Focus Note

The World Bank

• *Turkey's per capita physical capital stock is relatively low.*[1]

• *Private investment has been declining recently, with higher public sector investments in 2012 and 2013.*

• *Reduced policy uncertainty and an improved business climate would boost private investment*

Turkey's per capita capital stock lags behind its peers, yet the level of investment as a share of GDP remains low and has been declining in recent years. After a quick rebound from the global crisis (on the back of lower interest rates and a surge in capital inflows), the investment to GDP ratio steadily declined in nominal terms from the last quarter of 2011 until the second quarter of 2013 due to shrinking private investments (Figure 1). As a result, the contribution of the capital stock to output growth is likely to ease below its long-run average of 1.7 percentage points (pps). Turkey needs to reverse this trend in order to boost its potential growth in the medium and long-run.
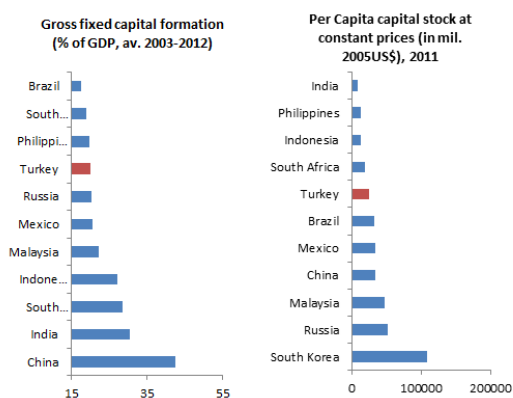

Figure 1
Source: World Bank staff calculations

Private investments declined consecutively for six quarters until the third quarter of 2013. After recovering sharply from the crisis with an average growth of 27.9 percent in 2010 and 2011, private investments shrank by 4.8 percent y-o-y in 2012 shaving off 1.1 pps from headline growth. Accordingly, imports of capital goods also contracted by 9 percent y-o-y and private investments became one of the major contributors to the rebalancing in the economy in 2012. In contrast to the overall recovery in the economic activity in 2013, private investments remained depressed and eased further by 1.4 percent y-o-y in the first three quarters of 2013. Encouragingly, however, there are signs of a modest revival in the third quarter of 2013.

Over-investment before the 2008 global crisis, increases in the level and volatility of interest rates, the depreciation in the real effective exchange rate (REER), and eased market

confidence were among the factors behind declining private investment. To better understand private investment behavior, some simple regression analysis was carried out for this focus note, linking investment demand to the capacity utilization ratio (CUR), the real interest rate, the real effective exchange rate, FX borrowing of corporates, consumer confidence, and the volatility of the nominal exchange rate and the benchmark interest rate. The results show that neither FX borrowing of corporates nor the volatility of the exchange rate is a significant factor in explaining investment trends. On the other hand, the capacity utilization ratio (CUR), the level of real interest rates and the volatility in nominal rates, the real exchange rate and the level of market confidence have been the short-run determinants of investment growth in Turkey since 2003 (Table 1). Accordingly, increases in the level and volatility of interest rates and the depreciation in REER starting from the last quarter of 2011 are likely to have been important factors behind shrinking private investments in recent years. In addition, until the second half of 2013, the negative trends in the capacity utilization ratio (CUR) and in market confidence, both of which stand below their pre-crisis averages, contributed to the hesitation of businesses to add new capacity.

Public sector investments, in contrast, increased in 2012 and 2013, although the 2014 Annual Program foresees a slowdown. The public sector became one of the main drivers of GDP growth in 2012 with a total contribution of 0.9 pps and continued its accommodative role in the first half of 2013. The annualized real growth rate of public investments reached 9.3 percent at the end of 2012 and stood at 32.5 percent as of the third quarter of 2013. In 2012, public sector investments increased in all sectors except housing. Public investments in the education sector made the highest contribution to headline growth by expanding 28.2 percent y-o-y in 2012 with education's share in total public investments increasing to 14.1 percent from 12.2 percent a year ago. The Government targets to reduce its investments by 3.8 percent y-o-y in 2014 which if followed through suggests that a continued recovery in private investment will be key to support headline growth.
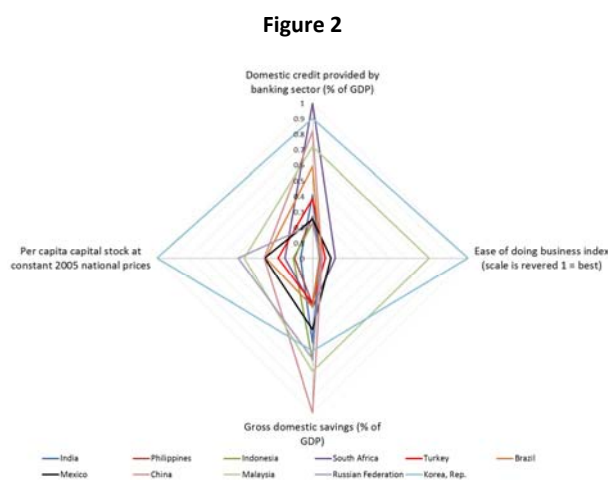
Going forward, our model paints a mixed picture for prospects of recovery in private investment. On the positive side the CUR has been increasing since May 2013 and interest rate volatility is likely to ease as the Central Bank (CBRT) decided to change its stance towards providing forward guidance on interest rates and moving away from the policy of deliberate rate uncertainty to discourage hot money flows. In addition, the low base effect should contribute to a recovery of private investments in 2014. On the cautious side, tightening of global liquidity and the corresponding increase in borrowing costs in the Turkish market as well as a decline in public investments will dampen overall investment demand. All in all, we think that the net effect of these developments will still be positive and investments will recover moderately in 2014.

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[1] This is the first in a proposed series of focus notes. It is intended to start debate and invite discussion on an important and timely issue facing Turkey; it is not intended to provide results of an in-depth academic analysis. Any comments would be much appreciated, as would suggestions for possible future focus topics.

Over the medium term, Turkey needs to increase its domestic saving rate, improve the quality of financing, and continue reforms of the regulatory and business environment if it wants to sustainably raise investment levels. It is well-known that Turkey's dependence on short-term external financing increases vulnerabilities and associated volatilities. It also limits the scope for investment growth. Measures to improve the domestic savings rate are critical, and the private pension reform implemented earlier this year is a welcome step in this regard. In addition, there is also scope to improve the quality and maturity of external financing through efforts to increase FDI including by improving the business environment (Figure 2)[2].

Figure 2

India — Philippines — Indonesia — South Africa — Turkey — Brazil
Mexico — China — Malaysia — Russian Federation — Korea, Rep.

Source: World Bank staff calculations

Table A.1

Dependent variable: Change in the private investment growth								
Regressions	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	**Model 8**
Constant	0.05 (0.07)							**0.02 (0.02)***
Private investment growth (-1)	0.53 (0.00)	0.89 (0.00)	0.85 (0.00)	0.85 (0.00)	0.84 (0.00)	0.85 (0.00)	0.77 (0.00)	**0.71 (0.00)***
Capacity utilization ratio	1.31 (0.00)							**0.55 (0.00)***
Real Interest rate (2-yr)[1]		-0.06 (0.00)						**-0.02 (0.04)***
Volatility of interest rate			-0.02 (0.04)					**-0.01 (0.47)[ǂ]**
Real effective exchange rate				0.68 (0.00)				**0.24 (0.05)***
Volatility of exchange rate					-0.01 (0.30)			
Consumer confidence[2]						0.045 (0.00)		**0.31 (0.00)***
FX borrowing of corporates							0.06 (0.10)	
R-squared	0.79	0.83	0.77	0.87	0.65	0.86	0.72	**0.96**
Sample size	47	47	47	39	47	35	47	**35**

All variables are represented as y-o-y changes of quarterly data

* indicates that the coefficient is significant at 0.05 significance level

[1] According to regression results 2-yr benchmark rate is a better explanatory variable than short-term interest rate (interbank rate)

[2] Consumer confidence used as a proxy to real sector confidence which had a significant coefficient in all models but was not included due to limited numbers available data (25 data points for real sector confidence index , 36

[ǂ] The reason of the insignificance of interest rate volatility is the multicollinearity between volatility and level of the interest rate

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[2] The chart shows a normalization of country data so that the best performing country in each of the four dimensions is given a score of unity. All other countries are measured as a fraction of the best in class performer. The larger the shape of the resulting diamond, the better a country's overall performance.

-Annex-

The literature has various hypotheses regarding the determinants of private investment in the short-term. First the real interest rate could affect investment either positively or negatively depending on whether investment is financed by domestic or external sources (Agosin 1995). The same is true for the real effective exchange rate: if the economy is driven by exports a depreciation could impact private investment demand positively to respond to greater foreign demand (Froot and Stein, 1991) but if the import dependency of investment goods is high a depreciation could lead to a decline in investment demand, as the price of capital goods goes up. Uncertainty is expected to negatively impact private investment decisions while greater business confidence is expected to have the opposite effect (Bloom et al., 2007). The level of capacity utilization is expected to be positively associated with private investment demand (Blomstrom et al. , 1996), while external or domestic financing constraints could hinder investment growth. In addition, the business environment, the degree of competition in the market, and public investment (through crowding-out effects) could also be variables that may help explain trends in private investment.

This note tests possible short-term determinants of private investment using a stepwise regression in which the univariate relationship between private investment growth and an explanatory variable is checked first. If the variable has a significant coefficient in the first step, it is added to a pooled regression along with other significant variables. The regressions use a subset of the possible determinants listed above, focusing on variables that are expected to change with policy and the business cycle within one country. Estimations of the impact of the business climate or the degree of competition on investment demand would require cross-sectoral or cross-country information which goes beyond the scope of this note. All variables represent y-o-y changes in quarterly data. Please note that this study does not aim to prove a theoretical relationship, rather it focuses on the macroeconomic determinants of private investment for the purpose of short-term forecasting.

References

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2. Blomstrom, M., Lipsey, R. and Zejan, M. (1996), "Is fixed investment the key to economic growth?", Quarterly Journal of Economics 111: 269-276.
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