Disentangling India’s Investment Slowdown

(Thomas Richardson for)

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<td>• Do interest rates matter?</td>
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<td>• Real or nominal rates?</td>
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<td><strong>Innovation</strong></td>
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<td>• Economic policy uncertainty</td>
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Falling infrastructure and corporate investment led the slowdown in 2010-12

India: GDP Growth and Capital Formation

Sources: Haver Analytics; and IMF staff calculations.

Sources: Haver Analytics; and IMF staff calculations.
Pipeline of investment projects drying up

Sources: CAPEX Database; and IMF staff calculations.
India: Nominal vs Real Interest Rates

Sources: Bloomberg; CEIC; Consensus; and IMF staff calculations.

India: Nominal Interest Rates

Sources: Bloomberg; CEIC; and IMF staff calculations.

India: Real Interest Rates

Real rates deflated by next FY CPI-IW expectations from Consensus

Sources: Bloomberg; CEIC; Consensus; and IMF staff calculations.
## Regression Analysis of Investments: Role of Interest Rates

**Dependent Variable:** Change in real gross fixed capital formation  
(quarter-over-quarter percent change, seasonally adjusted)

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<tr>
<td>Real interest rate</td>
<td>-0.911 ***</td>
<td></td>
<td>-0.932 ***</td>
<td></td>
</tr>
<tr>
<td>% per annum</td>
<td>(0.277)</td>
<td></td>
<td>(0.322)</td>
<td></td>
</tr>
<tr>
<td>Nominal interest rate</td>
<td>-0.445 ***</td>
<td>-0.871 ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% per annum</td>
<td>(0.155)</td>
<td>(0.303)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation expectations</td>
<td></td>
<td></td>
<td>1.013 *</td>
<td>0.091</td>
</tr>
<tr>
<td>%, next fiscal year</td>
<td></td>
<td></td>
<td>(0.541)</td>
<td>(0.265)</td>
</tr>
</tbody>
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**Sample:** 1996Q2-2012Q4  
**Number of observations:** 64  
**R², d.f. adjusted:** 0.257, 0.200, 0.245, 0.245

**Source:** IMF staff estimates.

**Note:** Interest rate corresponds to the average prime lending rate. Real interest rate is based on inflation expectations for the next fiscal year from Consensus Economics surveys.  
**Note:** Robust standard errors in parenthesis.  
**Note:** ***,**, * indicates 1,5, 10 percent statistical significance, respectively.  
**Note:** Controlling for overall business confidence, investment goods cost inflation, global financial and macroeconomic conditions.
Model explains about half the investment slowdown
Consider economic policy uncertainty

India: Overall Business Confidence and Economic Policy Uncertainty

Sources: Baker et al (2013); NCAER; and IMF staff calculations.

www.policyuncertainty.com/india_monthly.html
What is in the policy uncertainty index?

India: Components of Policy Uncertainty Index

Sources: Baker et al (2013); and IMF staff calculations.

(Index, 2003-2010=100, 6-month moving averages)

- Inflation
- Budget deficit
- News coverage

Sources: Baker et al (2013); and IMF staff calculations.
Policy uncertainty and new investment

India: Economic Policy Uncertainty and New Investment Projects

(Index, inverted scale, 3mma, 2003-2010=100)

In percent of GDP

Economic Policy Uncertainty Index

New investment projects (right scale)

Sources: Baker et al (2013); CEMI; and IMF staff calculations.
New investment projects are sensitive to economic policy uncertainty (EPU) -- but note odd sign on real interest rate.

<table>
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<th>New Investment: Role of Policy Uncertainty</th>
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<th>(2)</th>
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<tbody>
<tr>
<td>Real interest rate % per annum</td>
<td>1.816***</td>
<td>0.802</td>
</tr>
<tr>
<td></td>
<td>(0.365)</td>
<td>(0.560)</td>
</tr>
<tr>
<td>Business confidence NCAER index</td>
<td>0.000</td>
<td>0.041</td>
</tr>
<tr>
<td></td>
<td>(0.057)</td>
<td>(0.065)</td>
</tr>
<tr>
<td>Economic Policy Uncertainty EPU Index</td>
<td>-0.063***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td></td>
</tr>
</tbody>
</table>

Sample: 2003Q1-2012Q4
Number of observations 40 40
R², d.f. adjusted 0.389 0.043

Source: IMF staff estimates.
Note: Interest rate corresponds to the average prime lending rate.
Real interest rate is based on inflation expectations for the next fiscal year from Consensus Economics surveys.
Note: Robust standard errors in parenthesis.
Note: ***,**, * indicates 1, 5, 10 percent statistical significance.
Note: Controlling for global financial and macroeconomic conditions.
Shelved projects are also sensitive to EPU & business confidence.

| Dependent Variable: Shelved investment projects (Projects costs as percent of GDP) |
|----------------------------------|---------------|---------------|
| (1)                              | (2)           |
| Real interest rate               | 0.071         | 0.160 ***     |
| % per annum                      | (0.049)       | (0.051)       |
| Business confidence              | -0.012 ***    | -0.016 ***    |
| NCAER index                      | (0.003)       | (0.003)       |
| Economic Policy Uncertainty      | 0.005 ***     |               |
| EPU Index                        | (0.001)       |               |
| Sample: 2003Q1-2012Q4            |               |               |
| Number of observations           | 40            | 40            |
| R², d.f. adjusted                | 0.626         | 0.515         |

Source: IMF staff estimates.
Note: Interest rate corresponds to the average prime lending rate.
Real interest rate is based on inflation expectations for the next fiscal year from Consensus Economics surveys.
Note: Robust standard errors in parenthesis.
Note: ***, **, * indicates 1, 5, 10 percent statistical significance.
Note: Controlling for global financial and macroeconomic conditions.
Drop in new investment projects largely unexplained.

New Investment Projects: Fitted vs. Actual

(In percent of GDP, 4-quarter moving average)

Source: CAPEX database; and IMF staff estimates.
Model does a bit better for shelved projects

Shelved Investment Projects: Fitted vs. Actual

(In percent of GDP, 4-quarter moving average)

Source: CAPEX database; and IMF staff estimates.
Conclusions

Role of interest rates

• Interest rates matter for investment
• Real interest rates matter more than nominal ones
• Much of investment slowdown remains unexplained

Business confidence & policy uncertainty

• New measure of economic policy uncertainty (EPU)
• EPU matters for investment, new & shelved projects
• Does not explain everything

Investment bottlenecks

• Structural reforms needed to unlock investment:
  ➢ Land, environment, power, transport
Thank you

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