



HOUSING PRICE INDEX

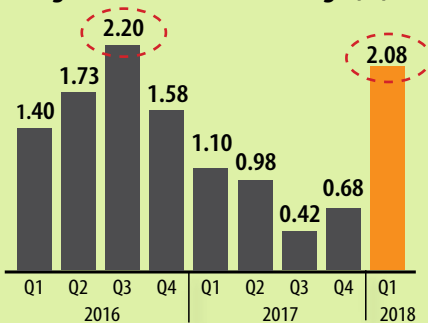
MAY 2018

ISSUE 14



Index reflects a reversal of the decline of price growth

Figure 1: Overall Price Change (%)



House prices increased by 2.08 percent during the first quarter of 2018 compared to previous quarter's 0.69 percent (Figure 1). This reflected a noticeable reversal of the decline in the rate of price increase experienced since the fourth quarter of 2016.

The rise in the house prices during the quarter is seen as a respite in

the property market after nearly one and a half of depressed market conditions. The surge in the prices manifests optimism in the housing market. However, this ought to be viewed with caution since a one quarter surge would be inadequate to objectively judge the market recovery. Results in the subsequent quarters during 2018 would therefore

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Highlights

House prices rose significantly by 2.08 percent during the first quarter of 2018 after a prolonged era of depressed market prices set in the last quarter on 2016.

However, the surge in the property prices would have arisen from the conclusion of market transactions of the previous market quarters that might have been put on hold following the depressed market.

Unlike in the past quarters where the apartments took an upper hand in the market, Q1 of 2018 saw maisonettes lead the market at 56.17 percent of the total units offered for sale.



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.



Index reflects a reversal of the decline of price growth

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be critical to arriving at a solid conclusion on houses prices recovery. The caution is based on the fact that the surge in the prices in Q1 of 2018 would have arisen from transactions of the previous quarters that have been put on hold due to market anxiety being concluded.

With the politics that characterised much of 2017 now gone, the market seems poised for recovery. The rise in house prices in Q1 is an indication the relaxation of the decisions to hold back on home ownership investments.

It is notable though that the supply side dynamics may have not changed given the constrained financing with the sale being on the already completed units in the previous quarters. The 190.84 percent rise in the units offered for sale in Q1 is therefore more of a supply spill-over from the previous quarter.

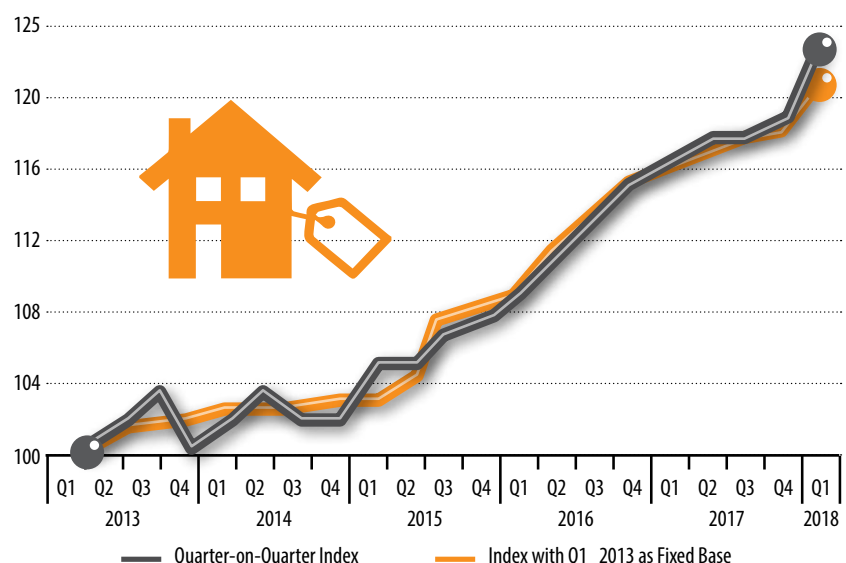
Based on the fixed base index, since the base period of the first quarter of 2013, house prices have risen by 23.83 percent up to the end of the first quarter of 2018 (Table 1 and Figure 2).

Table 1: Price Movement Series

Period	Index with a fixed base*	Index with a moving base
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
Q1_2017	115.92	116.37
Q2_2017	116.67	117.52
Q3_2017	117.59	118.01
Q4_2017	119.19	118.81
Q1_2018	123.83	121.29

* Based on Base period Q1_2013

Figure 2: KBA-HPI Evolution



House price drivers unchanged in last quarter of 2017

The house price drivers in quarter 1 of 2018 remained largely unchanged compared the previous quarters. However, a unique outcome is evidenced in quarter 1 of 2018 where the time dummy appears significant in driving the house prices as opposed to results in Q4 of 2017. This implies that the changes in prices between quarter 4 of 2017 and quarter 1 of 2018 is significant thus supporting the results for a substantial rise in house prices of 2.08 percent compared to 0.68 per in Q4 of 2017.

In addition the results uniquely from previous quarters reveal that potential home buyers especially in the gated community areas traded off the value of swimming pool, elevator and backup generator. This could be the reason that such facilities come with additional service charges for the

gated community habitats. Similarly, presence of balcony, guest room, separate dining area, DSQ appear to have had an insignificant effect on house prices in Q1 of 2018. This speaks to the fact that home owners seek to fully utilize their space. For instance, such spaces that would be occupied by a balcony, DSQ, separate dining area or guest room would be used for an extra bedroom.

In Q1 of 2018, the size of the house as captured by plinth area of the house, number of bedrooms, number of bathrooms, presence of a backyard, master ensuite

and Gymn area were among the core drivers of house prices during the quarter.

Attributes such as the type of the house, age, location, number of floors especially for apartments and presence of parking lot appear to have significantly moved prices during quarter 1 of 2018.



Maisonettes overtake apartments to lead in quarter 1

On the sub regional indices, there was a total reversal in the previous quarters' trends. Unlike in the past quarters where the apartments took an upper hand in the market, Q1 of 2018 saw maisonettes lead the market at 56.17 percent of the total units offered for sale followed by bungalows at 39.11 percent with apartments coming third at 4.72 percent. This is explained by huge housing projects in the quarter which constituted mainly the maisonettes and bungalows specifically in areas classified to be in region two.

A reversal in the house prices based on the market segments was also evident in Q1 of 2018. Unlike in the previous quarters where the lower market segment has been active compared



to middle and upper segment, more market activity seemed to be skewed towards the middle market segment as opposed to lower market segments.

Unlike previous quarters, apartments saw a decline in total units sold in Q1 of 2018.

Table 2: Housing Price Index Drivers for Quarter 1_2018

Source	SS	df	MS
Model	410.3842	23	22.7991
Residual	13.3508	209	0.0271

Prob > F = 0.000
 # observations = 511
 R-squared = 0.9685
 Adj R-squared = 0.9673

LN VALUE	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Plinth area	0.6463	0.0469	13.78	0.000	0.5541608	0.7384159
Number of Bedrooms	0.0160	0.0319	0.50	0.016	-0.0466906	0.0787731
Number of Bathrooms	0.1911	0.0322	5.93	0.000	0.1278157	0.2544234
House type	0.2892	0.0512	5.65	0.000	0.1886779	0.3897655
Age	0.0376	0.0091	4.11	0.000	0.019622	0.0554893
Time dummy (Q1_2018)	0.3341	0.1761	1.90	0.058	-0.6800308	0.011841
Locational Dummy	0.0193	0.0032	-5.94	0.000	0.0129003	0.0256415
Number of floors	0.1365	0.0362	3.77	0.000	0.0654071	0.2076382
Presence of Backyard	0.8655	0.4237	2.04	0.042	0.0330108	1.697952
Presence of Balcony	0.1908	0.4497	0.42	0.672	-0.6928538	1.074409
Presence of DSQ	-0.1263	0.0865	-1.46	0.145	-0.2962409	0.0435569
Presence of Gym	1.5367	0.1983	7.75	0.000	1.147131	1.92624
Swimming pool	0.1041	0.2494	0.42	0.677	-0.385942	0.5941626
Prox. to Social amenities	0.0034	0.0337	0.10	0.920	0.0627787	0.0695739
Master ensuite	0.2939	0.0314	9.34	0.000	0.2321804	0.3555229
Garage/parking	0.0121	0.0010	11.79	0.000	0.0100702	0.0140872
Separate dining	-0.1622	0.1716	-0.95	0.345	-0.4993236	0.174943
Gated community	0.1399	0.1709	0.82	0.414	0.1959449	0.4757226
Presence of Borehole	0.0106	0.0268	0.40	0.692	0.0420165	0.0632237
Presence of Guestroom	-0.2369	0.2552	-0.93	0.354	-0.7383697	0.2645607
Presence of Elevator	-0.3491	0.2314	-1.51	0.132	-0.8037293	0.1055392
Backup - generator	-0.8324	0.4576	-1.82	0.769	-1.731368	0.0666132
Constant	10.2103	0.5476	18.65	0.000	9.134414	11.28626

Housing Price Index
 Quarter 1, 2018



121.29

Table 3: Housing Price Index Drivers for Quarter 4_2017

Source	SS	df	MS	Prob > F = 0.000		
Model	80.4199	24	4.2326	# observations = 234		
Residual	18.4003	209	0.0859	R-squared = 0.8138		
				Adj R-squared = 0.7973		

LN VALUE	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Plinth area	0.5923	0.1089	5.44	0.000	0.3775475	0.8070209
Number of Bedrooms	0.1223	0.0602	2.03	0.044	0.0035758	0.2410728
Number of Bathrooms	0.1031	0.0535	1.93	0.055	-0.0023016	0.2084422
House type	0.0742	0.1377	0.54	0.590	-0.3456091	0.1971115
Age	-0.2898	0.2279	-1.27	0.205	-0.7390371	0.1595052
Time dummy (Q4_2017)	0.1369	0.1759	0.78	0.437	-0.4836034	0.209845
Locational Dummy	0.0116	0.0065	1.79	0.075	-0.0242906	0.0011563
Number of floors	-0.2337	0.1343	-1.74	0.083	-0.4983459	0.0310299
Presence of Backyard	0.6406	0.2151	2.98	0.003	0.216517	1.064614
Presence of Balcony	0.5032	0.3094	1.63	0.105	-0.1068044	1.113111
Presence of DSQ	0.0245	0.1075	0.23	0.082	-0.1874413	0.2364702
Presence of Gym	2.0245	0.4280	4.73	0.000	1.18087	2.868142
Swimming pool	0.7476	0.3767	1.98	0.048	-1.490074	-0.0051901
Prox. to Social amenities	1.8287	0.4159	4.40	0.000	1.008872	2.648567
Master ensuite	0.1005	0.1726	0.58	0.561	0.239821	0.4407351
Garage/parking	0.0965	0.1506	0.64	0.023	-0.2003881	0.3933272
Dining	0.4370	0.2240	1.95	0.052	-0.0046382	0.8786114
Gated community	0.4671	0.2226	2.10	0.037	0.0283925	0.9058139
Presence of borehole	0.4138	0.2011	2.06	0.041	0.0173394	0.8101952
Presence of Guestroom	-0.0368	0.1457	-0.25	0.801	-0.3241065	0.2504492
Presence of Jacuzzi	-0.3874	0.2914	-1.33	0.185	-0.961748	0.1869315
Presence of Elevator	0.6914	0.2423	2.85	0.005	0.213866	-1.168955
Backup - generator	0.0965	0.1506	0.64	0.523	-0.2003881	0.3933272
Presence of woodedfloor	-0.7371	0.5788	-1.27	0.204	-1.877941	0.4036479
Constant	11.5660	0.7594	15.23	0.000	10.06917	13.06281

Housing Price Index
Quarter 4, 2017

+118.81

Table 4: Housing Price Index Drivers for Quarter 3_2017

Source	SS	df	MS	Prob > F = 0.000		
Model	142.5854	24	5.9411	# observations = 393		
Residual	30.1178	368	0.0818	R-squared = 0.8256		
				Adj R-squared = 0.8142		

LN VALUE	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Plinth area	0.5135	0.0613	8.37	0.000	0.3928625	0.6340811
Number of Bedrooms	0.1895	0.0405	4.68	0.000	0.1099649	0.269124
Number of Bathrooms	0.0638	0.0377	1.69	0.092	-0.0103733	0.1379499
House type	0.0315	0.2058	0.15	0.078	-0.3731869	0.4361978
Age	-0.0962	0.1718	-0.56	0.576	-0.4340115	0.2416504
Time dummy (Q3_2017)	0.0268	0.1555	0.17	0.863	-0.3325122	0.2789132
Locational Dummy	0.0011	0.0016	0.70	0.487	-0.004215	0.0020103
Number of Floors	0.0226	0.0168	1.35	0.179	0.0104037	0.0556455
Presence of Backyard	-0.2051	0.2666	-0.77	0.442	-0.7293449	0.3192038
Presence of Balcony	0.0399	0.2163	0.18	0.854	-0.4652333	0.3853693
Presence of DSQ	-0.0316	0.0851	0.37	0.010	0.1356787	0.1989756
Presence of Gymn	0.4357	0.1557	2.80	0.005	0.1295082	0.7418062
Swimming Pool	0.4950	0.1331	3.72	0.000	0.233184	0.7567346
Prox. to Social Amenities	0.0250	0.1135	0.22	0.026	0.1982571	0.2483126
Master Ensuite	0.2021	0.0866	2.33	0.020	0.0318466	0.3723246
Garage/Parking	0.0695	0.0931	0.75	0.528	0.1242086	0.2417415
Separate Dining	0.2575	0.1737	1.48	0.139	-0.0841469	0.5991115
Gated Community	0.0831	0.0916	0.91	0.065	0.0970072	0.2631705
Presence of Borehole	0.1647	0.1210	1.36	0.075	-0.4026447	0.0733354
Presence of Guestroom	0.0760	0.1162	0.65	0.513	-0.152447	0.3044682
Presence of Jacuzzi	0.1426	0.2208	0.65	0.519	-0.5767169	0.2915476
Presence of Geyser Closet	-0.1356	0.3062	-0.44	0.658	-0.7377479	0.4665589
Presence of Elevator	0.0187	0.1722	0.11	0.914	-0.319971	0.3573794
Backup Generator	0.2112	0.1000	2.11	0.035	0.0145953	0.4077972
Presence of wooden Floor	-0.5044	0.2124	-2.38	0.018	-0.9219681	-0.0867916
Constant	11.7708	0.6184	19.03	0.000	100.55478	120.98689

Housing Price Index
Quarter 3, 2017 **+118.01**

Table 5: Inter quarter Sub-regional indices (Moving base): 2013 - 2018

	Region 1			Region 2			Region 3		
	Apartments	Bungalows	Maisonettes	Apartments	Bungalows	Maisonettes	Apartments	Bungalows	Maisonettes
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
Q1-2017	108.63	105.81	104.96	106.75	102.81	104.27	107.49	103.27	106.24
Q2-2017	109.73	105.97	105.22	107.86	102.96	104.79	108.65	103.83	106.7
Q3-2017	110.04	106.08	105.63	107.93	103.17	105.08	109.38	103.94	107.08
Q4-2017	111.53	106.86	106.86	108.61	103.51	105.84	110.63	104.04	107.75
Q1-2018	112.39	107.16	108.82	110.07	105.58	108.03	111.41	107.04	110.08

Table 6: Inter quarter Sub-regional indices (Fixed base): 2013 - 2018

	Region 1			Region 2			Region 3		
	Apartments	Bungalows	Maisonettes	Apartments	Bungalows	Maisonettes	Apartments	Bungalows	Maisonettes
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
Q1-2017	106.4	107.04	105.79	108.64	102.99	107.29	118.69	113.48	109.05
Q2-2017	107.2	107.85	106.03	110.41	103.39	107.51	119.79	113.74	109.79
Q3-2017	107.91	107.94	106.84	111.49	103.81	107.86	108.05	113.79	110.7
Q4-2017	108.58	108.17	107.03	112.27	103.97	108.18	109.72	113.85	111.08
Q1-2018	109.36	110.05	108.59	112.83	105.62	110.69	110.27	115.07	113.75

* Definition of the Sub-regions listed overleaf ** Based on Base period Q1_2013

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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