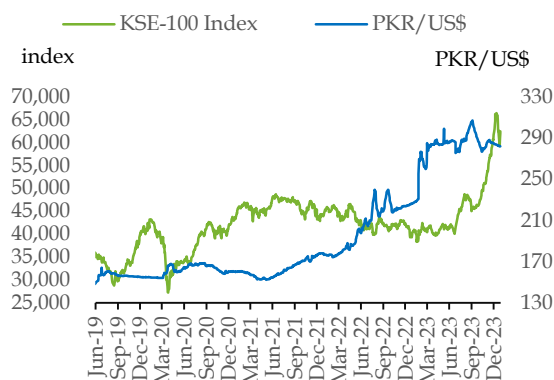
KSE-100 index at an average level of 40,886 during H1CY23.

**KSE-100 Index and its Volatility** Figure 2.21



Source: State Bank of Pakistan

**KSE-100 Index and Exchange Rate** Figure 2.22

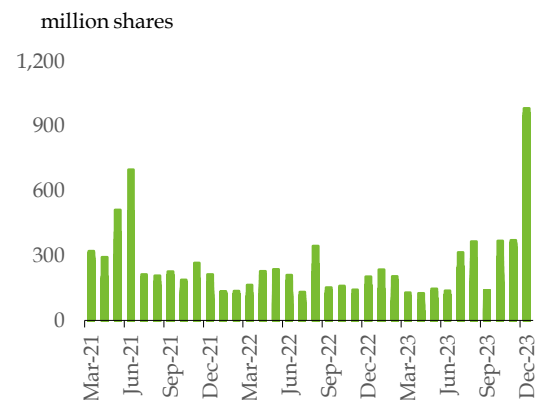


Source: State Bank of Pakistan

In the second half of CY23, risk aversion began to fade due to improving macroeconomic prospects. The index consistently and rapidly moved upward, especially from September 2023, hovering at an average level of 51,451 during H2CY23. The strong recovery in investors' confidence was due to a number of healthy developments such as (i) securing IMF SBA program (ii) inflows from friendly countries (iii) administrative interventions in FX market resulting in improved Rupee-USD parity, (iv) moderation in inflationary pressures

and expectations of monetary easing (v) recovery in economic activity (vi) establishment of Special Investment Facilitation Council and (vii) declining political uncertainty. (Figure 2.23).<sup>31</sup>

**Trading Volume of KSE-100** Figure 2.23



Source: Bloomberg

It is noteworthy that foreign investors – after remaining net sellers for a couple of years – turned net buyers of equities in CY23.<sup>32</sup> Besides, the absence of further monetary tightening in advanced economies (AEs), foreign inflows in local equity market were particularly due to relatively stable domestic currency during H2CY23 (Figure 2.24).

*Mutual funds continued to remain largest net sellers....*

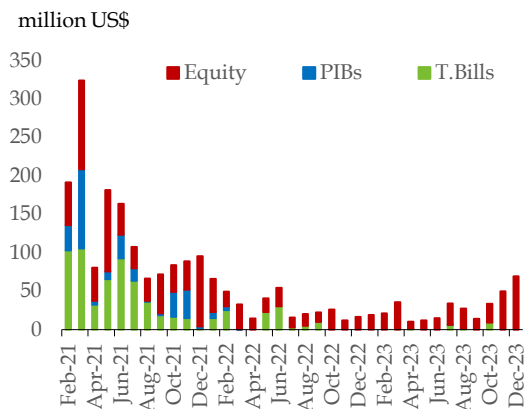
Among local investors, mutual funds were the largest net sellers of equities followed by banks/DFIs and brokers (Figure 2.25). This was possibly owing to the narrowing gap between earning yield<sup>33</sup> on shares and risk free instruments – especially in H1CY23 – that made fixed-income government securities more attractive (Figure 2.26). The composition of

<sup>31</sup> Average trading volume was 164.5 million shares in CY23 against 100.0 million in CY22. Within CY23, trading increased to 243.6 million shares (on average) in H2CY23 from 82.8 million in H1CY23.

<sup>32</sup> Net selling amounted to USD 48 million in CY22 while in CY23 net buying by foreign investors amounted to USD 74 million.

<sup>33</sup> It refers to the earnings per share for the most recent 12-month period divided by the current price per share

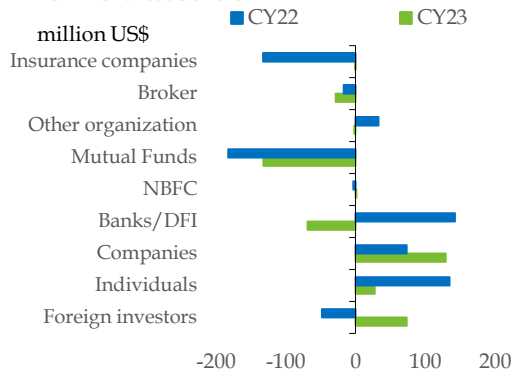
**Foreign Portfolio Inflows** **Figure 2.24**



Source: State Bank of Pakistan

mutual fund assets reveals that their exposure in equities (as percent of their total assets) further declined to 9.1 percent by end December 2023 from 10.8 percent in CY22 (19.7 percent in CY21). Although mutual funds investment increased in equities during Q4CY23 owing to surge in stocks prices and expectations of monetary easing, the assets remained concentrated in income and money market instruments.<sup>34</sup>

**Mutual Funds and Banks were Prominent Net Sellers** **Figure 2.25**

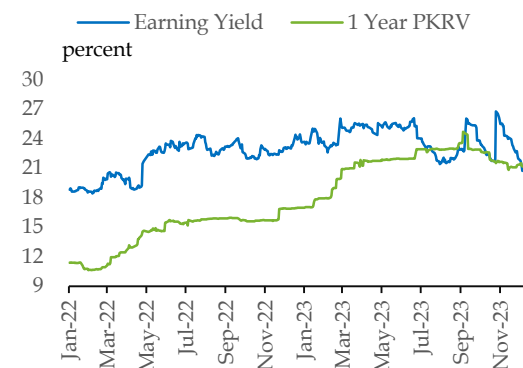


Source: National Clearing Company of Pakistan Limited

Sector-wise analysis reveals that highest net buying by foreign investors was witnessed in banks' stocks followed by power sector (including exploration and marketing companies) sector during CY23 (**Figure 2.27**).

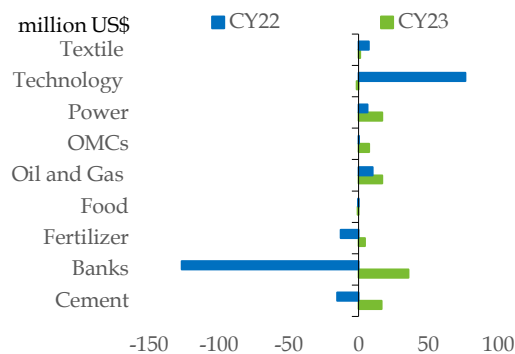
Elevated interest rates and associated expectations of higher profitability appear to explain investors' interest in banks' stocks. In case of Oil and Gas sector, possibility of liquidity improvement on the back of circular debt resolution could be the driving factor.

**Earning Yield and 1 Year PKRV** **Figure 2.26**



Source: Bloomberg and Mutual Funds Association of Pakistan

**Net Buying was Highest in Banks Stocks** **Figure 2.27**



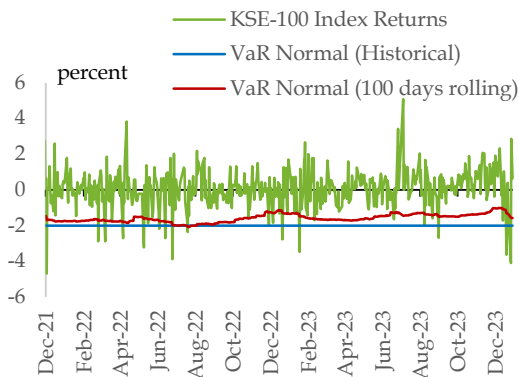
Source: National Clearing Company of Pakistan Limited

*The risks in equity market remained at a relatively lower level....*

Value at Risk (VaR) analysis indicates that daily returns of KSE-100 index breached VaR Normal (100 days rolling) 13 times, same as in CY22, however, the average extent of breaches was lower, showing relatively contained risks in CY23 (**Figure 2.28**).

<sup>34</sup> Mutual funds' investments in income funds, equity, and money market increased by Rs 210 billion, Rs 58 billion, and Rs 40 billion, respectively, in Q4CY23.

Value at Risk of KSE-100 Index Returns Figure 2.28



Source: Pakistan Stock Exchange and SBP Staff Estimates

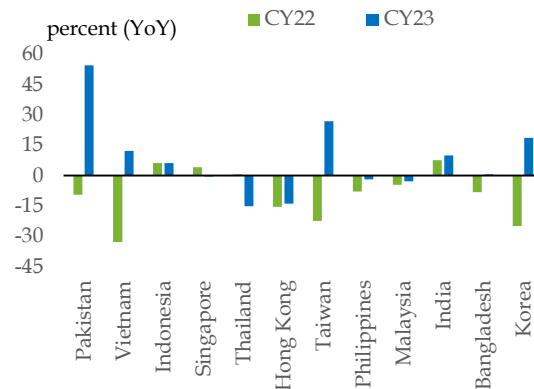
It is noteworthy that the banks' investment in equities remained immune to the equity market stress episodes observed during the reviewed year. In the backdrop of a conservative regulatory regime of SBP, banks are maintaining a limited exposure to the equity market which makes them less sensitive to volatility in equity market. Investment in equities stood at 6.8 percent of banks' regulatory capital at end December 2023 (6.8 percent in CY22). The latest sensitivity analysis (stress testing) results also suggest that even with in a hypothetical shock scenario of 36.1 percent decline in equity prices (KSE-100 index), which is equal to historically highest quarterly decline in the index, no CAR-compliant bank is expected to breach the regulatory minimum requirement of CAR.<sup>35</sup> Moreover, probability of default analysis indicates low likelihood of default of the firms in KSE-100 index (see Box 2.1).

### *Domestic equity market outperformed among regional group of countries...*

In previous year, the performance of the domestic equity market was in line with the regional markets. Nonetheless, in the reviewed year, domestic equities

outperformed several regional markets (Figure 2.29).

Regional Countries Equity Markets Performance Figure 2.29



Source: Haver Analytics

Going forward, performance of domestic financial markets will hinge on a number of factors including the geopolitical course especially the evolving conflict in the Middle East, inflation dynamics and associated monetary policy stance, the resilience of domestic economic recovery, political stability and how swiftly the government engages with IMF over a fresh funding program.

<sup>35</sup> For details see, Stress Testing Results of the Banking System available at <https://www.sbp.org.pk/ecodata/fsi/qc/2023/Dec.pdf>

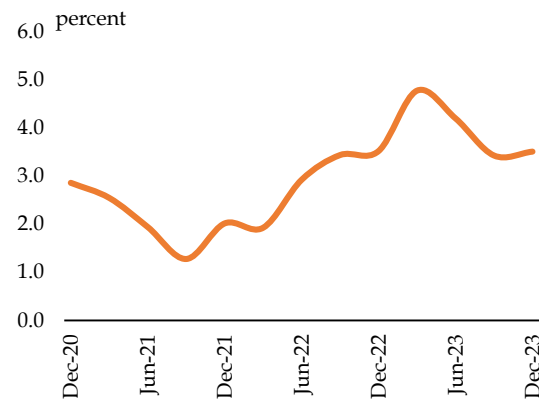
**Box 2.1: How market perceives the credit worthiness and soundness of KSE-100 firms?**

Stock market index incorporates macroeconomic developments, participants' views on corporate performance, and news flow on a real time basis. The stock market index can, thus, be a useful aggregate risk indicator on underlying firms' financial health. The assessment about borrowers' repayment capacity and possibility that they may falter on their commitments, viz., probability of default (PD), can be used by investors, lenders and regulators to make portfolio, lending and policy decisions. In this regard, the Merton's (1974)<sup>36</sup> distance to default model is a widely used tool, which assesses the structural credit risk of a company by modeling its equity as a call option on its assets. The model extracts credit risk of the firm from market information and provides insights into a company's PD based on its market implied balance sheet structure. For instance, market value of equity (E) can be calculated from the firm's stock market price and the number of outstanding shares. However, the market value of assets (A) is treated as unobservable while the liabilities (L) are taken at book value. The Merton model relates these values in an option pricing framework. For a selected maturity (usually one year), a liability threshold (L) is chosen based on the firm's entire liability structure, which represents the point at which the firm defaults. The probability of default is then defined as the probability of value of assets falling below the liability threshold at the end of the time horizon (T).

Along these lines, the PDs for the constituent firms of KSE-100 index have been taken from Bloomberg to gauge their credit risk. To arrive at a representative number for all firms in KSE-100, a size-weighted average probability of default is computed.<sup>37</sup>

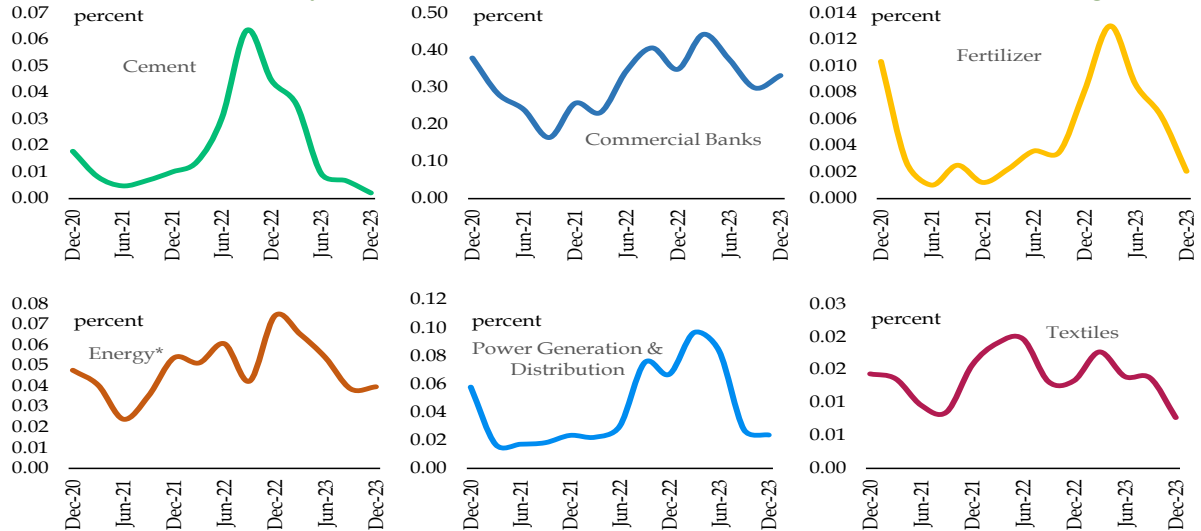
Post-pandemic, the aggregate PD declined on the back of a rebound in economic activity when mobility restrictions

**1-Year Probability of Default (KSE-100 Index) Firms** **Figure 2.1.1**



Source: Bloomberg and SBP Staff Calculations

**Sector wise 1-Year Probability of Default**



\*Energy includes Oil & Gas Exploration, Oil and Gas Marketing and Refinery  
Source: Bloomberg and SBP Staff Calculations

<sup>36</sup> Merton, Robert C. (1974). "On the Pricing of Corporate Debt: The Risk Structure of Interest Rates" (PDF). *Journal of Finance*. 29 (2): 449-470.

<sup>37</sup> The analysis is based on available data of 90 firms, which still represent the major part of the KSE-100 index and total assets of listed firms.

were eased (**Figure 2.1.1**). There is, however, an uptick in the probability after Q2CY21, when the macroeconomic environment was characterized by elevated inflationary pressures, subdued economic activity, muted business confidence and strains in the global banking system led to further tightening of global liquidity and financial conditions. Nevertheless, the probability of default started to decline in H2CY23, as the inflation began to moderate from its peak of 38.0 percent in May 2023, economic growth revived in H2CY23 and stock market rebounded. These positive developments helped in improving the risk outlook of the listed firms in KSE-100 index which also includes 14 commercial banks, and was reflected in their sector wise PDs (**Figure 2.1.2**). The PDs, overall as well as sectoral, are on a declining trend ever since. Reassuringly, however, the PDs show low likelihood of default of the firms in KSE-100 index.

