

HOUSING PRICE INDEX

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House Prices: The Sustained Softening

The third quarter of 2019, was characterised by continued decline in the rate of growth of house prices. According to the Kenya Bankers Association – House Price Index (KBA-HPI), house prices declined by 2.28 percent during the quarter compared to a 1.72 percent decline in the second quarter.

As Figure 1 shows, the rate of growth of house prices has remained in the negative territory for three consecutive quarters during 2019. The observed sustained decline in house prices is an indication of an emerging trend whereby the prices have transitioned from a continuous positive trend seen since the last guarter of 2014. If the price softening is sustained into the last quarter of the year and going forward, it will be a pointer to a market correction that comes after a long streak of house price increases.





Highlights

House prices remained subdued for three consecutive quarters, registering a 2.28 percent decline during the third quarter. The house prices are evidently sensitive to the size of the house, location and amenities. Even then, the observed trend is underpinned by a supply-demand imbalance.

Continued dominance of the apartments in the housing market is a clear demonstration of the predominance of the middleincome segment of the population.



Technical Note

The index follows a Laspeyers 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:

Where; Γ_1 is the shadow price from the estimated hedonic function for the current quarter;

 $\stackrel{\wedge}{P}_{_{0}}$ 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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Underlying the observed decline is supply-demand imbalances whereby both supply and demand manifest weaknesses but with a skew towards weaker demand. From a supply-side perspective, the 25 percent increase in housing units transacted during the quarter is largely a reflection of supply-spillovers rather than new properties entering the market as the supply-side of the market has been characterized by a slump in approvals of housing plans, a decline in cement production and consumption, and muted growth in advances to building and construction sector compounding the tapering off momentum.

On the demand side, three factors explain the subdued outlook. First, there is a clear disconnect between the overall output growth in the economy and effective demand by potential home owners. Secondly, the tight credit conditions that have seen a decline in advances to households has adversely influenced the ability to access appropriate resources toward home ownership. Lastly, households' disposable incomes remain constrained.

The Laspeyres Index methodology (See Technical Note) depicts the observed decline in the rate of growth of house prices over the first three quarters of 2019 whether looked from the fixed or moving base. (Table 1 and Figure 2)

Table 1: Price Movement Series

Period	Index with a fixed base	Index with a moving base						
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	126.995						
Q1_2019	114.30	123.56						
Q2_2019	109.17	121.47						
Q3_2019	108.02	118.76						
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Based on Base period Q1_2013







Tastes and Preferences Maintained

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 graphical representation of the effects of attributes are illustrated in **Figure 3** and the hedonic regression estimates for the Third Quarter of 2019 are provided in **Table 2.** For comparison purposes, results of other quarters, specifically quarter 1 and quarter 2 of 2019 are presented in **Table 3** and **4**.

The following can be inferred. First, in the upper market properties are highly-priced compared to the middle and low-income markets. All else being equal, the prices of houses in the upper market (**Region 3**) and middle income (**Region 2**) segments were on average higher compared to lower-income segments (**Region 1**). The price elasticities for the respective regions indicate a skewness to the upperincome market.

Second, houses with larger plinth area are priced higher than those with smaller plinth area. This points to the fact that homeowners who seek house units with a bigger plinth area eventually must contend with a higher price for the unit. In addition, the number of bedrooms, bathrooms, and the total number of floors have a positive effect.

Figure 3: Effects of housing structural characteristics on property price





Sub-Regional House Price Growth cools down in Q3

he inter-quarter subregional indices shows significant downside price movements with apartments in region 2 registering the highest decline compared to region 1. Conversely, price appreciations were registered for bungalows in region 1. Against this background, these adjustments reflect the rapid cooling of houses in the middle-income and upper-income segment of the house market.

Pockets of strength remain in the apartments market



The outlook reveals that in Quarter 3 of 2019, the upmarket and middleincome markets (Bungalows & Maisonettes) disengaged, while the lower market segment (apartments) is still more popular.

In particular, the apartments accounted for 84.75 percent compared to 9.68 percent and 5.57 percent of Maisonettes and Bungalows respectively. The dominance may well illustrate a case of affordability for a financially-constrained household sector which is driving the uptake of apartments.





Table 2: Housing Price Index Drivers for Quarter 3 of 2019

No. of Obs. = 341				
F(12, 255) = 94.810	MS	df	SS	Source
Prob > F = 0.000	2.466	9	22.194	Model
R-squared = 0.721	0.026	261	8.609	Residual
Adj R-squared = 0.713	0.091	340	28.587	Total
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 CD 118.76



Table 3: Housing Price Index Drivers for Quarter 2 of 2019

Source	SS	df	MS	# observations $= 27^{\circ}$
Model	23.071	9	2.563	F(18, 179) = 121.29 Prob > F = 0.00
Residual	5.516	331	0.021	R-squared = 0.807
Total	30.803	270	0.106	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 Quarter 2, 2019 Contract 121.47



Table 4: Housing Price Index Drivers for Quarter 1 of 2019

Source	SS	df	MS	# observations $= 268$
Model	192.671	12	16.056	F(18, 1/9) = 251./4 Prob > F = 0.00
Residual	16.264	255	0.064	R-squared = 0.92
Total	208.934	267	0.783	Adj R-squared = 0.92

Root MSE =0.25

Natural logarithm of Property Value	Coef	Std. Err.	t - stats	P> t	[95% Con	ıf. Interval]
Plinth area	-0.022	0.041	-0.540	0.592	-0.102	0.058
No. of Bedrooms	0.324	0.032	9.990	0.000	0.260	0.388
No. of Floors	0.452	0.105	4.290	0.000	0.244	0.659
No. of Bathrooms	0.268	0.054	4.930	0.000	0.161	0.376
Age of house	0.161	0.152	1.060	0.291	-0.138	0.461
Locational Dummy						
Region 2	0.114	0.100	1.140	0.255	-0.083	0.312
Region 3	0.390	0.074	5.250	0.000	0.243	0.536
Type of House						
Apartments	0.878	0.125	7.050	0.000	0.633	1.124
Bungalows	0.343	0.112	3.070	0.002	0.123	0.563
Maisonette	-	-	-	-	-	-
Other Drivers						
Elevator	-1.393	0.580	-2.400	0.017	-2.534	-0.251
Presence of Borehole	-3.314	0.583	-5.690	0.000	-4.462	-2.166
Presence of DSQ	-0.130	0.195	-0.670	0.504	-0.514	0.253
Gated Community	0.000	(omitted)				
Generator	0.000	(omitted)				
Garage Parking	0.000	(omitted)				
Constant	13.339	0.307	43.520	0.000	12.735	13.942
Constant	14.33	0.41	34.83	0.00	13.52	15.14





		Region 1			Region 2			Region 3	
	Apart- ments	Bunga- Iows	Maison- ettes	Apart- ments	Bunga- Iows	Maison- ettes	Apart- ments	Bunga- Iows	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

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

* 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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