kotak Institutional Equities

GameChanger

Residential land prices

INDIA

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Modeling land prices in India. We build a demand-side model of the residential land market in India which has seen phenomenal price increase over the last few years. Our model suggests that this has happened due to (1) dramatic increase in per-capita incomes of non-agricultural workers and (2) a decrease in expected rental yields. As the economy moves away from agriculture-dependence, pricing of land is now being determined by the ability to pay for it rather than the produce of land. A sudden spike in yields remains a wild-card in continued land price rise.

Dramatic real estate price rise a demand side phenomena

We model residential real estate prices from a demand-side perspective (see Exhibit 1). We make the following basic assumptions (1) non-agricultural workers spend 20% of their incomes on rent, (2) the rental yield has dropped over the last decade to 3% from 5% of capital value. Taking the average property size is 750 sq ft we calculate the per-square feet price that would be sustainable in the rental market. From this value remove the construction cost and some developer profit to arrive at the land value that would be sustainable. Our calculations yield an average price of Rs720 per sq ft as a sustainable price, implying a per acre cost of Rs31 mn. We note that these prices are similar to the prices we now see at the outskirts of Tier-II cities in India.

Agricultural worker is horribly priced out

The capital value of the land now dramatically overshadows the per acre profitability of between Rs25,000 and Rs50,000 per year for a farmer. It is hence, no surprise that there have been many anecdotes of windfall gains for farmers – however, this has worked meaningfully only for those who can profitably deploy the gains and get a shot at the manufacturing or service economy. As the pricing of land is now determined by the value to the non-agricultural worker, even land which may not be agriculturally as productive but is near the periphery of a city offering manufacturing or services employment opportunities, is witnessing dramatic price-rise.

Our base case projection shows continuing spiral in land prices, rising 25% CAGR

We make a projection of land prices to FY2015E (see Exhibit 2). The wide disparity in the prices of land as seen from the point of view of a farmer and that of a residential real estate developer (to say nothing of commercial and industry) will reduce if (1) agriculture lets off a lot of people into non-agricultural jobs like in manufacturing or services via skill development and job creation; and (2) the yield, and hence profitability, in agriculture improves. This wide arbitrage in the values of the land between the buyer and the seller has been the cause of various agitations recently and the government has been pushing for legislation which would artificially push up the cost of land especially as the 'disparity' widens.

Rise in rental yield can impact land values significantly

One of the supporting factors of the rising capital value has been a declining rental yield which we model having fallen to 3% from 5% over the last decade. This is somewhat of a circular argument:: as there is expectation of capital appreciation, the rental yield falls (to a base where it can cover basic maintenance and upkeep costs). If the expectation of capital appreciation were to recede, the rental yields can go up again thereby dramatically reducing the value of the land. Our scenario analysis (Exhibits 3 and 4) clearly demonstrates the importance of this.

Disparity reduction critical to remove power-brokers and promote equitable growth

If people remain stuck in agriculture and productivity does not rise, land prices will continue to spiral. Alternatively, an increase in rental real-estate yields coupled with increasing productivity of agriculture, can severely curtail land values. The current wide disparity in the perception of prices between different players creates a huge playing field of play for arbitrageurs and power-brokers. Reducing this disparity is key to a more equitable growth.

QUICK NUMBERS

- Land prices now determined more by buying power of non-agricultural workers
- Land price rise set to continue unless rental yields rise, or productivity of agriculture improves
- Disparity reduction key to curtailing power-brokers

Akhilesh Tilotia
akhilesh.tilotia@kotak.com
Mumbai: +91-22-6634-1139

Kotak Institutional Equities Research
kotak.research@kotak.com
Mumbai: +91-22-6634-1100

Emancipating agriculture and falling rental yields has triggered a dramatic land price rise
Model determining the increase in land prices over the last decade

	2010		2005		2000	
	Agriculture	Non-agriculture	Agriculture	Non-agriculture	Agriculture	Non-agriculture
Number of people employed (mn)	255	229	273	207	238	159
Proportion of GDP (%)	15	85	20	80	25	75
Value of GDP (Rs bn)	9,825	55,677	6,484	25,938	5,030	15,091
Per-capita income (Rs)	38,531	243,130	23,752	125,302	21,136	94,910
Disparity (X)		6.3		5.3		4.5
Impact on land prices						
Proportion spent on rent (%)		20		20		20
Rent paid (Rs/yr)		48,626		25,060		18,982
Rental yield (%)		3		4		5
Property value (Rs mn)		1,620,865		626,512		379,642
Average property size (sq ft)		750		750		750
Price of property (Rs/sq ft) (a)		2,161		835		506
Construction cost (Rs/sq ft) (b)		1,200		681		386
Theoretical land value (Rs/sq ft) [{(a)-(b)}*0.75]		721		116		90
Theoretical land value (Rs/acre)		31,400,863		5,045,464		3,914,545
Growth (%, pa)		**44**		**5**		

Source: NSSO surveys, CSO, KIE estimates and calculations

Projecting the values of land requires an assumption on agricultural productivity and rental-yields
Model estimating the possible value of land by FY2015E

	Agriculture	Non-agriculture
Number of people employed (mn)	225	309
Proportion of GDP (%)	12	88
Value of GDP (Rs bn)	15,810	115,938
Per-capita income (Rs)	70,266	375,204
Disparity (X)		5.3
Impact on land prices		
Proportion spent on rent (%)		20
Rent paid (Rs/yr)		75,041
Rental yield (%)		2
Property value (Rs mn)		3,752,044
Average property size (sq ft)		750
Price of property (Rs/sq ft) (a)		5,003
Construction cost (Rs/sq ft) (b)		2,115
Theoretical land value (Rs/sq ft) [{(a)-(b)}*0.75]		2,166
Theoretical land value (Rs/acre)		94,348,206
Growth (%, pa)		**25**

Source: KIE estimates and calculations

If people remain stuck in agriculture and productivity does not rise, land prices will continue to spiral

CAGR in land prices in various scenarios over 5 years, FY2015E (%)

Number of people employed in agriculture (mn)	Proportion of agriculture in GDP (%)					
24.61	10	12	14	16	18	20
120	12	11	10	9	7	6
140	15	13	12	11	10	9
160	17	16	15	14	13	11
180	20	19	18	16	15	14
200	22	21	20	19	18	17
220	25	24	23	22	21	20
240	28	27	26	25	24	23

Source: Kotak Institutional Equities estimates

An increase in rental real-estate yields couple with increasing productivity of agriculture, can severely curtail land values

CAGR in land prices in various scenarios over 5 years, FY2015E (%)

Number of people employed in agriculture (mn)	Rental yield on residential real-estate					
24.61	1.0	1.5	2.0	2.5	3.0	3.5
120	41	24	11	(2)	(17)	(54)
140	43	27	13	1	(12)	(33)
160	45	29	16	4	(8)	(24)
180	47	31	19	7	(4)	(17)
200	49	33	21	11	0	(11)
220	52	36	24	14	4	(6)
240	54	38	27	17	8	(2)

Source: Kotak Institutional Equities estimates

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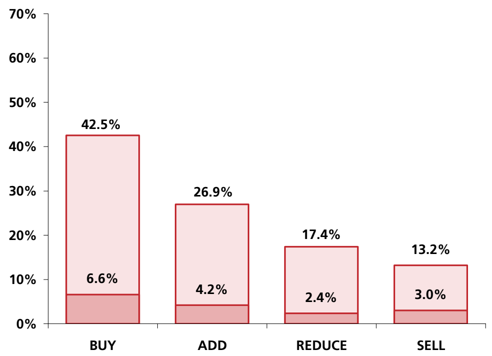

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Source: Kotak Institutional Equities

As of December 31, 2011

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Our target prices are also on a 12-month horizon basis.

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Corporate Office

Kotak Securities Ltd.
Bakhtawar, 1st Floor
229, Nariman Point
Mumbai 400 021, India
Tel: +91-22-6634-1100

Overseas Offices

Kotak Mahindra (UK) Ltd
8th Floor, Portsoken House
155-157 Minories
London EC3N 1LS
Tel: +44-20-7977-6900

Kotak Mahindra Inc
50 Main Street, Suite No.310
Westchester Financial Centre
White Plains, New York 10606
Tel:+1-914-997-6120