



# HOUSING PRICE INDEX

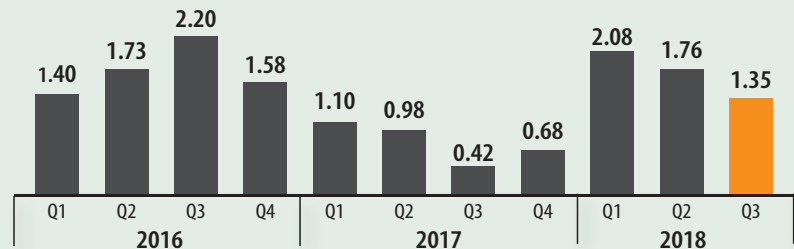
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## House Prices Remain Stable in Q3

The KBA Housing Price Index for the third quarter of 2018 revealed that house prices were generally stable although with signs of softening. As **Figure 1** shows, the house prices increased by 1.35 percent for the quarter, representing a 0.41 percent decline from the 1.76 percent rise during the second quarter of 2018.

Figure 1: Overall Price Change (%)



The softening in house prices manifested in the gradual decline in the rate of price growth seen over the first three quarters of 2018 is a reversal of the up-tick seen in the noticeable rise observed from the fourth quarter of 2017 to the first quarter of 2018.

The state of affairs in the market is a reflection of

subdued demand on the back of continued investments in the housing market which remains skewed towards the middle and high income bracket. The overall stability in house prices is inferred from the changes in the KBA-HPI remaining

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### Highlights

**1** House prices increased by 1.35 percent, a 0.41 percent decline from the 1.76 percent rise experienced during the second quarter of 2018.

**2** The drivers of house price movements in the third quarter of 2018 remained unchanged mirroring those of preceding quarters. This signals the consistency of home owner's preferences.

**3** The interaction of supply and demand dynamics saw home owners preferences tilt towards bungalows (Figure 3) accounting for 38%, apartments accounted for 35% and maisonettes accounted for 27%.

## Technical Note

The index follows a Laspeyres index method. In this method, the index is computed by getting the ratio of 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:

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

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.



# House Prices Remain Stable in Quarter Three of 2018

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under one percent. This is due to the fact that the market dynamics are tilted towards the influence of demand conditions and are likely to respond to the anticipated changes on the supply side once the developments under the government's affordable housing initiative come on stream. The risk appetite of both developers and financiers is equally anticipated to adjust in line with the above observed market dynamics.

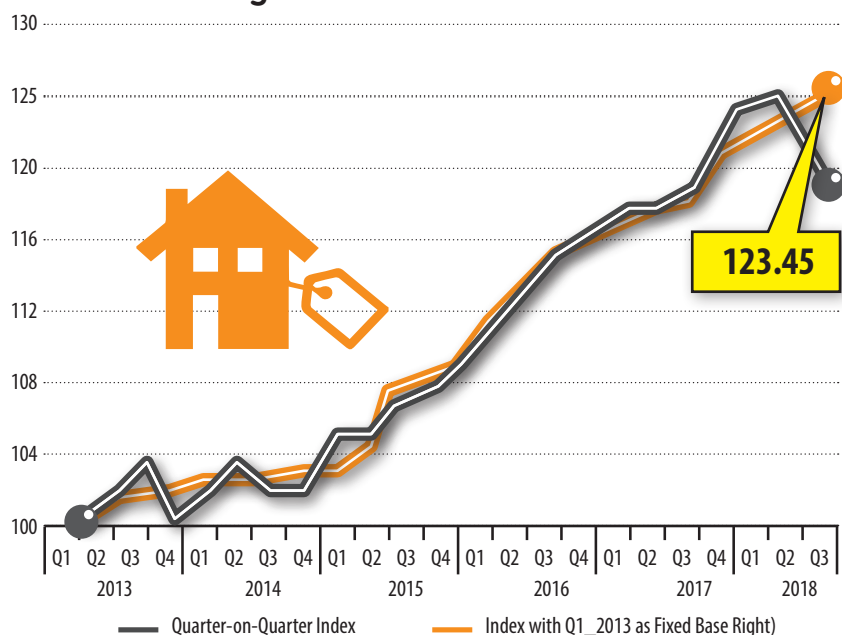
While the KBA-HPI index remains on an upward trajectory, the fixed base index shows a sustained decline over the past three quarters (**Table 1 & Figure 2**) during the third quarter of 2018 to stand at 118.75 while the moving base index continued to maintain its positive outlook. Similarly, whereas the KBA-HPI index has continued to rise (**Figure 2**), the rise in house prices has been mild suggesting a sense of broad market stability.

**Table 1: Price Movement Series**

Period	Index with a fixed base	Index with a moving base
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
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
Q2_2018	123.42	124.78
Q3_2018	123.45	118.75

\* Based on Base period Q1\_2013

**Figure 2: KBA-HPI Evolution**



## Consistency in House Price Drivers in Third Quarter

The drivers of house price movements in the third quarter of 2018 remained unchanged from those of the previous three quarters. This signals consistency in home owner’s preference. The taste consistency is confirmed by comparing the estimates of the hedonic function in Quarter 3 of 2018 (**Table 2**) and the estimates of Quarter 2 of 2018 (**Table 3**) and Quarter 1 of 2018 (**Table 4**).

However, unlike in the previous quarters, the size of the house as measured by the plinth area was insignificant though other attributes relating to size; the number of bathrooms, presence of a backyard and master ensuite attributes continued to feature prominently in influencing house price movements during the third quarter of 2018, except that demand for houses available in the market were depressed.



Similarly, on the downside, prices were depressed by the number of floors, an indication that home owner’s preferences were more inclined to

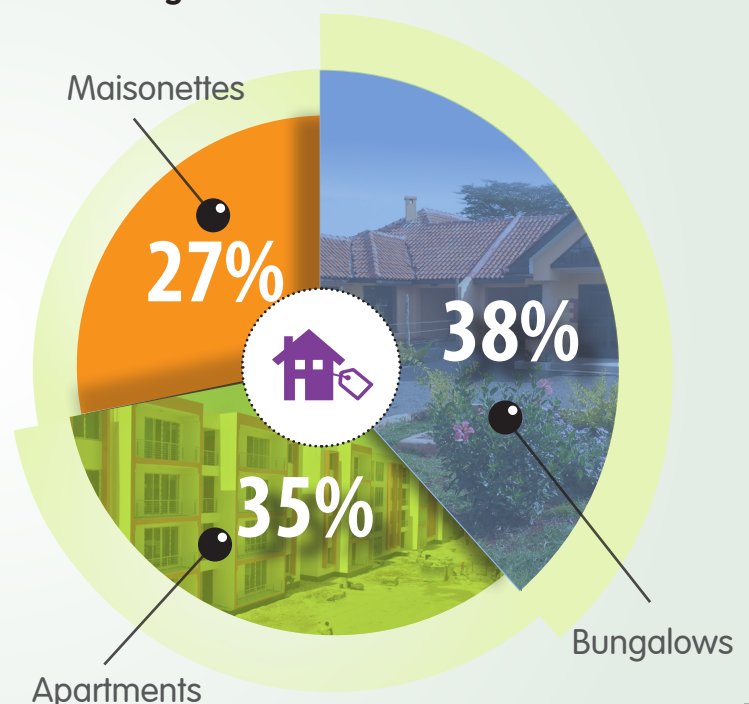
stand alone units. In addition, the presence of wooden floors and the age of the house negatively affected house price movements.

## Buyer Preference Tilts Towards Bungalows in Quarter Three

Whereas the KBA-HPI index shows that there was a 1.35 percent rise in house prices, the interaction of supply and demand dynamics saw home owners preferences tilt towards bungalows (**Figure 3**) accounting for 38%, apartments accounted for 35% and maisonnettes accounted for 27%. This is a reversal of the dominant position maintained by apartments in the preceding four quarters.

The extent of dynamism in home owners’ preferences with respect to region reveals that the market appears to be skewed to the upper market segment. In addition, the fast-changing preferences imply developers must be abreast with the rapidly changing market preferences. Equally, the configuration of home-owner’s preferences in quarter three of 2018 seems skewed not only in terms of the types of houses but also the regions with maisonnettes being concentrated in the upper and bungalows being concentrated in the upper end market while apartments having an almost equal concentration in both the upper end and the lower and middle market ends.

Figure 3: Total units offered



**Table 2: Housing Price Index Drivers for Quarter 3\_2018**

Source	SS	df	MS
Model	12.6014	14	0.9001
Residual	1.1612	22	0.0528

Prob > F = 17.05  
 # observations = 36  
 R-squared = 0.9156  
 Adj R-squared = 0.8619

LN VALUE	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Ln Plinth Area	0.087	0.133	0.66	0.519	-0.189	0.364
Number of Bedrooms	0.172	0.080	2.15	0.043	0.006	0.339
Number of Floors	-0.142	0.063	-2.26	0.034	-0.272	-0.012
Number of Bathrooms	0.231	0.102	2.27	0.034	0.020	0.443
Age of House	-0.051	0.025	-2.05	0.053	-0.103	0.001
House Type	0.041	0.091	0.45	0.659	-0.148	0.230
Presence of Backyard	0.966	0.348	2.78	0.011	0.245	1.688
Presence of Balcony	-0.011	0.177	-0.06	0.949	-0.379	0.356
Presence of Gym	-0.137	0.313	-0.44	0.666	-0.785	0.512
Master-Ensuite	0.485	0.226	2.14	0.043	0.016	0.954
Separate Dining Area	0.268	0.203	1.32	0.201	-0.154	0.690
Within Gated Community	0.199	0.252	0.79	0.438	-0.323	0.720
Presence of Wooden Floor	-0.602	0.345	-1.74	0.095	-1.317	0.114
Location Dummy	0.191	0.098	1.95	0.064	-0.012	0.394
Constant	13.900	0.804	17.29	0.000	12.233	15.567



Housing Price Index  **123.45**  
 Quarter 3, 2018

**Table 3: Housing Price Index Drivers for Quarter 2\_2018**

Source	SS	df	MS
Model	412.7318	18	22.9296
Residual	0.0298	407	12.1156

Prob > F = 770.27  
 # observations = 426  
 R-squared = 0.9715  
 Adj R-squared = 0.9702

LN VALUE	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Plinth area	0.8227	0.0519	15.85	0.000	0.7206555	0.9247546
Number of Bedrooms	-0.0327	0.0305	-1.07	0.283	-0.0925902	0.0271577
Number of Bathrooms	0.0958	0.0281	3.41	0.001	0.0405794	0.1510979
House type	0.8766	0.0717	12.23	0.000	0.7356745	1.01752
Locational Dummy	-0.0008	0.0033	-0.25	0.806	-0.0072477	0.0056356
Number of floors	0.1782	0.0534	3.34	0.001	0.073147	0.2831537
Presence of Backyard	0.8857	0.0964	9.19	0.000	0.6962634	1.075204
Presence of Balcony	0.3809	0.0770	4.95	0.000	0.2294663	0.5322862
Presence of DSQ	-0.3834	0.2491	-1.54	0.124	-0.8730004	0.1062068
Presence of Gym	0.2888	0.0930	3.11	0.002	0.1060066	0.4716663
Swimming pool	-0.5119	0.1236	-4.14	0.000	-0.7548346	-0.2690207
Garage/parking	1.6248	0.2475	0.57	0.000	-2.111349	1.138297
Master en suite	1.6963	0.2118	8.01	0.000	1.279843	2.112751
Separate dining	-0.3465	0.1795	-1.93	0.054	-0.6993735	0.0064055
Gated community	-0.0253	0.0258	-0.98	0.327	-0.0760263	0.025374
Presence of borehole	0.2787	0.0584	4.77	0.000	-0.3935313	-0.1639539
Presence of geyser closet	-1.1303	0.2968	-3.81	0.000	-1.71367	-0.5468541
Presence of Elevator	0.0436	0.0934	0.47	0.641	-0.1400402	0.2271589
Constant	8.6755	0.3871	22.41	0.000	7.914595	9.436404
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  **123.42**  
 Quarter 2, 2018

**Table 4: Housing Price Index Drivers for Quarter 1\_2018**

Source	SS	df	MS	Prob > F = 0.000		
Model	410.3842	23	22.7991	# observations = 511		
Residual	13.3508	209	0.0271	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 en suite	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**