HOUSING PRICE INDEX

House prices sustain a stable streak

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

The Kenya Bankers Association—Housing Price Index (KBA-HPI) for the fourth quarter of 2015 indicates a continued stabilisation of house prices, consistent with what was observed during the second and third quarters the year. During the fourth quarter of 2015, the house prices rose mildly by 1.14 percent as compared to the third quarter of 2015 when they increased by compared to 1.25 percent in quarter three of 2015 (**Figure 1**).

Figure 1: Overall Price Change (%)

- 2.18% — Q4_'14
- 2.75% — Q1_'15
- 0.20% — Q2_'15
- 1.25% — Q3_'15
- 1.14% — Q4_'15
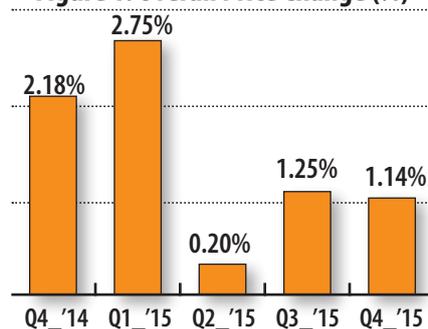
Although the overall house prices have been on the rise, the increase has been at best gradual. Over the past three years (since the KBA-HPI base period of first quarter of 2013), the prices have increased by 8.19 percent (see **Table 1** – Index with a fixed base). A single-digit price increase over a three-year period is a reflection of general price stability, thus providing a guide to the extent of risk both by developers and financiers in the housing market.

Highlights

1 The fourth quarter of 2015 represented the sustenance of the stability in house prices. The quarter saw prices rise by 1.14 percent compared to the 1.25 percent increase during the third quarter.

2 Demand for houses on offer continued to be influenced by the location of the house (therefore the kind of social amenities available), a preference for gated communities (implying the importance of convenience and security), and the characteristics that will be appealing to the increasingly discerning households.

3 The preference of apartment to bungalows and maisonettes is reflected in their relatively higher price movements than those of the other two house categories. With apartments targeting the middle class, their popularity is a function of their relative affordability.

House prices sustain a stable streak

PHOTO/ Fredrick Onyango

Technical Note

The index follows a Laspeyers 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.
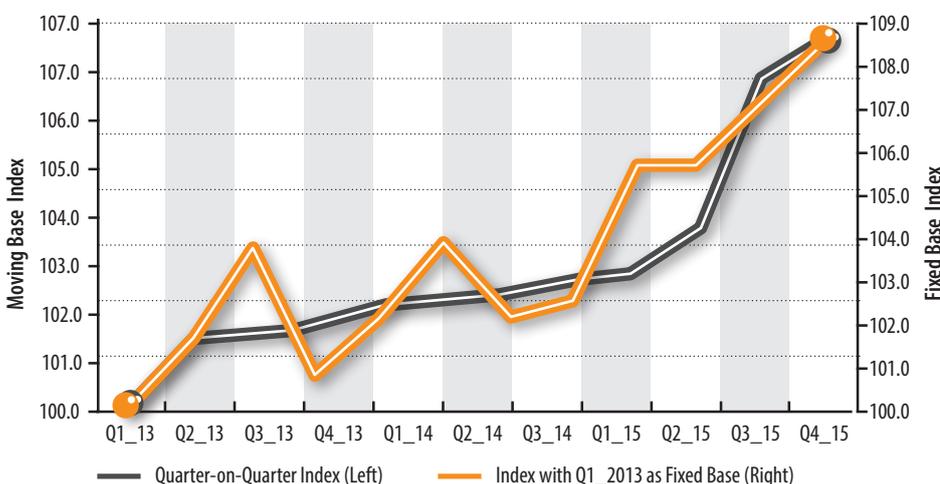
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There has been consistency in the main drivers of the price movement, reflecting limited changes in preference characteristics. The 2015 fourth Quarter results indicate that the size of the house (as measured by plinth area, number of bedroom, bathroom, presence of DSQ and master ensuite) significantly influenced rise in house price. Houses in gated communities will tend to be highly priced given the superior ambience associated with controlled development, security, privacy and scenic value.

Proximity to social amenities such as shopping malls, tarmacked roads, schools, hospitals and presence of parking lot among others also signicantly contributed to price rise in the quarter.

Figure 2: KBA–House Price Index

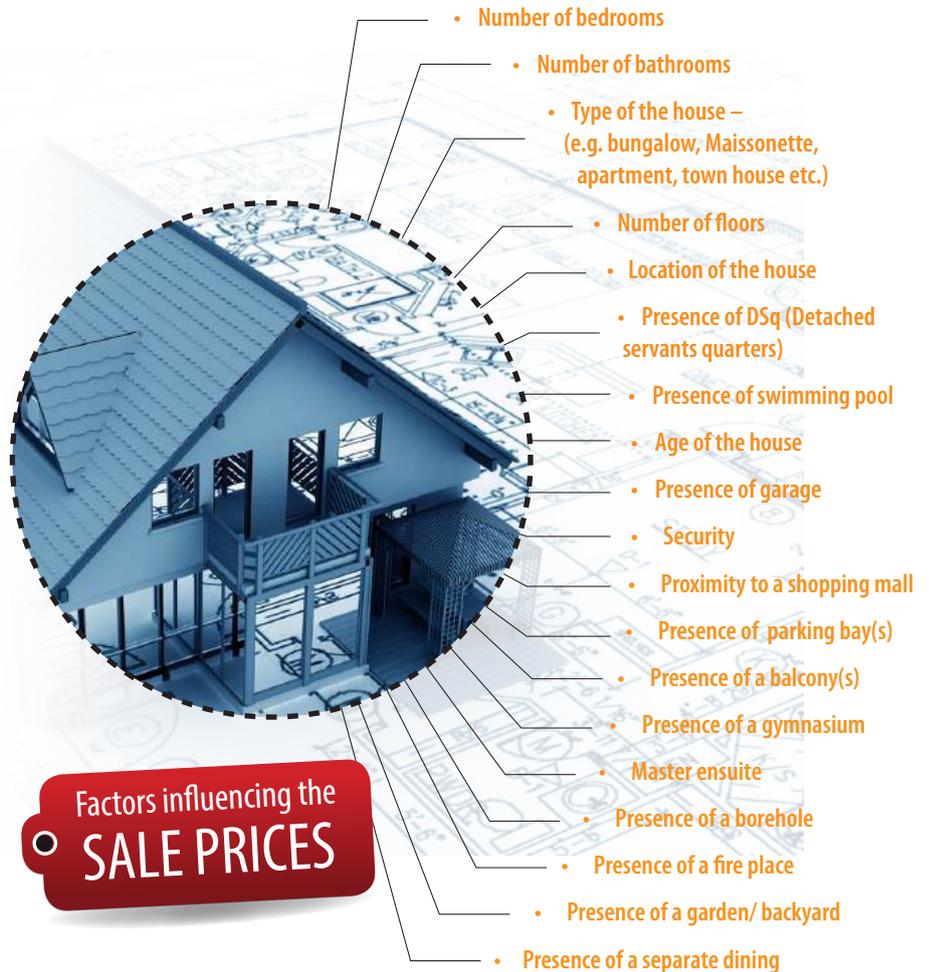Quarter-on-Quarter Index (Left) Index with Q1_2013 as Fixed Base (Right)

Size, amenities and security continue to drive prices

The determination of the qualitative and quantitative parameters that drive the house price changes is based on the estimation of a hedonic function. The estimates of the hedonic function for Quarter 4 of 2015 are given in **Table 2** while for comparison purposes those for Quarter 3 and 2 of 2015 are given in **Tables 3 and 4** respectively.

The estimates indicates a revealed preference of houses still continue to be influenced by their size, more specifically the plinth area, number of bedrooms, whether the house has a balcony, master ensuite and to a lesser extent whether a house has domestic staff quarters. This is consistent with what was observed in Quarter 3 of 2015.

Similarly, consistent with Quarter 3 of 2015, the demand for houses on offer was influenced by the location of the house (therefore the kind of social amenities available such as proximity to good roads, shopping malls and centres, schools, health centres among others), a preference for gated communities (implying the importance of convenience, scenic value from uniform house designs and security), and the characteristics that will be appealing to the increasingly discerning households.

- Number of bedrooms
- Number of bathrooms
- Type of the house – (e.g. bungalow, Maissonette, apartment, town house etc.)
- Number of floors
- Location of the house
- Presence of DSq (Detached servants quarters)
- Presence of swimming pool
- Age of the house
- Presence of garage
- Security
- Proximity to a shopping mall
- Presence of parking bay(s)
- Presence of a balcony(s)
- Presence of a gymnasium
- Master ensuite
- Presence of a borehole
- Presence of a fire place
- Presence of a garden/ backyard
- Presence of a separate dining

Factors influencing the **SALE PRICES**

Big boon for developers as buyers opt for apartments across all sub-regions

Upon disaggregation based on house type, we find that apartments accounted for 92.79 percent of the total number of houses offered in the market with maisonettes coming second at 5.80 percent and bungalows third at 1.41 percent. This justifies the increased appetite and relative affordability for apartments by an apparently the growing middle class.

In addition, from the real estate developers point of view apartments could be yielding high returns given that a number of units can be put up in a small piece of land and the high cost of land as opposed to maisonettes and bungalows which have to be stand alone.

The sub regional indices indicate that apartment prices in the all the three regions are clearly on a gentle rising trend. An analysis based on the fixed base show that prices in region three have increased overtime as compared to region one and region two.

Table 2: 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 3: 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
jaccuzi	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 4: Housing Price Index Drivers for Quarter 2_2015

Source	SS	df	MS
Model	778.397411	19	40.9682848
Residual	163.459877	1529	0.106906395

Number of obs = 1549
F(19, 1529) = 383.22
Prob > F = 0.0000
R-squared = 0.8264
Adj R-squared = 0.8243
Root MSE = 0.32697

LN VALUE	Coef	Std. Err.	t - stats	P>|t|	[95% Conf. Interval]	
LN AREA	0.2714414	0.0143168	18.96	0.000	0.2433587	0.2995241
Bedrooms	0.1374258	0.0230495	5.96	0.000	0.0922137	0.1826378
Bathrooms	0.0564309	0.025917	2.18	0.030	0.005594	0.1072676
Age	-0.1169339	0.0135849	-8.61	0.000	-0.1435809	-0.0902869
Time Dummy Q2'15	0.3719	0.0654	5.69	0.000	0.243248	0.5006348
Floors	-0.0906218	0.0093981	-9.64	0.000	-0.1090563	-0.0721872
Location	0.0822811	0.0034404	23.92	0.000	0.0755327	0.0890294
Backyard	-1.800684	0.1141361	-15.78	0.000	-2.024564	-1.576804
Balcony	0.398455	0.0386545	10.31	0.000	0.3226336	0.4742763
Dsq	-0.0822993	0.0312342	-2.63	0.409	-0.1435657	-0.0210329
Gymn	0.4789688	0.070293	6.81	0.000	0.341088	0.6168496
Spool	0.362732	0.0549305	6.60	0.000	0.254985	0.4704791
Socialammenities	0.1356015	0.0238121	5.69	0.000	0.0888937	0.1823092
Garageparking	0.6958917	0.0304572	22.85	0.000	0.6361493	0.7556341
Masterensuite	0.2534526	0.0289325	8.76	0.000	0.196701	0.3102043
Separatedining	0.0405952	0.0588494	0.69	0.490	0.074839	0.1560293
Gatedcommunity	0.9606869	0.067051	14.33	0.000	0.8291653	1.092209
Borehole	0.2260852	0.0393166	5.75	0.000	0.1489652	0.3032053
Guestrm	0.0622523	0.1664845	0.37	0.709	-0.2643099	0.3888145
Jaccuzi	0.0464504	0.068501	0.68	0.498	-0.0879155	0.1808162
Constant	12.96218	0.1020273	127.05	0.000	12.76205	13.16231

Housing Price Index
Quarter 2, 2015 **+105.01**

Table 5: Inter quarter Sub-regional index (Moving base): 2013 - 2015

	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

Table 6: Inter quarter Sub-regional index (Fixed base): 2013 - 2015

	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

* 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 (Kasarani, Roysambu, Ruaraka).

REGION 2

Thindigua (Kiambu Road), Kiambu, South B, Kabete, Komarock, Imara Daima, Membley, 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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