



HOUSING PRICE INDEX

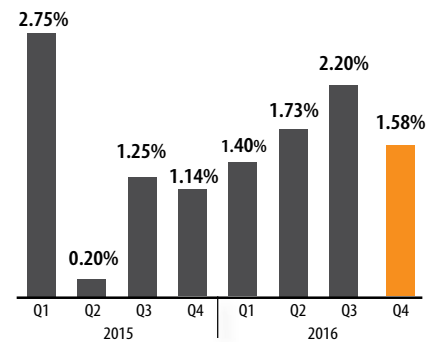
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Softening House Prices

The Kenya Bankers Housing Price Index (KBA-HPI) revealed the sustenance of the mild price increase of houses during the fourth quarter of 2016, albeit at a slower rate than that of the previous quarter. House prices rose by 1.58 percent compared to the third quarter's 2.20 percent.

Figure 1: Overall Price Change (%)



Whereas the general trend in house prices has been positive, the mild dipping in its rate of increase during the fourth quarter was a reflection of the market adjustment in response to the new market dispensation on the back of new banking law that capped interest rates coming into effect.

For the given housing units supply conditions in the market, the adjustment revealed itself on the demand side as lenders commenced revising the credit standards prior to approving mortgage

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Highlights

The Kenya Bankers Housing Price Index (KBA-HPI) revealed the sustenance of the mild price increase of houses during the fourth quarter of 2016, albeit at a slower rate than that of the previous quarter. House prices rose by 1.58 percent compared to the third quarter's 2.20 percent.

2 The sub-regional indices manifested skewed activity towards apartments which accounted for about 60 percent of the units sold during the quarter compared to 23 percent and 17 percent for maisonettes and bungalows respectively (Table 5 and Table 6). Accordingly, the price of the apartments drove the price movements as the other types of houses were characterised by relative price stability.

3 There has been a sense of taste consistency amongst home buyers. The price movements during the quarter continued with a marginal change in preference characteristics during the fourth quarter of 2016 was reflected in the influencers of price movements remaining to be the size of the house (as measured by plinth area, number of bedroom, bathroom, and presence of detached staff quarters).



Softening House Prices

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lending. In essence, there was a slowdown in mortgage approvals during the quarter hence constrained demand.

Even with these developments, the KBA-HPI reveals general stability both in the rate of price movements as well as the underlying price drivers. The house prices have increased by 14.91 percent since the first quarter of 2013, the base period for the KBA-HPI.

Like the previous quarters, the core house attributes influencing the prices were the size of the house as revealed by the house plinth area, number of bedrooms and their specifications,

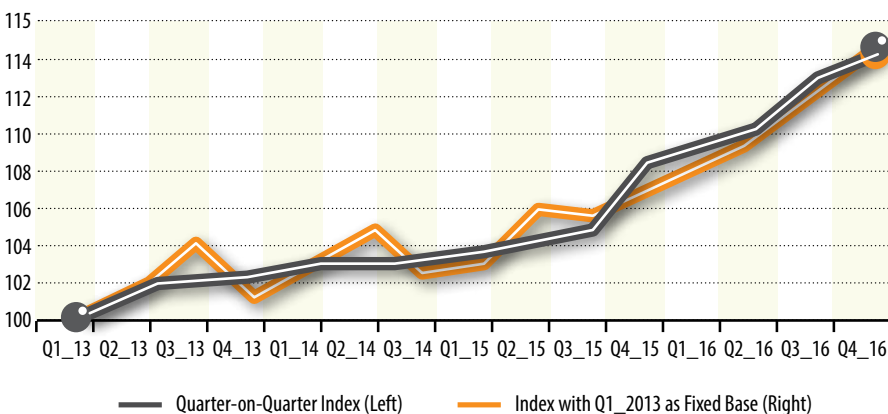
Table 1: Price Movement Series

Period	Index with a fixed base*	Index with a moving base
Q2_2015	103.88	105.01
Q3_2015	107.34	106.27
Q4_2015	108.19	107.48
Q1_2016	109.08	108.99
Q2_2016	111.28	110.87
Q3_2016	113.05	113.31
Q4_2016	114.91	115.10

* Based on Base period Q1_2013

bathrooms, presence of detached servants quarter, parking and availability of resources such as water or such related investments such as the presence of a borehole.

Figure 2: KBA-HPI Evolution



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 formula:

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

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.



Home Buyers' Tastes Remain Consistent in Q4

Like the first, second and third quarters, there has been a sense of taste consistency amongst home buyers. The price movements during the quarter continued with a marginal change in preference characteristics during the fourth quarter of 2016 was reflected in the influencers of price movements remaining to be the size of the house (as measured by plinth area, number of bedroom, bathroom, and presence of detached staff quarters).

The search for secure neighbourhoods with adequate amenities influenced the price movement dynamics during the quarter. Thus, houses in gated commu-



Factors influencing the **SALE PRICES**

- Number of bedrooms
- Number of bathrooms
- Type of the house
- Number of floors
- Location of the house
- Presence of DSq
- Swimming pool
- Age of the house
- Presence of garage
- Proximity to a mall
- Presence of parking bay(s)
- Presence of a balcony(s)
- Presence of a gymnasium
- Master ensuite

nities – often highly priced given the superior ambience associated with controlled development, security, privacy and scenic value – were key influencers of the overall price movements. 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 4 of 2016 (Table 2) and the estimates of Quarter 3 of 2016 (Table 3) and Quarter 2 of 2016 (Table 4).

House Market takes an Upward Trend across all Sub-Regions

The sub-regional indices manifested skewed activity towards apartments which accounted for about 60 percent of the units sold during the quarter compared to 23 percent and 17 percent for maisonettes and bungalows respectively (Table 5 and Table 6). Accordingly, the price of the apartments drove the price movements as the other types of houses were characterised by relative price stability.

Evidently, the market reflected dominance of market activity of the middle and upper end of the market than the lower end as supply remained aligned to that segment and the severity of the demand constraints arising from the financial sector realignment to the new banking law which seems to be higher on the lower end.



Table 2: Housing Price Index Drivers for Quarter 4_2016

Source	SS	df	MS
Model	81.0211181	24	3.37587992
Residual	58.0313011	280	0.207254647

Prob > F = 0.0000
 # observations = 305
 R-squared = 0.5827
 Adj R-squared = 0.5469

LN VALUE	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Plinth area	0.4568	0.0565	8.09	0.000	.3456114	.5680614
No. of Bedrooms	0.0028	0.0420	0.07	0.047	-.0798434	.0853753
No. of Bathrooms	0.3303	0.0484	6.82	0.000	.23493	.4255881
House type	0.0667	0.0710	-0.94	0.348	-.2065292	.0730503
Age	-0.1253	0.1756	-0.71	0.476	-.4709742	.2203887
Time dummy Q4_16	0.1772	0.1621	1.09	0.075	-.141917	.4962836
Locational Dummy	0.0028	0.0063	0.44	0.057	-.0152385	.0096285
No. of floors	-0.1388	0.0286	-4.85	0.000	-.1952339	-.0824444
Backyard	0.0200	0.1014	0.20	0.043	-.2196089	.1795102
Balcony	0.4095	0.1682	2.44	0.150	.0785168	.7405408
DSQ	0.0073	0.1208	0.06	0.052	-.2305085	.2451243
Gymn	0.1873	0.1703	1.10	0.272	-.1480678	.5225743
Swimming pool	0.0955	0.1653	0.58	0.564	-.2298678	.4209067
Social amenities	0.0059	0.1220	0.05	0.061	-.2341202	.2460074
Master ensuite	0.0545	0.1006	0.54	0.088	-.1434468	.2525039
Garage/parking	0.5998	0.4815	1.25	0.014	-1.547648	.3480157
Separate dining	0.1085	0.1249	0.87	0.086	-.1374083	.3543824
Gated community	0.0686	0.0934	0.73	0.063	-.252526	.1152386
Borehole	0.0143	0.1070	0.13	0.014	-.1963922	.2250048
Guest room	0.0874	0.2034	0.43	0.668	-.3130504	.4878135
Jacuzzi	0.4061	0.2580	1.57	0.117	-.9140071	.1018951
Elevator	0.6378	0.1893	3.37	0.001	-1.010351	-.2651601
Backup - generator	0.3131	0.1788	1.75	0.081	-.0389632	.6651159
wooden floor	0.6531	0.1812	3.6	0.000	.2963381	1.009867
Constant	12.5607	0.7191	17.47	0.000	11.14527	13.9762

Housing Price Index
 Quarter 4, 2016

+115.10

Table 2: Housing Price Index Drivers for Quarter 3_2016

Source	SS	df	MS
Model	123.998514	25	5.16660473
Residual	143.391518	402	0.150034062

Prob > F = 0.0000
 # observations = 427
 R-squared = 0.6728
 Adj R-squared = 0.6728

LN VALUE	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Plinth area	0.1790	0.0367	4.87	0.000	.1067819	.2511197
No. of Bedrooms	0.1662	0.0330	5.03	0.000	.1011995	.2311017
No. of Bathrooms	0.3147	0.0466	6.76	0.000	.2231484	.4061828
House type	0.2037	0.0531	3.83	0.000	-0.3081246	-0.0992523
Age	0.0376	0.0091	4.11	0.014	.019622	.0554893
Time dummy Q3-16	0.2110	0.1870	1.13	0.060	-.1566147	.5785724
Locational Dummy	0.0112	0.0057	1.98	0.049	.0000576	.0222844
Number of floors	-0.1086	0.0069	-15.64	0.000	-0.1222016	-0.0949174
Backyard	0.0318	0.1000	0.32	0.750	.1647508	.2284135
Balcony	0.6475	0.1217	5.32	0.000	.4082317	.8867309
DSQ	0.0990	0.1018	0.97	0.032	-.10117	.2990911
Gymn	0.0164	0.1232	0.13	0.894	-.2258687	.2586648
Swimming pool	0.5768	0.1186	4.86	0.000	.3435938	.8100548
Social amenities	0.0578	0.1676	0.35	0.030	.3873087	.2716305
Master ensuite	0.1530	0.0757	2.02	0.044	.0041293	.3018952
Garage/parking	1.0055	0.2148	4.60	0.000	.5833139	1.42771
Separate dining	0.4016	0.0894	4.49	0.000	.2259418	.5772986
Gated community	0.0056	0.0871	0.06	0.049	-.1655814	.1767184
borehole	0.2899	0.0844	3.43	0.001	.1238876	.4558723
Guestroom	0.0358	0.1649	0.22	0.828	-.2883562	.3599067
Jacuzzi	0.6903	0.1848	3.74	0.000	.3270037	1.053522
Gyser Closet	0.7403	0.2371	3.12	0.002	.2741214	1.206412
Elevator	0.1508	0.1891	0.80	0.426	-.5225579	.2209798
Backup - generator	0.7126	0.1216	5.86	0.000	0.4736028	0.9516206
Wooden floor	0.4708	0.1919	2.45	0.015	.0935822	.8480636
Constant	14.0523	0.3287	42.75	0.000	13.406	14.69852

Housing Price Index
 Quarter 3, 2016 **+113.31**

Table 3: Housing Price Index Drivers for Quarter 2_2016

Source	SS	df	MS
Model	3977.44707	25	159.097883
Residual	143.391518	523	0.27417116

Prob > F = 0.0000
 # observations = 549
 R-squared = 0.9652
 Adj R-squared = 0.9635

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
Age	0.0376	0.0091	4.11	0.000	.019622	.0554893
Time dummy Q2-16	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 2, 2016

+110.87

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

	Region 1			Region 2			Region 3		
	Apartments	Bungalows	Maisonettes	Apartments	Bungalows	Maisonettes	Apartments	Bungalows	Maisonettes
Q1-2013	100	100	100	100	100	100	100	100	100
Q2-2013	100.063	100.04	100.60	100.05	100.61	100.10	100.01	100.93	100.03
Q3-2013	99.67	100.40	99.40	102.44	100.99	100.49	98.56	105.20	102.09
Q4-2013	100.74	102.82	99.38	101.80	100.82	98.81	103.75	103.95	100.32
Q1-2014	100.45	99.38	99.67	101.63	100.91	100.91	97.70	102.58	102.58
Q2-2014	100.50	99.67	99.54	100.75	101.75	101.27	96.70	102.74	103.32
Q3-2014	99.41	100.31	100.33	100.63	101.27	99.91	98.90	102.98	100.56
Q4-2014	97.48	99.29	105.21	97.82	101.98	99.61	104.54	104.36	100.62
Q1-2015	95.20	101.54	100.95	98.67	102.01	100.25	104.67	104.92	100.71
Q2-2015	102.92	102.78	100.53	101.11	102.05	100.77	105.23	104.91	102.51
Q3-2015	103.54	103.04	101.02	104.81	102.99	101.51	105.54	105.43	104.08
Q4-2015	105.23	104.57	104.66	104.84	103.47	102.43	106.25	105.37	105.26
Q1-2016	105.56	106.49	104.87	104.22	103.30	102.58	107.05	105.96	105.37
Q2-2016	103.48	104.08	102.96	100.19	100.30	100.93	101.23	100.96	100.27
Q3-2016	104.81	104.92	104.02	103.62	101.51	102.62	103.07	102.59	104.29
Q4-2016	106.82	105.05	104.83	105.04	102.61	103.6	105.72	102.94	105.94

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

	Region 1			Region 2			Region 3		
	Apartments	Bungalows	Maisonettes	Apartments	Bungalows	Maisonettes	Apartments	Bungalows	Maisonettes
Q1-2013	100	100	100	100	100	100	100	100	100
Q2-2013	100.06	100.04	100.60	100.05	100.61	100.11	100.01	100.93	100.03
Q3-2013	99.02	99.67	99.67	100.09	102.44	102.44	99.65	104.13	98.10
Q4-2013	99.86	100.74	100.74	98.88	101.53	101.80	100.32	103.45	103.45
Q1-2014	99.57	100.55	100.55	99.41	101.46	101.01	100.24	102.20	100.11
Q2-2014	99.62	100.34	97.76	100.98	102.07	101.39	100.82	102.18	101.47
Q3-2014	99.94	100.04	97.88	100.51	101.06	104.15	99.19	102.29	99.74
Q4-2014	99.74	100.52	98.93	100.48	100.19	102.15	100.07	104.09	99.41
Q1-2015	95.39	101.32	100.19	100.13	100.741	101.67	100.05	104.52	99.50
Q2-2015	99.41	102.95	101.41	101.90	100.81	100.01	103.23	104.70	100.95
Q3-2015	100.74	102.77	101.30	103.37	101.65	103.03	105.21	106.76	104.87
Q4-2015	100.92	103.01	103.09	105.75	101.98	102.62	109.31	110.61	105.32
Q1-2016	101.85	104.88	103.06	106.29	101.18	104.99	109.99	110.90	105.97
Q2-2016	102.11	105.85	104.21	106.69	101.38	105.12	112.57	110.97	106.82
Q3-2016	103.01	106.21	104.97	105.61	102.6	106.31	114.41	112.06	108.49
Q4-2016	104.29	106.93	105.07	106.73	102.94	106.96	116.23	112.73	108.95

* 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, Kitengela, Kiembeni, Nyeri, Likoni, Eldoret, Ruiru, Kilifi, Thika road (Kasarani, Roysambu, Ruaraka), Meru, Bungoma.



REGION 2

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



REGION 3

Kileleshwa, Kilimani, Lavington, Westlands, Spring Valley, Riverside, Milimani (Kisumu), Milimani (Nakuru), Runda, Karen, Garden Estate, Parklands, Ridgeways, Muthaiga, Loresho, Kitisuru, Adams Arcade, Nyali, Mountain View, Nyari.

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