



# HOUSING PRICE INDEX

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## House Price Uptick on the Back of Broad Stability

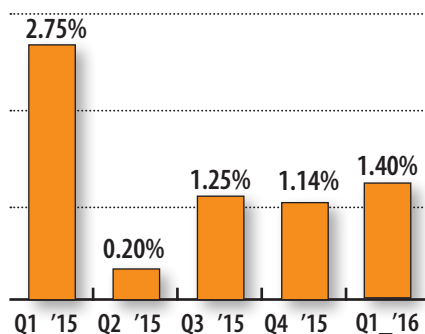


**Table 1: Price Movement Series**

Period	Index with a fixed base	Index with a moving base
Q1_2013	100.00	100.00
Q2_2013	101.42	101.42
Q3_2013	101.46	103.25
Q4_2013	101.63	100.66
Q1_2014	102.13	101.86
Q2_2014	102.29	103.45
Q3_2014	102.44	101.87
Q4_2014	102.71	102.18
Q1_2015	102.97	104.99
Q2_2015	103.88	105.01
Q3_2015	107.34	106.27
Q4_2015	108.19	107.48
Q1_2016	109.08	108.99

The Kenya Bankers Association Housing Price Index (KBA-HPI) reflected an uptick in house prices during the first quarter of 2016, with the movement representing a reversal of the mild decline the rate of growth seen in the previous quarter. As indicated in **Figure 1**, the house prices increased by 1.4 percent during the first quarter of 2016 compared to a 1.14 percent rise in the last quarter of 2015.

**Figure 1: Overall Price Change (%)**



Whilst this market movement represents an increase in house prices, it depicts a sense of broad market stability given that such increases have been mild at best. This is confirmed by the evolution of the KBA-HPI (**Table 1**) which as at the end of the first quarter of 2016 had risen by 9.08 percent since the base period of the first quarter of 2013.

*Continued on page 2 ...*

## Highlights

**1** The first quarter of 2016 saw an uptick in house prices during the first quarter of 2016, with the movement representing a reversal of the mild decline the rate of growth seen in the previous quarter.

**2** There has been a sense of taste consistency amongst home buyers. The limited change in reference characteristics during the first Quarter of 2016 was reflected in the influencers of price movements remaining the size of the house (as measured by plinth area, number of bedrooms, bathrooms, and DSQ).

**3** The extent of market activity reflects a clear leaning towards the upper end. A reflection of the fact that the lower end of the market is characterised by supply constraints.



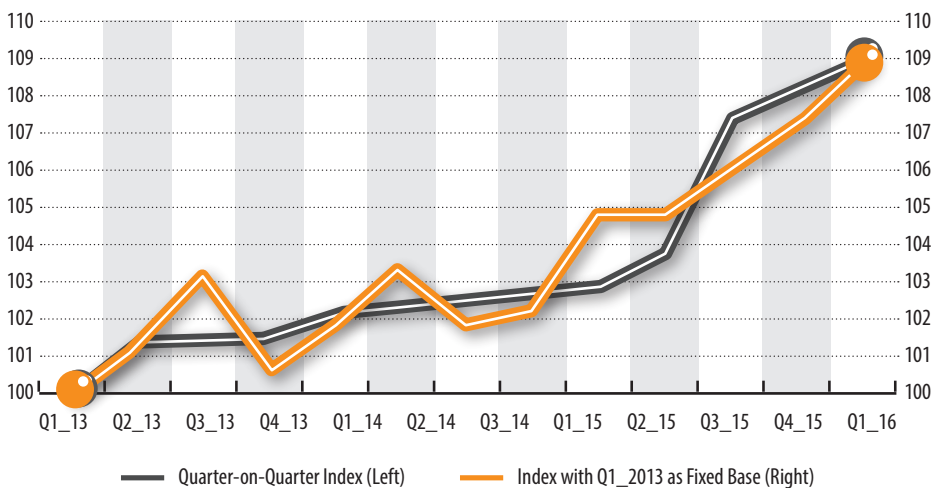


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In essence, the demand and supply market dynamics have not been subject to significant changes over the period. The supply of housing units has been in response to the broad demand characteristics in the market as reflected in three factors.

- One, the new units being put up in the market are mainly targeting the middle end of the market, with the lower end experiencing supply constraints arising mainly from the tendency of developers inclining more towards renting than selling.
- Two, the support of the financial sector generally and the banking industry in particular towards home acquisition has been enabled by a generally stable macroeconomic environment.
- Three, there has been a gradual opening up of new geographical areas for housing development in response to physical infrastructure expansion, especially transport.

**Figure 2: KBA–House Price Index**



## Technical Note

The index follows a Laspeyres index method. In this method, the index is computed by getting the ratio the estimated current quarter price from the hedonic method multiplied the weights of the preceding quarter to the price of the preceding quarter multiplied by the respective weights of that quarter.

The weights of the quantitative variables are obtained by getting their respective mean values. For the dummy variables however, their weights are computed as the proportions of the number of houses possessing a certain attribute to the total number of houses. Thus the index is computed by the formular:

$$Index = \sum_{i=1}^n w_i \frac{\hat{P}_1}{\hat{P}_0} = \frac{\sum_{i=1}^n w_0 \hat{P}_1}{\sum_{i=1}^n w_0 \hat{P}_0}$$

Where;  $\hat{P}_1$  is the shadow price from the estimated hedonic function for the current quarter;

$\hat{P}_0$  is the shadow prices from the estimated hedonic function for the preceding quarter;

and  $w_0$  are the weights of the respective variables for the preceding quarter.



## Taste consistency amongst buyers

Similarly there has been a sense of taste consistency amongst home buyers. The limited change in reference characteristics during the first Quarter of 2016 was reflected in the influencers of price movements remaining the size of the house (as measured by plinth area, number of bedroom, bathroom, and presence of domestic staff quarters).

Besides size, houses in gated communities will tend to be highly priced given the superior ambience associated with controlled development, security, privacy and scenic value. Similarly, proximity to social amenities such as shopping malls, tarmacked roads, schools, hospitals and presence of parking lot among others significantly contributed to price rise in the quarter.

The taste consistency is confirmed by comparing the estimates of the hedonic function in Quarter 1 of 2016 (Table 2) and the estimates of Quarter 4 of 2015 (Table 3) and Quarter 3 of 2015 (Table 4).



## Sub regional Indices – market still leans more towards the upper end

The sub-regional indices clearly reflects an upward trajectory in the price of apartments in both Regions 2 and Region 3 (see definitions in Page 8); this trajectory is on both the fixed base and moving base. Nonetheless even this trajectory is characterised by the broad stability observed in the overall HPI.

An interesting insight from the sub-regional indices is that the price movements, though still modest, is more noticeable in the upper movement, a fact that underlies not just by the units available in this segment but also reflection of the limited supply of units to the lower end of the market.

While apartments dominated the market activity during the quarter, 89 percent of those sold were in Region 3 compared to 8 percent in Region 2 and 3 percent in Region 1. The same pattern was observed in maisonettes where Region 3 accounted



44 percent of the units on offer while Region 2 and Region 1 accounted for 41 percent and 15 percent respectively.

Just like the overall index, the sub-regional indices were a reflection of the market alignments in pursuit

of affordability (effective demand) and the fact that home owners seem to be focusing more on attributes such as gated community, amenities such as recreational facilities, and shopping mall, among other attributes.

**Table 2: Housing Price Index Drivers for Quarter 1\_2016**

Source	SS	df	MS	Prob > F = 0.0000		
Model	110.5976	24	4.6082	# observations = 2465		
Residual	50.5408	2440	0.0207	R-squared = 0.6833		
				Adj R-squared = 0.6864		

LN VALUE	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Plinth area	0.0016	0.0001	25.09	0.000	.0014834	.0017349
No. of Bedrooms	0.1808	0.0128	14.17	0.000	.1557451	.205765
No. of Bathrooms	0.2387	0.0145	16.42	0.000	.2101692	.267172
House type	0.1218	0.0149	8.20	0.000	.0926383	.1508815
Age	0.0376	0.0091	4.11	0.000	.019622	.0554893
Time dummy Q1-16	0.0537	0.0502	1.07	0.285	-.0447664	.1522044
Locational Dummy	0.0121	0.0010	11.79	0.000	-.0140872	-.0100702
No. of floors	-0.0582	0.0088	0.01	0.000	-.0753557	-.0409572
Backyard	0.3761	0.0494	7.61	0.000	.2792465	.4729431
Balcony	0.0792	0.0444	1.78	0.075	.0079997	.1663023
DSQ	0.2939	0.0314	9.34	0.000	.2321804	.3555229
Gymn	0.4203	0.0763	5.51	0.000	.2708086	.5698887
Swimming pool	0.6035	0.0491	12.28	0.000	.5071876	.6998671
Social amenities	0.0034	0.0337	0.10	0.920	.0627787	.0695739
Master ensuite	-0.1974	0.0508	-3.88	0.000	-.2971243	-.0977321
Garage/parking	0.0866	0.0367	2.36	0.018	.0147192	.158578
Separate dining	0.4541	0.0713	6.37	0.000	.314344	.5939015
Gated community	0.1002	0.0327	3.06	0.002	.036022	.1644364
borehole	0.1662	0.0444	3.74	0.000	0.0791001	.2533072
Guestroom	2.0136	0.3570	5.64	0.000	1.313543	2.713663
Jacuzzi	-0.1124	0.0787	-1.43	0.153	-.2666759	.0418034
Elevator	-2.4008	0.1811	-13.26	0.000	-2.755859	-2.04579
Backup - generator	1.6111	0.0809	19.9	0.000	1.452338	1.769786
wooden floor	0.1493	0.1494	1	0.318	-.1436166	.4423094
Constant	14.7388	0.0523	281.63	0.000	14.63619	14.84143

Housing Price Index  
 Quarter 1, 2016 **+108.99**

**Table 3: Housing Price Index Drivers for Quarter 4\_2015**

Source	SS	df	MS
Model	122.6135	23	5.3310
Residual	65.2387	2430	0.0268

Prob > F = 0.0000  
 Number of obs = 2454  
 R-squared = 0.6527  
 Adj R-squared = 0.6494

LN VALUE	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Plinth area	0.0014	0.0001	15.82	0.000	.0012397	.0015905
No. of Bedrooms	0.0944	0.0134	7.04	0.000	.0680875	.1207115
No. of Bathrooms	0.2887	0.0157	18.41	0.000	.2579453	.3194314
House type	0.0481	0.0155	3.11	0.002	.0177831	.0784508
Age	0.0608	0.0293	2.08	0.038	.0033527	.1182440
Time dummy Q4-15	0.1605	0.0263	6.09	0.000	.2121157	.1088361
Locational Dummy	0.0047	0.0014	3.36	0.001	.0074360	.0019514
No. of floors	0.0422	0.0102	4.15	0.000	.0222495	.0621149
Backyard	0.2213	0.0935	2.37	0.018	.0379900	.4045947
Balcony	0.0579	0.0525	1.10	0.270	.0450435	.1607685
DSQ	0.3331	0.0341	9.76	0.000	.2661888	.4001048
Gymn	-0.6127	0.0860	-7.12	0.000	-.7813536	-.4440380
Swimming pool	0.5787	0.0583	9.93	0.000	.4644786	.6929535
Social amenities	0.0290	0.0299	0.97	0.032	.0877175	.0296439
Master ensuite	1.1744	0.1886	6.23	0.000	.8045586	1.544312
Garage/parking	0.0982	0.0300	3.28	0.001	.0394852	.1570119
Separate dining	-0.1921	0.1215	-1.58	0.114	-.4303595	.0461400
Gated community	0.4057	0.0382	10.63	0.000	.48051100	-.3308163
Borehole	0.0166	0.0506	0.33	0.042	.1158217	.0825459
Guestroom	-0.2037	0.1329	-1.53	0.125	-.4303595	.0461400
Jacuzzi	0.0782	0.1270	0.62	0.538	.1708965	.3273701
Elevator	0.1242	0.1112	1.12	0.264	.4779643	.7532508
Backup - generator	0.6156	0.0702	8.77	0.000	.0937753	.3422391
Constant	15.0405	0.0755	199.19	0.000	14.89241	15.18855

Housing Price Index  
 Quarter 4, 2015

**+107.48**

**Table 4: Housing Price Index Drivers for Quarter 3\_2015**

Source	SS	df	MS
Model	699.337986	24	29.1390827
Residual	123.251973	462	0.11245618

**Prob > F = 0.0000**  
**Number of obs = 1121**  
**R-squared = 0.8502**  
**Adj R-squared = 0.8469**

LN VALUE	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Lnarea	0.3652	0.0194	18.8	0.000	0.3270748	0.4032351
Bedrooms	0.0406	0.0268	1.52	0.130	0.0930716	0.0119384
Bathrooms	0.2969	0.0263	11.3	0.000	0.2453086	0.3484492
House type	0.1348	0.0316	4.27	0.000	0.0727924	0.1967305
Age	-0.0240	0.0286	-0.8	0.403	-0.0801471	0.0322018
Time Dummy Q3'15	0.0264	0.0433	6.1	0.000	0.1793089	0.3492391
Location	0.0184	0.0037	4.95	9.620	0.0110991	0.0256982
Number of floors	-0.0064	0.0115	-0.6	0.579	-0.0290336	0.016233
backyard	-0.3095	0.0981	-3.2	0.002	-0.5020209	-0.1169508
balcony	0.0112	0.0480	0.23	0.815	-0.0829761	0.1054457
DSQ	0.4867	0.0506	9.62	0.000	0.3874606	0.5859289
Gymn	0.1805	0.0735	2.46	0.014	0.0363957	0.3246451
Swimming pool	0.0881	0.0682	1.29	0.196	0.0456287	0.2219076
Social amenities	0.1373	0.0358	3.84	0.000	0.0671017	0.2075958
Master ensuite	0.5005	0.0436	11.5	0.000	0.415065	0.5860305
Garage/parking	0.1632	0.0365	4.47	0.000	0.0916259	0.2347301
Separate dining	0.0687	0.2859	0.24	0.810	0.4922462	0.6296988
Gated community	0.1407	0.0580	2.42	0.016	0.0267771	0.254547
borehole	0.0820	0.0443	1.85	0.065	-0.0049775	0.1689056
gurstroom	-0.1992	0.1638	-1.2	0.224	-0.5206411	0.1221543
jacuzzi	0.2203	0.0812	2.71	0.007	0.0610959	0.3795898
elevator	-0.6461	0.1212	-5.3	0.000	-0.8838704	0.4082521
backup - generator	0.0554	0.0958	0.58	0.563	-0.1326077	0.2433916
wooden Floor	0.8107	0.0806	10.1	0.000	0.6525531	0.9688494
constant	12.5343	0.1436	87.3	0.000	12.25249	12.81606

Housing Price Index  
Quarter 3, 2015

**+106.27**

**Table 5: Inter quarter Sub-regional index (Moving base): 2013 - 2016**

	Region 1			Region 2			Region 3		
	Apartments	Bungalows	Maisonettes	Apartments	Bungalows	Maisonettes	Apartments	Bungalows	Maisonettes
<b>Q1-2013</b>	100	100	100	100	100	100	100	100	100
<b>Q2-2013</b>	100.063	100.04	100.60	100.05	100.61	100.10	100.01	100.93	100.03
<b>Q3-2013</b>	99.67	100.40	99.40	102.44	100.99	100.49	98.56	105.20	102.09
<b>Q4-2013</b>	100.74	102.82	99.38	101.80	100.82	98.81	103.75	103.95	100.32
<b>Q1-2014</b>	100.45	99.38	99.67	101.63	100.91	100.91	97.70	102.58	102.58
<b>Q2-2014</b>	100.50	99.67	99.54	100.75	101.75	101.27	96.70	102.74	103.32
<b>Q3-2014</b>	99.41	100.31	100.33	100.63	101.27	99.91	98.90	102.98	100.56
<b>Q4-2014</b>	97.48	99.29	105.21	97.82	101.98	99.61	104.54	104.36	100.62
<b>Q1-2015</b>	95.20	101.54	100.95	98.67	102.01	100.25	104.67	104.92	100.71
<b>Q2-2015</b>	102.92	102.78	100.53	101.11	102.05	100.77	105.23	104.91	102.51
<b>Q3-2015</b>	103.54	103.04	101.02	104.81	102.99	101.51	105.54	105.43	104.08
<b>Q4-2015</b>	105.23	104.57	104.66	104.84	103.47	102.43	106.25	105.37	105.26
<b>Q1-2016</b>	105.56	106.49	104.87	104.22	103.30	102.58	107.05	105.96	105.37

**Table 6: Inter quarter Sub-regional index (Fixed base): 2013 - 2016**

	Region 1			Region 2			Region 3		
	Apartments	Bungalows	Maisonettes	Apartments	Bungalows	Maisonettes	Apartments	Bungalows	Maisonettes
<b>Q1-2013</b>	100	100	100	100	100	100	100	100	100
<b>Q2-2013</b>	100.06	100.04	100.60	100.05	100.61	100.11	100.01	100.93	100.03
<b>Q3-2013</b>	99.02	99.67	99.67	100.09	102.44	102.44	99.65	104.13	98.10
<b>Q4-2013</b>	99.86	100.74	100.74	98.88	101.53	101.80	100.32	103.45	103.45
<b>Q1-2014</b>	99.57	100.55	100.55	99.41	101.46	101.01	100.24	102.20	100.11
<b>Q2-2014</b>	99.62	100.34	97.76	100.98	102.07	101.39	100.82	102.18	101.47
<b>Q3-2014</b>	99.94	100.04	97.88	100.51	101.06	104.15	99.19	102.29	99.74
<b>Q4-2014</b>	99.74	100.52	98.93	100.48	100.19	102.15	100.07	104.09	99.41
<b>Q1-2015</b>	95.39	101.32	100.19	100.13	100.741	101.67	100.05	104.52	99.50
<b>Q2-2015</b>	99.41	102.95	101.41	101.90	100.81	100.01	103.23	104.70	100.95
<b>Q3-2015</b>	100.74	102.77	101.30	103.37	101.65	103.03	105.21	106.76	104.87
<b>Q4-2015</b>	100.92	103.01	103.09	105.75	101.98	102.62	109.31	110.61	105.32
<b>Q1-2016</b>	101.85	104.88	103.06	106.29	101.18	104.99	109.99	110.90	105.97

\* Definition of the Sub-regions listed overleaf

## THE DEFINITION OF THE SUB-REGIONS



### REGION 1

Athi River, Mlolongo, Mavoko, Nakuru, Ngong, Ruaka, Syokimau, Embakasi, Kahawa Wendani. Thika, Mtwapa, Utange, South C, Kitengela, Kiembeni, Nyeri, Likoni, Eldoret, Ruiru, Kilifi. Thika road, Nakuru, Madaraka, Kisii (Kasarani, Roysambu, Ruaraka).



### REGION 2

Thindigua (Kiambu Road), Kiambu, South B, Kabete, Komarock, Imara Daima, Membedley, Buruburu, Rongai, Waiyaki Way (Uthiru, Kinoo, Kikuyu, Regen), Mbagathi road, Ngong Road, Langata.



### REGION 3

Kileleshwa, Kilimani, Lavington, Westlands, Spring Valley, Riverside, Milimani (Kisumu), Milimani (Nakuru), Runda, Karen, Garden Estate, Parklands, Ridge Ways, Muthaiga, Loresho, Kitsuru, Adam Arcade, Nyali, Mountainview

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