

World Bank Group

# PAKISTAN@100

# GROWTH AND

# INVESTMENT

Policy Note  
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# GLOSSARY

<b>CAPEX</b>	Capital Expenditure
<b>CDS</b>	Credit Default Swap
<b>CPEC</b>	China - Pakistan Economic Corridor
<b>CRI</b>	Climate Risk Index
<b>DTF</b>	Distance to Frontier
<b>EFS</b>	Export Finance Scheme
<b>FBR</b>	Federal Bureau Of Revenue
<b>FDI</b>	Foreign Direct Investment
<b>GCI</b>	Global Competitiveness Index
<b>GDP</b>	Gross Domestic Product
<b>GEI</b>	Global Entrepreneurship Index
<b>GST</b>	Goods And Service Tax
<b>IMF</b>	International Monetary Fund
<b>PKR</b>	Pakistani Rupee
<b>PSC</b>	Public Sector Companies
<b>PSX</b>	The Pakistan Stock Exchange
<b>R&amp;D</b>	Research And Development
<b>ROA</b>	Return-On-Assets
<b>SBP</b>	State Bank Of Pakistan
<b>SMES</b>	Small And Medium Enterprises
<b>SOES</b>	State Owned Enterprises
<b>SUKUKS</b>	Local- And Foreign-Currency Denominated
<b>TFP</b>	Total Factor Productivity
<b>WAPDA</b>	Water And Power Development Authority
<b>WDI</b>	World Development Index

## ABSTRACT

Pakistan's growth is lagging because of low public and private investment. If the current investment rates persist, Pakistan will struggle to reach middle-income status in the coming three decades. This in turn will halt Pakistan's progress toward decreasing poverty by slowing growth and increasing unemployment. This chapter focuses on the growth story of the past four decades using a growth accounting framework and shows that, over time, not only is the growth potential falling, but the contribution of capital and total factor productivity (TFP) in GDP growth is declining too. A simulation exercise of the determinants of growth shows that greater investment and TFP contribution are critical to achieving higher and sustainable growth. Overall, the analysis suggests that Pakistan needs to focus on increasing investment by attaining macroeconomic stability, enhancing the business environment by removing infrastructure bottlenecks, simplifying and making tax laws more transparent, reforming institutions, developing financial markets, increasing technological readiness and market access, as well as facilitating business development to encourage entrepreneurial activity and maintaining consistency in policies.

## CHAPTER 1: PAKISTAN'S GROWTH STORY

**Pakistan economy's growth pattern displays several boom-bust cycles (Table 1).** Over the past few years, the economy has shown some signs of recovery but is still growing at only around 5 percent. Generally, the periods of relatively robust growth tend to be associated with increased investment through foreign inflows and trade, together with political stability. However, these episodes were not sustained, which resulted in a slowdown in growth.<sup>1</sup> Globally, this is not always the case: India, China, Malaysia and the Rep. of Korea have been growing at relatively high rates for a considerable period.

**Table 1. Growth Patterns**

Periods	High growth > 5%		Periods	Low growth < 5%		Years	Total Average growth
	Episodes of growth (consecutive years)	Average growth		Episodes of growth (consecutive years)	Average growth		
FY62-FY66	5	7.36%	FY67	1	3.08%	56	5.20%
FY68-FY70	3	7.69%	FY71-FY72	2	1.78%		
FY73-FY74	2	7.13%	FY75-FY77	3	3.32%		
FY78-FY83	6	6.89%	FY84	1	3.97%		
FY85-FY88	4	6.83%	FY89-FY90	2	4.70%		
FY91-FY92	2	6.35%	FY93-FY94	2	3.23%		
FY95-FY96	2	5.83%	FY97-FY03	7	3.30%		
FY04-FY08	5	6.56%	FY09-FY16	8	3.34%		
FY17	1	5.28%					
<b>Total</b>	<b>29</b>	<b>6.70%</b>	<b>Total</b>	<b>25</b>	<b>3.10%</b>		

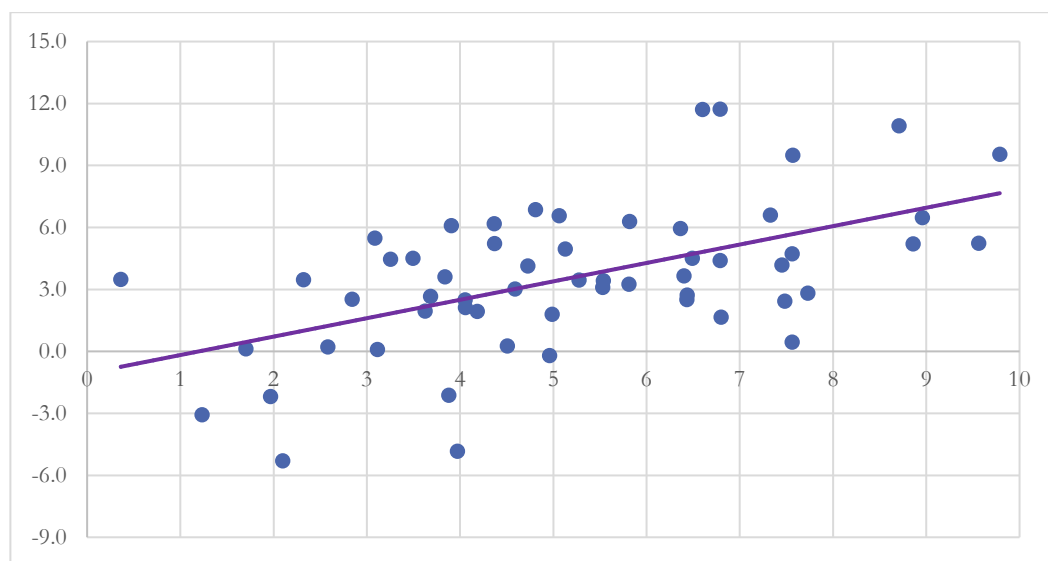
Source: Data from WDI and World Bank Group (WBG) staff calculations.

**The agriculture sector has considerable influence on overall growth performance due to its linkages with industry and the services sector.** The agriculture sector's contribution to GDP has gradually halved, with its share of GDP declining from 49 percent in 1960 to 20 percent in 2017. However, as **Figure 1** illustrates, there is a high correlation between real GDP growth and real agricultural GDP growth. This correlation weakens marginally in the 2000s, from 55 to 50 percent until 2017. At the same time, the correlation of the services and industrial sectors with GDP has strengthened over time (with 95 and 85 percent, respectively, in the 2000s).<sup>2</sup>

<sup>1</sup> Haussmann, Pritchett and Rodrick (2004) define growth accelerations as periods with an increase of GDP per-capita growth of 2 percentage points or more for at least 8 years. Accounting for population dynamics, in Pakistan such a figure would be roughly equivalent to GDP growth of at least 5 percent.

<sup>2</sup> On average, the agriculture sector has around 45.3 percent share in total employment followed by services sector with 35.3 percent and industry sector with 19.4 percent share in employment.

**Figure 1. Correlation Between Agricultural & Real GDP Growth Rates (%)**<sup>3</sup>



Source: Data from Pakistan Bureau of Statistics and WBG staff calculations.

**Political uncertainty and natural disasters have also contributed to growth fluctuations in Pakistan.** Looking closely at Pakistan’s economic history, above average growth rates in the 1960s and 1980s coincided with episodes of economic reforms and political stability, along with elevated levels of external aid. In contrast, during the 1970s and 1990s, political disruptions, economic uncertainty, and regional tensions were accompanied by slow economic growth. Pakistan’s economy is also prone to natural disasters, particularly to floods. The fragility created by frequent flooding has resulted in Pakistan being ranked 7<sup>th</sup> in the Long-Term Climate Risk Index (CRI) between 1996 and 2016.<sup>4</sup> These disasters have implications for overall growth.<sup>5</sup>

**The low saving-investment equilibrium, at around 15 percent of GDP, poses a key challenge for Pakistan’s long-term growth prospects.** Pakistan’s economy is on a declining long-term trend, both in potential and actual growth. Perhaps of more concern than the inability to sustain growth spurts over extended periods of time is the steady fall in the economy’s growth potential. **Figure 2** suggests that potential growth<sup>6</sup> has been falling over the past five decades. One key binding constraint has been low domestic savings, which continue to decline and pose significant policy concerns. While Pakistan can access foreign savings to close the domestic saving-investment gap, it can be observed that low domestic savings have contributed to low investment levels (on average, over the past four decades, the investment-to-GDP ratio has remained below 20 percent and, in the past 5 years, this ratio has hovered at around 15 percent). In this context, foreign inflows (particularly

<sup>3</sup> Macroeconomic data including GDP growth rates for Pakistan are compiled on fiscal year basis e.g. the column labeled 2017 refers to FY17. Pakistan’s growth rates are based on GDP at factor cost.

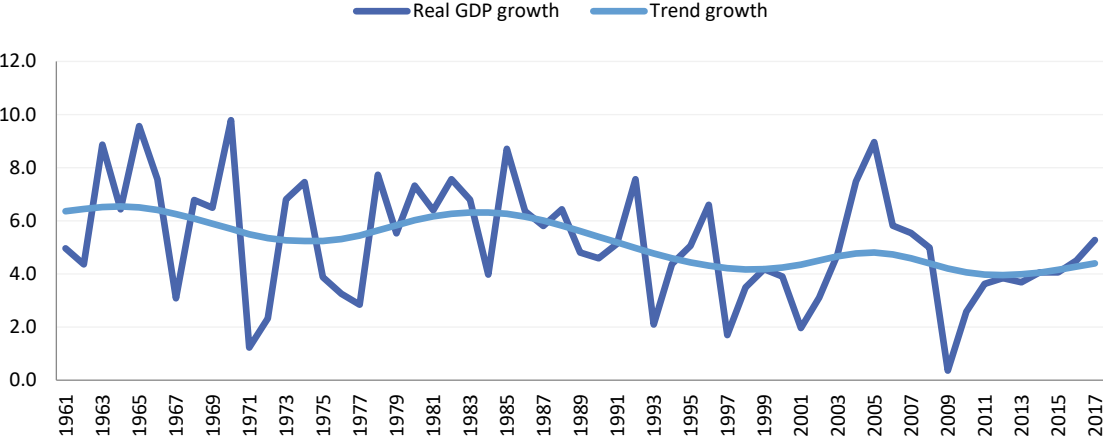
<sup>4</sup> Eckstein et al (2017) Global Climate Risk Index 2018. <https://germanwatch.org/en/download/20432.pdf>

<sup>5</sup> Loayza et al (2012) find that although the natural disasters effect economic growth differently across regions and type of the disaster, growth in developing countries is more sensitive to natural disasters and spread across more sectors.

<sup>6</sup> Potential growth is calculated using Hodrick-Prescott filter.

those through the US\$46-US\$50 billion CPEC initiative) will play a critical role in enhancing growth potential.

**Figure 2. Pakistan: Actual and Trend Economic Growth, 1961-2017**



Source: WBG staff calculations.

## 1.1 UNDERSTANDING THE GROWTH MECHANISM THROUGH THE GROWTH ACCOUNTING FRAMEWORK

**GDP growth in Pakistan decelerated from an average 6.1 percent in the 1980s, to an average 4.4 percent in the 1990s, before mildly recovering to an average 4.5 percent in the 2000s, subsequently averaging around 4.1 percent annually in FY11-FY17 (Table 2).** Sectoral analysis shows that all three sectors (agriculture, industry and services) exhibited similar trends. For instance, the industry and services sectors were more dynamic, with growth rates of 7.7 and 6.6 percent in the 1980s, respectively, but gradually decelerated to an average of 4 and 4.8 percent during FY11-17. Similarly, the agriculture sector showed a steady decline with an average growth rate of just 2.4 percent in FY11-17.



**Table 2. Pakistan Sources of Growth, Total Economy and Major Sectors, 1980-2017**

*(Average annual percentage rate of change)*

	Period	Real output growth	Investment as % of GDP (constant prices 2005)	Employment growth	Output per worker growth	Output per worker: % contribution of			
						Physical capital	Human capital	Arable land	TFP
Total economy	FY81-FY90	6.1	19.86	2.0	4.0	2.0	0.9	-0.4	1.5
	FY91-FY00	4.4	20.44	2.6	1.7	1.0	-0.2	-0.3	1.2
	FY01-FY10	4.5	17.68	3.7	0.8	0.2	0.4	-0.3	0.5
	FY11-FY17	4.1	14.32	2.4	1.7	0.0	0.9	0.0	0.7
	FY81-FY17	4.8	18.38	2.7	2.1	0.8	0.5	-0.3	1.0
Agriculture	FY81-FY90	4.0	4.45	1.8	2.2	3.5	0.4	-1.2	-0.4
	FY91-FY00	4.4	4.79	2.0	2.4	1.3	-0.1	-0.8	1.9
	FY01-FY10	2.6	3.48	3.0	-0.4	0.1	0.1	-1.7	1.1
	FY11-FY17	2.4	2.99	1.5	0.9	0.3	0.4	-0.3	0.5
	FY81-FY17	3.4	4.00	2.1	1.3	1.4	0.2	-1.1	0.8
Industry	FY81-FY90	7.7	5.82	1.8	5.9	3.6	0.7	0.0	1.5
	FY91-FY00	4.2	6.91	1.6	2.5	2.9	-0.1	0.0	-0.2
	FY01-FY10	5.7	5.09	4.3	1.3	-0.6	0.4	0.0	1.6
	FY11-FY17	4.0	2.58	3.0	1.0	-1.5	0.7	0.0	1.9
	FY81-FY17	5.5	5.30	2.6	2.8	1.3	0.4	0.0	1.1
Services	FY81-FY90	6.6	10.17	2.8	3.6	1.0	1.2	0.0	1.4
	FY91-FY00	4.5	9.50	4.3	0.2	0.2	-0.3	0.0	0.3
	FY01-FY10	4.9	9.32	4.3	0.6	0.1	0.9	0.0	-0.4
	FY11-FY17	4.8	8.75	3.3	1.4	0.1	1.2	0.0	0.2
	FY81-FY17	5.2	9.49	3.7	1.5	0.4	0.7	0.0	0.4

Source: WBG staff calculations.

**Decomposition<sup>7</sup> of output-per-worker growth into its contributing factors shows that growth has mainly been driven by capital accumulation and TFP growth, with human capital<sup>8</sup> contributing relatively less.** Labor productivity—measured by output per worker—has been steadily declining from an average growth rate of 4.0 percent in the 1980s to just 0.8 percent in the 2000s, and then slightly improving to 1.7 percent in FY11-17. Among its regional peers, Pakistani labor is the least productive and this gap has increased over the past two decades.<sup>9</sup> Despite being its main driver, the contribution of capital accumulation to labor productivity has decreased over

<sup>7</sup> This framework follows Bosworth and Collins (2007), and Lopez et al. (2012).

<sup>8</sup> One way to measure human capital is to adjust the number of workers for their average years of schooling (S) by assuming that each additional year raises workers' productivity by a given percentage. Various estimates suggest that, defined in this way, the returns to education are between 5 to 10 percent. Following Bosworth and Collins (2007), we assume that every additional year of schooling raises the labor productivity by 7 percent.

<sup>9</sup> Government of Pakistan (2011), "Pakistan: Framework for Economic Growth." Planning Commission, Islamabad.

time.<sup>10</sup> This deceleration is accompanied by a steady decline in investment<sup>11</sup> (as a ratio of GDP) from an average of 20 percent in the 1980s to about 15 percent since 2011. In addition, private investment, led by the telecommunication sector, picked up and reached 15 percent in FY06, but declined to about 10 percent of GDP in FY17.

**The contribution of human capital to labor productivity has only marginally improved in recent years.**<sup>12</sup> The contribution of human capital has varied over time, from being positive in the 1980s to being negative in the 1990s, and then rising slightly in the 2000s. In the services sector, human capital contributed the most during the past 7 years.

**While educational outcomes are improving, not much attention is accorded to the improvement of skills.** The past two decades have witnessed an enhanced focus on technical and vocational education. Improved connectivity, knowledge-sharing, and enhanced skills may have resulted in some improvements in the human capital contribution toward labor productivity. However, with a fast-growing labor supply and very low school enrolment rates, Pakistan appears to be evolving toward an unskilled-labor-intensive economy, which could limit its potential for raising labor productivity.

**The contribution of total factor productivity (TFP) to overall growth has been relatively healthy, but is still very low compared with peer countries.** TFP contribution was strong until the 1980s, but declined thereafter (falling by one-third between FY80-90 and FY00-10). It marginally improved during FY11-17 to 0.7 percent (Table 2) but is still below the medium-term average of 2.0 in East Asia of several comparator countries.<sup>13</sup> According to the empirical literature, the overall macroeconomic environment, an underdeveloped financial sector, limited FDI and technological developments, and poor human capital, among others, explain the relatively small contribution of TFP to growth (World Bank, 2006 & Khan, 2006). There is evidence that the TFP decline in the 1990s was a result of macroeconomic instability (Sabir and Ahmed, 2003), whereby the need to curtail the fiscal deficit was achieved by cutting public investment and social sector expenditures, which negatively affected human capital and its ability to contribute to the future. Low levels of research and development (R&D) also appear to be closely correlated with low TFP growth (Mahmood and Siddiqui, 2000).

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<sup>10</sup> We assume a constant returns-to-scale Cobb-Douglas production function to analyze the factor contribution and TFP in per worker output growth:

$$Q = AK^\alpha Z^\beta (LH)^{(1-\alpha-\beta)}$$

Where Q, A, K, and Z are real GDP, TFP, physical capital stock and arable land area respectively. The production function also depends on human-capital-adjusted labor input (LH) where L is labor force and H is human capital.

We divide all variables in (1) by Labor (L) and take a log. Resulting growth in real GDP per worker  $q/l$  is decomposed in any sector as the sum of contributions of growth in capital per worker  $k/l$ , growth in land per worker  $z/l$ , increases in education per worker and the contribution of improvements in TFP.

<sup>11</sup> Investment refers to public investment plus private investment (or domestic investment plus foreign investment).

<sup>12</sup> As measured by average school years, which are increasing over time. In addition, Pakistan has made some progress on other human development indicators. But nonetheless it lags its peer countries in this aspect.

<sup>13</sup> International Monetary Fund (IMF). 2004. *Pakistan: Selected Issues and Statistical Economy*. From 200 to 2016, China, India, Thailand, Philippines, South Korea, and Sri Lank experience average TFP growth of 3.27, 1.53, 1.29, 1.09, 0.59, 0.82 percent respectively (source: <https://www.conference-board.org/data/economydatabase/index.cfm?id=27762>).

**Lack of investment has held back labor productivity growth.** The recent low contribution of physical capital to productivity is in line with the overall low investment levels in the economy over the past decade. As discussed previously, Pakistan has been in a low saving-low investment equilibrium for some time. A comparison indicates that, since 2000, on average, investment as a share of GDP in Pakistan is about half of its regional peers.<sup>14</sup>

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<sup>14</sup> Regional peers here include Bangladesh, India, Nepal and Sri Lanka. Pakistan's average investment-to-GDP ratio since 2000 is 16 percent compared with an average of 31 percent in peer countries.

## CHAPTER 2: THE ROAD TO SUSTAINABLE AND HIGH GROWTH RATES

**What level of savings and investment rate is required to accelerate Pakistan’s growth above 7 percent over the coming 30 years?** In this section, we present simulation results drawn from a dynamic framework of Hevia and Loayza (2011). In this framework, output is produced using capital and effective labor, which is defined as human capital multiplied by the number of workers. Capital is accumulated by investing a ratio of the GDP and depreciates at a constant rate. The capital account deficit is defined as the change in net foreign liabilities. Investment is defined as national savings plus the current account deficit. Finally, the external debt-to-GDP ratio is assumed to be constant. For details, see Annex 1. The growth equation used in numerical simulation is given as:

$$(1 + g_{yt}) = (1 + g_{At}) \left[ \frac{1 - \delta + \left\{ \left( \frac{S}{Y} \right)_t + \beta [(1 + g_{yt})(1 + g_{Nt}) - 1] \right\} \left( \frac{y}{k} \right)_t}{1 + g_{Nt}} \right]^\alpha \exp[(1 - \alpha)\varphi(\Delta YOS_t)] \dots\dots$$

Where  $g_{yt}$  is growth rate of real GDP per worker,  $S/Y$  is the national savings to GDP ratio,  $\delta$  is the depreciation rate,  $\beta$  is the foreign liabilities-to-GDP ratio,  $g_{Nt}$  is the growth rate of labor force,  $y/k$  is the inverse of capital-output ratio,  $\exp$  is the exponential function,  $\varphi$  is the rate of return on education, and  $YOS$  is the average years of schooling. The investment rate closely follows savings rates to ensure external sustainability. We used this equation to simulate the following scenario: what level of investment and TFP growth will enable Pakistan to sustain long term growth at about 7-8 percent annually over the next 30 years?

Two scenarios are simulated to better understand the potential implications of maintaining the status quo or undertaking economy wide reforms that could lift Pakistan into upper middle-income status over the next 30 years.

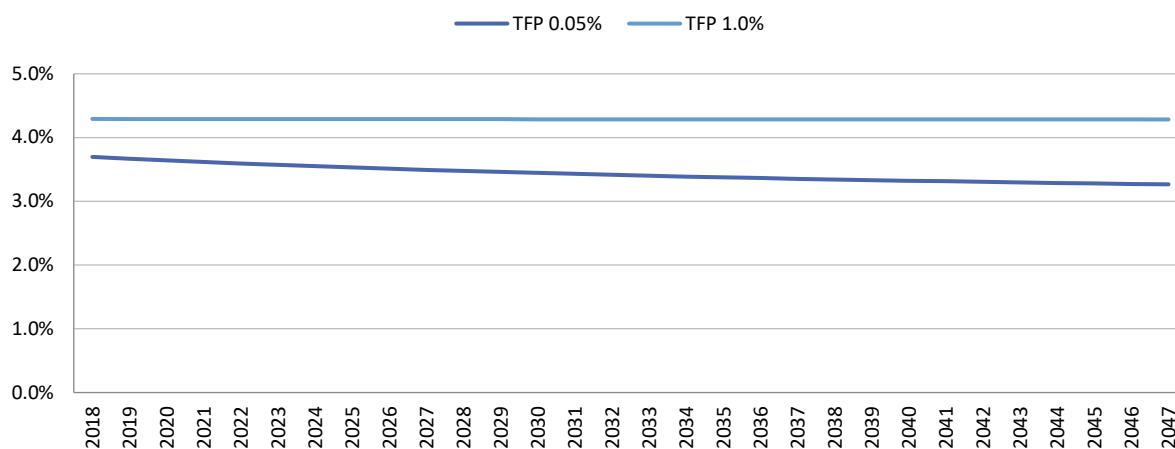
- **Business-as-usual scenario:** This assumes TFP growth of 1 percent and maintains a constant employment to working-age ratio. In other words, employment is set to mirror growth in the working age population (about 1.8 percent per year). National savings are set at 14 percent of GDP, whereas FDI is assumed at about 1 percent of GDP over the simulation period (Table 3).
- **Economy-wide structural reform scenario:** This assumes that Pakistan undertakes a broad range of structural reforms (governance and institutions, competition policy, infrastructure, etc.) that lead to efficiency gains and a reduction in transaction costs. Thus, TFP growth is set to gradually increase from 1 to 2 percent. In addition, it is assumed that these reforms act as a catalyst for FDI, which is set to increase from 1 to 3 percent of GDP over the simulation period. The employment ratio and the years of schooling are set to converge to levels observed in upper middle-income countries. Increases in female labor-market participation would help to achieve this target. As income per capita increases, it is assumed that national savings increase gradually until they reach 20 percent of GDP.

**Table 3. Long-Term Growth Model Parameters Assumptions**

Parameters	Business-as-usual	Economy-wide structural reform
Labor share	<b>0.44</b>	<b>0.44</b>
FDI	1% of GDP	<b>Increasing from 1% to 3% of GDP including CPEC</b>
TFP growth	0.01	Increasing from 1% to 2%
Growth in years of schooling	0.026	3.0% (to reach UMICs levels)
Returns to education	0.06	0.06
Working-age population growth	0.018	0.018
Employment ratio growth	No change	0.68% (to reach UMICs levels)
National savings	14% of GDP	Increasing from 14% to 20% of GDP (as income per capita increases)
Initial capital-output ratio	1.71	1.71
<b>Depreciation rate</b>	0.055	0.055
Net income plus transfers from abroad	<b>6.5% of GDP</b>	6.5% of GDP
Current level of net foreign liabilities	41% of GDP	41% of GDP

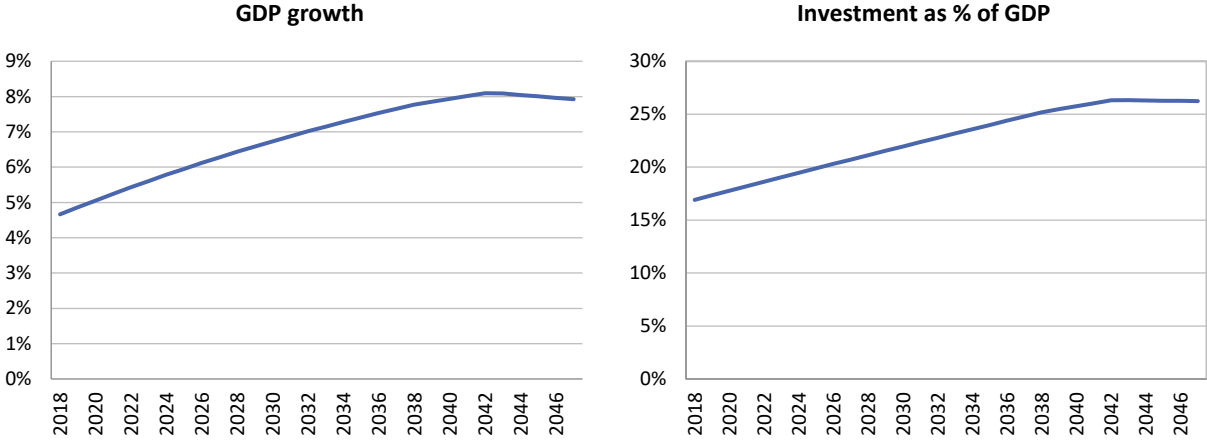
**Source: WBG staff calculations**

**Figure 3. Business-As-Usual: GDP Growth (%)**



Source: WBG staff calculations.

**Figure 4. Economy-Wide Structural Reforms Scenario**



Source: WBG staff calculations.

**The simulations show that investment is the binding constraint for growth.** The two scenarios clearly show (Figure 3 and Figure 4) that to sustain higher levels of growth, Pakistan must undertake institutional reforms, invest more on human capital formation, encourage higher FDI, and raise the investment-to-GDP ratio to about 25 percent. Business-as-usual will not allow Pakistan to reach upper middle-income country levels.<sup>15</sup>

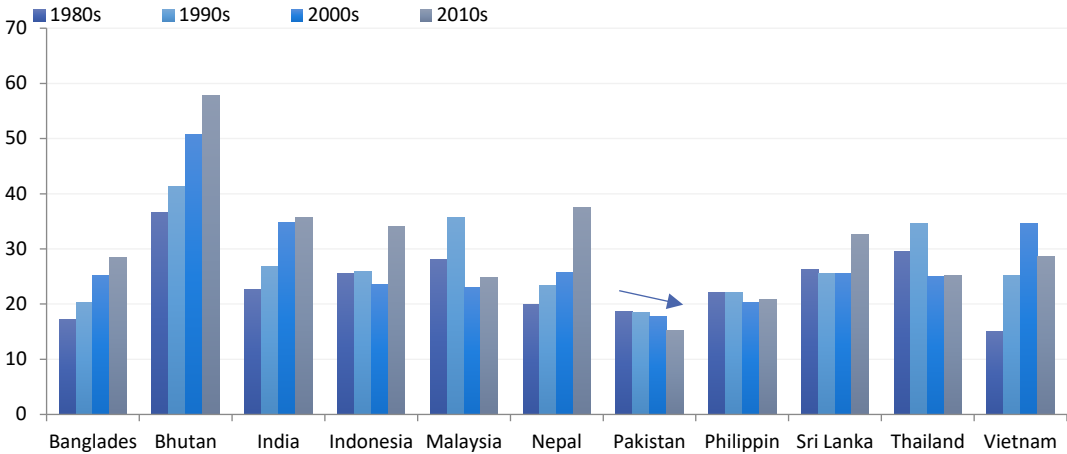
<sup>15</sup> These ingredients to growth are discussed in length in various notes in Pakistan@100. For example, to raise TFP, a better business environment and more investment in human capital are required, which is discussed at length in the Human Capital policy note. This note, on Growth and Investment, focuses its attention on understanding the stylized facts pertaining to low overall investment expenditures in Pakistan. What could be done to raise these levels? What are the challenges and incentives for the individual firms to raise more capital?

# CHAPTER 3: WHAT EXPLAINS LOW INVESTMENT IN PAKISTAN?

**Investment plays a vital role in sustaining economic growth and reducing unemployment through job creation.** In the short run, investment can affect output and employment by increasing aggregate demand, while in the long run it is expected to feed into an economy’s productive capacity, consequently boosting both potential output and employment. On the supply side, investment facilitates private sector development, in addition enhancing productivity growth through the introduction of new techniques into the production process. Infrastructural development in critical sectors, such as transportation, energy, and communications, is of paramount importance in unlocking private sector investment, while investment in sectors such as health and education are vital in building human capital, enhancing productivity, and reinforcing competitiveness in an economy. Several factors can account for the low investment levels in Pakistan. Box 1 contains a discussion on whether Pakistan is a savings-constrained or an investment-constrained economy.

**Pakistan’s low investment will place it at a disadvantage to peer countries.** Pakistan’s investment-to-GDP ratio is low and has been continuously declining, despite the immense potential for profitable investments, considering its strategic location and prospective market size. Emerging economies typically focus on better infrastructure—roads, transportation, energy—to attract and facilitate private investment. As shown in Figure 5, the investment-to-GDP ratio in Sri Lanka, Bangladesh, Thailand, Cambodia, and India have all remained higher than that of Pakistan over the past 10 years, despite huge infrastructure requirements. Pakistan’s savings rate, which hovered below 15 percent of GDP during the past decade, has limited the scope for investment.

**Figure 5. Investment-To-GDP Ratio (Percent)**



Source: Haver Analytics, WBG staff calculations.

**Box 1. Is Pakistan A Saving-Constrained Or Investment-Constrained Economy?**

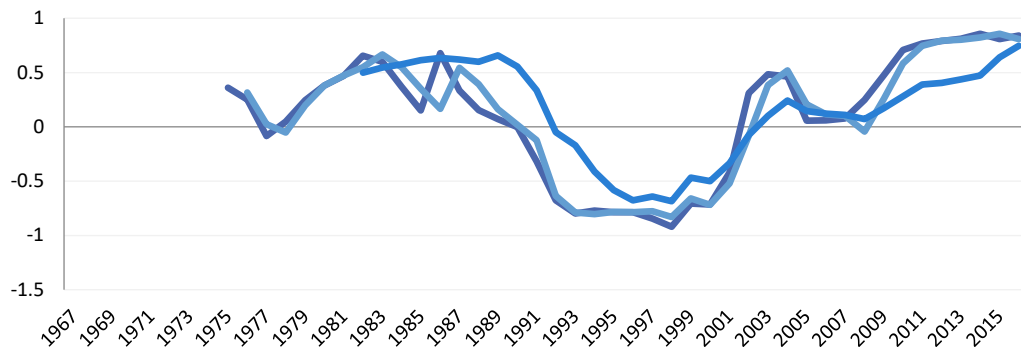
i. Approaching this question systematically, we first identify the possible factors underpinning the low investment equilibrium from the perspectives of a saving-constrained and an investment-constrained economy.<sup>A</sup> Using data on domestic investment in Pakistan and the U.S. real interest rate,

we conclude that throughout its history Pakistan has fluctuated between being an investment-constrained and saving-constrained state.

ii. **Our first objective is to isolate this downturn in investment as either a consequence of an investment constraint or a saving constraint.** Theoretically, domestic investment should be highly sensitive to the availability of capital inflows only when an economy is saving-constrained. If a reasonably exogenous determinant of such inflows can be isolated, it becomes possible to ascertain whether domestic investment follows these inflows of capital in the direction implied by the saving constraint (i.e., an increase in these flows leads to an increase in domestic investment). Since resource inflows to emerging markets respond to monetary conditions in the United States, and these are plausibly exogenous to developing countries, employing U.S. interest rates as a proxy for the strength of resource inflows to such countries presents itself as a reasonable strategy. The higher U.S. interest rates, therefore, the smaller the volume of capital inflows; and if the saving constraint is binding, domestic investment in emerging market economies ought to be correspondingly lower.

iii. **The dynamic correlation of domestic investment with U.S. real interest rates exhibits many interesting patterns.** The figure below illustrates the dynamic (or time-varying) correlation between domestic investment and U.S. real interest rates over the period 1975-2015. In this figure, a positive correlation implies that domestic investment increases when U.S. interest rates go up, confirming the existence of an investment constraint. Rodrik and Subramanian (2008) suggest that in a saving-constrained economy, real interest rates will be high, borrowers will be chasing after lenders, and any (exogenous) increase in resource transfers from abroad will mainly finance investment as opposed to consumption. By contrast, in economies constrained by investment-demand, real interest rates will be low, banks will be sitting atop of mountains of liquidity, and it will be lenders who chase after borrowers. The graph strongly suggest that Pakistan’s economy has fluctuated from periods of savings-constrained to investment-constrained and vice versa. During the first half of the 1980s, the results suggest that Pakistan’s economy was fairly investment-constrained. However, in the period from the late 1980s to early 2000s the correlation is negative, implying a saving constraint. Finally, from early 2000s onward, this correlation gradually turns positive, implying an investment constraint. This implies that, while banks have access to large pools of liquidity, they face a dearth of investors during this period.

**Figure: Dynamic correlation of domestic gross capital formation with 3-month T-bills in the United State**



Source: WBG staff calculations.

iv. **Thus, it appears that Pakistan’s economy fluctuates from periods of being savings-constrained to periods of being investment-constrained, with each cycle lasting roughly a decade.** Given this variability, policy interventions that may work at one point in time could be



ineffective at others. Interventions should then be made considering the specific constraint to the economy at a given time for them to yield potential benefits.

<sup>A</sup> In a **saving-constrained** economy, access to finance is limited for borrowers because of higher real interest rates and limited liquidity. Also in this economy, an exogenous rise in external resource transfers mainly finances investment rather than consumption. Whereas, in an **investment-constrained** economy, borrowers do not have an appetite for credit because of low real returns on investment projects. For more details see Rodrick and Subramanian (2008).

## 3.1 WHAT IS CONSTRAINING THE SUPPLY OF INVESTMENT?

Below we identify several reasons that have contributed to low investment levels in Pakistan. These **reasons** include low domestic savings, macroeconomic instability, limited fiscal space, shallow financial markets, and low foreign investment in the country.

### 3.1.1 Low Savings

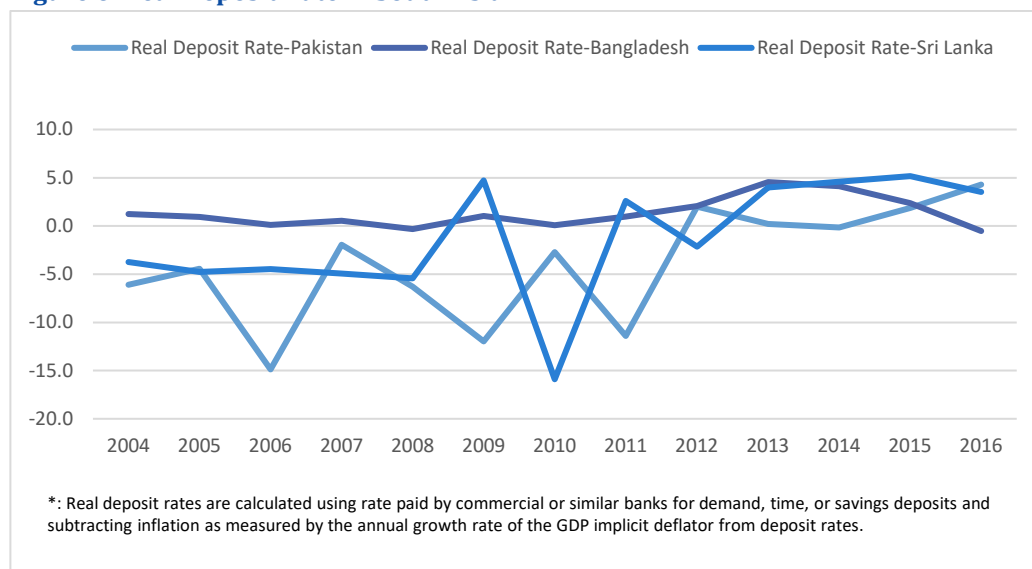
**Domestic savings are very low.** Pakistan's savings rate of 13.8 percent of GDP (2011-15 average) compares unfavorably with that of its neighboring countries. For example, the savings rates in Bangladesh and Sri Lanka were 29.7 and 24.5 percent, respectively, during the same period. The trend in the real savings rate during the past decade in these economies, proxied by real deposit rates (Figure 6), suggests that Pakistan's savings rate was not only low but also volatile.<sup>16</sup> It is not surprising, therefore, that nearly all of Pakistan's high-growth periods have coincided with abundant inflows of foreign savings (in the form of external loans, grants and remittances).<sup>17</sup> Accordingly, whenever such inflows dried up, economic growth slid back, as domestic saving and investment were never sufficient to sustain the growth momentum.

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<sup>16</sup> Private sector savings have a strong association with the real interest rate—a correlation coefficient of 0.62 exists between the two. However, public savings are not interest sensitive (with a correlation coefficient of 0.12). Amjad Ali, 2016; SBP Staff Notes, 01/16, Saving and Investment in Pakistan.

<sup>17</sup> Loans and grants include project aid, food aid, and non-food aid. There is no conclusive evidence in literature on the impact of foreign aid on capital formation as there are always questions on the uses of aid. However, in the case of Pakistan, such foreign inflows, together with remittances, seem to have a positive relationship with growth.

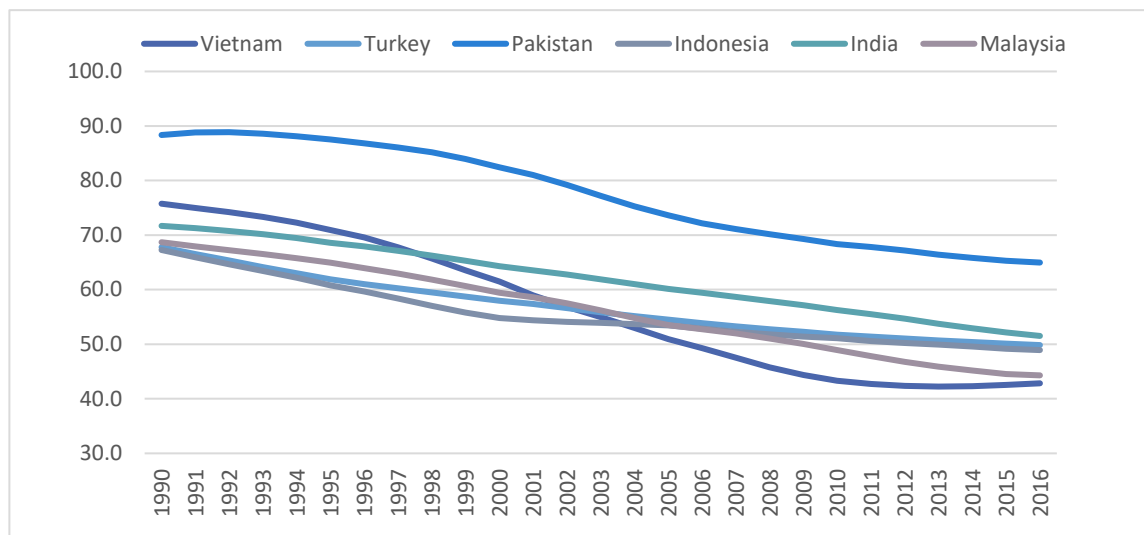
**Figure 6. Real Deposit Rate in South Asia\***



Source: World Development Indicators.

**Pakistan has a high dependency ratio, which leads to lower savings.** In comparison to other countries at similar levels of income per capita, Pakistan has had persistently high population growth rates and a relatively higher total fertility rate. Consequently, the dependency ratio in Pakistan has been historically high (Figure 7), indicating the high economic burden borne by the working-age population of Pakistan throughout the years. While this ratio has declined over time, Pakistan still has a higher proportion of dependent population than many of its peer countries. A high dependency ratio has various implications for the economy. Specifically, the relationship between dependency ratios and saving rates has been widely studied by economists. The theoretical framework for this relationship comes from the lifecycle hypothesis that states that individuals smooth their consumption over their lifetime, saving in periods of high income and borrowing during periods of low income, which results in a hump-shaped income distribution profile (Modigliani and Brumberg, 1954). Thus, demographic changes have a significant impact on household saving and aggregate household saving patterns move according to changes in the age composition of the population in the country (IMF, 2005). Empirical research has shown that higher age-dependency ratios are associated with lower saving rates (Modigliani and Cao, 1954; Thornton, 2001; Horioka, 1997).

**Figure 7. Dependency Ratios, 1990 to 2016**



Source: World Development Indicators.

### 3.1.2 Macroeconomic Instability

**Persistent macroeconomic instability has discouraged savings and private investment in Pakistan.** Pakistan has a long history of macroeconomic instability, which has resulted in low aggregate investment and fluctuating output levels. This has resulted in Pakistan availing itself of a mixture of 21 stabilization and budget support programs from the IMF between 1958 and 2013 (Table 4). The impact of macroeconomic volatility on savings and investment has been well documented in international literature, both for developed and developing economies. For instance, there is ample evidence that high inflation results in lower savings. Loayza et al. (2007) provide a comprehensive literature survey explaining why the welfare costs of macroeconomic volatility are sizeable in developing economies. Aizenman and Marion (1999) determine a negative relation between volatility and investment in a panel of 40 developing economies. In a more recent paper, Cherif and Fuad (2012) analyze the impact of permanent and temporary income shocks on savings and investment. This study establishes that higher volatility of income shocks is associated with higher precautionary savings in risk-free assets and lower investment levels.<sup>18</sup>

<sup>18</sup> Anecdotal evidence suggests that people have the tendency of putting their savings in real estate and foreign currencies.

**Table 4. Pakistan: History of Lending Arrangements with the IMF**

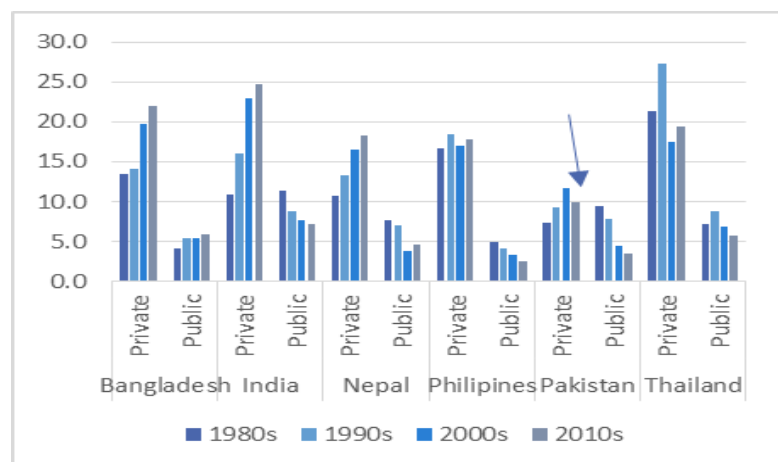
	Facility (SDR million)	Date of	Expiration date	Amount agreed	Amount drawn
1	Standby arrangement	08-Dec-58	22-Sep-59	25.0	0.0
2	Standby arrangement	16-Mar-65	15-Mar-66	37.5	37.5
3	Standby arrangement	17-Oct-68	16-Oct-69	75.0	75.0
4	Standby arrangement	18-May-72	17-May-73	100.0	84.0
5	Standby arrangement	11-Aug-73	10-Aug-74	75.0	75.0
6	Standby arrangement	11-Nov-74	10-Nov-75	75.0	75.0
7	Standby arrangement	09-Mar-77	08-Mar-78	80.0	80.0
8	Extended fund facility	24-Nov-80	01-Dec-81	1268.0	349.0
9	Extended fund facility	02-Dec-81	23-Nov-83	919.0	730.0
10	Structural adjustment facility	28-Dec-88	27-Dec-91	382.4	382.4
11	Standby arrangement	28-Dec-88	30-Nov-90	273.2	194.5
12	Standby arrangement	16-Sep-93	22-Feb-94	265.4	88.0
13	Extended credit facility	22-Feb-94	13-Dec-95	606.6	172.2
14	Extended fund facility	22-Feb-94	04-Dec-95	379.1	123.2
15	Standby arrangement	13-Dec-95	30-Sep-97	562.6	294.7
16	Extended credit facility	20-Oct-97	19-Oct-00	682.4	265.4
17	Extended fund facility	20-Oct-97	19-Oct-00	454.9	113.7
18	Standby arrangement	29-Nov-00	30-Sep-01	465.0	465.0
19	Extended credit facility	06-Dec-01	05-Dec-04	1,033.7	861.4
20	Standby arrangement	24-Nov-08	30-Sep-11	7,235.9	4,936.0
21	Extended fund facility	04-Sep-13	30-Sep-16	4,393.0	4,320.0

Source: International Monetary Fund.

### 3.1.3 Limited Fiscal Space

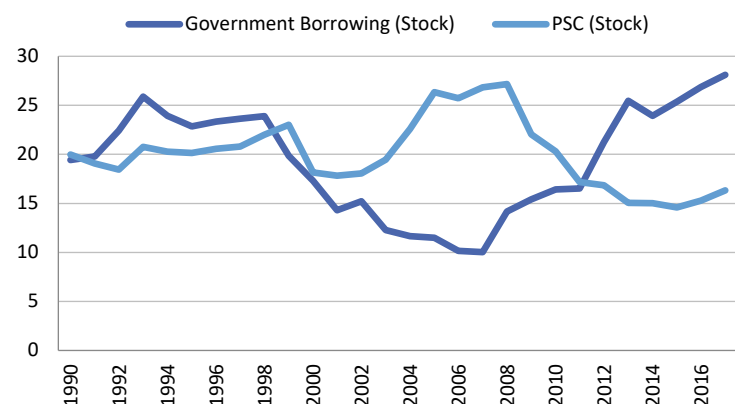
**Limited fiscal space has resulted in low public investment levels.** Figure 8 shows that public investment as a share of GDP is relatively low and generally on a declining trend. Public investment in key infrastructure is considered important as a policy instrument. However, low tax revenues—a legacy of a suboptimal tax structure—and high current expenditures leave limited space for public investments. Current expenditures exhibit structural rigidities due to large debt-servicing costs, significant subsidies, and salaries and wages. Moreover, the high fiscal deficits (which have been the norm) have been financed through commercial borrowing, which in turn has crowded out the private sector from the credit market during the past decade, and therefore limited private investment (Figure 9). As suggested by Saeed et al. (2006) and Haque and Montiel (1993), the size of development spending and budget deficits can impact interest rates and crowd out private credit.

**Figure 8. Public Vs Private Investment as % of GDP**



Source: World Development Indicators (WDI), WBG staff calculations.

**Figure 9. Government Vs Private Sector Credit (PSC) as % of GDP — Crowding Out, 1990 to 2016**



Source: State Bank of Pakistan (SBP).

**Pakistan’s legacy portfolio of SOEs adds to the overall burden on public finances and constrains fiscal space even further.** The federal government owns 197 SOEs,<sup>19</sup> with a combined output of 10 percent of GDP, and combined assets valued at 43.4 percent of GDP in FY16. Financial support to underperforming SOEs is a major driver of the fiscal deficit and a source of substantial fiscal risks. Government subsidies, loans, and grants to SOEs accounted for more than 25 percent of the fiscal deficit in FY16. Subsidies to SOEs tend to cover operational expenses without linkage to specific service delivery commitments or unit costs. This support finances the operational losses of SOEs, while some large SOEs report net profits only by adding government subsidies and grants to their commercial revenues.<sup>20</sup> This means that even in fiscal years when SOEs posted an aggregate

<sup>19</sup> These include SOE subsidiaries and 45 not-for-profit entities. SOEs have different legal structures, with Public Sector Companies (PSCs) established under the Companies Ordinance being the largest with 179 enterprises. There are also 10 federal authorities and 8 Development Finance Institutions (DFIs). Only 13 federal PSCs are listed on the stock exchange.

<sup>20</sup> For example, WAPDA reported net profits while being the largest recipient of government subsidies. Ministry of Finance, *State-Owned Enterprises: Performance Review, FY13/14, FY14/15, and FY15/16*.

profit, the SOE portfolio resulted in a net cost to the budget. In addition, there are some quasi-public-sector companies run by defense-related organizations. These compete directly with the private sector for business space and often crowd out private businesses.

**Increasing reliance on government guarantees for SOE debt have crowded out commercial credit to the private sector.** According to data reported by the State Bank of Pakistan (SBP), the stock of government guarantees to SOEs increased by more than 80 percent in the past 5 years to reach PKR 937 billion (2.9 percent of GDP) in FY17. These government guarantees cover 84.7 percent of outstanding SOE debt liabilities, thereby providing a strong incentive for banks to issue loans to SOEs rather than private companies. As a result, two-thirds of the credit issued by commercial banks in Pakistan goes to the public sector, depriving the private sector of the financing that it needs to grow.

**As a result, public investment has been unable to remove infrastructure bottlenecks.**<sup>21</sup> Low public investment in important sectors, such as infrastructure, energy, human capital, and transportation, has affected the country’s growth prospects. According to the Investment Climate Analysis prepared by the World Bank in 2009, the quality and availability of infrastructure, particularly energy, are important constraints to growth. Energy shortages have crippled industry over the past decade, while the underlying state of logistics lags that of most developing countries (Table 5).

**Table 5. Logistics Performance Index (Ranking among 160 Countries)**

	Overall	Customs	Infrastructure	International shipments	Logistics quality and competence	Tracking and tracing	Timeliness
Singapore	5	1	6	5	5	10	6
Malaysia	32	40	33	32	35	36	47
China	27	31	23	12	27	28	31
South Africa	20	18	21	23	22	17	24
Indonesia	63	69	73	71	55	51	62
India	35	38	36	39	32	33	42
Pakistan	68	71	69	66	68	67	58

**Source: Logistic Performance Index; Database (WBG).**

### 3.1.4 Shallow Financial Markets

**Lack of financial inclusion further restricts the availability of domestic savings.** According to FinDex 2017 (World Bank, 2017), only 21 percent of adults have bank accounts, up from 13 percent in 2014. This shows relatively little progress since 2014 and puts Pakistan behind most of its neighbors. Moreover, this increase in account ownership has not benefited all groups equally. In Pakistan, the gender gap between account ownership is almost 30 percentage points. However, this does not mean that adults in Pakistan do not save at all. As the FinDex report notes, Pakistan is among the few developing economies where 20 percent of adults cited savings as the main source of funds, but only 1 in 10 reported having saved in a financial institution, with the remainder saved in non-

<sup>21</sup> Based on literature, it appears that there exists a positive relationship between public and private investment, but there is also evidence to the contrary and the different results are probably because of a difference in methodology /data used. For a detailed discussion, see Annex 2.

formal ways. With the launch of the National Financial Inclusion Strategy (2015), the Government aims to address the challenges behind low levels of financial inclusion in the country.

**A relatively shallow financial market has been unable to fulfill long-term investment needs of the private sector.** The volatility in macroeconomic environment has impeded the development of a well-functioning financial market. The banking sector’s deposit-to-GDP ratio was about 37.6 percent at the end June 2017. Most of these deposits are of shorter maturity (Table 6). This clearly hampers the ability of banks to provide longer-term financing, which is generally required to make capital investments. In addition, private corporate debt markets failed to develop as very few companies were able to issue long-term debt certificates to finance new investments or expansions. Between January 2014 and May 2018, only 11 term-finance certificates, amounting to PKR 67.5 billion, have been listed on the Pakistan Stock Exchange (PSX). Of the total PKR 135 billion raised, PKR 30 billion is outstanding. With this limited success, investors have limited options to finance long-term investments.

**Table 6. Banking Sector Deposits by Term of Maturity**

	Current/Call	Savings	Fixed						
			< 6 months	6 >6 & <1 yrs	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	> 5 years
Jun-08	27%	41%	14%	5%	7%	1%	2%	1%	3%
Jun-09	29%	39%	14%	4%	9%	1%	1%	1%	2%
Jun-10	29%	39%	14%	3%	10%	1%	1%	0%	2%
Jun-11	31%	38%	13%	4%	10%	0%	1%	0%	3%
Jun-12	31%	39%	12%	3%	11%	0%	1%	0%	2%
Jun-13	32%	41%	11%	3%	9%	0%	1%	0%	2%
Jun-14	37%	39%	10%	3%	8%	0%	1%	0%	2%
Jun-15	35%	43%	8%	3%	8%	0%	1%	0%	1%
Jun-16	35%	43%	8%	4%	8%	0%	1%	0%	2%
Jun-17	36%	43%	7%	4%	8%	0%	1%	0%	1%

Source: State Bank of Pakistan, and WBG staff calculations.

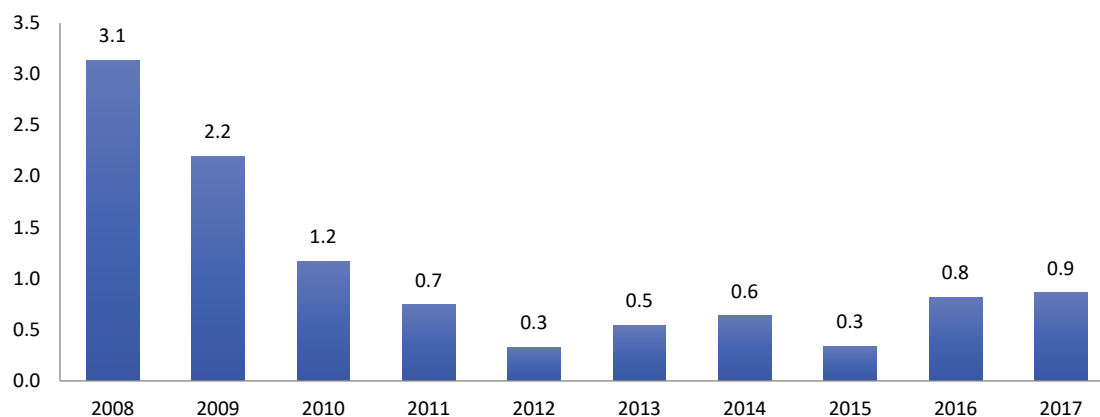
**Financial institutions neither provide ample returns nor new innovative instruments for both public and private sectors.** Currently, Pakistan’s financial markets offer few saving instruments and those offered have low real returns. This has had long-term impacts on capital formation in both the public and private sectors. By diversifying the instruments offered, increased financing for investment purposes can be generated. An example of such instruments is tax-exempted municipal bonds, which are used worldwide by local governments and public utilities to finance operations and new projects. Through the tax exemptions included in the bond, they can help leverage higher returns for investors. In the past, tax-exempted municipal bonds were used in Pakistan by the Water and Power Development Authority (WAPDA). These bonds can be issued through a variety of

instruments, such as Sukuks (local- and foreign-currency denominated). Moreover, offshore local currency bonds may also be structured as diaspora bonds for financing specific infrastructure projects. Through this approach, the large Pakistani diaspora living in the US, the UK, EU and the Middle East could be tapped into for raising long-term capital for development projects.

### 3.1.5 Low Foreign Investment

**Pakistan’s volatile economic environment remains one of the key reasons for low foreign investment.** Foreign direct investment (FDI) has been declining over the years and, compared with other countries’ performance (Figure 9), Pakistan’s performance is a point of concern. FDI is also highly concentrated in a small number of sectors and countries of origin. In the past 15 years, almost 60 percent of FDI went to just three sectors: oil and gas exploration, communications, and the financial sector. Such high concentration means that negative developments in these sectors can have a disproportionate impact on overall FDI. For example, the law-and-order situation in the exploration areas has deterred FDI in oil and gas exploration, which has dragged down overall FDI in the country. In terms of sources of FDI, the US, the UK and UAE jointly contribute on average 60 percent of total FDI, making Pakistan highly vulnerable to economic conditions or changing perceptions of investors in these countries. More recently, much of the FDI has started to come from China under the China-Pakistan Economic Corridor (CPEC) initiative.

**Figure 10. FDI as Percentage of GDP**



Source: State Bank of Pakistan.

**Pakistan’s share in overall global investment flow is low and falling.** The Inward FDI Performance Index<sup>22</sup> measures the amount of FDI that countries receive relative to the size of their economies (GDP). A value greater than 1 suggests that an economy has received more FDI relative to its economic size, while a value below 1 suggests that it has received less FDI than it should have. The Inward FDI Performance Index for Pakistan suggests that the country has lost momentum in attracting FDI in the years since the global financial crisis in 2008 (Table 7). Initially, the fall in FDI flows to Pakistan was in line with global trends, as most of the countries in the region were facing similar declines. However, while the FDI flows to many peer countries have stabilized or resumed,

<sup>22</sup> It is the ratio of a country’s share in global FDI flows to its share in global GDP.



they have continued to fall in Pakistan. Nonetheless, it is expected that the ongoing CPEC initiative may have reversed some of this trend.

**Table 7. Inward FDI Performance Index**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Pakistan</b>	0.7	0.8	0.6	0.4	0.2	0.1	0.2	0.3	0.2	0.3
<b>India</b>	0.4	0.9	1.2	0.6	0.6	0.5	0.5	0.7	0.7	0.6
<b>Bangladesh</b>	0.2	0.4	0.4	0.4	0.3	0.4	0.6	0.6	0.5	0.3
<b>Bhutan</b>	1.2	0.1	0.6	1.7	0.5	0.5	0.4	0.7	0.2	0.1
<b>Sri Lanka</b>	0.3	0.5	0.4	0.3	0.5	0.5	0.5	0.5	0.3	0.4
<b>Nepal</b>	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2
<b>Indonesia</b>	0.3	0.4	0.4	0.7	0.7	0.8	0.9	1.2	0.7	0.1
<b>China</b>	0.8	1.0	1.1	1.4	1.2	1.0	1.1	1.1	0.7	0.5
<b>South Asia</b>	0.4	0.9	1.0	0.5	0.6	0.4	0.5	0.7	0.6	0.6

Source: World Development Indicators (WDI), WBG staff calculations.

### 3.1.6 Is There Ample Demand For Investment?

Until now, the discussion has focused on the broader challenges of low savings, macroeconomic volatility, the role of the public sector, and the inability to attract enough FDI. It is also relevant to ask whether there are factors that may be undermining the demand for investment by firms and households. A mixed-methods approach is employed to provide insights into the demand-side investment impediments in Pakistan.

### 3.1.7 Are Returns on Investment Enough for Firms To Invest?

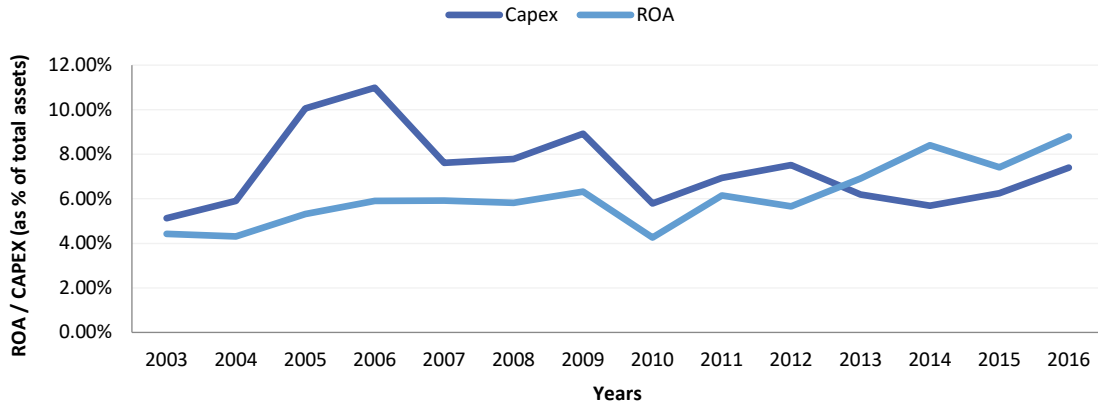
**Low returns may weaken financial incentives, leading to lower investment and resulting in a reduced demand for capital.** It is understood that low levels of return-on-investment may lead to lower investments because of weaker financial incentives, ultimately resulting in a weaker demand for credit.<sup>23</sup> This hypothesis can be empirically tested by looking at firms' investments measured by capital expenditure (capex) and the corresponding returns from the equity market. Due to unavailability of firm-level data, firms' returns are proxied by the KSE-100 index. The return-on-assets (ROA) indicates how profitable a firm is relative to its total assets by capturing the efficiency with which a firm's assets can generate profits. For this reason, the ROA<sup>24</sup> is also often referred to as the firm's return-on-investment, with a higher ROA implying that a firm can earn more with a relatively smaller total investment. The level of investment, or the demand for capital, on the other hand, is captured by a firm's total capex. This measure incorporates the amount of money that a firm spends on purchasing new assets or upgrading existing assets, and hence reflects the total level of investment by the firm. We scale this figure by the lag of total firm assets to facilitate comparability across time and sectors. Figure 10 presents the aggregate market capex ratio and ROA over the past 14 years (2002-16) for the KSE-100 index firms. The private sector firm investment (measured by capex of KSE-100 firms) against their returns on assets (lagged by 1 year) across time, appear to co-

<sup>23</sup> The relationship between the returns to investment and demand for capital has been well documented in an extensive body of literature (see, for example, Fama and Gibbons, 1982).

<sup>24</sup> Return on Assets (ROA)<sub>t</sub> =  $\frac{Net\ Income_t}{Book\ Value\ of\ Total\ Assets_t}$

move over time, confirming that the demand for capital is driven by a firm’s profitability (Figure 10). A simple econometrics exercise<sup>25</sup> also confirms this result (See Annex 3).

**Figure 11. KSE – 100 Companies: Capex - ROA**



Source: Pakistan Stock Exchange (PSX).

**Currently, are returns on investment not high enough to induce firms to invest in Pakistan?**

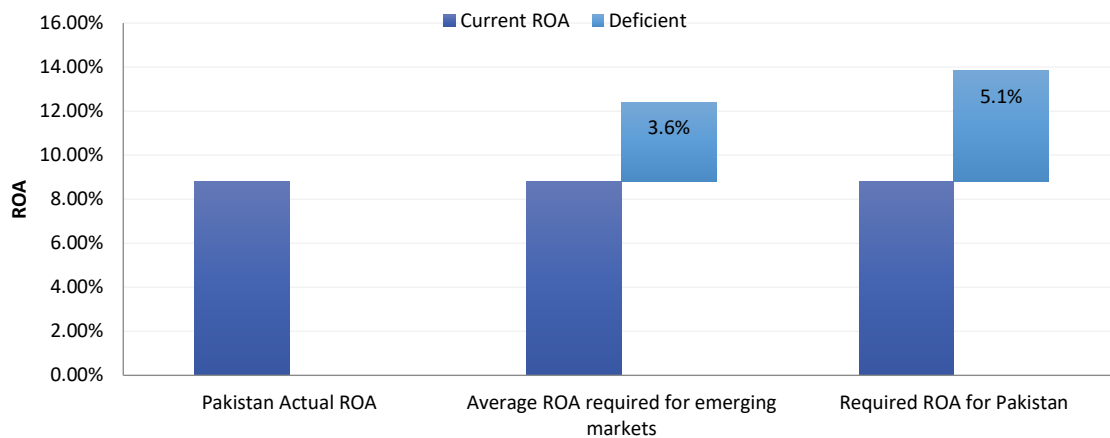
Low returns on investment would effectively restrict the demand for capital, particularly for debt instruments. To answer this question, two approaches have been adopted. First, local returns on assets are compared with the required rate of return by investors. For this approach, the required rate of return for investors is constructed using Pakistan’s credit ‘B3’ credit rating by Moody’s, CDS (Credit Default Swap) spread<sup>26</sup> and following Damodaran (2016) and DuPont Formula.<sup>27</sup> Given the average leverage ratio of 7.28 percent among our sample of firms, the ROAs are estimated to be 13.85 percent. Broadly, this implies that the current ROA of 8.8 percent offered by listed firms in the Pakistan Stock Exchange is 36 percent short of the required rate of ROI into these firms (Figure 11). In this case, we would expect low private sector investment, which translates into a low demand for capital in the local economy.

<sup>25</sup> This exercise examines the impact of return on assets (ROA) on firm investment, as measured by its capex. The dependent variable is capex. The variable of interest is lagged ROA. Other independent variables are included as defined in following model:  
 $Capex_t = \beta_0 + \beta_1 \cdot ROA_{t-1} + \beta_2 \cdot ROA_t + \beta_3 \cdot StockReturns_t + \beta_4 \cdot StockReturns_{t-1} + \beta_5 \cdot MarketReturns_t + \beta_6 \cdot MarketReturns_{t-1} + \beta_7 \cdot TotalAssets_{t-1} + \beta_8 \cdot Cash_t + \beta_9 \cdot Sales_{t-1} + \beta_{10} \cdot Inventory_{t-1} + \beta_{11} \cdot LeverageRatio_{t-1} + Sector\ dummies + Time\ dummies + \mu$

<sup>26</sup> We calculate the default spread for Pakistan by using credit default swap (CDS) spreads on traded country bonds with similar risk ratings, which is estimated to be 7.51 percent per year. Following Damodaran (2016), we add this to the expected return in a mature market (i.e., the equity premium for the United States). This gives a total expected return on equity, accounting for the risk in the Pakistani market, of 14.94 percent.

<sup>27</sup> Return on Assets = Return on Equity x  $(1 - \frac{Debt}{Total\ Assets})$

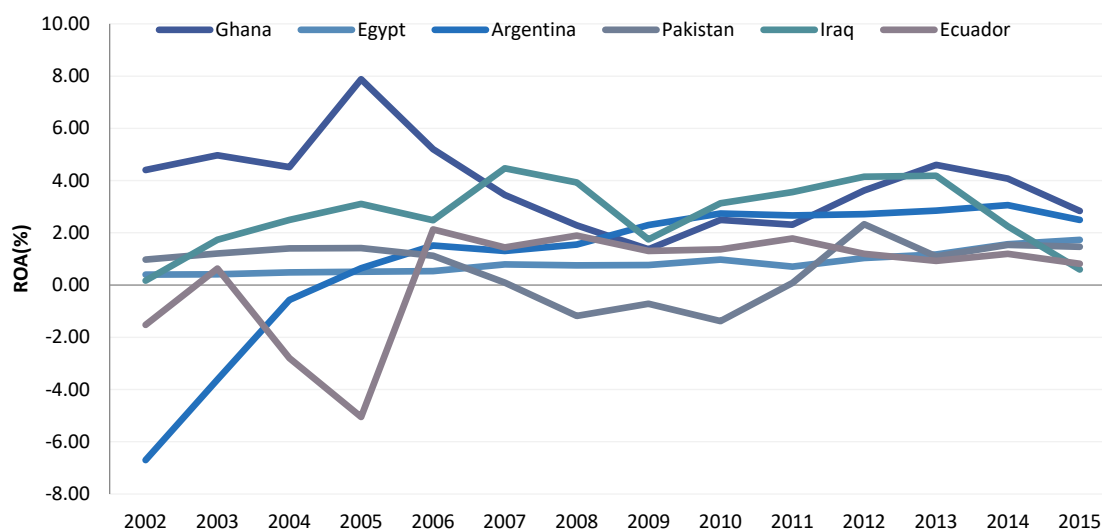
**Figure 12. Actual vs. Required ROA**



Source: Data from PSX and WBG staff calculations.

**The second approach used a cross-country analysis to compare returns on assets across 10 countries.** However, a comparison of ROAs across separate markets is complicated by the fact that every economic sector has a varying weight in each market. To circumvent this problem, the analysis was restricted to the financial sector, which commonly features as one of the largest sectors in most of markets around the globe. The comparison group includes those markets that have the same Moody's sovereign credit rating as Pakistan (i.e., B3), to control for varying degrees of risk across markets. The comparison of ROAs suggests that Pakistan has remained consistently below the average for the comparison group since 2005, the gap widening markedly between 2006 and 2011 (Figure 12). This deficit is persistent, suggesting that Pakistan's ROAs continues to be low given the level of risk in the country.

**Figure 13. Financial Sector ROAS for Markets with Similar Risk, 2002-15**



Source: Data from PSX and WBG staff calculations.

### 3.1.8 Poor Business Environment

**The challenging operating environment for businesses is one of the key constraints impacting private investment.** This is reflected in Pakistan’s Doing Business ranking for 2018, in which Pakistan ranked 147 out of 190 economies (World Bank, 2018). Furthermore, an analysis of the country’s Distance to Frontier (DTF)<sup>28</sup> score shows only a marginal improvement in recent years: from 52.9 in 2011 to 51.8 in 2017. This is well below most South Asian economies and fares poorly compared with the steady progress made by other economies, such as India, Bhutan and Sri Lanka. Inconsistencies in policies for different sectors over time have dented investors’ confidence.<sup>29</sup> The lack of coherence in the country’s trade and industrial policies has also played a key role in reducing industrial investments. Specifically, tariff policies have not been supplemented by a comprehensive industrial strategy to improve the competitiveness of local firms. Entry in some sectors is difficult. Burki (2008) observed that industrial policies were made either as part of medium-term development plans or in response to some crisis the country was facing. He states that, “the frequent changes in industrial policy have kept the industrial sector relatively backward compared to the developments in other large Asian economies”. A comparison of some of these indicators can be seen below (Table 8).

<sup>28</sup> The DTF score shows the average extent to which an economy’s regulatory performance has progressed toward international best practice in each of the 10 DB topics. It is a measure (expressed on a scale of 0 to 100, where 0 represents the worst performance and 100 the frontier representing best practice) of the distance each economy has moved toward the frontier.

<sup>29</sup> Incidents like the Independent Power Producers-Government standoff in the late 1990s; litigation over Reko Diq mining lease; and contract enforcement issues with Engro Fertilizer are some examples which have affected the interest of potential investors in Pakistan.

**Table 8. Comparison of Global Competitiveness Ranking and Governance Index**

	Global Competitiveness Rankings (2017-18)				Governance Indicators (2017)				
	Overall ranking	Institutions	Infrastructure	Macro environment	Political stability	Govt. effectiveness	Regulatory quality	Rule of law	Control of corruption
<b>Pakistan</b>	115	90	110	106	1.43	28.85	27.04	20.19	19.23
<b>India</b>	40	39	66	80	14.29	57.21	41.35	52.4	47.12
<b>Bangladesh</b>	99	107	111	56	10.48	25.48	22.12	30.77	21.15
<b>Bhutan</b>	82	32	89	78	82.86	70.19	26.92	68.27	83.17
<b>Sri Lanka</b>	85	77	85	94	49.52	44.17	51.44	54.33	48.08
<b>Nepal</b>	88	89	119	31	19.05	19.71	23.56	19.71	23.56
<b>China</b>	27	41	46	17	27.14	67.79	44.23	46.15	49.04

Source: World Bank Governance Indicator and The World Economic Forum.

**Poor tax policy design and weak administration are other challenges that complicate the business environment.** The purpose of a good tax policy is to raise revenue in an equitable and fair way. Since FY14, the Federal Bureau of Revenue (FBR) has successfully increased its tax collection by 2.4 percent of GDP. However, the revenue mobilization focus needs to be balanced with other goals as well. For example, import tariff reduction and simplification is imperative to increase competitiveness and reduce anti-export bias. Over the past few years, tariffs have been reduced but this has been followed by a significant increase in the use of regulatory duties. Moreover, advance income tax through the withholding mechanism on financial transactions is positive in terms of providing incentives for registering as taxpayers, but could have been detrimental with regards to financial deepening. Consequently, the currency-to-deposit ratio jumped from a very stable 0.29 in FY15 to 0.35 in FY17.

**The current tax regime is inefficient and retrogressive.** While some sectors are taxed beyond their share in the GDP, others are not taxed or only lightly taxed, creating adverse incentives. One example is the real estate sector. Throughout Pakistan, property transactions are taxed at the valuation announced by district commissioner offices, namely DC rates. The real estate market is experiencing a boom. Since official valuations are not updated accordingly, they have created a wedge between official and market values. This not only provides a haven for undocumented wealth, but also deprives the Government of revenue. In addition, since this sector provides very high returns, a substantial proportion of savings are diverted here at the expense of other important job-creating sectors.

### 3.1.9 Firm's Growth Potential

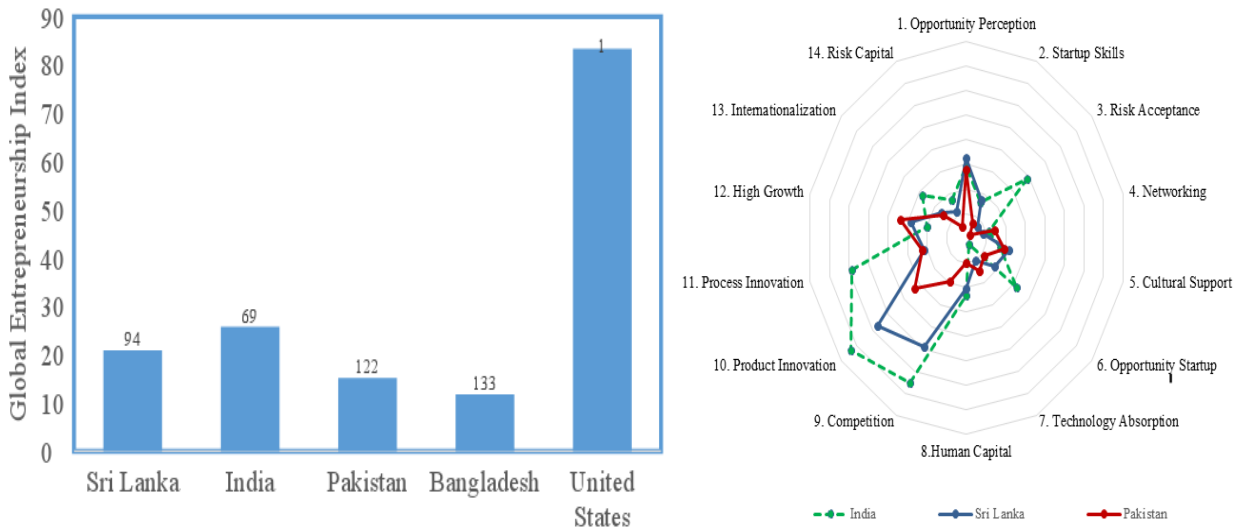
**Capacity constraints of firms can further restrict their ability to access finance to make appropriate investments.**<sup>30</sup> Below, we focus on entrepreneurial constraints faced by firms in Pakistan and supplement our analysis through findings from a survey of SMEs in Gujrat (Box 2).

**The Global Entrepreneurship Index (GEI) encapsulates the confluence of factors contributing to an economy's entrepreneurship ecosystem under the broad categories of infrastructure, resources, and attitudes.** A 2017 study conducted on the GEI ranks Pakistan 122 out of 137

<sup>30</sup> Growth potential of private firms in Pakistan, as measured by the Tobin's Q, has exhibited a positive trend over the past 15 years. However, a regression analysis also shows that local firms do not adjust their investment levels based on the growth potential of the firm, as determined by the aggregate market. For details, see Annex 4.

countries under consideration with an overall score (15.2), significantly lower than regional counterparts Iran (rank: 85, GEI: 22.1), India (rank: 69, GEI: 25.8), China (rank: 48, GEI: 36.3), and Sri Lanka (rank: 89, GEI: 20.9). These differences are illustrated in Figure 13, with the addition of the United States for comparison.

**Figure 14. Global Entrepreneurship Index: Regional Comparison**



Source: Global Entrepreneurship and Development Institute.

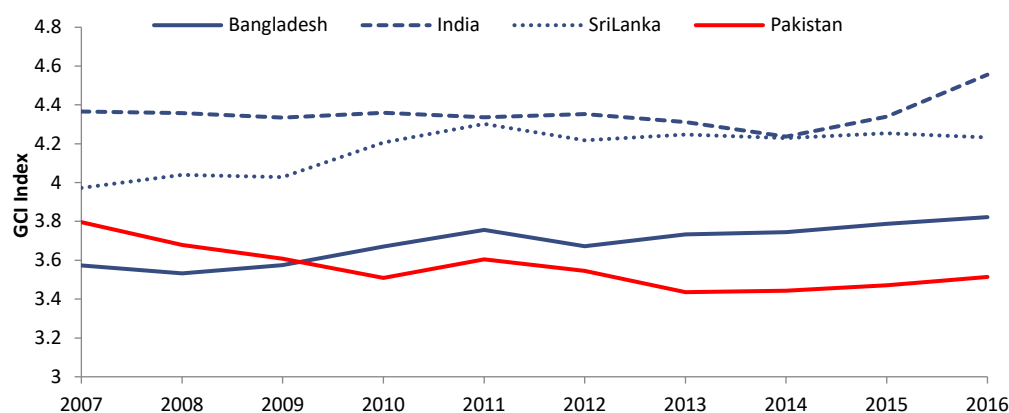
**Disaggregated data show that Pakistan’s performance is significantly inferior to India and Sri Lanka in terms of entrepreneurial attitudes, such as risk acceptance, cultural support, and entrepreneurial abilities, all of which involve human capital.** The three countries rank similarly in terms of the following factors grouped under entrepreneurial attitudes: opportunity perception, cultural support, and networking abilities. However, on other important indicators, such as innovation and competition, Pakistan lags both these countries. In terms of entrepreneurial aspirations, Pakistan ranks worse, especially in product and process innovation. These statistics suggest a weak appetite for entrepreneurial activity, which is further constrained by a lack of human capital, especially in education, technical know-how, staff training, and technology absorption. Removing these bottlenecks may mitigate the low demand for investment. The debate now focuses on the causes of low entrepreneurship activity in Pakistan.

**A key link between the drivers of entrepreneurship and investment levels is to be found in the level of economic competition in a country, wherein the determinants of competitiveness are inherently reflective of entrepreneurship.** Therefore, we examine the Global Competitiveness Index (GCI) and investment to further assess the relationship between investment and entrepreneurship in the country, with cross-country comparisons with India, Sri Lanka and Bangladesh. In the context of an emerging global consensus toward human-centric economic growth, progress is multidimensional; entrepreneurship and competition contribute by creating the necessary atmosphere needed for and conducive toward better education, health, security, and

higher income per capita. The GCI tracks the performance of countries on 12 pillars of competitiveness.<sup>31</sup>

**The overall GCI exhibits a downward trend.** This downward trend is observed over the period 2007-10, with a brief increase in 2010-11, further decreasing to 3.43 in 2013. Not only does Pakistan's GCI measure markedly fall below all three countries from 2009 onward but Pakistan is also the only country presenting a consistent downward trend until 2013. However, an upward trajectory observed from 2013 onward is certainly a positive sign. Figure 14 illustrates the time trend of the GCI for the four countries in the period 2007-16.

**Figure 15. Global Competitiveness Index**



Source: WBG staff calculations.

## Box 2. Specific Constraints Faced by Local Firms

- i. **A survey conducted of SMEs in Gujrat attempted to gain further insight into themes that contribute to a broad set of features (Annex 5).** These include testing for: an environment conducive to increasing investment demand; asymmetric information; firm capacity; alternative credit channels available to firm owners; religious and cultural views; financial illiteracy; entrepreneurial vision; and difficulties faced. While the present study focuses on about 10 percent of the entire firms in this sector, we aim to highlight evidence that supplements that shown earlier.

### Asymmetric Information:

- ii. **Surveys indicate that despite demand for capital, the inability of firms to provide reliable data on their financial assets and lack of information, imposed a cost, as banks were reluctant to provide loans.** This arises from the inability of these firms to provide reliable financial statements and sales data (since financial transactions of such firms are often recorded informally). Such information is critical for banks to evaluate the risk levels in credit transactions,

<sup>31</sup> We note that the correlation between investment and entrepreneurship is 0.846. To further this end, we conduct a simple panel regression analysis of investment (Gross Capital Formation as a percentage of total GDP) against the GCI indicator on a 10-year panel (2007-16) of the four countries mentioned above, controlling for time effects. The regression results indicate that there is a statistically significant positive relation between the GCI of the country and its investment levels, which warrants further study of the drivers of entrepreneurship; the pillars of the GCI. Given that Pakistan is a factor-driven economy, as discussed above, it should be kept in mind that the basic requirements sub-pillars are potentially the primary drivers of entrepreneurship.

and the absence of these data makes banks hesitant to lend to these firms, or to charge an abnormally greater risk interest rate due to the high risk premium.

iii. **Most firms have minimal knowledge of available financing instruments.** Less than half the firms claimed to agree that they knew which loans were best-suited to their business purpose, forming a significant roadblock to credit expansion. In some cases, firms were prepared to disclose their full information but did not have the capacity to comply with the bank's documentation requirements. Such capacity restrictions implied an artificially lower actual demand for investment. Encouraging firms to use independent financial auditors, perhaps provided by the bank as a service, might raise investment, raising the demand for external financing.

#### **Financial Literacy, Cultural and Religious Views:**

iv. **Religious beliefs of firm owners do have implications for bank borrowing decisions.** It is argued that many firms consider traditional credit services as non-compliant with Islamic law and hence unwelcome. While there has been an increase in banks offering Islamic banking services, this still adds to our understanding of why demand for traditional banking services may be low. However, higher borrowing costs, especially for the small firms, remained the main reason why firms did not engage in borrowing from banks.

#### **Distortions and Difficulties:**

v. **Cumbersome documentation and processing adds to firms' difficulties in obtaining loans.** Several studies document the distortions in lending markets, such as those that arise due to preferences to certain firms that are politically connected. Among the main problems firms report in loan approval, the two major and recurring themes involved the allegedly excessive documentation required for the process and the high mark-up charged by banks. Most firm owners expressed a desire for such a process to be streamlined with the use of technology, or the process be supplemented with electronic documentation, such that redundancies might be eliminated.

#### **Entrepreneurial Vision:**

vi. **Businesses that are still run as small family firms lack modern practices.** Only a few firms' owners claimed to have participated in any form of entrepreneurship education. A lack of human capital may be a deterrent to entrepreneurial aspirations, and with the overall lack of investment demand.

vii. **Dynamism in terms of launching new products is lacking.** Only about half of all firms claimed to have launched a new product variety in the past 2 years, and similarly only slightly more than half claim to be familiar with the potential growth trajectory of the fan industry in the coming 6 to 12 months. Larger firms released product varieties more frequently.

#### **Alternative Credit Channels:**

viii. **Many of the transactions in the SME sector involve informal, expensive trade credit (where the goods were bought and paid for at a later stage), which substituted the need for formal credit.** In addition, a considerable number of micro and small enterprises rely on



informal lending, both within and outside of the entrepreneur's network. Informal financing usually takes place due to obstacles in participating in the formal lending market and hence is not included in official measures, masking the true demand for credit. The survey finds that, while for most firms, owners make financial decisions directly, with a few relying on the existence of a board or a CEO/CFO, the major source of financing for *every* firm in the survey was identified as 'self', with only nine firms also considering the banks as an additional source of finance. All firms except one identified both banks and cash as the main medium of transaction for their products.

ix. **It was natural that large firms faced almost no difficulties with the high interest rates; it was the smaller firms that primary raised this issue repeatedly since it resulted in a reduction in their profit margins.** Larger firms had access to foreign markets, thus their sales were almost orthogonal to the market-interest rates. Furthermore, export-oriented firms had access to the State Bank's export finance scheme (EFS), whereby short-term financing facilities were provided to exporters through banks for exports of all manufacturing goods, especially value-added products. Smaller firms not only faced the direct cost of higher interest rates, but also suffered a fall in sales when aggregate demand contracted in the face of rising interest rates.

x. **Despite these mentioned shortcomings, there is reason to be optimistic.** Firms' owners agreed that they are willing to innovate in the current operational business, identifying their need to expand sales and to engage in more R&D to release better products. Firms identified the quality of products as a major factor in their export sales, commenting on how this was a new trend due to the emergence of power houses such as India and China. What remains concerning is that almost all firms consider self-finance to be the primary source to this end, with only 21 claiming that banks would be a main source of finance for innovation.

# CHAPTER 4. HOW TO EMERGE FROM THE LOW INVESTMENT AND GROWTH HORIZON?

Pakistan's low investment and growth trap is a result of multiple challenges nested in both the public and private sectors. Addressing these challenges requires a synchronized effort by all stakeholders. This effort should focus on the following policy areas:

## 4.1 ENHANCING INVESTMENT SUPPLY

**Improve the size and efficiency of public investment to crowd in private investment.** Pakistan's growth is lagging due to both low public and private investment, which requires changes to the current policy framework. One of the key pillars of this policy framework should focus on increasing public investment and efficiency. However, adequate fiscal space is a prerequisite for increasing public investment. This in turn cannot be achieved without greater revenue generation. Furthermore, it is important to increase public investment efficiency by improving project selection and management processes.

**Deepen financial intermediation to promote savings.** Low domestic savings has imposed a ceiling on the level of investment. Therefore, for sustainable growth, it is important that domestic savings be mobilized and channeled into the right areas. A relatively shallow financial market is unable to fulfill long-term investment needs. Deposits of shorter maturity create a mismatch between commercial banks' assets and liabilities, and hampers the ability of banks to advance longer-term financing, which is generally required to make capital investments. Development of a private corporate debt market is imperative so that longer-term financing needs can be met for the private sector. While the stock market is relatively liquid when it comes to a secondary market, it has failed to provide incentives for issuance of primary capital, as new initial public offerings are scant.

**Revive domestic investment activity by alleviating credit constraints.** The key constraint faced by SME entrepreneurs is the availability of credit. To reduce credit constraints, policies that encourage commercial banks to engage with SMEs should be implemented. Policies that aim to improve banking features, such as expanding their operations to include electronic banking, might facilitate capital-deepening and improve access to finance. In addition, a prudent fiscal policy must be prepared and executed with the Government minimizing its borrowing volumes from the banking sector.

**Encourage savings by taking steps to reduce the currently high dependency ratio.** The dependency ratio in Pakistan has been historically high, indicating the economic burden borne by the working-age population of Pakistan throughout the years. Although this ratio has declined over time, Pakistan still has a higher proportion of dependent population than many of its peers. Steps need to be taken to improve female labor-force participation and reduce population growth rates. This would reduce the dependency ratio and thereby enable higher savings. In addition, steps must be taken to reduce the banking sector's spread to encourage better deposit rates to savers. With the Government as the largest borrower, banks do not feel compelled to develop new lending and deposit products for the private sector.

**Create space for the private sector by rationalizing the SOE portfolio.** The federal SOE portfolio's overall burden on public finances can be eliminated, freeing up US\$4.6 billion annually to fund public and social services. Financial support to underperforming SOEs is a major driver of the fiscal deficit and a source of substantial fiscal risks. Government subsidies, loans, and grants to SOEs accounted for more than 25 percent of the fiscal deficit in FY15/16. These SOEs not only constrain fiscal space, but also create an uneven playing field for the private sector and suffocate growth of private businesses. It is important to implement the following reforms to improve the operation of SOEs:

- a. Remove government officials from the boards of SOEs to address conflicts of interest and improve operation of SOEs;
- b. Set explicit objectives to underpin the rationale for government ownership of SOEs in different sectors and inform the criteria for government financial support to SOEs, e.g., subsidies for public services based on unit costs and output targets, loans or guarantees for major investments;
- c. Publish externally audited financial statements for SOEs listed on the stock exchange; and
- d. Establish KPIs for management and establish accountability mechanism.

## 4.2 CREATING INVESTMENT DEMAND

**Improve coordination between federal and provincial departments to create a business-friendly environment.** Several areas, such as fiscal policies including taxes, doing business, energy, transportation etc., require proactive coordination between federating units. This is not the case at present. It is desirable to establish a high-level coordination mechanism to streamline and harmonize laws and regulations across all federating units, to reap the benefits of a single market.

**Reform the current tax regime. While some sectors are taxed beyond their share in GDP, others are not taxed or only lightly taxed, creating adverse incentives.** While domestic savings are already very low, most of them flow to relatively unproductive sectors, such as real estate for speculative purposes. It is also important to immediately remove the financial sector transaction tax. In the medium term, the Government should invest heavily to improve the tax administration to make it more taxpayer friendly and technologically innovative and modern. Tax policy should be analyzed to correct the incentives, so that scarce resources flow into productive sectors, not into real estate, which not only provides a haven for undocumented wealth, but also deprives the Government of revenues. Develop and implement a uniform tax code and administrative mechanism, such that it also supports federal-provincial tax harmonization and integration. In this regard, establishment of a high-level constitutional body (e.g., a National Tax Council, such as the GST Council in India, etc.) through the Council of Common Interest, with clear accountability to resolve tax-related issues across the country. This will help businesses pay their taxes and improve the overall investment environment.

**Strengthen the investment climate.** There is a need to implement legal and regulatory reforms at the provincial and federal levels to facilitate the private sector and improve Pakistan's business

climate. This can be done by reducing the procedures, costs, and time associated with investing and doing business in Pakistan, aligning the national investment policy with sectoral policies, in addition to streamlining FDI approval process and consolidating the multitude of, and at times inconsistent, incentive schemes by establishing a one-window operation. More strategic and consolidated efforts are needed from the Prime Minister's office in implementing the "time-bound" reform process, providing a good example of how the 'whole-of-government' approach can proactively achieve results. Therefore, establish a PM level federal-provincial business climate reform steering committee supported by a national business climate reform unit for implementing business climate reforms, in consultation with the private sector through a new national public-private dialogue council. Simultaneously, simplify the legal and regulatory framework for businesses to encourage investment in key sectors.

**Reduce the level of business risk in the country.** Investors in competitive markets demand higher returns from investments that carry a higher risk. Pakistan has a weak sovereign risk profile and its bonds carry expectations of high returns, which are often difficult to meet. In fact, local firms must offer about twice the returns of their western counterparts. When compared with emerging markets, Pakistan's private sector should offer a 40 percent higher return. Such elevated expectations make it harder for businesses to survive and hence policies to reduce business risk should be undertaken. Targeted policies to reduce business risk can include those that encourage competitive practices, lead to an improvement in the security situation, facilitate quick and transparent legal recourse for businesses, and result in uninterrupted energy supply, among others. But in the short term, the other option is to offer returns that are commensurate with the country risk and these options should be explored.

## REFERENCES

- Aizenman, Joshua and Nancy Marion. 1999. "Volatility and Investment: Interpreting Evidence from Developing Countries". *Economica*, 66(262), 157-1179.
- Akkina, Krishna Rao and Mehmet Ali Celebi. 2002. "The Determinants of Private Fixed Investment and the Relationship between Public and Private Capital Accumulation in Turkey". *The Pakistan Development Review* 41:3, 243-254.
- Atukeren, Erdal. 2005. "Interaction between Public and Private Investment: Evidences from Developing Countries". *KYKLOS* 58:3, 307-330.
- Burney, Nadeem A. and Attiya Yasmeen. 1989. "Government Budget Deficit and Interest Rates: An Empirical Analysis of Pakistan". *The Pakistan Development Review* 28:4, 971-80.
- Bosworth, Barry, Susan M. Collins, and Arvind Virman. 2007. "Sources of Growth in the Indian Economy" No. w12901. National Bureau of Economic Research.
- Baker, Malcolm and Jeffrey Wurgler. 2002. "Market Timing and Capital Structure". *The Journal of Finance*, 57(1), 1-32.
- Burki, Shahid Javed. 2008. "Industrial Policy: Domestic Challenges, Global Imperatives, and Pakistan's Choices". *The Lahore Journal of Economics*. Special Ed. September, 23-34.
- Cherif, Reda and Fuad Hasanov. 2012. "The Volatility Trap: Precautionary Saving, Investment, and Aggregate Risk" (No. 12-134). International Monetary Fund.
- Damodaran, Aswath. 2016. "Country Risk: Determinants, Measures and Implications-The 2016 Edition". *Stern School of Business*
- Eckstein, David, Vera Kunzel, and Laura Schafer. 2017. „Global Climate Risk Index 2018", Briefing Paper. *GermanWatch, Bonn*.
- Erden, Lufti and Randall Holcombe. 2006. "The Linkage between Public and Private Investment: A Cointegration Analysis of a Panel of Developing Countries". *Eastern Economic Journal* 32:3, 479-492
- Fama, Eugene F. and Michael Gibbons. 1982. "Inflation, Real Returns and Capital Investment". *Journal of Monetary Economics*, 9(3), 297-323.
- Haque, Nadeem U. and Peter J. Montial. 1993. "Fiscal Adjustment in Pakistan: Some Simulation Results". International Monetary Fund Staff Papers 40:2, 471-80.
- Hevia, Constantino and Norman Loayza. 2011. "Saving and Growth in Egypt." Policy Research Working Paper 5529. World Bank, Washington, DC.
- Hyder, Kalim. 2001. "Crowding-out Hypothesis in a Vector Error Correction Frame Work: A Case Study of Pakistan". *The Pakistan Development Review* 40:4, 633-49.
- Horioka, Charles Yuji. 1997. "A Cointegration Analysis of the Impact of the Age Structure of the Population on the Household Saving Rate in Japan". *Review of Economics and Statistics*, 79, 511-516.

- Khan, Hyder and Zafar Iqbal. 1991. "Fiscal Deficit and Private Sector Activities in Pakistan". *Economia Internazionale* 2-3, 182-90.
- Khan, Sajawal and Arshan Khan. 2007. "What Determines Private Investment? The Case of Pakistan". *PIDE Working Papers* 2007:36.
- Khan, Safdar Ullah. 2006. "Macroeconomic Determinants of Total Factor Productivity in Pakistan". *SBP Research Bulletin*.
- Loayza, Norman, Romain Ranciere, Luis Servén and Jaume Ventura]. 2007. "Macroeconomic Volatility and Welfare in Developing Countries: An Introduction". *The World Bank Economic Review*, 21(3), 343-357.
- Loayza Norman, Eduardo Olaberría, Jamele Rigolini, and Luc Christiaensen. 2012. "Natural Disasters And Growth: Going Beyond the Averages", *World Development* 40, 1317-1336.
- Looney, Robert E. 1995. "Public Sector Deficits and Private Investment: A Test of the Crowding-Out Hypothesis in Pakistan's Manufacturing Industry". *The Pakistan Development Review* 34:3, 277-97.
- Looney, Robert E. 1997. "Infrastructure and Private Sector Investment in Pakistan". *Journal of Asian Economics*, 8:3, 393-420.
- Mahmood, Zafar and Rahana Siddique. 2000. "State of Technology and Productivity in Pakistan's Manufacturing Industries: Some Strategic Directions to Build Technological Competence". *The Pakistan Development Review*. 39(1):1-21
- Modigliani, Franco and Robert Brumberg, R. H. 1954. "Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data". In Kenneth K. Kurihara, ed., *Post Keynesian Economics*, 388-436.
- Modigliani, Franco and Shi Larry Cao. 2004. "The Chinese Saving Puzzle and the Life-Cycle Hypothesis". *Journal of Economic Literature*, 42, 145-170.
- Mullins, Mark and Sushi Wadhvani. 1989. "The Effect of the Stock Market on Investment: A Comparative Study". *European Economic Review*, 33(5), 939-956.
- Naqvi, Naveed H. 2002. "Crowding-in or Crowding Out? Modeling the Relationship between Public and Private Fixed Capital Formation". *The Pakistan Development Review* 41:3, 255-76.
- Pradhan, Basanta K., Dilip K. Ratha and Atul Sarma. 1990. "Complementarity between Public and Private Investment in India". *Journal of Development Economics* 33:1,101-16.
- Rashid, Abdul. 2005. "Public/Private Investment Linkages: A Multivariate Cointegration Analysis". *The Pakistan Development Review* 44:4, 805-817.
- Rodrik, Dani and Arvind Subramanian. 2009. "Why Did Financial Globalization Disappoint?". *IMF Staff Papers*, 56(1), 112-138.
- Sabir, Muhammad and Masood Ahmed Qazi. 2003. "Macroeconomic Reforms and Total Factor Productivity Growth in Pakistan: An Empirical Analysis". Conference Paper International Atlantic Economic Conference.

- Saeed, Noman, Kalim Hyder and Asghar Ali. 2006. "The Impact of Public Investment on Private Investment: A Disaggregated Analysis". *Pakistan Development Review* 45:4: 639–661.
- Sakr, Khaled. 1993. "Determinants of Private Investment in Pakistan", Washington D.C. IMF Working Paper/93/30.
- Thornton, John. 2001. "Age Structure and the Personal Savings Rate in the United States, 1956-1995". *Southern Economic Journal*, 68:1, 166-170.
- World Bank. 2006. Pakistan Growth and Competitiveness, Report No. 35499-PK. Washington D.C.
- World Bank. 2009. Pakistan's Investment Climate: Laying the Foundation for Renewed Growth, Volume 1. Main Report. Washington, DC.
- World Bank. 2018. Doing Business 2018-Reforming to Create Jobs, 15<sup>th</sup> Edition. Washington D.C.
- World Development Indicators, The World Bank. Downloaded January 2018.

## ANNEX 1: UNDERSTANDING GROWTH

To illustrate the links between savings and long-term growth, this note follows the approach of Hevia and Loayza (2011). The set-up relies on an augmented Solow model, consisting of a single-sector open-economy model where output is produced by combining capital and effective units of labor inputs. An external sustainability condition is imposed (see Hevia and Loayza for details). Effective labor grows by increases in human capital (years of schooling) and the growth rate of the workforce.

The current account deficit (the change in net foreign liabilities) is now decomposed into FDI flows and changes in the accumulation of portfolio and other external debt. FDI plays a “substitute” role for national savings, thus, the model can be solved as if FDI “covers” for the shortcomings on savings:

$$CAD_t \equiv FDI_t + B_{t+1} - B_t$$

The following equation that links growth rate of output per worker to the national savings ratio, FDI, the growth rate of productivity, the growth rate of the workforce, the increase in human capital, and the capital-output ratio is parameterized using Pakistan’s data.

Solving the equations of the model and imposing the sustainability condition results in:

$$\frac{CAD_t}{Y_t} = \frac{FDI_t}{Y_t} + \frac{B_{t+1} - B_t}{Y_t}$$

$$\frac{CAD_t}{Y_t} = \frac{FDI_t}{Y_t} + \beta \left[ \frac{Y_{t+1}}{Y_t} - 1 \right]$$

$$\frac{cad_t}{y_t} = \frac{fdi_t}{y_t} + \beta [(1 + \gamma_{yt})(1 + \gamma_{Nt}) - 1]$$

$$(1 + \gamma_{kt})(1 + \gamma_{Nt}) = (1 - \delta) + \left\{ \frac{s^{Nt}}{y_t} + \frac{fdi_t}{y_t} + \beta [(1 + \gamma_{yt})(1 + \gamma_{Nt}) - 1] \right\} \frac{y_t}{k_t}$$

The non-linear equation to be solved (either for output per worker or national savings rate) –given the trajectory of TFP— is the following:

$$(1 + \gamma_{yt}) = (1 + \gamma_{At}) \left[ \frac{(1 - \delta) + \left\{ \frac{s^{Nt}}{y_t} + \frac{fdi_t}{y_t} + \beta [(1 + \gamma_{yt})(1 + \gamma_{Nt}) - 1] \right\} \frac{y_t}{k_t}}{(1 + \gamma_{Nt})} \right]^\alpha e^{(1-\alpha)\theta(E_t - E_{t-1})}$$

where  $\gamma_{yt}$  is the growth rate of output,  $\gamma_{At}$  is the growth rate of productivity,  $\gamma_{Nt}$  is the growth rate of workers,  $E_t$  is years of schooling,  $e^{\theta E_t}$  is productivity per worker,  $\frac{y_t}{k_t}$  is the output-to capital ratio,  $\alpha$  is the share of payments to capital in total income,  $\delta$  is the depreciation rate,  $\frac{s^{Nt}}{y_t}$  is the national savings to output ratio,  $\frac{fdi_t}{y_t}$  is the FDI to output ratio and  $\beta$  is ratio of foreign debt to GDP. This equation indicates that output growth is positively correlated with productivity growth, working age population growth, human capital growth, and the national savings ratio.



## ANNEX 2: THE ROLE OF PUBLIC INVESTMENT

Given the role of public investment as a policy instrument, the relationship between private and public investment is the subject of vast and growing literature in economics. Classical economists argue that public investment crowds out private investment whereas Keynesian economists believe that the reverse is true, i.e., public investment crowds in private investment due to the multiplier effect (Saeed et al., 2006). Empirical work on this subject has shown mixed statistical results.

As noted by Saeed et al. (2006), the role of the public sector in expanding or squeezing the private sector in Pakistan was raised when, in 1988, the Government pursued a policy of fiscal consolidation by curtailing development expenditure. Policymakers argued that higher public investment leaves fewer funds for private investment, which drives up the interest rates and results in a lower level of private investment due to increased competition.

Since then, different researchers have attempted to test the crowding-out hypothesis in Pakistan. Some researchers have focused on the impact of a budget deficit on interest rates. Again, empirical results have been mixed, while Khan and Iqbal (1991) found a negative relationship between the two variables, Haque and Montiel (1993) lend support to the crowding-out hypothesis, as they find a positive relationship between a budget deficit and interest rates. In contrast, Burney and Yasmeen (1989), find no meaningful relationship between the overall fiscal deficit and nominal interest rate. However, as private investment in Pakistan is not significantly related to interest rates, this testing mechanism cannot be simplistically applied to Pakistan (Saeed et al., 2006).

Others have focused on the aggregate effect of public investment on private investment. Hyder (2001) shows a positive correlation between public and private investment, thereby implying the absence of crowding-out hypothesis in Pakistan. This hypothesis is reinforced by Ahmed and Qayyum (2007) who also find a positive relationship between public and private investment. Sakr (1993), uses a flexible accelerator type-model to investigate determinants of private investment in Pakistan and finds that a positive and significant correlation between public and private investment at the aggregate level. However, once disaggregated, he finds a positive relationship for infrastructural investment but a negative and insignificant one for non-infrastructural investment. Similarly, using the co-integrating VAR's, Naqvi (2002) suggests that public investment has a positive impact on private investment. He also finds that uncertainty has a significant negative impact on private investment. Rashid (2005) uses the impulse response functions to examine this relationship and finds that private investment responds positively to changes in public investment. He concludes that in the long run, public investment crowds in private investment. Conversely, Khan and Khan (2007) explore the determinants of private investment in Pakistan and find evidence of the crowding-out hypothesis in Pakistan, with public investment having a negative (but insignificant) impact on private investment.

Looney (1995, 1997) has extensively studied the relationship between investment and growth in Pakistan. Using Granger-Causality on differenced investment data (1995), he argues that the Government's non-infrastructural investment program has stifled investment from the private sector in large-scale manufacturing. However, he does not find evidence of crowding out in other areas of private investment. In (Looney 1997), he uses a co-integration analysis without error

correction and finds a long-run relationship between private investment in large-scale manufacturing and infrastructural public investment. He suggests that public facilities have largely expanded in response to needs created by the private sector investment in manufacturing rather than strongly initiating private capital formation, and that this in turn contributed toward the country's economic development by alleviating real bottlenecks.

While these studies indicate a positive and statistically significant relationship between the two, they do not provide information on the sectoral level. Using an unrestricted structural VAR model, Saeed et al. (2006) examine the effect of public investment on private investment on the overall economy, as well as the commodity producing agricultural and manufacturing sectors, and find the existence of the crowding-out phenomenon in the manufacturing sector. However, they find a negative relationship between the two in the agricultural sector and recommend higher public investment in this sector.

Results for other middle-income countries are also mixed. In their analysis, Pradhan et al. (1990) find that public investment crowds out private investment in India. For Turkey, Akkina and Celebi (2002) conclude that public sector investment has a large and negative effect on private investment. However, given the unique conditions in each country, it is difficult to carry out comparisons between different countries. Atukeren (2005), studies 25 developing countries from 1970 to 2000, and finds that greater government involvement, lower trade openness, more developed monetary environment and higher restrictions on the use of foreign currencies increase the likelihood of public investment crowding out private investments. However, Erden and Holcombe (2006), analyze 19 developing countries and find that public investment is complementary to private investment in both the short run and the long run. In contrast, they find that public investment crowds out private investment in developed countries. Hence, they show that private investment in developed countries is influenced by several factors that do not affect private investment in developing economies.

## ANNEX 3: RELATIONSHIP BETWEEN ROA AND CAPEX

To formally test for a causal relationship between the two variables, we regress lagged capex on ROA at the firm level while controlling for sector level effects by opting for partial pooling through a random effects regression. Our model, then, is specified as follows:

$$\begin{aligned}
 Capex_t = & \beta_0 + \beta_1.ROA_{t-1} + \beta_2.ROA_t + \beta_3.StockReturns_t + \beta_4.StockReturns_{t-1} \\
 & + \beta_5.MarketReturns_t + \beta_6.MarketReturns_{t-1} + \beta_7.TotalAssets_{t-1} + \beta_8.Cash_t + \\
 & \beta_9.Sales_{t-1} + \beta_{10}.Inventory_{t-1} + \beta_{11}.LeverageRatio_{t-1} + Sector\ dummies_t + Time \\
 & dummies + \mu
 \end{aligned} \tag{1.1}$$

where ‘Capex’ refers to the total capital expenditure by a firm in the year as a percentage of total firms assets, ‘ROA’ refers to return on assets, ‘StockReturns’ refers to a stock’s return over the year, ‘MarketReturns’ refers to the market index’s return over the past year, ‘TotalAssets’ refers to a firm’s total assets, ‘Cash’ refers to the cash available in the firms expressed as a percentage of total firm assets, ‘Sale’s’ refers to the net sales in the year as a percentage of total firm assets, ‘Inventory’ refers to inventory as a percentage of total assets, ‘LeverageRatio’ refers to the leverage (debt-to-equity) ratio of the firm, ‘Sector dummies’ and ‘Time dummies’ refer to (quarterly) time dummies and sector dummies respectively while ‘μ’ refers to the stochastic disturbance term.

Since theory dictates that investment decisions for any given year are based on the returns to investment in the prior years, we take lagged ROA as our primary variable of interest. The results, which are reported in **Table A3.1**, indicate that the estimated coefficient on this variable is positive and significant, implying that ROA and, consequently the return on investment does play a key role in shaping investment levels.

It is worth noting that the contemporaneous ROA is reported as both negative and statistically significant in the results. This can be understood by rationalizing that an increase in capex, or the level of investment by a firm in a year, also leads to an increase in the total assets held by that firm, which effectively reduces the current year-end ROA. In addition, our results indicate that prior sales and financial leverage increase capital expenditure in a firm.

**Table A3.1:**

	Model 1	Model 2	Model 3	Model 4
<b>ROA<sub>t-1</sub></b>	<b>0.116*</b> <b>(0.06)</b>	<b>0.118*</b> <b>(0.061)</b>	<b>0.119**</b> <b>(0.06)</b>	<b>0.102*</b> <b>(0.061)</b>
ROA <sub>t</sub>	-0.144** (0.069)	-0.148** (0.071)	-0.148** (0.07)	-0.145* (0.074)
Stock returns <sub>t</sub>		0.001 (0.007)	-0.001 (0.007)	0.004 (0.007)
Stock returns <sub>t-1</sub>		0.007 (0.007)	0.008 (0.007)	0.01 (0.007)
Market returns <sub>t</sub>	0.004 (0.014)		0.004 (0.016)	-0.255** (0.121)
Market returns <sub>t-1</sub>	0.003 (0.015)		-0.005 (0.016)	-0.143 (0.093)

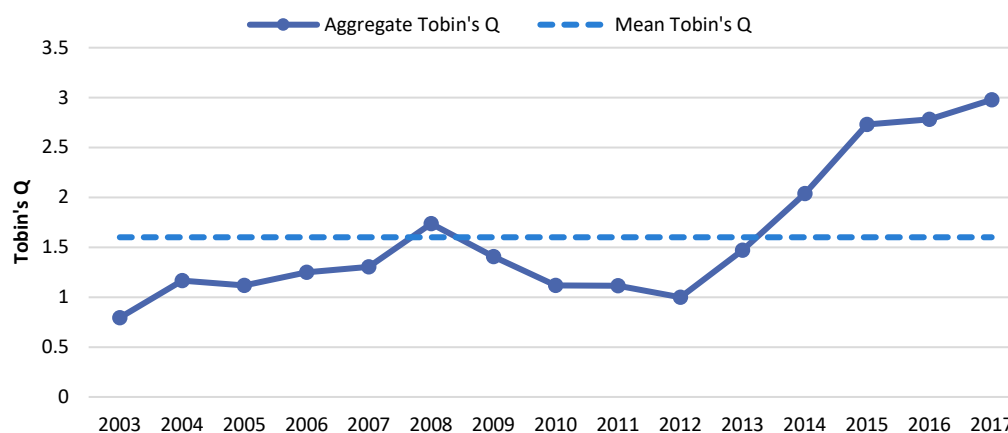
Total Assets <sub>t-1</sub>	<b>-0.000**</b> (0.00)	<b>-0.000**</b> (0.00)	<b>-0.000**</b> (0.00)	0 (0.00)
Cash <sub>t</sub>	-0.064 (0.04)	-0.065 (0.041)	-0.065 (0.04)	-0.076 (0.044)
Sales <sub>t-1</sub>	<b>0.013**</b> (0.006)	<b>0.014**</b> (0.006)	<b>0.013**</b> (0.006)	<b>0.012**</b> (0.006)
Inventory <sub>t-1</sub>	0.017 (0.049)	0.019 (0.052)	0.016 (0.05)	0.037 (0.048)
Leverage ratio <sub>t-1</sub>	<b>0.156***</b> (0.055)	<b>0.159***</b> (0.056)	<b>0.157***</b> (0.055)	<b>0.123**</b> (0.056)
Constant	<b>0.053***</b> (0.019)	<b>0.051***</b> (0.02)	<b>0.053***</b> (0.019)	<b>0.088**</b> (0.044)
Sector dummies	No	No	No	Yes
Time dummies	No	No	No	Yes
Observations	2,791	2,791	2,791	2,791
Number of sectors	71	71	71	71
Adjusted R <sup>2</sup>	2.50%	2.35%	2.53%	18.30%

This table examines the impact of return on assets (ROA) on firm investment, as measured by its capital expenditures (capex). The dependent variable is capex. The variable of interest (in bold) is lagged ROA. Other independent variables are included as defined in Model (1.1). Robust standard errors are provided in the parentheses. \*\*\*, \*\* and \* denote statistical significance at the 1 percent, 5 percent and 10 percent level, respectively.

## ANNEX 4: DEMAND FOR CAPITAL AND THE RISING STOCK MARKET

Pakistan's economy has a fundamental disconnect evident from a rising stock market accompanied by low investment levels and a weak demand for capital. Growth potential of private firms in Pakistan, as measured by the Tobin's Q,<sup>32</sup> has exhibited a positive trend over the past 15 years (**Figure A4.1**). However, local firms do not respond to this improvement in growth potential by investing more capital (**Figure A4.2 and Figure A4.3**). Instead, local firms respond by merely readjusting their capital structure through substitution of debt by equity (as the latter becomes cheaper). This result suggests the weak relationship between the rising stock market and the underlying fundamental drivers of business in Pakistan. Hence, one should be cautious of equating a rise in stock prices with improvements in business and investments.<sup>33</sup>

**Figure A4.1: KSE - 100 Index: Tobin's Q of market over time**



Source: Data from PSX and WBG staff calculations.

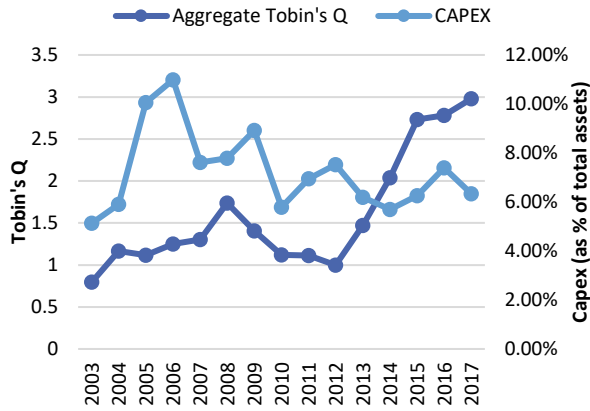
In addition, a regression analysis also shows that local firms do not adjust their investment levels based on the growth potential of the firm, as determined by the aggregate market. Although we find little evidence of a direct link between Tobin's Q and investment levels, it is worth exploring, based on findings in past literature, an indirect link between the two variables. More specifically, we examine whether Tobin's Q influences future potential investment levels through surplus funds. Previous studies (see, for example, Baker and Wurgler (2002)) find that Tobin's Q influences the level of external funds raised by firms. These surplus funds in the firm then tend to be typically used to make investments whenever required in the future, which may not necessarily be immediately in the subsequent period. Evidence from corporate finance shows that firms without such surplus funds tend to undertake lower investments over time.

<sup>32</sup> The Tobin's Q is commonly calculated in the finance literature as follows:

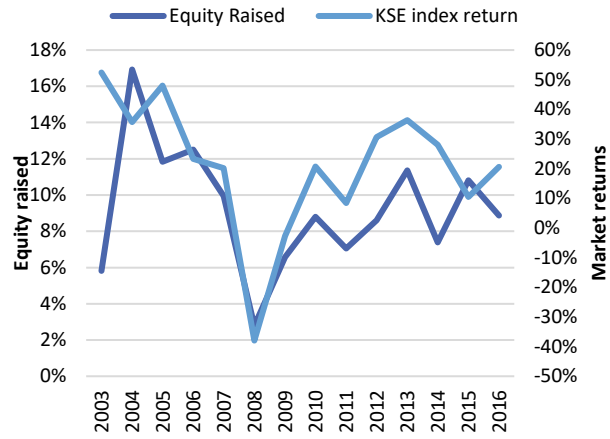
$$\text{Tobin's Q ratio} = \frac{\text{Market Value of Assets}}{\text{Book Value of Assets}}$$

<sup>33</sup> In this context, a more important determinant of private investment in Pakistan is the returns on assets, as discussed in the previous section. High returns increase investment and leads to a greater demand for capital, especially debt.

**Figure A4.2: Capex and Tobin's Q over time**



**Figure A4.3: Stock market returns and equity raised**



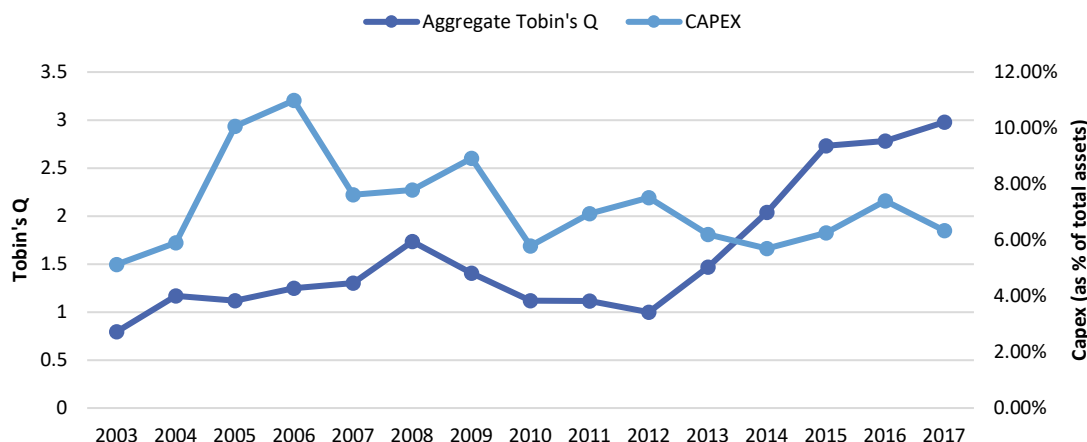
Source: Data from PSX and WBG staff calculations.

We run random effects regression at the firm level to control for sectoral effects while allowing for partial pooling given the imbalance across sectors. We specify our model as follows:

$$\begin{aligned}
 Capex_t = & \beta_0 + \beta_1.TobinsQ_{t-1} + \beta_2.StockReturns_t + \beta_3.StockReturns_{t-1} \\
 & + \beta_4.MarketReturns_t + \beta_5.MarketReturns_{t-1} + \beta_6.TotalAssets_{t-1} + \\
 & \beta_7.Cash_t + \beta_9.Sales_{t-1} + \beta_{10}.Inventory_{t-1} + \beta_{11}.LeverageRatio_{t-1} + Sector \\
 & dummies + Time dummies + \mu
 \end{aligned} \tag{1.2}$$

where 'Capex' refers to the total capital expenditure by a firm in the year as a percentage of total firm's assets, 'Tobin's Q' refers to the Tobin's Q ratio, calculated as detailed previously, *Sector dummies* and *Time dummies* refer to sector and time quarter dummies respectively, and  $\mu$  represents the stochastic disturbance term. We additionally control for the following variables: 'StockReturns,' which refers to a stock's return over the year; 'MarketReturns,' which represents the market index's return over the previous year; 'TotalAssets,' which refers to a firm's total asset holdings; 'Cash,' which references the cash available to firms expressed as a percentage of total firm assets; 'Sales,' which represents the net sales in the year as a percentage of total firm assets; 'Inventory,' which refers to inventory as a percentage of total assets; and 'LeverageRatio,' which signifies the leverage (debt-to-equity) ratio of the firm.

**Figure A4.4: Capex and Tobin's Q for aggregate market**



This figure plots the Tobin's Q ratio against firm investment, measured by capex, over time. Both figures are averages for all firms of the KSE-100 index.

**Table A4.1** reports these results. We find that our variable of interest, lagged Tobin's Q, presents with a statistically insignificant beta coefficient, and that this is the case across the four models that we test by successively adding control variables. It appears, therefore, that local firms do not adjust their investment levels based on the growth potential of the firm, as is determined by the aggregate market. The control variables remain the same as those employed in model (1.1) of the previous section.

**Table A4.1: Impact of Tobin's Q on investment**

VARIABLES	Model 1	Model 2	Model 3	Model 4
<b>Tobin'sQt-1</b>	<b>0.000</b> <b>(0.001)</b>	<b>0.000</b> <b>(0.001)</b>	<b>0.000</b> <b>(0.001)</b>	<b>-0.002</b> <b>(0.002)</b>
Stock return <sub>st</sub>		-0.002 (0.007)	-0.004 (0.007)	0.00 (0.007)
Stock return <sub>st-1</sub>		0.002 (0.007)	0.004 (0.007)	0.007 (0.007)
Market return <sub>st</sub>	0.002 (0.014)		0.007 (0.016)	-0.236** (0.118)
Market return <sub>st-1</sub>	-0.001 (0.014)		-0.005 (0.015)	-0.165 (0.095)
Total asset <sub>st-1</sub>	-0.000** (0.00)	-0.000** (0.00)	-0.000** (0.00)	0.00 (0.00)
Cash <sub>t</sub>	-0.044 (0.041)	-0.043 (0.042)	-0.042 (0.043)	-0.062 (0.042)
Sales <sub>t-1</sub>	0.012*** (0.006)	0.011* (0.006)	0.011* (0.006)	0.010* (0.006)
Inventory <sub>t-1</sub>	0.029 (0.05)	0.026 (0.05)	0.025 (0.049)	0.046 (0.045)
Leverage ratio <sub>t-1</sub>	0.165*** (0.053)	0.161*** (0.054)	0.160*** (0.053)	0.130** (0.052)
Constant	0.048** (0.02)	0.050** (0.02)	0.051** (0.02)	0.083* (0.045)
Sector dummies	No	No	No	Yes
Time dummies	No	No	No	Yes

Number of sectors	72	72	72	72
Adjusted R2	1.79%	1.80%	1.89%	17.80%

This table examines the impact of lagged Tobin's Q on firm investment, as measured by its capital expenditures (capex). The dependent variable is capex. The variable of interest (in bold) is the Tobin's Q ratio, calculated by dividing the market value of assets over its book value, and lagged by 1 year. Other independent variables are as defined in Model (1.2). Robust standard errors are given in parentheses. \*\*\*, \*\* and \* denote statistical significance at the 1 percent, 5 percent and 10 percent level, respectively.

Although we find little evidence of a direct link between Tobin's Q and investment levels, it is worth exploring, based on findings in past literature, an indirect link between the two variables. More specifically, we examine whether Tobin's Q influences future potential investment levels through surplus funds. Previous studies (see, for example, Baker and Wurgler, 2002) find that Tobin's Q has an effect on the level of external funds raised by firms. These surplus funds in the firm then tend to be typically used to make investments whenever required in the future, which may not necessarily be immediately in the subsequent period. Evidence from corporate finance shows that firms without such surplus funds tend to undertake lower investments over time.

Fundraising by firms may respond to Tobin's Q if, for example, firms tend to issue more stock (equity financing) when the firm's own stock is overvalued (i.e., overpriced). To the extent this is true, we should expect to observe a greater demand by firms for equity when Tobin's Q is high, and vice versa. If such a link exists, then Tobin's Q may impact investment indirectly. In order to verify whether this is the case in the Pakistani market, we run the following regression:

$$Equity_t = \beta_0 + \beta_1.TobinsQ_{t-1} + \beta_2.StockReturns_t + \beta_3.StockReturns_{t-1} + \beta_4.MarketReturns_t + \beta_5.MarketReturns_{t-1} + \beta_6.TotalAssets_{t-1} + \beta_7.Cash_t + \beta_8.Sales_{t-1} + \beta_9.Inventory_{t-1} + \beta_{10}.LeverageRatio_{t-1} + Sector dummies + Time dummies + \mu \quad (1.3)$$

where 'Equity' refers to the equity raised by the firm in period  $t$ , and all the remaining variables are as defined in model (1.2). **Table A4.2** presents these results. We find that our variable of interest, Tobin's Q, is statistically insignificant, suggesting that local firms do not issue more stocks when the stock price is higher.<sup>34</sup>

**Table A4.2: Impact of Tobin's Q on equity raised**

	Model 1	Model 2	Model 3	Model 4
<b>Tobin's Q<sub>t-1</sub></b>	<b>0.001</b> <b>(0.004)</b>	<b>0.001</b> <b>(0.004)</b>	<b>0.001</b> <b>(0.004)</b>	<b>0.002</b> <b>(0.004)</b>
Stock returns <sub>t</sub>		0.063***	0.056***	0.064***

<sup>34</sup> It is interesting to note, however, that the coefficients on the current and previous returns on the firm's stock are positive and statistically significant at all levels of significance. This provides some evidence of a different sort of timing: while demand for equity does not respond to a greater *absolute* stock price (as measured by Tobin's Q), it is sensitive to *relative* changes (a recent increase in stock prices, i.e., stock returns). This phenomenon might arise if managers find it easier to sell equity issues during periods of high returns. In such a case, the demand for equity will shoot up in the early stages of a stock market bubble but drop in the later stage as prices peak. Similar findings have been documented for the United States and United Kingdom by Mullins and Wadhvani (1989).

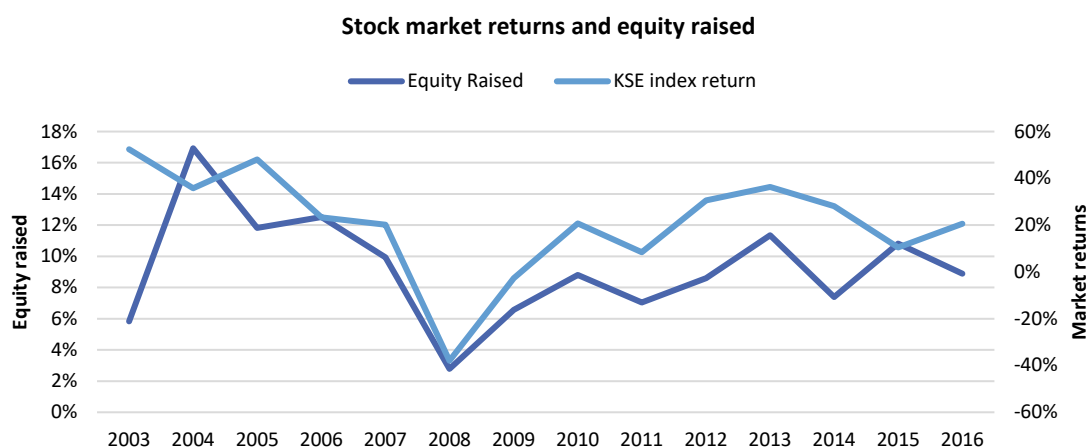


		(0.011)	(0.01)	(0.011)
Stock returns $_{t-1}$		0.027***	0.028***	0.034***
		(0.009)	(0.011)	(0.012)
Market returns $_t$	0.077***		0.024	0.158
	(0.02)		(0.019)	(0.143)
Market returns $_{t-1}$	0.016		-0.006	0.174
	(0.013)		(0.016)	(0.12)
Total assets $_{t-1}$	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Cash $_t$	0.380***	0.367***	0.367***	0.330***
	(0.127)	(0.126)	(0.127)	(0.117)
Sales $_{t-1}$	-0.002	-0.002	-0.002	-0.007
	(0.006)	(0.006)	(0.006)	(0.005)
Inventory $_{t-1}$	0.121	0.114	0.114	0.112
	(0.088)	(0.088)	(0.088)	(0.084)
Leverage ratio $_{t-1}$	-0.016	-0.016	-0.016	-0.065
	(0.047)	(0.048)	(0.048)	(0.049)
Constant	0.046**	0.047**	0.046**	0.001
	(0.022)	(0.022)	(0.022)	(0.042)
Sector dummies	No	No	No	Yes
Time dummies	No	No	No	Yes
Number of sectors	74	74	74	74
Adjusted R <sup>2</sup>	5.11%	6.11%	6.10%	18.00%

This table examines the impact of Tobin's Q on new equity raised by a firm. The dependent variable is Equity Raised. The variable of interest (in bold) is lagged Tobin's Q. Other independent variables are as defined in Model (1.3). Robust standard errors are given in parentheses. \*\*\*, \*\* and \* denote statistical significance at the 1 percent, 5 percent and 10 percent level, respectively.

**Figure A4.5** additionally charts the stock market returns and the equity raised (as a percentage of total assets) over the period 2002-16:

**Figure A4.5: Stock market returns and equity raised over time**



This figure plots the aggregate total returns for the Pakistani Stock Market against the total external equity raised over time.

The results in this section thus far intimate that growth potential does not have a significant impact on either the level of investment or the equity raised by firms. We now test for a possible link to debt raised by firms by regressing corporate debt on both the Tobin's Q in the following specification model:

$$Debt_t = \beta_0 + \beta_1.TobinsQ_{t-1} + \beta_2.StockReturns_t + \beta_3.StockReturns_{t-1} + \beta_4.MarketReturns_t + \beta_5.MarketReturns_{t-1} + \beta_6.TotalAssets_{t-1} + \beta_7.Cash_t + \beta_9.Sales_{t-1} + \beta_{10}.Inventory_{t-1} + \beta_{11}.LeverageRatio_{t-1} + Sector\ dummies + Time\ dummies + \mu \quad (1.4)$$

where 'debt' refers to the long-term debt raised by the firm in period  $t$  and all remaining variables are as defined in model (1.2). **Table A4.3** presents these results. We fail to find any evidence that the Tobin's Q significantly impacts the debt raised by firms. Hence, our results from the last two models show that the Tobin's Q has no influence on the external funds raised by firms, ruling out the possibility of an indirect influence on long-term investment.

**Table A4.3: Impact of Tobin's Q on debt raised**

	Model 1	Model 2	Model 3	Model 4
<b>Tobin'sQt-1</b>	<b>-0.006</b> <b>(0.004)</b>	<b>-0.006</b> <b>(0.004)</b>	<b>-0.006</b> <b>(0.004)</b>	<b>0</b> <b>(0.006)</b>
Stock return <sub>t</sub>		-0.012 (0.014)	-0.002 (0.017)	0.022 (0.016)
Stock return <sub>t-1</sub>		-0.009 (0.016)	0.002 (0.017)	0.01 (0.017)
Market return <sub>t</sub>	-0.039 (0.03)		-0.037 (0.036)	-0.074 (0.292)
Market return <sub>t-1</sub>	-0.031 (0.03)		-0.033 (0.032)	-0.171 (0.275)
Total assets <sub>t-1</sub>	-0.000* (0.00)	-0.000* (0.00)	-0.000* (0.00)	-0.000* (0.00)
Cash <sub>t</sub>	0.591*** (0.134)	0.596*** (0.135)	0.593*** (0.135)	0.534*** (0.133)
Sales <sub>t-1</sub>	-0.015 (0.01)	-0.015 (0.01)	-0.016 (0.01)	-0.026** (0.011)
Inventory <sub>t-1</sub>	0.829*** (0.158)	0.841*** (0.16)	0.822*** (0.159)	0.705*** (0.145)
Leverage ratio <sub>t-1</sub>	0.036 (0.071)	0.032 (0.073)	0.033 (0.072)	-0.022 (0.062)
Constant	-0.045 (0.041)	-0.048 (0.042)	-0.042 (0.042)	-0.08 (0.08)
Sector dummies	No	No	No	Yes
Time dummies	No	No	No	Yes
Number of sectors	74	74	74	74
Adjusted R2	3.86%	3.69%	3.76%	20.70%

This table examines the impact of Tobin's Q on new debt raised by a firm. The dependent variable is Debt Raised. The variable of interest (in bold) is Tobin's Q. Other independent variables are as defined in Model (1.4). Robust standard errors are given in parentheses. \*\*\*, \*\* and \* denote statistical significance at the 1 percent, 5 percent and 10 percent level, respectively.

Our findings in this section explain a fundamental disconnect in the local economy: a rising stock market accompanied by low investment levels. As the report demonstrates, local firms do not respond to rising stock prices by investing more, either directly or indirectly, and hence one should be cautious to equate this with improvements in the underlying fundamentals of the private sector. Instead, a more important determinant of private investment is the returns on assets, as discussed in the previous section. High returns increase investment and leads to a greater demand for capital, especially debt.

## ANNEX 5: SME SURVEY IN GUJRAT

Fifty-seven fan manufacturers were surveyed in Gujrat and a questionnaire was administered. The fan production industry in Pakistan has historically been located largely in two districts, Gujrat and Gujranwala, which continue to be attractive locations for future manufacturers. Roughly comprising about 450 medium, small and micro enterprises, the industry had a total production of about 10 million pedestal, ceiling and bracket fans as of 2011, producing fans worth up to PKR 18 billion (SBP, 2011). The total labor force (direct employment) employed by the industry is estimated to be around 35,000 semi-skilled workers. Past surveys indicate that growth in local demand has slowed down and highlight hurdles to improving investment demand. What is concerning in this context is that 70 percent of annual production is monopolized by six large companies. This points to the fact that credit constraints affect the small and large industries differently, and investment for small and medium enterprises (SMEs) may be constrained by capital. More so, this factor may be a major hindrance in allowing small firms to evolve into larger SMEs.