



HOUSING PRICE INDEX

JANUARY 2018

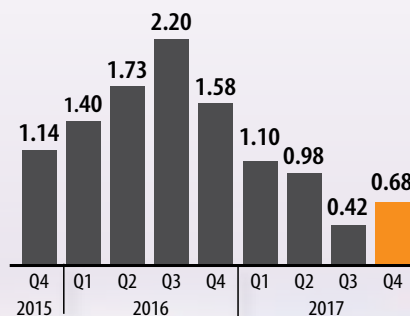
ISSUE 13

House Prices still Subdued in Quarter Four of 2017

There was a 0.68 percent overall increase in house price during the fourth quarter of 2017 compared to the previous quarter's 0.42 percent (Figure 1). The rise in the house prices in quarter four should not be seen as a respite for the declining trend given that the increase was marginal and the demand side of the market remained fairly suppressed.

The trend on suppressed growth of house prices mirrors that

Figure 1: Overall Price Change (%)



of credit growth to the private sector. Credit is evidently integral in influencing the demand and supply dynamics in the housing market. The results for quarter four continue to support the evidence for depressed demand in the economy and the slowdown in credit expansion, households relying on the credit market towards home acquisition have been adversely effected a trend that set in quarter for of 2016.

Continued on page 2...



Highlights

1 House prices rose by 0.68 percent during the fourth quarter of 2017 compared to the 0.42 percent rise during the third quarter of 2017.

2 The trend in the rate of growth of house prices mirrors that of credit in the private sector.

3 The generally depressed demand on the back of credit constraints influenced the housing market dynamics

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:

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

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 still Subdued in Quarter Four of 2017

...continued from page 1

This has consequently influenced the house prices trend. The mild house price increase in quarter four would be arising from likelihood of the recovery in demand and supply being at best gradual and coupled with a lagged effect of the credit expansion to private sector.

The political environment experienced in quarter three of 2017 seems to be affecting both sides of the market though having eased off a little bit. Potential home buyers could have relaxed the hold back on decisions to invest in home ownership though minimal by revising their expectations upon the conclusion of the general elections. However, the supply side dynamics may have not changed given the constrained financing and the time lag necessary for any supply changes.

Since the base period of the first quarter of 2013, house prices have

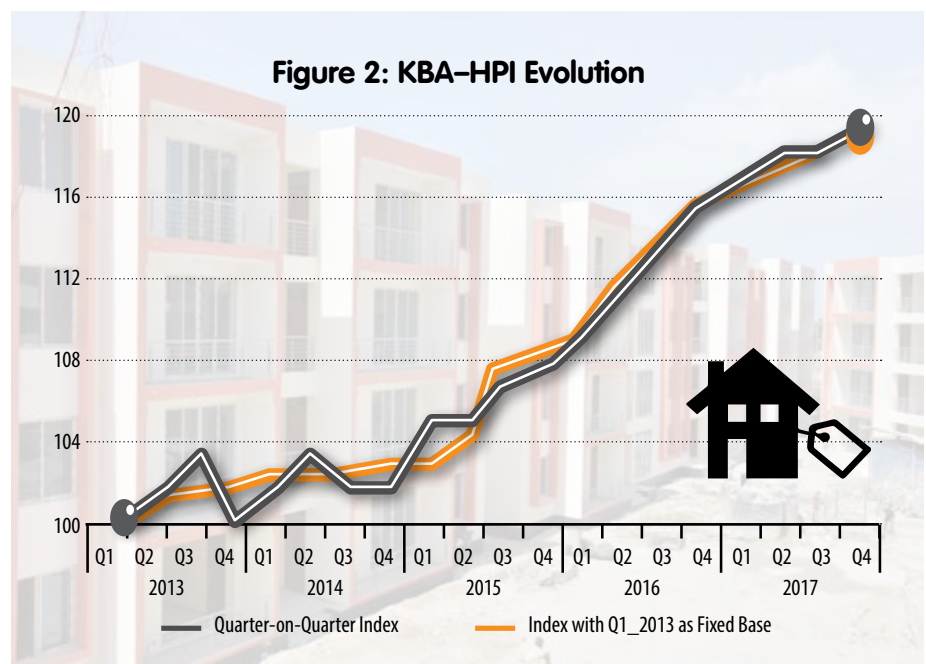
risen by 19.19 percent up to the end of the fourth quarter of 2017 as shown on the fixed base index (Figure 2).

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 |

* Based on Base period Q1_2013

Figure 2: KBA-HPI Evolution



House price drivers unchanged in last quarter



Master bedroom with sweeping views of the ocean.

The house price drivers in quarter 4 of 2017 remained largely unchanged compared the previous quarters. However, a unique outcome is evidenced in quarter 4 of 2017 where the time dummy appears insignificant

in driving the house prices. This implies that then changes in prices between quarter 3 and quarter 4 of 2017 is not significance thus supporting the argument that the mild rise in the house prices in quarter 4 of 2017 as compared

to quarter of 2017 in not a respite for the declining trend.

The size of the house as captured by plinth area of the house, number of bedrooms, presence of backyard, Gymn area were among the core drivers of house prices during the quarter. The effect of the number of bathrooms in influencing house prices during the quarter appeared fairly muted in terms of its significance at 5 percent significance alluding to the fact that these can be a shared facility within the house. Similarly, is the presence of DSQ implying that potential home owners are more concerned by utilizing the area set for DSQ to something else such as setting an additional bedroom.

Attributes such as presence of swimming pool, presence of garage or parking lot, proximity to basic social amenities, gated community, borehole for consistent water supply significantly

Apartments still dominate the market

On the sub regional indices, apartments took the upper hand in terms of the total number of units offered in the market. The rise in the prices of bungalows and maisonettes remained muted in the entire quarter with prices of bungalows being more static compared to those of maisonettes. Apartments accounted for 70.52 percent of the total number of units sold in Q4 of 2017 with maisonettes and bungalows accounting for 17.95 percent and 11.54 percent respectively. We however note the dominance of the apartment in the proportion of units sold declined from 81.47 percent in Q3 of 2017 with share of maisonettes and bungalows rising from 8.63 and 9.90 percent respectively.

Across all the market segments (Lower market segment, middle and upper



Prices of bungalows and maisonettes remained muted in Q4.

market segments) prices of apartments continued to register high increases compared to prices of bungalows and maisonettes though modest. The rise in the price of apartments compared to bungalows and maisonettes support the argument of affordability to potential home buyers given the lower cost of construction per unit on the developers' side. More market activity

still appears to be skewed on the lower end of the market compared to the middle and the upper market segment. This points out to two possible reason: First, the affordability aspect and secondly more supply of units in the lower segment given the availability of land compared to the upper market segment.

Table 2: 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 (Q2_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 2: Housing Price Index Drivers for Quarter 3_2017

| Source | SS | df | MS |
|----------|----------|-----|--------|
| Model | 142.5854 | 24 | 5.9411 |
| Residual | 30.1178 | 368 | 0.0818 |

Prob > F = 0.000
 # observations = 393
 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 (Q2_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 3: Housing Price Index Drivers for Quarter 2_2017

| Source | SS | df | MS |
|----------|------------|-----|-------------|
| Model | 181.738061 | 25 | 7.26952244 |
| Residual | 48.809742 | 505 | 0.096652954 |

Prob > F = 0.0000
observations = 530
R-squared = 0.7883
Adj R-squared = 0.7778

| LN VALUE | Coef | Std. Err. | t - stats | P> t | [95% Conf. Interval] | |
|---------------------------|---------|-----------|-----------|-------|----------------------|-----------|
| Plinth area | 0.4157 | 0.0453 | 9.19 | 0.000 | 0.3268272 | 0.5046411 |
| Number of Bedrooms | 0.0904 | 0.0366 | 2.47 | 0.014 | 0.0183967 | 0.1623474 |
| Number of Bathrooms | 0.0845 | 0.0378 | 2.24 | 0.026 | 0.0103154 | 0.1587486 |
| House type | 0.5055 | 0.1046 | 4.83 | 0.000 | 0.3000746 | 0.7109892 |
| Age | -0.1619 | 0.1097 | -1.48 | 0.141 | -0.3774033 | 0.0536086 |
| Time dummy (Q2_2017) | 0.0212 | 0.1362 | 0.16 | 0.876 | 0.2464747 | 0.2888444 |
| Locational Dummy | 0.0014 | 0.0016 | 0.88 | 0.380 | 0.0017551 | 0.0045973 |
| Number of floors | -0.0014 | 0.0140 | -0.10 | 0.918 | -0.0260627 | 0.0289512 |
| Presence of Backyard | 0.2265 | 0.1093 | 2.07 | 0.039 | 0.011856 | 0.4411378 |
| Presence of Balcony | 0.8346 | 0.1281 | 6.51 | 0.000 | 0.5828438 | 1.086279 |
| Presence of DSQ | 0.0160 | 0.0600 | 0.27 | 0.789 | -0.1017523 | 0.1338461 |
| Presence of Gymn | 0.2388 | 0.1131 | 2.11 | 0.035 | 0.0164915 | 0.4610469 |
| Swimming pool | 0.0300 | 0.0765 | 0.39 | 0.695 | -0.1203983 | 0.1803478 |
| Prox. to Social amenities | 0.0511 | 0.0778 | 0.66 | 0.512 | 0.1017768 | 0.2039063 |
| Prox. of Master ensuite | 0.1395 | 0.0821 | 1.70 | 0.090 | -0.0217546 | 0.3006973 |
| Garage/parking | 0.0588 | 0.0931 | 0.63 | 0.528 | 0.1242086 | 0.2417415 |
| Separate dining | -0.1078 | 0.1044 | -1.03 | 0.302 | -0.3128846 | 0.0973072 |
| Gated community | 0.1457 | 0.0573 | 2.54 | 0.011 | 0.0331975 | 0.2582218 |
| Presence of borehole | 0.1223 | 0.0806 | 1.52 | 0.130 | 0.0359885 | 0.280673 |
| Presence of Guestroom | -0.3258 | 0.1771 | -1.84 | 0.066 | -0.6737706 | 0.0222039 |
| Presence of Jacuzzi | 0.8996 | 0.2068 | 4.35 | 0.000 | 0.4932141 | 1.305959 |
| Presence of Elevator | -0.2033 | 0.3262 | -0.62 | 0.034 | -0.8441425 | 0.4376278 |
| Backup - generator | 0.9307 | 0.1031 | 9.03 | 0.000 | 0.728094 | 1.133231 |
| Presence of woodedfloor | 0.0963 | 0.0739 | 1.3 | 0.193 | -0.0489241 | 0.2414805 |
| Constant | 13.6684 | 0.4489 | 30.45 | 0.000 | 12.78643 | 14.5504 |

Housing Price Index
Quarter 2, 2017

+117.52

Table 5: Inter quarter Sub-regional indices (Moving base): 2013 - 2017

| | 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 |

Table 6: Inter quarter Sub-regional indices (Fixed base): 2013 - 2017

| | 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 |

* 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.

© Kenya Bankers Association Centre for Research on Financial Markets and Policy®

Kenya Bankers Association

13th Floor, International House, Mama Ngina Street
P.O. Box 73100– 00200 NAIROBI
Telephone: 254 20 2221704/2217757/2224014/5
Cell: 0733 812770/0711 562910
Fax: 254 20 2221792
Email: research@kba.co.ke
Website: www.kba.co.ke



KENYA BANKERS
ASSOCIATION

One Industry. Transforming Kenya.