2 Financial Markets Risk Analysis

The contained volatility in CY16 reveals higher stability in financial markets of Pakistan, though few issues require attention in the short to medium term. Government's reduced borrowing from commercial banks has eased the liquidity needs – and hence SBP liquidity injection – in money market. Foreign exchange market, particularly interbank, has remained stable, though pressure mounts in open currency market. Foreign exchange reserves reaching historical high is a positive sign, though sustainable sources of foreign exchange inflows (e.g. exports, FDIs, remittances etc) are imperative from the long lasting stability perspective. Spark in the equity market in CY16 distinguishes it from its own historical norms as well as the global equity markets; rising P/E ratio, however, hints that sentiments are playing their role in the rise.

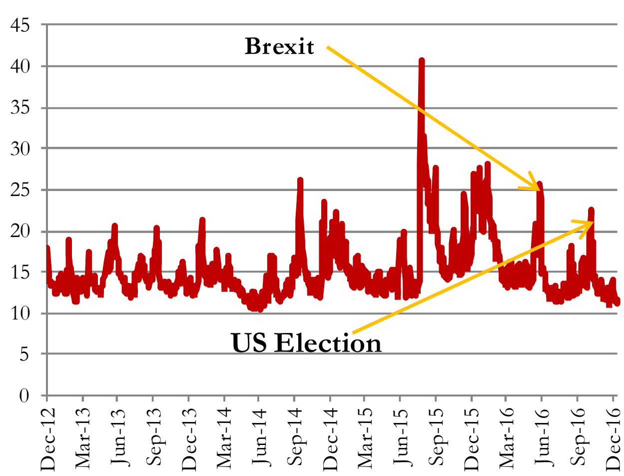
Global financial markets are characterized by political uncertainty, low yield and investors' high risk appetite

Global financial markets – particularly in the Euro area - have witnessed several episodes of short-lived asset price volatility during CY16, as highlighted in **Chapter 1**.

Figure 2.1

CY16 is marked with low volatility in global equity markets

Chicago Board Options Exchange (CBOE) Volatility Index



Source: Chicago Board Options Exchange (CBOE)

Political uncertainties have prevailed due to two major events i.e. first, unexpected Brexit as UK voted to leave EU in June 2016 and, second, US presidential election in November 2016. The Brexit event was more impactful for financial markets resulting in sharp fall in equity prices, significant depreciation of pound sterling and falling bond yields across the globe. Notwithstanding, markets – by and large - have shown strong resilience as corrections followed quick recoveries to track the steady path in CY16 **(Figure 2.1)**[62]**.**

Besides the bout of volatility, subdued global growth expectation and, consequently, easy monetary policy in advanced economies (e.g. ECB asset purchase program) have kept the bond yields at the bottom during the reviewed year. In the low yield era and flat term structure, emerging market economies (EMEs) have successfully attracted the investor's attention resulting in a bounce back in financial inflows to EMEs in CY16 compared to net-outflow in CY15 **(Figure 2.2)**. Less skeptical investors, with higher risk appetite and search for yield, added riskier instruments in their asset portfolio. Moreover, anticipating further decline in yields, investors' preference for higher duration bonds has risen during the year.

However, uncertainty still prevails and the major concerns arise from normalization of monetary policy and inflation expectation in the US, movement in global commodity prices[63], heightened

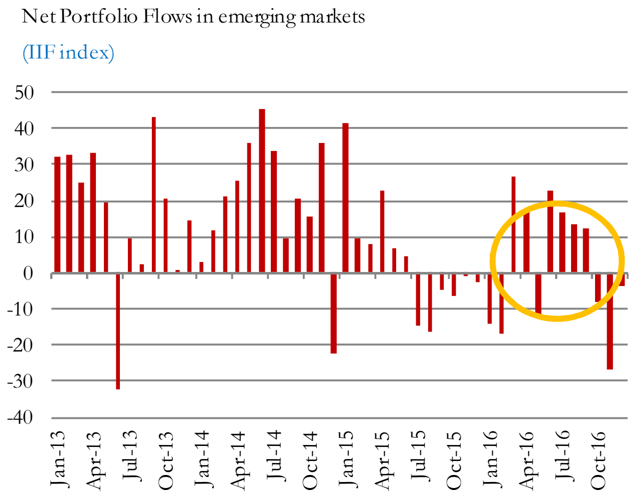
[62] Source: European Central Bank (ECB), Financial Stability Review, Financial markets, November 2016

[63] The World Economic Outlook (WEO) – April 2017 reveals an upward movement in commodity prices (Source: IMF).

political uncertainties in advanced economies and continued fragilities in emerging markets, as a whole. The jittery outlook may ignite high volatility in asset prices going forward leading to reversal in investors' risk appetite and financial inflows to emerging markets.

Figure 2.2

Net portfolio flows in emerging markets have picked up



Note: IFF index is monthly estimates for official non-resident portfolio flows to emerging markets as defined in the balance of payments. Those headline figures are for a sample of the 25 largest emerging economies.
Source: Institute of International Finance

Low volatility prevails, yet some concerns remain in the domestic financial markets

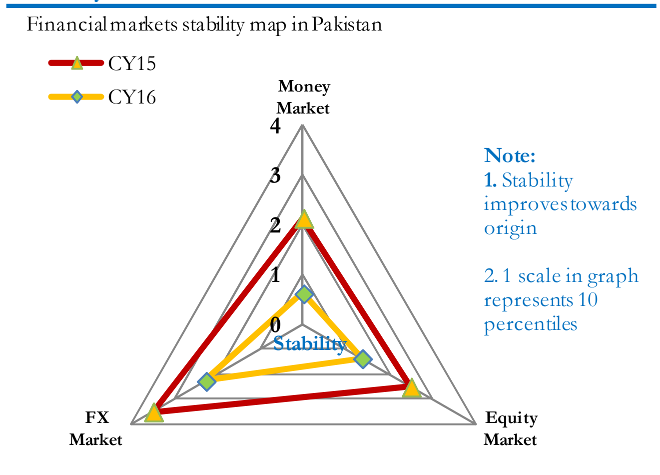
Risk spectrum of domestic financial markets has remained within tolerable bounds and the markets have performed smoothly without any major disruptions in CY16. Volatility in all three financial markets has remained quite subdued primarily due to strong oversight and calibrated intervention by the regulators **(Figure 2.3)**. However, stability, from a broader perspective and over longer horizon, demands attention beyond just the volatility.

Money market is largely driven by fiscal considerations i.e. the quantum of amount needed, institutional choice, and maturity preference of government's borrowing. The depth of the overall money market may be improved by adding adequate number of new alternate instruments (particularly, corporate bonds) with diversified risk spectrum, term structures, and liquidity profile.

Money market has witnessed a major structural change after introduction of SBP target rate in May 2015. SBP accommodates the liquidity need of the market in order to keep the overnight (O/N) rate closer to the target rate. Thus, volatility in overnight repo rates cannot be considered, on its own, the true indicator of market liquidity stress. SBP liquidity injections/mop ups also capture some information about market liquidity needs.

Figure 2.3

Stability in financial markets have improved through contained volatility in CY16



Note: Volatility in respective markets are calculated using Exponential Weighted Moving Average (EWMA) method. Daily Overnight repo rate, KSE-100 index and interbank PKR/USD Exchange Rate are used as indicators of the money, equity and foreign exchange markets.
Source: SBP

Given these dynamics, market liquidity is likely to be driven by the financing needs of the government and liquidity management by SBP.

Foreign exchange market – though has seen contained volatility in interbank – is confronting challenges due to widening trade deficit, decelerating remittances, low FDI etc., which all point to lower FX inflows in the market. High foreign exchange

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https://www.imf.org/~/media/Files/Publications/WEO/2017/April/pdf/text.ashx).

reserves, though, is a positive sign as it assures SBP's capacity to deal with speculative sentiments in the short-run; its sustainability based on consistent stream of foreign exchange inflows is a must, going forward.

The equity market, moving above and away from historical trend with rising Price-to-Earnings (P/E) ratio (from 9.01 in CY15 to 12.38 in CY16), signals the possible role of sentiments driving the market. If so, the rising market trend may follow an episode of corrections if investors' expectations are not met.[64,65] In addition, major portion of market capitalization is concentrated in few sectors at local bourse which limits the diversification opportunities for investors – a key element to minimize risk.

Government borrowing has been driving the liquidity needs

Yields in Pakistan have remained at low level during CY16 though pace of monetary easing has slowed down; only 25 bps reduction in policy rate during CY16 compared to 300 bps fall in CY15. Money market has been characterized by low volatility in overnight rate since the structural shift last year (May 2015) when SBP introduced the target rate. The short-term liquidity demand in the market, primarily driven by government's borrowing needs, has remained on the higher side in the first half of CY16 prompting SBP to inject adequate liquidity through Open Market Operations **(Figure 2.4).**

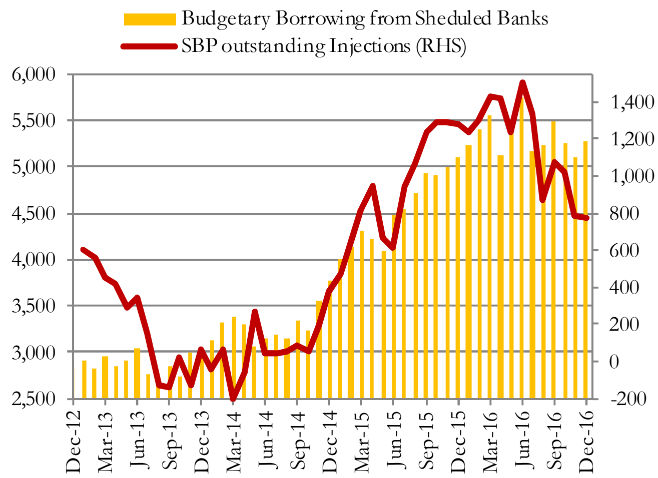
After end June 2016, government has started to borrow from SBP with concurrent net retirement to commercial banks. One of the possible reasons behind this borrowing was heavy maturity of PIBs during the third quarter of CY16 (around PKR 1.7 trillion). This – along with higher deposit growth - has created liquidity ease in the second half of CY16.[66] Resultantly, SBP average OMO injections have reduced, volatility in O/N rate has eased further, and banks' repo borrowing from SBP has dipped considerably in the latter half of CY16.

Figure 2.4

Govt. borrowing from commercial banks creates liquidity demand in the money market

Govt. borrowing from commercial banks and SBP's liquidity injection

PKR billion



Source: DMMD, SBP

Though O/N rate hovers around SBP target rate in general, a closer investigation reveals that it has mostly been trending slightly above the target rate **(Figure 2.5)**. In 2016, weekly weighted average money market O/N rate has remained above the target rate around 67 percent of the time; though magnitude of variations has remained low (average 10 bps). This indicates slightly tighter conditions in the money market.

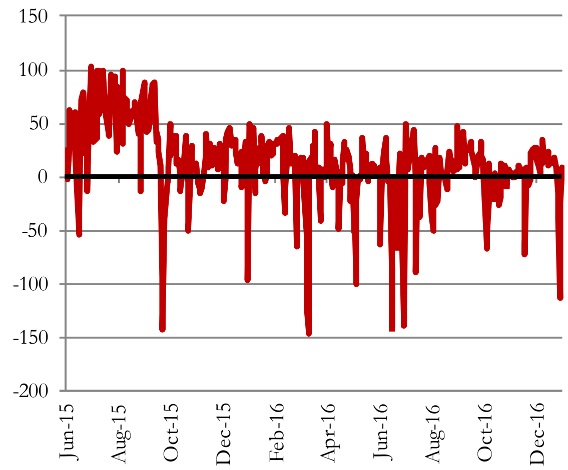
64 Post December 2016 behavior of equity market confirms this with KSE-100 index, after reaching 50,192 on January 26, 2016, has gradually dropped by 3,318 index points to 46,874 on April 18, 2017.
65 P/E ratio indicates price per share divided by earning per share.

66 Though, religious festivals (Eid, Hajj etc.) and year end closing generated some temporary liquidity stress.

Figure 2.5

Interbank overnight rate has remained above SBP target rate

BPS Spread between daily O/N rate and SBP target rate



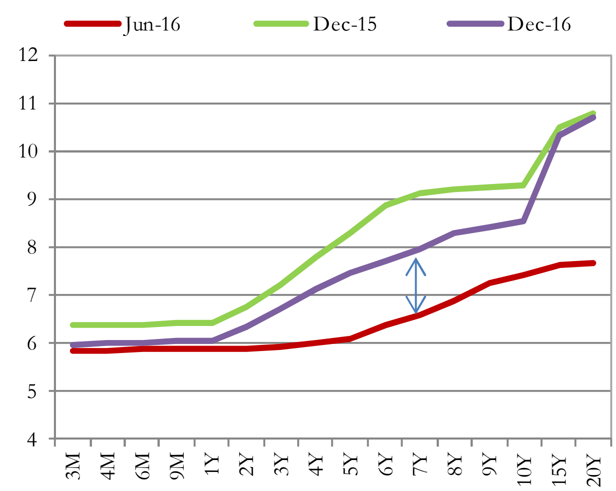
Source: SBP

Figure 2.6

Yield curve depicts rising inflation expectations beyond CY16

Term Structure of Interest Rates

(Percent)



Source: DMMD, SBP

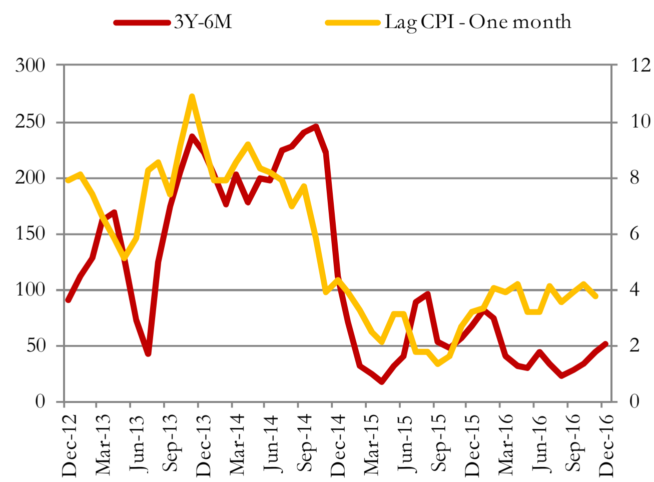
Rise in inflation expectation steepens the yield curve…

The term structure of interest rate (i.e. yield curve) has started to steepen with widening of the gap between long and short term risk free rates since June 2016 **(Figure 2.6)**. The spread (monthly average) between 3 years PIBs and 6 months MTBs has inched up from 34 bps as of end June 2016 to 69 bps as of end December 2016. In contrast, market sentiments for short-term rates seem stable as the portion of yield curve of short-term maturity (i.e. 1 year or less) is relatively flat (yield spread between 1 year and 1 month instruments has moved up only by 5 bps in the second half of CY16).

Figure 2.7

Pick up in expected inflation has seen concomitant rise in spread

BPS spread (3 years minus 6 month) and one month lag CPI inflation



Source: SBP

It may be worth considering that current and expected inflation plays a pivotal role in defining the shape of the term structure **(Figure 2.7).** The market anticipates no major shift in inflation and hence monetary policy stance in the short-run and, therefore, the yield curve of shorter maturity is quite flat.[67] However, inflation expectations seem to rise for medium to longer term horizon due to, both, supply and demand side factors. While reversal in international oil prices seems the key determinant from the supply side, demand-side factors include fiscal expansion (possible high government

[67] Instead, market anticipated further drop in the policy rate before the announcement of monetary policy (MP) in November 2016 and January 2017. This has been reflected through temporary dip in secondary market rates before each of the MP announcement followed by quick reversal.

borrowing from the banking system due to expected rise in development expenditures in the wake of upcoming elections), private sector spending (high credit to private sector), higher consumption by the households (due to low oil prices and domestic interest rates in recent past) etc.

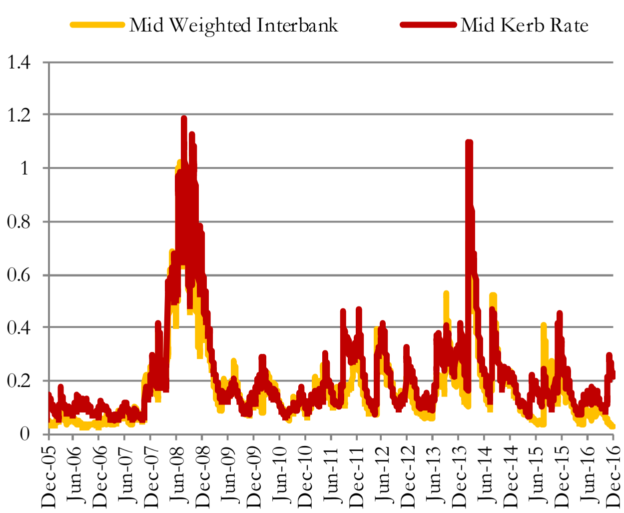
Volatility in foreign exchange market remains subdued; though, Kerb market premium escalates at year's end

The volatility in foreign exchange market has reduced in CY16 and value of local currency against major world currencies especially the greenback has remained stable; thanks to adequate foreign exchange reserves **(Figure 2.8)**. However, some stress has been observed in the open market currency rate (i.e. Kerb market) at the end of the year with escalated Kerb market premium **(Figure 2.9).**

Figure 2.8

Volatility in foreign exchange market curtailed

Exponential Weighted Moving Average (EWMA) volatility of PKR/USD



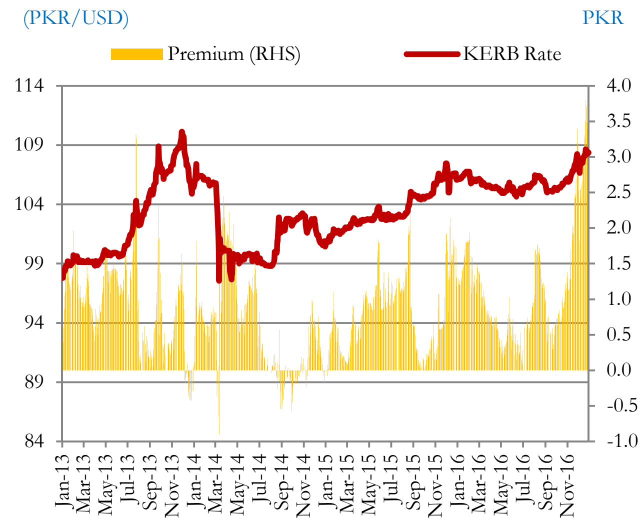
Source: DMMD, SBP

Particularly, pressures pronounced during November and December of 2016 with average monthly premium rising to around PKR 1.98 and PKR 3.05, respectively (Average Premium: CY16, PKR 1.18; CY15, PKR 0.78). The historical data reveals that hikes or lows in Kerb market (due to temporary market distortions) are, generally, short-lived. Therefore, it is likely that the existing escalated Kerb premium may return to its trend value going forward.

Figure 2.9

KERB premium escalated post Yuan devaluation

KERB Exchange Rate and Premium (R.H.S)



Source: DMMD, SBP

REER is appreciating…

Though nominal exchange rate – particularly interbank – seems to have further stabilized in CY16, REER shows gradual appreciation. Rising REER may deteriorate trade competitiveness in the long-term. Stability of current account requires reliable sources of inflows (such as exports and FDI). Moreover, there is a need to keep a check on inflation, as acceleration in domestic prices could put additional pressures on the REER.

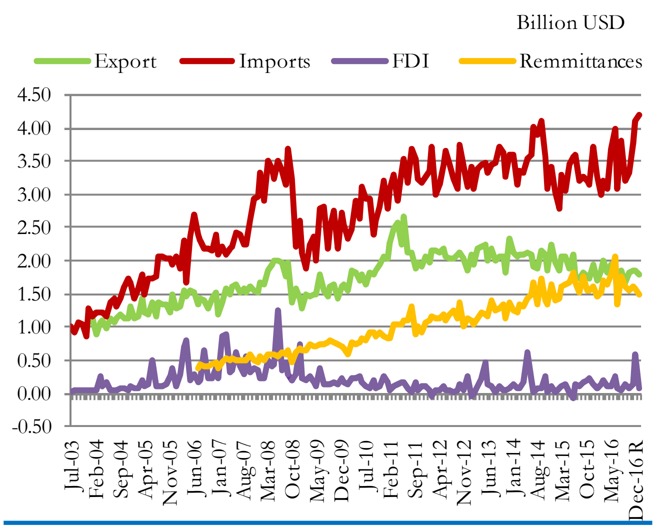
Fundamentals need to improve for long-term stability in the foreign exchange market

The high foreign exchange reserves with adequate import coverage ratio, no doubt, enable SBP to ward off any speculative activity in the foreign exchange market. However, fundamentals of the external sector are weakening; trade account deficit is widening, volume of remittances is decelerating, Special Convertible Rupee Account (SCRA) is witnessing outflow and FDI is not picking up **(Figure 2.10)**.

Figure 2.10

Sustainable sources of foreign exchange inflows need to improve

Monthly flows of export, import, foreign direct investment and remittances



Source: SBP

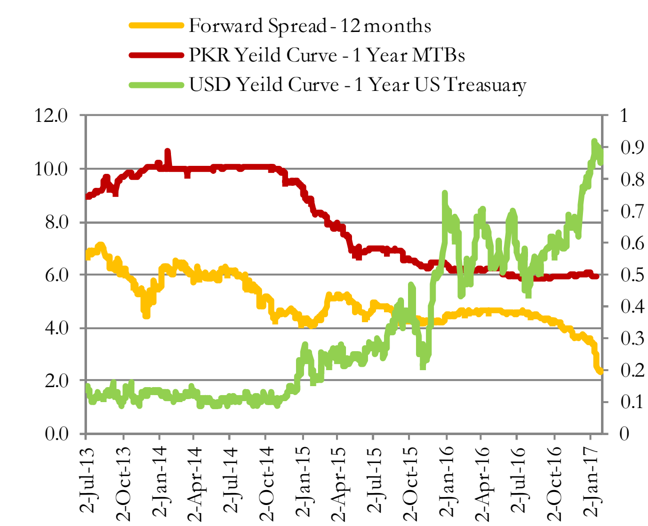
The sustainability of adequate reserves is, therefore, pivotal from the stability perspective which is not possible without improvement in recurring sources of foreign exchange inflows.

The spread between forward and spot rate (the forward premium) has declined significantly in the second half of CY16, a trend which has continued in the first few months of CY17 as well.[68] The relatively higher rise in US treasury yields - owing to expected rate rise by the FED, expected fiscal expansion (e.g. tax cuts) and inflation - compared to almost flat local yields and stable spot rate has squeezed the forward premium **(Figure 2.11)**.[69] The expectations about further rise in FED's rate, assuming little change in domestic conditions, may induce the market participants (particularly, exporters) to accelerate forward bookings to hedge their foreign currency risk.[70]

Figure 2.11

Rising yields on USD has reduced forward spread of PKR

Mark to market revaluation exchange rates for Authorized Dealers



Source: SBP and US Department of Treasury

Equity market has crossed various performance benchmarks…

CY16 has been one of the splendid years for the equity market in Pakistan. KSE-100 index – the core index of Pakistan Stock Exchange[71] - has observed exceptional growth of 45.7 percent during CY16 to reach 47, 807 points; significantly higher than the growth in CY15 (2.1 percent), average growth in last 10 years (20 percent) and MSCI Emerging Market index rise of 8.6 percent in CY16 **(Table 2.1 and**

[68] The positive spread between forward and sport rates is termed as forward premium while negative spread is forward discount (http://www.investopedia.com/articles/forex/08/interes-rate-parity.asp)

[69] Forward rate are derived based on the spot rate and relative yields of the two currencies. If the yield of base currency rises relatively more than the yield of price currency, the forward rate (price currency/base currency) goes down.

[70] Reduced spread on forward contract in foreign currency also provides opportunity to book mark to market gains.

[71] After the integration of three stock exchanges in January 2016, the capital market now comprises of only one integrated stock exchange called Pakistan Stock Exchange (PSX).

Figure 2.12.[72] Globally, KSE-100 index outperformed most of the markets' benchmarks with its returns leading the Asia as well as MSCI frontier markets and securing 5th place worldwide.[73]

Table 2.1

Progress of Capital Markets in Pakistan during CY16

	31-12-2015	31-12-2016
Million PKR except companies, index and bond data		
Total No. of Listed Companies	554	558
Total Listed Capital - PKR	1,269,703	1,291,040
Total Market Capitalization - PKR	**6,928,497**	**9,628,514**
KSE-100™ Index	**32,811**	**47,807**
KSE-30™ Index	19,309	25,852
KSE Meezan Index (KMI-30)	55,647	81,795
KSE All Share Index	22,868	32,842
New Companies Listed during the year	8	4
Listed Capital of New Companies - PKR	29,941	5,490
New Debt Instruments Listed during the year	2	1
Listed Capital of New Debt Instruments - PKR	25,000	10,000
Average Daily Turnover - Shares in million	258	293
Average value of daily turnover - PKR	11,465	11,638
Average Daily Turnover (Future™) YTD	36	49
Average Value of Daily Turnover - YTD	3,142	3,057

Source: Pakistan Stock Exchange

This strong performance may be attributed to positive economic outlook, ample availability of liquidity and low interest rates, MSCI's inclusion of KSE-100 index in emerging market segment (from frontier markets)[74], restructuring of capital market with rising stake of foreign investors etc.[75] Further, market reports suggest that tax imposition on real estate, in the second half of the calendar year, diverted some financial flows towards the equity market. The institutional investments, such as banks and mutual funds, into equity market have also pushed the index up.

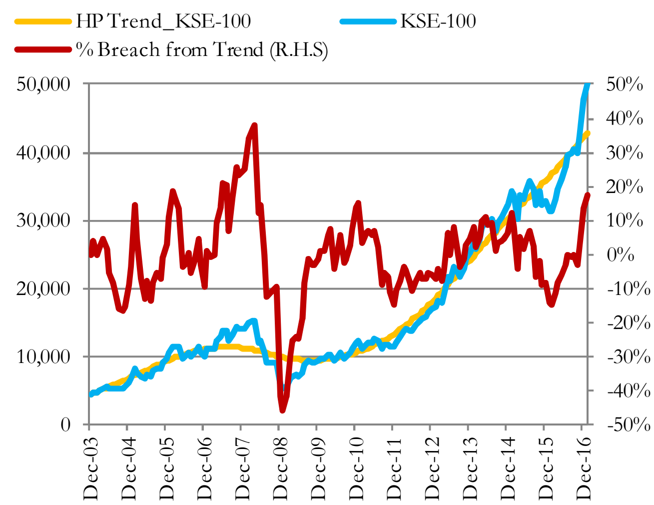
The KSE-100 breaches its long-term trend, yet magnitude and horizon is not alarming yet

KSE-100 has beaten its long-term HP filtered trend in October 2016 and margin of breach widened thereafter up to 12 percent in Dec-16 (17 percent in Jan-17).[76,77] During Feb 16-Jan 17, average monthly returns of KSE-100 have been 4.1 percent.

Figure 2.12

KSE-100 Index - Actual Vs. HP Trend

KSE-100 started to pick sharply since Jan-16 and breached long-term trend but not by wide margin



Source: FSD, SBP

Volatility is contained in the capital market…

Despite vibrant growth momentum, the volatility of the local bourse has reduced in CY16 compared to CY15 **(Figure 2.13)**. The low volatility of the index during CY16 is, primarily, due to unidirectional

[72] KSE-100 exceeded 50,000 mark in January 2017

[73] Source: Topline Securities Limited, *Strategy Update, Pakistan Market, December 30, 2016*

[74] MSCI announced to include Pakistan in its emerging markets segment (from frontier market) in June 2016. The implementation of this inclusion is to be made in May of 2017. (https://www.msci.com/market-classification)

[75] Under Stock Exchanges (Corporatization, Demutualization and Integration) Act, 2012, 40 percent of PSX's stake has been acquired by the consortium (China Financial Futures Exchanges, Shenzen Stock Exchange, Shanghai Stock Exchange, Pakistan China Investment Company Limited and Habib Bank Limited). Foreign ownership is expected to improve operational efficiency, bring in technological advancement and enable better global marketing. This has resulted in enhancing the investors' confidence.

[76] In February 2016, the local index was 15 percent below the trend

[77] The Hodrick–Prescott filter (also known as Hodrick–Prescott decomposition) is a mathematical tool used in macroeconomics, especially in real business cycle theory, to remove the cyclical component of a time series from raw data.

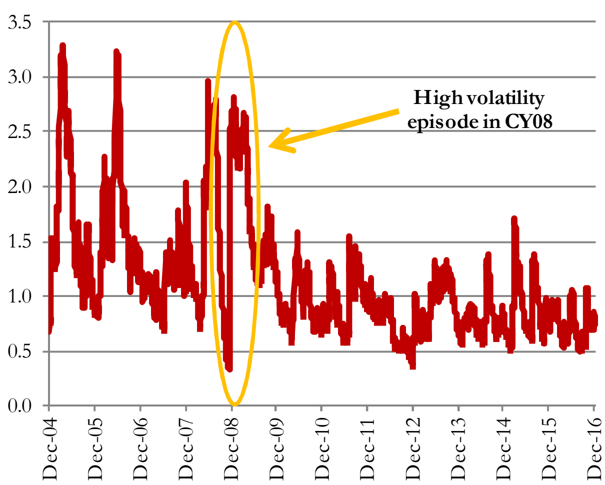
upward movement. However, being a fundamental property of equity markets, volatility may rise going forward once the consistent upward trajectory of the index comes to an end.

Nevertheless, the recent trend in the equity market calls for caution as following few vulnerabilities demand attention.

Figure 2.13

Volatility in capital market has declined during CY16

Exponential Weighted Moving Average of KSE-100 Index



Source: Pakistan Stock Exchange

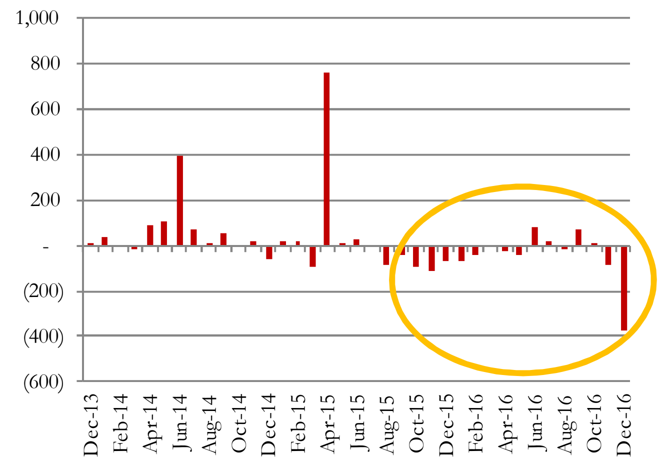
The recent hike in PSX may, partly, be sentiment driven. For example, P/E ratio of KSE-100 firms has sharply moved up to 12.4 as of December 31, 2016 (13.1 as of January 27, 2017) from 9.0 as of Dec 31, 2015 (average 9.2 during 2010-15: 6 years).[78] Thus, proportionally, higher growth in prices than earnings has actually pushed up the P/E ratio which strongly suggests investors' high expectations of corporates' future earnings. Further, the rise in the KSE-100 index is neither sufficiently matched with long-term GDP growth trends nor profitability of the corporate sector (**see Chapter 3.7 for details**). This questions the growth sustainability of equity market. Therefore, any performance of the corporate sector below the expectations of investors may cause a reversal in the buoyant sentiments that could potentially lead to market corrections.

Figure 2.14

Net flows of Special Covertible Rupee Account (SCRA) have remained negative during CY15 and CY16

Net flows in SCRA

(Million USD)



Source: SBP

Market capitalization is concentrated in few sectors only and, as such, is not diversified enough. Around 32 sectors listed in PSX, the top-5 sectors constitute around 64 percent share in the market capitalization. These dominant sectors include: banks (market capitalization: 19 percent), oil and gas (18 percent), construction and material (10 percent), food producers (9 percent) and chemicals (8 percent). So, the overall market performance heavily relies on the performance of a few key sectors. This provides limited opportunity to investors to minimize idiosyncratic risk through diversification.

Portfolio investment [SCRA] in equity market has seen consistent net outflows in CY15 and CY16 **(Figure 2.14)**. Further, rate rise by US FED and likely reduction in investors' risk appetite from emerging economies may put further challenges to stop the consistent outflow of funds through SCRA

[78] Source: Bloomberg

during CY17.[79] Though strong confidence of local investors has, so far, overshadowed the impact of net outflow in Pakistan, the net outflows of foreign investments requires close attention.

The fresh supply of equity is hardly seen during CY16 despite huge gains. Only four Initial Public Offerings (IPOs) have been conducted in CY16 with subscription amount (including premium) worth PKR 8.5 billion which is almost negligible compared to the overall market size.[80] During CY15, eight IPOs amounting to PKR 190.6 billion were conducted including secondary offering of one large bank worth PKR 162.1 billion. This means that in the current run in the equity markets only the existing securities are changing hands.

The outlook for financial markets is positive

Given the upbeat economic outlook, strengthening oversight by the regulators and higher investor confidence, the domestic financial markets are expected to perform smoothly in CY17.

[79] First two months of CY17 have observed SCRA net outflow in equity segment by USD 47.3 million.
[80] Source: Pakistan Stock Exchange