Chapter 4: Resilience of the Banking Sector under Adverse Conditions

The assessment of banking sector's resilience is based on an assumed stress scenario, which is a hypothetical, coherent risk setting designed specifically to assess the ability of the sector to withstand exceptionally large but plausible potential deteriorations in macroeconomic conditions. A counter-factual backward looking exercise without regulatory relief measures, which were introduced after the onset of COVID-19, reveals that the credit risk and the resilience of the banking sector would have been adversely affected in the absence of these measures. Looking forward, under the baseline scenario (benefiting from the earlier relief measures), the sector's current level of solvency remains stable and well above the domestic regulatory benchmark. Under a more severe hypothetical scenario as well, the banking sector is able to withstand a downturn induced by adverse macroeconomic conditions associated with a more virulent and longer lasting pandemic along with the effects of climate change. In terms of size, the large banks with a potential to cause systemic disruptions carry higher capital buffers and are expected to sustain the impact of the shock over a three-year horizon. Similarly, the medium sized banks are also expected to remain resilient to the shocks. However, the resilience of small sized banks starts waning and their CAR falls below the domestic regulatory benchmark by the third year of projections. Under the baseline, credit is projected to grow at a steady rate of 9.79 percent over the projection period. However, under the stress scenario, credit growth decelerates and turns negative towards the end of horizon. Therefore, the banking sector, with adequate capital buffers amid the on-going regulatory measures to contain the economic fallout from COVID-19, is expected to continue catering to the credit needs of the economy in the baseline. That said, the exact severity, duration and path of the COVID-19 pandemic globally and domestically remain highly uncertain. As a result, the stress-test results are also subject to a significant uncertainty. Nonetheless, the SBP continues to closely watch the unfolding situation and remains ready to take whatever actions necessary to safeguard financial stability. The banks are also expected to closely monitor the situation, especially the repayment capacity of borrowers, and may engage with the relevant stakeholders for any adjustments to maintain institutional solvency and facilitate smooth functioning of the sector.

4.1 Background

The feedback effects between the real and financial sectors have been most prominently highlighted by the GFC of 2007-08 where vulnerabilities in one sector spilled over to the other. Ever since, supervisors have enhanced the level of oversight of the financial sector and taken measures to strengthen the resilience of the sector to withstand shocks transmitting from the rest of the economy. At the same time, stress-testing frameworks are also being extensively used by supervisory authorities as well as multilateral agencies to assess the resilience of the banking sector to certain hypothetical adverse yet plausible event(s). The results of these stress tests depict the *projected* behavior of macro-financial variables and

health of the banking sector under the different *assumed* scenarios.

The SBP has been conducting this exercise internally on a quarterly basis since 2005. For external stakeholders, detailed stress-testing results and assessments are being published annually in the FSRs since 2007-08 and quarterly results are shared via Quarterly Compendium: Statistics of Banking System. The stress-testing framework at SBP is being continuously revamped and strengthened. The SBP has also issued comprehensive guideline to banks, DFIs and MFBs to assess their resilience on regular basis.[127]

4.2 Scenario Design Overview

The current year's stress testing exercise is designed around two scenarios i.e. *baseline* and *stress*

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[127] Recent review and enhancement in the stress testing guidelines has been made in September 2020. The latest framework is available at https://www.sbp.org.pk/fsd/2020/C1.htm

scenarios. Both the scenarios differ in terms of risk assumptions and severity.

The *baseline scenario* traces the path of macro-financial variables under the current dynamics of the domestic macro economy while taking into account the potential effects of the third wave of COVID-19 pandemic and resumption of IMF-EFF program.[128] On the other hand, the *stress scenario* assumes deep recession on the back of a protracted and wider spread of the pandemic and extreme climate change related events.[129]

Against the backdrop of economic challenges, the impact of both scenarios for the domestic macro-financial stability is assessed over the projected horizon of next three years: Q1CY21 to Q4CY23.[130] Projections under both the scenarios incorporate the impact of SBP measures taken to promote the private sector credit and preserve banks' capital position.[131] An exercise based on counterfactual scenarios; assuming absence of SBP relief measures, has also been carried out to analyze the approximate impact of these measures on the banking sector (see **Box 4.1)**.

The implications of changes in macroeconomic indicators such as output, inflation, interest rate, current account balance and exchange rate on the health of the banking sector have been captured via non-performing loans, profitability and solvency. Specifically, the economic downturn can negatively influence the income levels of firms and households, affecting their debt servicing capacity and amplifying the credit risk for banks. This in turn would put adverse pressures on the

profitability of banks and negatively affect their solvency.

The feedback effects of weakened solvency of banks could spill over to the real economy, as the banks would be reluctant to provide credit for even potentially profitable investment opportunities, thus amplifying the economic downturn.

In both the scenarios, a similar methodology has been employed to evaluate the resilience of the banking sector, which capture these inter-linkages among the various sectors of the macro economy. Given the interaction between real and financial sectors, a suite of vector autoregressive (**VAR**) and Bayesian VAR models has been developed.[132,133]

In terms of risk coverage, the resilience of the banking sector has been assessed against credit, market (interest rate and exchange rate) and operational risks. In addition to the aggregate assessment, cross-sectional heterogeneity has also been captured for the different segments of the banking industry in terms of size, i.e., small, medium and large banks.

4.3 Baseline Scenario

The baseline scenario, *Scenario 0* (**S0**), is built around the two broad themes namely the ongoing third and potential future waves of COVID-19 and implications of resumption of IMF stabilization program for the domestic economy.

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[128] For detailed discussion of key issues relevant to global and domestic economic environment, please see Chapter 01.
[129] Usually three types of shocks are considered in stress testing based on the length of the shock events i.e. V-shaped, L-shaped and U-shaped. The shapes are envisaged in terms of recovery. V-shaped assumes quick recovery; L-shape assumes protracted downturn while U-shaped assumes recovery towards the end of projection horizon. Under this terminology, stressed scenario are assumed to be L-shaped. However, owing to high level of severity in the stressed scenario, recovery takes a longer time compared with the baseline scenario.
[130] Owing to unprecedented level of uncertainty, projections' horizon has been reduced from five to three years.

[131] Please see Chapter 01 for brief details on government and SBP relief measures.
[132] For details, please see *'Box 4.1 Technical Details'* of Chapter 4: Resilience of the Banking Sector, Financial Stability Review 2016, SBP. In all we use 12 variants of VAR models, and an equal number of Bayesian VAR models. The models contain different combinations of macro-financial variables. Moreover, for calculation of relevant financial soundness indicators, we have assumed a dynamic balance sheet.
[133] One fifth of the authorities use VARs for macro stress testing. Bank for International Settlements (**BIS**) 2017. *Supervisory and Bank Stress Testing: A Range of Practices*, (December).

COVID-19 pandemic continues to be the key factor in determination of near-term economic outcomes…

Evidenced by a persistent rise in COVID-19 testing positivity rate, fatalities and pressure on health facilities, the country is facing a third wave of the pandemic. At the time of writing this report, the third wave have surpassed the second wave in terms of severity and, is proving to be at least as lethal as the first wave experienced last year (**Chart 4.1**). As discussed in Chapter 01, spread and duration of the pandemic and corresponding containment and relief measures are the crucial factors for determination of near-term economic outcomes.

Chart 4.1: Domestic Spread of COVID-19

(No. of persons) (No. of persons)
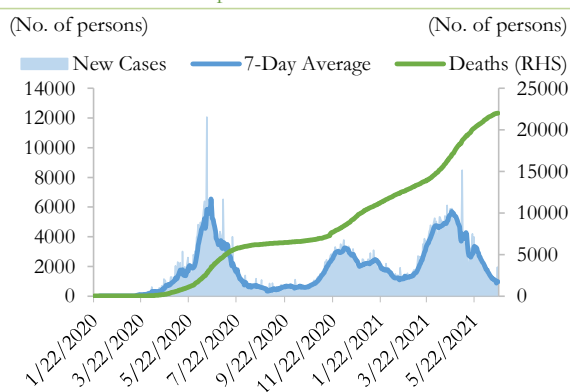
Source: Data Hub

Baseline assumes relatively contained and short-lived third wave of COVID-19…

Baseline Scenario has been prepared under two key assumptions regarding the third wave. First, assuming that similar to first and second waves, the third wave of COVID-19 will be relatively contained and short-lived -- likely to be over by the end of H1CY21. Domestic COVID-19 vaccination program; although moving on a relatively slow pace (**Chart 4.2**), but is gaining traction and is likely to dampen the severity of third wave as well as future potential waves (**Chart 4.1**).

Chart 4.2: Share of Population Vaccinated as of June 21, 2021

(Percent)
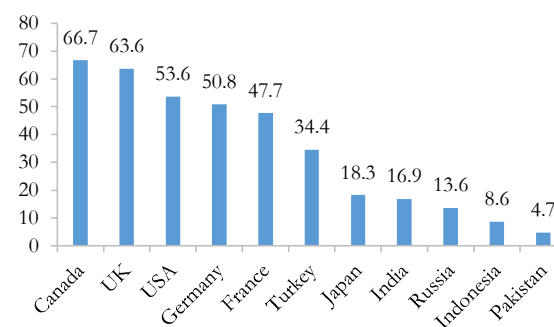
Source: ourworldindata.org

*…requiring less stringent containment measures…*

Assumptions regarding the pandemic containment measures are critical in terms of determination of economic impact. Given that a relatively contained outbreak has been assumed, Baseline Scenario rules out strict and countrywide lockdown. However, the pandemic related SOPs including smart lockdowns, targeted travel restrictions, closure of educational institutions, ban on dining at restaurants and mass gatherings may be needed to check the pandemic outbreak. While partial relaxation in these restrictions is assumed in Q2CY21, complete elimination of these restrictions may not materialize until vaccination of a sufficient fraction of population is achieved.

… affecting services sector but agriculture and export-driven manufacturing may support economic recovery…

On supply side, the pandemic containment measures are likely to negatively affect services sector growth---as observed during FY20. However, agriculture and manufacturing are likely to support recovery. In agriculture sector, the prospects of major crops, particularly wheat, are encouraging and likely to meet the respective

targets[134] amid improved government support and favorable water availability[135]. Manufacturing sector is assumed to continue recovery on account of low interest rate environment, capacity enhancement, recovery in exports (Chapter 01) and rise in demand due to uptick in construction activities.

Chart 4.3: Key Export Destinations of Pakistan

(5 year Average of Percentage Share in Total Exports)
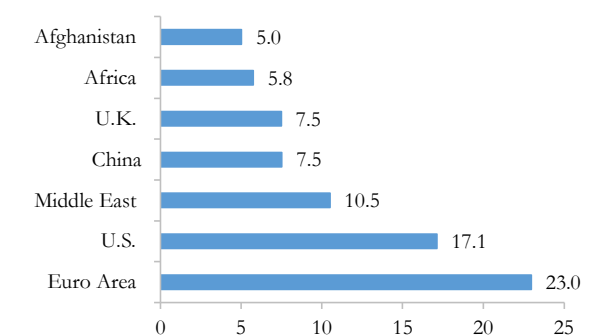
Source: SBP

Accommodating monetary policy is expected to support domestic demand while global recovery may boost exports and remittances…

On demand side, low interest rate environment is likely to encourage inter-temporal substitution and support consumption and investment demand. Encouragingly, the key export destinations also happen to be the key remittances corridors for the country (compare **Chart 4.3 & 4.4**). A stronger vaccine-driven recovery in these economies is likely to support the domestic economic recovery and consumption while giving impetus to the remittances – already at record high levels. Oil prices have also recovered to the pre-COVID-19 levels and are expected to remain stable.[136] The oil prices' rebound is expected to support remittances from Middle East countries; partially offsetting the

negative impact of COVID-19 on domestic consumption demand (**Chart 4.5**).

Chart 4.4: Remittances from Middle East Countries

(Percent Share in Total Remittances)
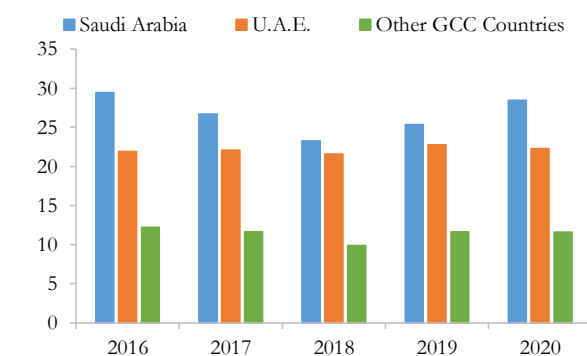
Source: SBP

Resumption of IMF stabilization program is likely to boost confidence

The IMF EFF, which was suspended last year due to COVID-19 pandemic, has resumed; it is expected to further the economic stabilization and offer a sense of stability. However, the resumption of delayed revenue enhancement measures; especially in energy sector, may lead to temporary inflationary pressures.

Chart 4.5: GDP Growth Rates in Key Economies

(Percent)
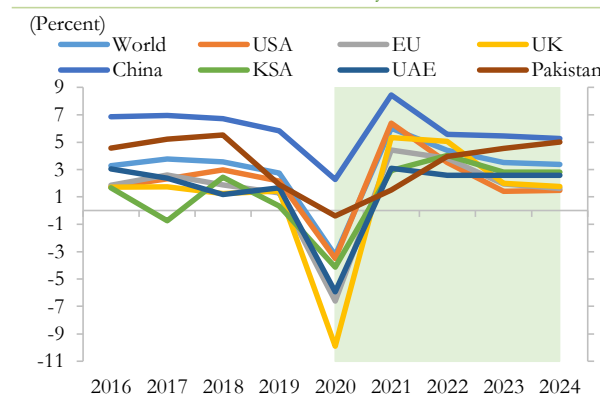
Source: IMF WEO Database April 2021

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[134] Press release, meeting of Federal Committee on Agriculture (FCA) held on 8th April, 2021 at NARC.
Monthly Economic Update & Outlook, March 2021, Government of Pakistan, Finance Division, Economic Advisor's Wing.
[135] The State of Pakistan's Economy - Second Quarterly Report 2020- 2021

[136] Based on oil futures market, average oil prices are expected to remain in the range of USD 55-59/barrel till CY22. IMF WEO April 2021.

Amid this backdrop, *S0* assumes that the GDP growth will tread an upward trajectory, registering 3.96 percent, 4.50 percent and 4.60 percent in FY21, FY22 and FY23, respectively (**Chart 4.7**)[137]. On account of a gradual recovery in the output growth, an absence of major domestic supply shocks, stable oil prices and cautious fiscal policy stance under stabilization program, improvement in domestic aggregate supply conditions is assumed to dominate increase in aggregate demand resulting from recovery of GDP growth. As a result, inflation is likely to show a gradual deceleration. Average annual inflation rates for FY21 and FY22 are assumed to be 9.04 percent and 8.80 percent, respectively (**Chart 4.8**). Going further, inflation is likely to converge to its medium-term target of 6 percent during FY23. In line with the foregoing narrative, i.e. a recovery in domestic demand and a moderation in inflation by the end of projection period, an appropriate monetary policy stance is assumed.

4.4 Stress Scenario

The domestic economy remains prone to a number of domestic and international risks. On domestic front, the leading risks include a prolonged wave of COVID-19, adverse climate-related events, risks to IMF program, FATF downgrading and political uncertainty. On global front, the risks could emanate from oil price volatility, global trade tensions, geopolitical tensions, slowdown in trading partner economies and global divergent financial conditions. The hypothetical stress scenario, *Scenario 1 (S1),* has, however, been weaved mainly around two key risk elements: (i) a more contagious spread and elongated duration of COVID-19 across the globe

and in Pakistan; and (ii) adverse impacts of climate change.

Stress scenario assumes prolonged and widespread outbreak of COVID-19…

At the time of writing this report, the third wave of COVID-19 in Pakistan has surpassed the peak of second wave, in terms of seven-day average of new confirmed cases (**Chart 4.1**). The recent statistics show that the wave is yet to touch its peak (at the time of writing this report) and the number of new confirmed cases are rising.

As shown in **Chart 4.2**, only 4.71 percent of total population has been vaccinated for COVID-19 as of June 21, 2021. Indian experience with second wave of COVID-19 suggests that the countries lagging behind in inoculation are at a high risk of the pandemic. Domestically, the risk of a sharp outbreak may further exacerbate owing to the population density, lack of awareness about sanitization, inter-regional mobility of work force, and the limitations of the health infrastructure to handle a mass-level outbreak. Besides, risk of its reemergence in the coming years continues to exist owing to the occurrence of new and more infectious strains of the virus.

…strict containment measures may be essential to contain the pandemic.

Owing to a prolonged and widespread pandemic outbreak amid a limited vaccine availability, stress scenario assumes that strict and countrywide lockdowns may be inevitable. The lockdown, as the experience shows, is expected to severely affect the services and manufacturing sectors while badly affecting consumer and business confidence.

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[137] Incidentally, IMF (2021) forecasts Pakistan GDP growth for FY21 to 1.5 percent. *World Economic Outlook*, April. World Bank (2021) also forecasts Pakistan GDP growth of 1.3 percent for FY21

with significant amount of uncertainty. *Pakistan Development Update,* April.

Global warming and the consequent climate change have been postulated to lead to extreme weather conditions causing droughts, floods, famine and cyclones. Historically, Pakistan has been a victim of a series of climate-related catastrophes such as, severe droughts (1998-2002), massive flooding (2010), extreme heat waves, heavy rainfalls, land sliding and glacier melting. These episodes have resulted in significant supply shocks and output losses.

Even though Pakistan does not rank as a top emitter of greenhouse gases,[138] it has remained 8th most affected country by climate changes in terms of human and output losses. According to Long-Term Climate Risk Index (**CRI**) 2021, during last two decades (2000-2019), Pakistan experienced 173 climate related extreme events and has been included in the category of countries that are recurrently affected by the catastrophes and continues to be ranked among the most affected both in the long-term index and in the index for each respective year.

On production side, around one-fifth of the domestic production is directly contributed by agriculture sector. Further, the sector's interlinkages with industry and services sectors[139] make it an important driver of the overall economic growth. However, agriculture sector is highly prone to global warming and natural calamities such as periodic floods, droughts, extreme temperatures and untimely heavy rainfalls.[140] Apart from climate change, agriculture

sector is also facing issues like declining crop yield, water shortage and rapid urbanization.

Water availability continues to be an important risk factor

Low and declining water availability continues to be a source of concern for domestic economic prospects (**Chart 4.6**). Unfortunately, the domestic water storage capacity can preserve only 10 percent of the annual river flows - equivalent of 30 days of country's water demand and the rest of the flows fall into the sea.[141].

Chart 4.6: Water Availability per Capita

(Renewable Internal Fresh water Resources -Cubic Meters)
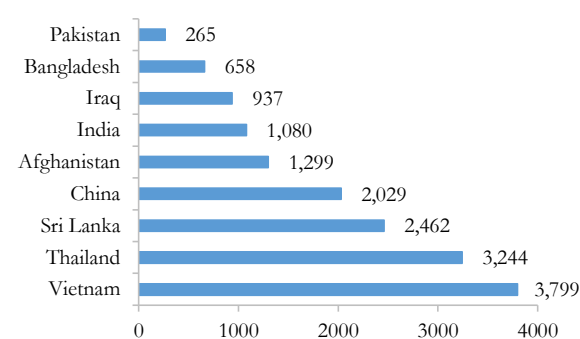
Source: World Bank Data, 2017

The assumed water shortages could also weigh on the hydropower generation, which constituted around 30.9 percent of total electricity generation during FY20.[142] The resulting stressed energy conditions may depress the industrial production causing a drop in domestic output.

Macroeconomic indicators may deteriorate in response to negative shocks

Against this backdrop, *S1* assumes a simultaneous occurrence of prolonged and widespread outbreak

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[138] Climate Watch Historical GHG Emissions. 2021. Washington, DC: World Resources Institute. Available online at: https://www.climatewatchdata.org/ghg-emissions.
[139] A unit increase in the production of manufacturing, transport and accommodation sector requires 0.30, 0.08 and 0.12 units of inputs from agriculture sector, respectively.
Zeshan, M., & Nasir, M. (2019). Pakistan Input-Output Table 2010-11 (No. 2019: 162). Pakistan Institute of Development Economics.
[140] A World Bank assessment suggests that the crops in Pakistan are highly sensitive to changes in temperature and water availability. Available at:

https://climateknowledgeportal.worldbank.org/country/pakistan/impacts-agriculture
[141] For details, please refer to:
http://www.wapda.gov.pk/index.php/newsmedia/news-views/417-world-water-day-on-march-22-wapda-plans-to-add-10-maf-water-storage-by-2030#:~:text=Pakistan%20can%20store%20only%2010,40%20to%2050%20years%20ago.
[142] Pakistan Economic Survey 2019-20.
http://www.finance.gov.pk/survey/chapter_20/14_Energy.pdf

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of COVID-19 and major crop failures due to climate related extreme events at home. Domestic economic activity and employment are expected to be substantially restrained by necessitating stringent SOPs to contain the spread of the contagion.

With a drop in agriculture output, *S1* further assumes that agriculture exports, which constituted around 16.3 percent of total exports, on five years period average, would fall substantially. Non-agriculture exports, which use agriculture produce as raw materials, would also be hampered. The crop failures may also necessitate import of essential items. Amid weak prospects for exports, an increased import bill could translate into pressures on the current account balance and the exchange rate. Such a situation is likely to result in elevated price levels, mainly via pass-through to consumer goods.

Accordingly, the stress scenario assumes GDP to register a growth of 3.96 percent in FY21 with a slide to *negative* 1.50 percent during FY22.[143] The contraction is assumed to subside to *negative* 0.50 percent in FY23. (**Chart 4.7**) Moreover, under the stress scenario substantial supply chain disruptions and crop failures are likely to dominate the slack in aggregate demand; thereby leading to upward price pressures. The scenario assumes that average inflation may moderate to 9.25 percent[144] during FY21 and elevate to 13.03 percent in FY22 before slowing down to 9.50 percent by FY23 (**Chart 4.8**).

4.5 Stress Testing Results: System Level

The following paragraphs discuss the results of stress tests, which, incidentally, do not assume the winding up of pandemic related relief measures during the projection horizon. However, a special **Box 4.1** discusses the likely impacts of these SBP relief measures on asset quality and solvency of banking sector.

(a) Impact on Credit Riskiness

The results of the stress test exercise indicate that the GNPLR, under *S0*, is likely to remain on lower side over the three-year projection horizon, given gradual recovery in domestic demand, reconciled supply conditions, stable external sector and fiscal consolidation under IMF stabilization program (**Chart 4.9**). The lending portfolio of banking sector is projected to expand, on average, by around 9.79 percent over the projection period.

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[143] At its peak level in FY22, the stress scenario assumes 6.00 percent less GDP growth relative to baseline.
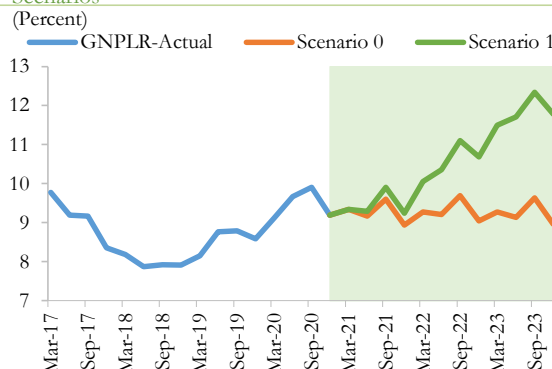
[144] At peak level during FY22, the stress scenario assumes 4.23 percent higher inflation relative to baseline.

Chart 4.7: Pakistan Real GDP Growth under various Scenarios

(Percent)

Source: SBP Calculations

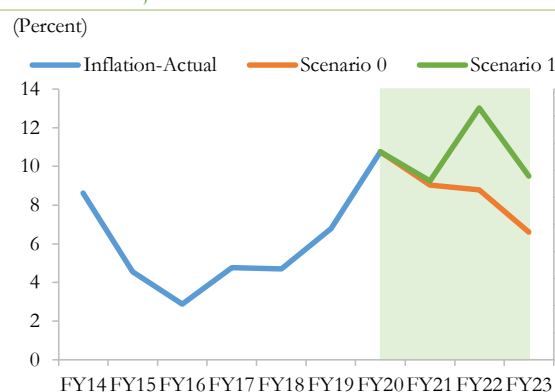Chart 4.8: Projected Inflation under various Scenarios
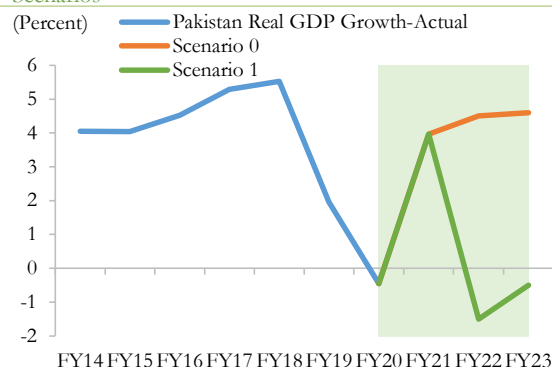
(Percent)

Source: SBP Calculations

Chart 4.9: Projected System-Level GNPLR under various Scenarios

(Percent)

Source: SBP Calculations

Chart 4.10: Projected System-Level Capital Adequacy Ratio under various Scenarios

(Percent)

Source: SBP Calculations

The GNPLR attains the peak of 9.69 percent and settles at 8.96 percent by the end of projection period CY23. This projection is 22 basis points (**bps**), lower than the level of 9.19 percent as of end CY20. This is mainly in line with our assessment of the domestic economy, where recovery in identified macroeconomic indicators may mute the credit risk for banking sector. The stable growth of denominator i.e. advances also explains relatively contained GNPLR.
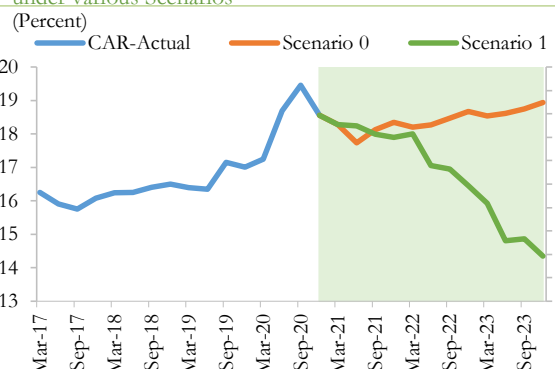
The asset quality indicator, under hypothetical scenario, *S1*, on the other hand, follows an upward trajectory because of the assumed greater and prolonged deterioration in macroeconomic conditions, which could significantly affect the credit supply of the banking system. Unser *S1*, growth of lending portfolio is projected to slacken sharply to *negative 0.40* percent at the end of CY22 and settles at *negative 4.08* percent in CY23, while the delinquency rate peaks at 12.34 percent before

settling at 11.79 percent by the end of projection horizon (**Chart 4.9**).

(b) Impact on Solvency

The impact on solvency is measured via the CAR of the banking system. As explained in the scenario design, besides credit risk, two other risks are likely to have an impact on solvency: market risk, realized via movements in interest and exchange rates, as well as operational risk. These three risks, therefore, have also been factored in while analyzing the impact of each scenario on capital as well as risk-weighted assets. Under the baseline scenario, the CAR of the banking system falls by 83 bps in Q2CY21 from the prevailing level of 18.56 percent; but recovers and settles at 18.94 percent at the end of projection horizon (**Chart 4.10**). In stress scenario, however, it declines to 14.35 percent by end-CY23, which is

459 bps lower than the comparable level of baseline CAR.

Nevertheless, under both the scenarios the banking industry maintains its CAR above the local minimum regulatory requirement of 11.5 percent and global benchmark of 10.5 percent during the entire period of projection horizon.

The resilience of the banking sector, despite substantial level of assumed turmoil in real economy, can be justified based on three facts. First, the banking sector has entered the COVID-19 crisis with sufficient capital buffers.[145] Second, this ample amount of capital buffers is further supported by a timely macro-prudential measure, viz., temporary halt on dividend distribution and the release of 100 bps capital conservation buffer etc., to ensure financial stability (see **Box 4.1**). Finally, ample liquidity via deposit flows coupled with a weaker demand for credit during contractions, and aggressive portfolio re-balancing from riskier private sector loans to risk-free treasury investments, keeps the banking sector well above the minimum regulatory CAR standards. (**See Chapter 3.1)**

4.6 Stress Testing Results – Banking Segments

In line with the system-level credit risk analysis, infection ratios of banking segments (small, medium and large sized banks)[146] have also been projected. This aspect of the banking industry is included to assess how cross-sectional heterogeneity affects the resilience of banks against various macroeconomic risks.

For GNPLR, system-level projections of non-performing loans and gross advances are distributed proportionately based on the contribution of each segment to the loan portfolio of the entire banking system as of December 2020.

Similarly, capital is also distributed proportionately to compute segment level CARs.

(a) Large Banks

The large banks segment - comprising 77.97 percent of the banking system - witnesses a fall of 19 bps in GNPLR by the end of CY23 from its current level of 7.84 percent. Under stress, however, the infection ratio rises by 222 bps by the end of projection horizon. As a result, CAR rise by 39 bps and falls by 435 bps in the baseline and stress scenarios from the prevailing level of 19.19 percent over similar horizon, respectively (**Chart 4.11**). Nevertheless, the CAR remains a hefty 809 bps higher than the local benchmark in *S0* while staying 334 bps above the minimum requirement under *S1*.
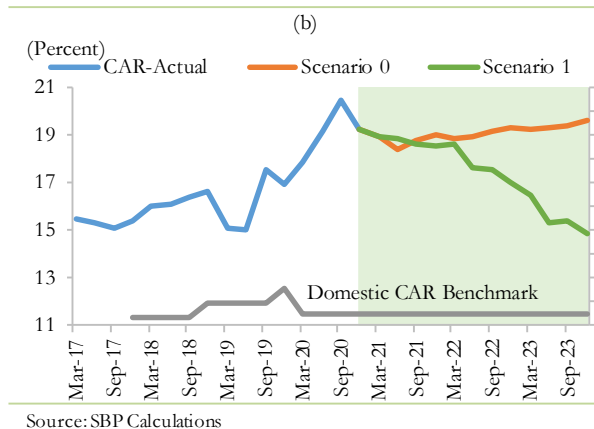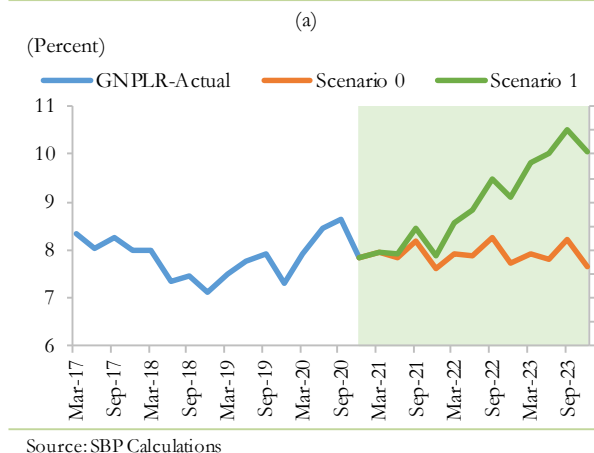
The large banks are generally well-placed to withstand stress over the simulation horizon (**Chart 4.11 (b)**). Sufficiently higher capital buffers available with larger banks are a likely factor behind this resilience. More importantly, the systemically important banks are also likely to remain well-capitalized and resilient to the shocks assumed in stress scenario.

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[145] CAR at the end of CY19 (17.00 percent) was substantially higher than CAR at the end of CY07 (13.52 percent).
[146] The categorization has been done based on balance sheet footing. The banks with assets above (resp. below) 70th (resp. 30th)

percentile of the entire banking sector are termed as Large (resp. Small), while those falling in between are categorized as Medium sized banks.

Chart 4.11: Projected GNPLR and CAR of Large Banks

(a)

(Percent)

GNPLR-Actual — Scenario 0 — Scenario 1

Source: SBP Calculations

(b)

(Percent)

CAR-Actual — Scenario 0 — Scenario 1

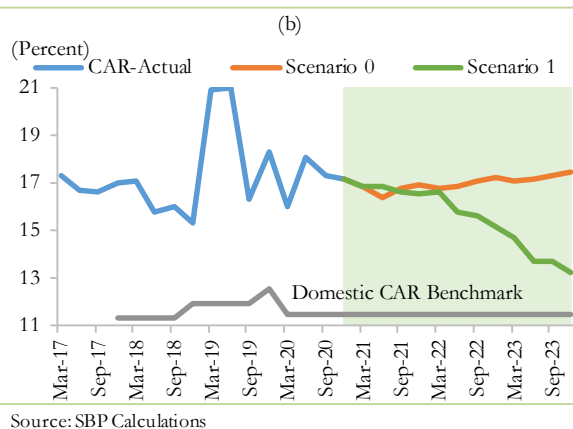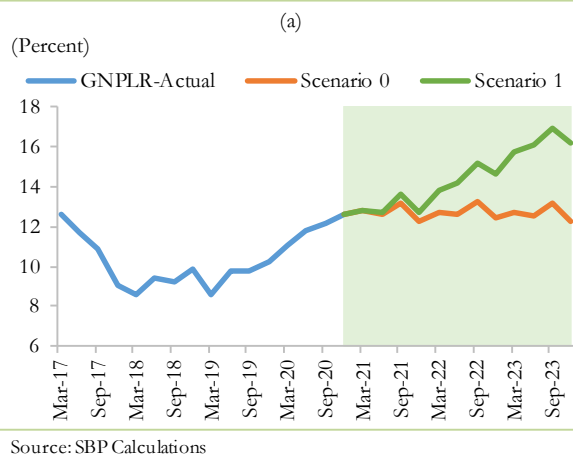Domestic CAR Benchmark

Source: SBP Calculations

(b) Medium-sized Banks

By the end of the projection period, the GNPLR of medium-sized banks (asset share 17.85 percent) falls by 31 bps in *S0* and rises by 357 bps in *S1* from existing 12.60 percent. The CAR, correspondingly, rise by 35 bps and falls by 388 bps under the two scenarios compared with prevailing reading of 17.11 percent. Nevertheless, the medium-sized banks are also expected to remain compliant to the regulatory CAR standards, even under the stress scenario (**Chart 4.12**).

Their level of CAR remains 596 bps and 173 bps percentage points above the minimum regulatory requirement (11.5 percent) in *S0* and *S1*, respectively. That said, their relatively higher levels of delinquency ratios and lower level of pre-shock capital buffers possibly make medium banks relatively more vulnerable to shocks than large

ones. Specifically, as the CAR nears the regulatory benchmark relatively faster over the projection horizon, a prolongation of stress period could weigh adversely on the resilience of this segment of banks. On a positive note, though, the medium sized banks are likely to stay resilient even under a stress that lasts for three years!

Chart 4.12: Projected GNPLR and CAR of Meduim-sized Banks

(a)

(Percent)

GNPLR-Actual — Scenario 0 — Scenario 1

Source: SBP Calculations

(b)

(Percent)

CAR-Actual — Scenario 0 — Scenario 1

Domestic CAR Benchmark

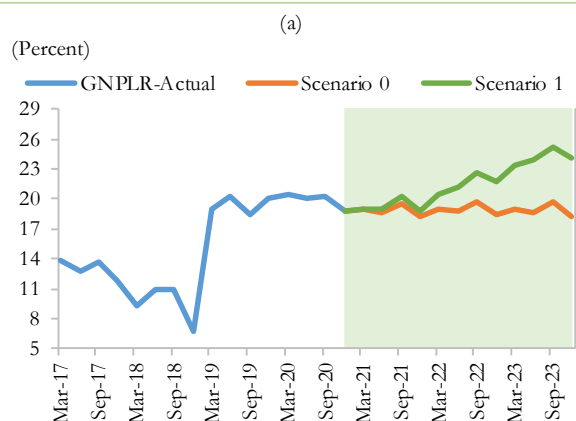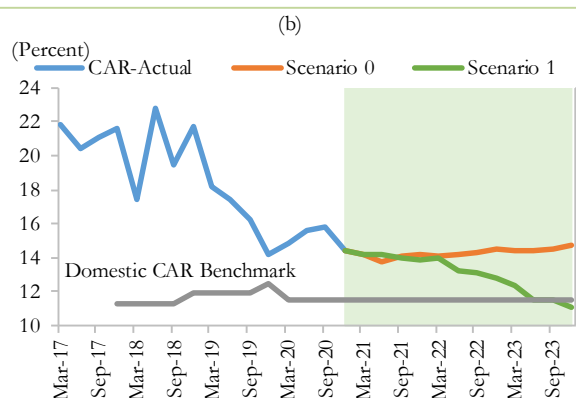Source: SBP Calculations

(c) Small Banks

Small banks – constituting 4.18 percent of the banking system – are found to be the least resilient against both scenarios. From its existing level of 18.72 percent, the loan delinquency rate of small banks decreases by 46 bps in *S0*, whereas it rises by 530 bps under *S1*, by the end of three-year horizon (**Chart 4.13 (b)**). This is the highest level of infections in any segment of banks under stress scenario.

Given their comparatively lower lending exposure, the CAR of small banks rise by 30 bps in *S0* and falls by 326 bps under *S1* from the prevailing 14.39 percent (**Chart 4.13 (a)**).

Chart 4.13: Projected GNPLR and CAR of Small Banks

(a)

Source: SBP Calculations

(b)

Source: SBP Calculations

While maintaining resilience under the baseline, the small sized banks on aggregate basis may breach the domestic regulatory CAR standard towards the end of projection horizon under stress scenario. This is mainly due to the lowest level of pre-shock CAR among all categories. Small banks thus demonstrate the least resilience in terms of

maintaining compliance with domestic minimum capital requirements.

Overall, under the baseline scenario, the solvency of the banking sector portrays an encouraging picture with the delinquency ratio mostly hovering around the current level (9.19 percent) while capital adequacy staying well above the domestic regulatory benchmark. Under the hypothetical stress scenario as well, the banking sector should be able to withstand a severe and protracted downturn induced by adverse global and domestic macroeconomic conditions, including the COVID-19 pandemic. In terms of size, the medium and large segments can withstand the stress conditions as well. Reassuringly, the large size banks, with the potential to cause systemic disruptions, carry sufficiently higher capital buffers and are thus able to sustain the impact of hypothesized shocks for three years. Also, the medium-sized banks never breach the solvency criteria during the projection horizon. The resilience of small-sized banks segment, however, starts waning towards the end of simulation period under stress – CAR breaching the minimum standard by a narrow margin. These banks however have quite contained systemic implications due to their limited market share.

That said, the exact severity, duration and path of the COVID-19 pandemic globally and domestically remains clouded in uncertainties. As a result, the stress-test results are also subject to a significant uncertainty. Consequently, the SBP continues to closely watch the evolving situation and shall remain ready to take whatever actions necessary to safeguard financial stability.