



HOUSING PRICE INDEX

JANUARY 2020

ISSUE 21

House Prices Stuck in the Red

The housing market remained depressed with prices being in the negative territory for 4 consecutive quarters to the end of 2019. According to the Kenya Bankers Association – House Price Index (KBA-HPI) house prices contracted by 0.61 percent during the fourth quarter compared to 2.28 percent in the previous quarter (**Figure 1**). The outlined evolution of house prices evidently point to a market correction that follows sustained but modest price increases that had been seen over the past 5 years.

The recent trend in changes in house prices is in line with the softening of the economy and is a manifestation of the interplay between weak demand driven by the tepid disposable income growth and supply-side conditions. This is on the back of the elevated real estate and construction sector Non-performing Loans (NPLs) feeding into constrained credit growth to the sector.

In addition, the sustained decline of house prices coincides with the rising distressed properties overhang. This has further shaped market expectations and

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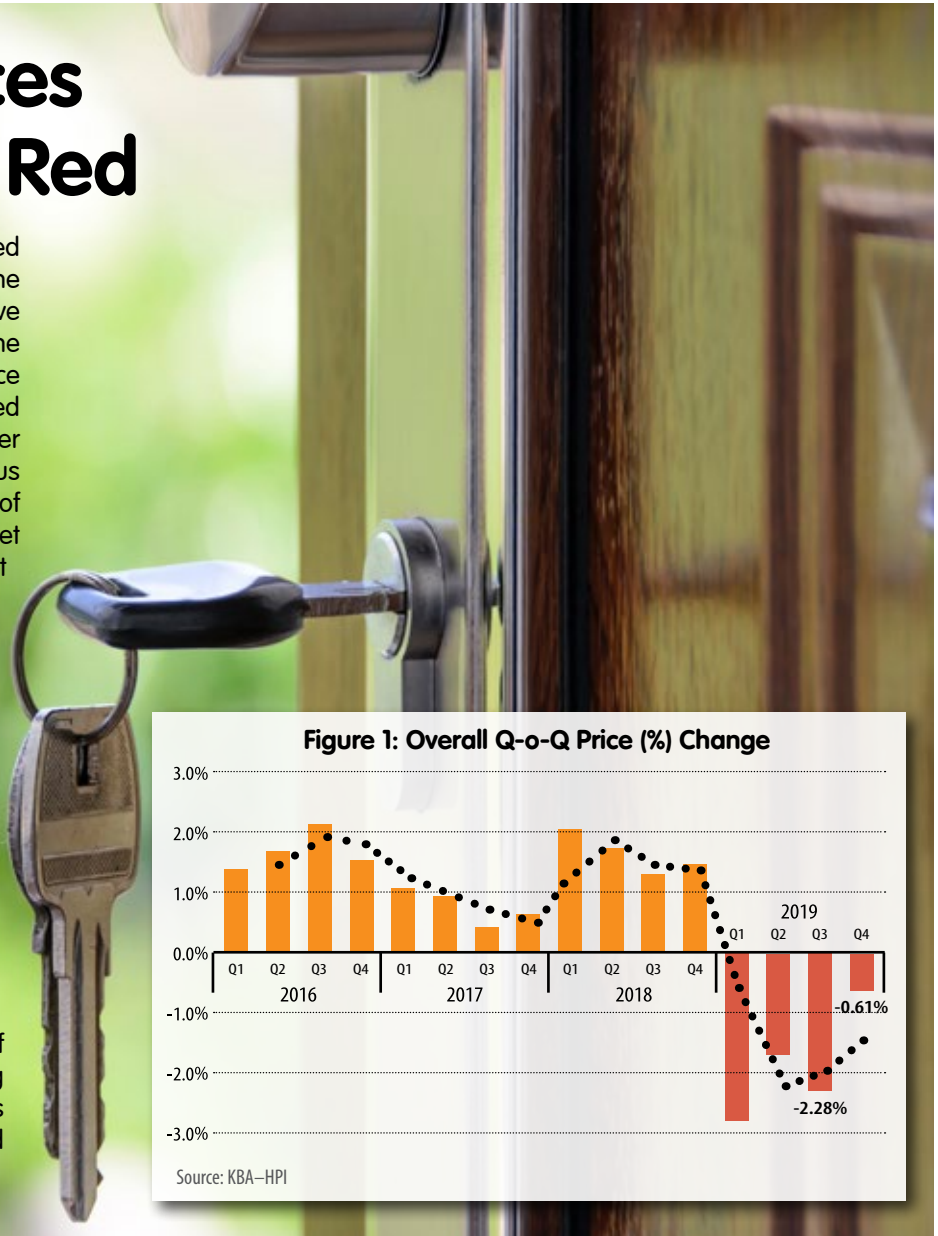
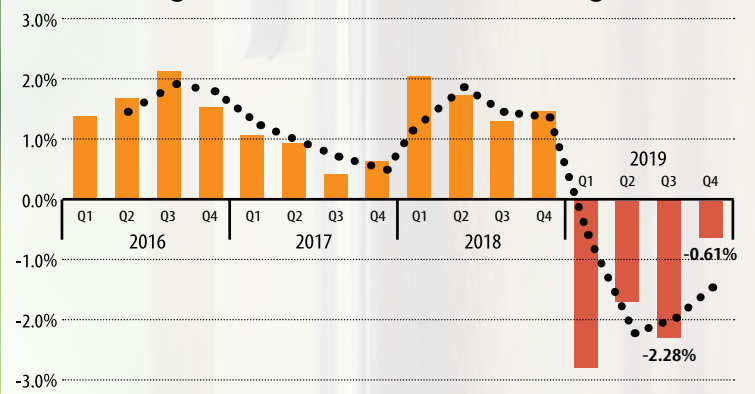


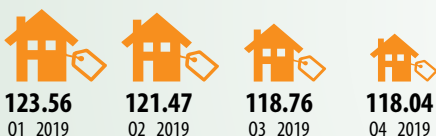
Figure 1: Overall Q-o-Q Price (%) Change



Source: KBA-HPI

The Numbers at a Glance

1 Growth in House prices remained subdued in Quarter 4 of 2019.



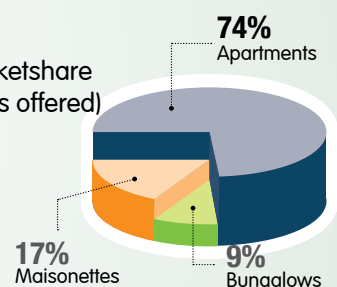
* Based on Base period Q1_2013

2 The main prices drivers were sensitive to:

- Plinth area (size)
- No. of Bedrooms
- Location of House
- No. of Floors



3 Marketshare (units offered)



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 by 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.



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sentiments in a manner that buyers are unwilling or unable to pay the current asking prices, and thus vendors are dropping their asking prices. This negative feedback loop has thus clouded the housing market outlook and led to price rediscovery in favour of a downward correction.

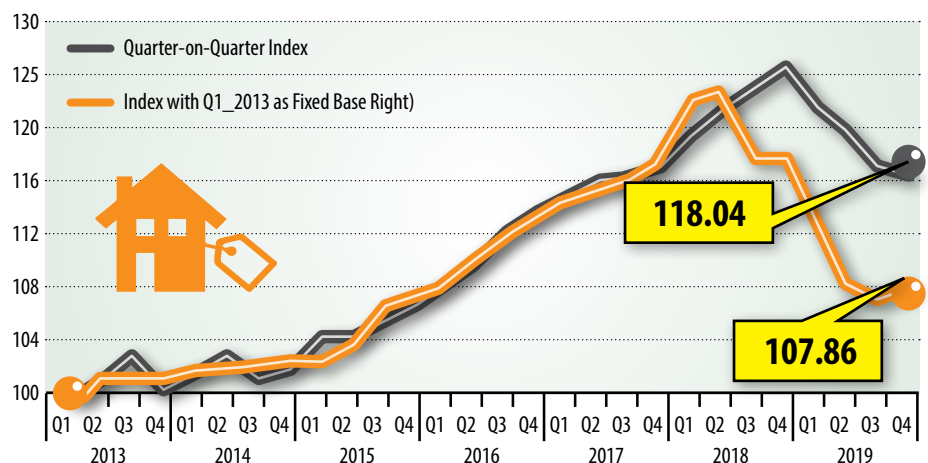
Based on the Laspeyres Index methodology (See **Technical Note**), the house price growth sustained a downward trend (**Figure 2**). Based on the moving base index, the KBA-HPI index rose by 18.04 percent during quarter four of 2019 compared to 18.76 percent growth during quarter three of 2019 while the fixed base index declined by 0.17 percent from 108.02 in quarter three to 107.86 in quarter four of 2019 (**Table 1**).

Table 1: Price Movement Series

Period	Index with a fixed base	Index with a moving base
Q2_2017	117.59	118.01
Q3_2017	117.59	118.01
Q4_2017	119.19	118.81
Q1_2018	123.83	121.29
Q2_2018	124.78	123.42
Q3_2018	119.38	125.10
Q4_2018	119.48	127.00
Q1_2019	114.30	123.56
Q2_2019	109.17	121.47
Q3_2019	108.02	118.76
Q4_2019	107.86	118.04

* Based on Base period Q1_2013

Figure 2: KBA – House Price Index Evolution



Tastes and Preferences unchanged



The determination of the qualitative and quantitative parameters that drive the house price changes is based on the estimation of a hedonic function which allows for the development of an index tracking price changes based on the house attributes.

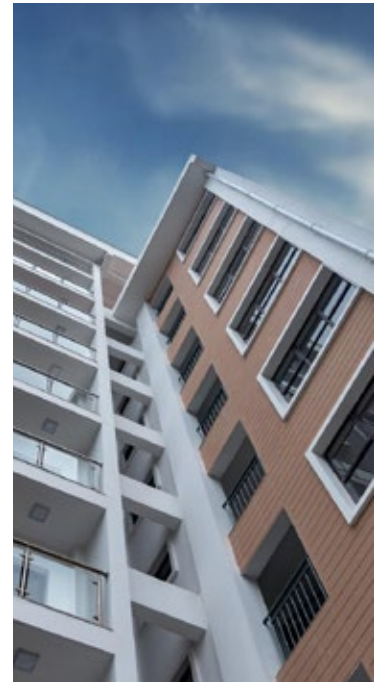
The hedonic regression estimates for the fourth quarter of 2019 are provided in **Table 2**. For comparison purposes, the results of the second and third quarters of 2019 are presented in **Table 3** and **4**.

From the hedonic function estimation, we see a positive relationship between plinth area and house prices which points to the observation that homeowners who seek house units of with a bigger plinth area eventually must contend with higher prices so are those who seek units with

more bedrooms and bathrooms.

Second, the number of floors is inversely related to house prices. This illustrates the fact that people prefer low-density buildings over higher ones as high densities are seen as being not only overcrowded but also lacking in privacy and tranquillity and therefore suggest lower property prices for high-rise buildings when compared to those in low-rise buildings, with all other things being equal.

Third, location matters for house prices. Houses in **Region 3** were priced higher than those in **Region 2** and **Region 1**. Lastly, the presence of social amenities and particularly, the swimming pool is associated with higher house prices relative to those lacking social amenities.



Regions and segments

The inter-quarter sub-regional indices show significant downside price movements, with apartments in **Region 2** registering the highest decline compared to **Region 1**. Conversely, modest price appreciations were registered for bungalows in **Region 1**, albeit not sufficient to compensate for the decline in the other two regions.

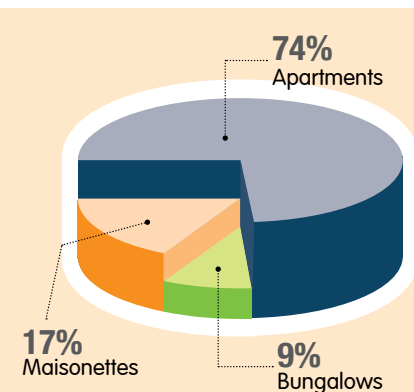


Figure 3: Total units offered

Apartments continue to dominate the market

At the top end of the market, there has been a run for apartments with the activity in the upmarket and middle-income markets muted as price correction trend continues.

Whereas apartments dominated the market its market share declined by 11 percent from 85 percent in quarter

three to 74 percent during quarter four of 2019.

The share of Maisonettes bottomed out by 7 percent from 10 percent during quarter three to 17 percent during quarter four. On the other hand, the share of bungalows was subdued at 9 percent.

Table 2: Housing Price Index Drivers for Quarter 4 of 2019

Source	SS	df	MS
Model	69.00	9	7.67
Residual	8.07	119	0.07
Total	77.07	128	7.73

No. of Obs. = 129
 F(12, 255) = 113.090
 Prob > F = 0.000
 R-squared = 0.895
 Adj R-squared = 0.887
 Root MSE = 0.260

Natural logarithm of Property Value	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Plinth area	0.439	0.082	5.340	0.000	0.276	0.602
No. of Bedrooms	0.190	0.046	4.130	0.000	0.099	0.282
No. of Bathrooms	0.099	0.087	1.140	0.255	-0.073	0.272
No. of Floors	-0.762	0.283	-2.690	0.008	-1.323	-0.201
Age of house	0.000	(omitted)				
Locational Dummy						
Region 2	0.499	0.123	4.050	0.000	0.255	0.743
Region 3	0.600	0.113	5.280	0.000	0.375	0.824
Type of House						
Apartments	-0.636	0.224	-2.840	0.005	-1.078	-0.193
Bungalows	-0.928	0.248	-3.750	0.000	-1.418	-0.438
Maisonette	-	-	-	-	-	-
Other Drivers						
Presence of S. Pool	9.003	3.618	2.490	0.014	1.838	16.168
Constant	14.381	0.615	23.370	0.000	13.163	15.600



Housing Price Index
 Quarter 4, 2019  **118.04**

Table 3: Housing Price Index Drivers for Quarter 3 of 2019

Source	SS	df	MS
Model	22.194	9	2.466
Residual	8.609	261	0.026
Total	28.587	340	0.091

No. of Obs. = 341
 F(12, 255) = 94.810
 Prob > F = 0.000
 R-squared = 0.721
 Adj R-squared = 0.713
 Root MSE = 0.161

Natural logarithm of Property Value	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Plinth area	0.287	0.055	5.19	0.000	0.1786	0.3963
No. of Bedrooms	0.092	0.033	2.79	0.006	0.0272	0.1568
No. of Bathrooms	0.065	0.027	2.37	0.018	0.0109	0.1183
No. of Floors	0.232	0.069	3.36	0.001	0.0962	0.3681
Age of house	0.000	(omitted)				
Locational Dummy						
Region 2	0.128	0.043	2.99	0.003	0.044	0.212
Region 3	0.915	0.058	15.83	0.000	0.801	1.029
Type of House						
Apartments	-1.760	0.413	-4.26	0.000	-2.573	-0.947
Bungalows	-0.200	0.089	-2.25	0.025	-0.374	-0.025
Maisonette	-	-	-	-	-	-
Other Drivers						
Presence of Elevator	-1.692	0.480	-3.52	0.000	-2.637	-0.748
Constant	15.437	0.406	38.07	0.000	14.639	16.235



Housing Price Index
 Quarter 3, 2019  **118.76**

Table 4: Housing Price Index Drivers for Quarter 2 of 2019

Source	SS	df	MS
Model	23.071	9	2.563
Residual	5.516	331	0.021
Total	30.803	270	0.106

observations = 271
 F (18, 179) = 121.29
 Prob > F = 0.00
 R-squared = 0.807
 Adj R-squared = 0.800
 Root MSE = 0.145

Natural logarithm of Property Value	Coef	Std. Err.	t - stats	P> t	[95% Conf. Interval]	
Plinth area	0.378	0.042	9.030	0.000	0.296	0.461
No. of Bedrooms	0.035	0.040	0.860	0.391	-0.045	0.114
No. of Bathrooms	0.076	0.038	2.000	0.047	0.001	0.151
No. of Floors	0.093	0.073	1.270	0.205	-0.051	0.237
Age of house	0.161	0.152	1.060	0.291	-0.138	0.461
Locational Dummy						
Region 2	0.258	0.046	5.640	0.000	0.168	0.348
Region 3	0.893	0.056	16.070	0.000	0.783	1.002
Type of House						
Apartments	-0.260	0.083	-3.140	0.002	-0.423	-0.097
Bungalows	-0.318	0.081	-3.920	0.000	-0.478	-0.158
Maisonette	-	-	-	-	-	-
Other Drivers						
Presence of Elevator	-2.717	0.851	-3.190	0.002	-4.393	-1.041
Constant	13.783	0.230	59.870	0.000	13.329	14.236



Housing Price Index  **121.47**
 Quarter 2, 2019

Table 5: Inter quarter Sub-Regional indices (Moving Base): Q1-2013 – Q2-2019

	Region 1			Region 2			Region 3		
	Apart-ments	Bunga-lows	Maison-ettes	Apart-ments	Bunga-lows	Maison-ettes	Apart-ments	Bunga-lows	Maison-ettes
Q1-2013	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Q2-2013	100.06	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	103.60	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	104.27	108.65	103.83	106.70
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	106.04	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
Q2_2018	113.30	107.92	109.49	110.96	106.33	108.70	112.31	107.80	110.76
Q2_2019	103.58	100.58	104.35	102.83	107.41
Q3_2019	100.97	114.91	98.75	95.66	99.22	99.84	99.36	.	102.67
Q4_2019	102.6	87.15	101.27	.	.	101.16	99.04	.	.

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

Note: dot (.) implies that the number of observations is insufficient to estimate the hedonic function and consequently the index.

THE DEFINITION OF THE SUB-REGIONS



REGION 1

Athi River, Mlolongo, Mavoko, Nakuru, Ngong, Ruaka, Syokimau, Embakasi, Kahawa Wendani, Thika, Mtwapa, Utange, Kitengela, Kiambeni, 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, Membedley, 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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