



Cavendish  
Maxwell

Whitepaper  
**Currency Adjusted Real Estate  
Indices**

NOINITIO



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## Realism in international real estate investment currency exposure

International real estate investors are inadvertent currency speculators, facing currency risk from unhedged investments. As a result, they receive two returns: the performance of the real estate asset itself, plus the return on the currency used to purchase the security. Currency volatility can be significant, and the return from the currency can sometimes swamp the gain or loss on the foreign security.

It is hard to disagree with the assertion that 'Because global real estate portfolios contain assets influenced by different national economies, with very different drivers, growth rates, and risk, the correlation of total returns between assets in these markets can be very low'<sup>1</sup>. However, the effect of currency adjusted is considerable. The Australian Dollar, for example, is a relatively volatile currency, with its value strongly correlated with commodity prices, and capable of daily movements of up to 1% either way. The authors compared an optimal global portfolio (on the efficient frontier in terms of returns vs risk) with a US portfolio, and found that it would have outperformed by a colossal 171%. But this out-performance is overstated if the effect of exchange rate movements is considered. The outperformance is still visible, but it falls to 92%, a difference that every investor should regard as very significant.<sup>2</sup> The effect of falls in local currency against the USD are the most obvious recent example, especially for countries such as Nigeria and Egypt that have experienced both very rapid and considerable declines. Experienced local investors in both those countries have in recent decades sought to balance their exposure to their national currency with USD investments, whether in the Gulf or the USA itself.

The Russell Group's Conscious Currency™ investment approach concludes that investors should measure and model currency as a separate exposure set, based on the behaviour of specific currency markets. Crucially, in this approach, *'investors need not believe that currency is an asset class, nor that it has a positive long-term return: they simply need to believe that a better description of portfolio risks will generally allow better management of those risks'*<sup>3</sup>. This entire approach is in marked contrast to a 'diversified currency' investment approach, which largely makes the heroic assumption that investors are of sufficient size to diversify adequately as to minimise currency risk, despite the fact that 'for investors with only limited capital to deploy a currency diversification strategy via a large portfolio of properties might not be an option'<sup>4</sup>. Such an investor would be well advised to attend to the Russell Group's recommendation.

<sup>1</sup> Hastings, A. and Nordby, M. (2009) Benefits of Global Diversification on a Global Portfolio. *Journal of Superannuation Management* 3(1) 73-82. Available at: [https://www.fssuper.com.au/media/library/CPD/PDFs/Journals/FS\\_Super/Volume%203/Number%201/JSM\\_v3n1\\_Hastings\\_09.pdf](https://www.fssuper.com.au/media/library/CPD/PDFs/Journals/FS_Super/Volume%203/Number%201/JSM_v3n1_Hastings_09.pdf) Retrieved 21 May 2019. P.73

<sup>2</sup> Ibid.

<sup>3</sup> Russell Group (2019) Currency Overlay. Available at: <https://russellinvestments.com/nz/solutions/implementation-services/currency-management/currency-overlay> Retrieved 17 May 2019.

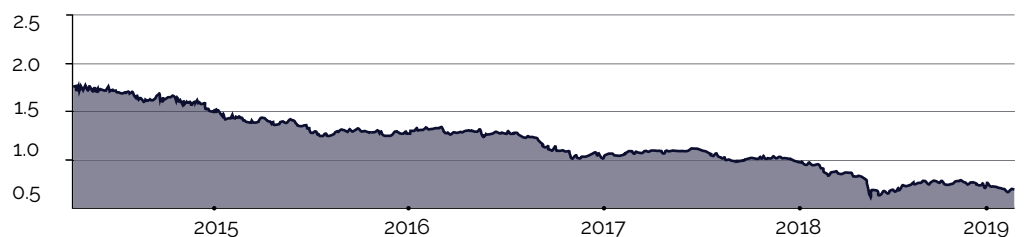
<sup>4</sup> Bejot, P. and Livingstone, N. (2018) Revisiting currency swaps: hedging real estate investments in global city markets. *Journal of Property Investment & Finance* 36(2), 191-209, p.192.



### Why it matters: an example

Suppose the Avatar real estate company which both accounts and funds itself in UAE dirhams (AED) were to have decided to make a development investment in a country outside the region – let's call it Kommodistan – in 2014.

Here is what happened to the exchange rate between the Kommodian Stellar (K\$) and the AED since then. Evidently the Stellar has suffered both from the appreciation of the USD and the dependence of the Kommodian economy on commodity prices.



To understand the consequences of this change in exchange rates for international real estate investment, let us use a simplified annual model where all of Avatar's investments are made at the end of December 2013. Let us further assume that Avatar's cost of capital, the amount it must make on its investments to break even, is 10%.

**Suppose the cashflows in local currency were projected as follows:**

10% Discount rate	K\$				
Year	2014	2015	2016	2017	2018
Cash flows	-1,000,000	250,000	300,000	500,000	500,000
DF	1	0.91	0.83	0.75	0.68
Discounted Cash flows	-1,000,000	227,273	247,934	300,526	341,507
NPV	117239				

Avatar could look forward to a return of 12% on its original investment, and a positive Net Present Value of K\$117,239. If Avatar had presumed no change in the value of the K\$ relative to the AED, then the original investment of AED1,527,449 would have produced an NPV of AED184,585.

But the exchange rate between the two did change – a lot. One K\$ converted to AED at the following rates on each December 31:

2018	0.694034
2017	0.968773
2016	1.044233
2015	1.258697
2014	1.574429



If we now restate the results in AED, they look very different indeed. What would have been a successful investment has because of the depreciating K\$ been turned into a catastrophe.

10% Discount Rate	AED				
Year	2014	2015	2016	2017	2018
Cash flows	-1,574,429	314,674	313,270	387,509	347,017
DF	1	0.91	0.83	0.75	0.68
Discounted Cash flows	1,574,429	286,068	258,901	291,141	237,017
NPV	-501,302				

Avatar has been adversely affected on two fronts: one, because the K\$ has fallen, the value in AED is less; and secondly, because the positive cashflows are back-ended, as they inevitably are in any real estate development that is not pre-sold. The decline in the value of the K\$ has had a progressively worse effect over time. If the investment had continued on into 2019, the chart above tells us that nothing much would have improved.

One final look at Avatar's project. What cashflows in K\$ would have been needed to generate the same return that was originally projected? The answer below – a required rise of 58% in cashflow – shows how unrealistic any expectation is that local prices will rise to compensate for any currency fall.

10% Discount Rate	AED				
Year	2014	2015	2016	2017	2018
Cash flows	-1,574,429	496,859	494,642	611,863	547,927
DF	1	0.91	0.83	0.75	0.68
Discounted Cash flows	1,574,429	451,690	408,795	459,702	374,242
NPV	120,000				
Cash flow multiplier	1.58				
K\$					
Revised Cash flows	-1,000,000	394,741	473,689	631,586	789,482



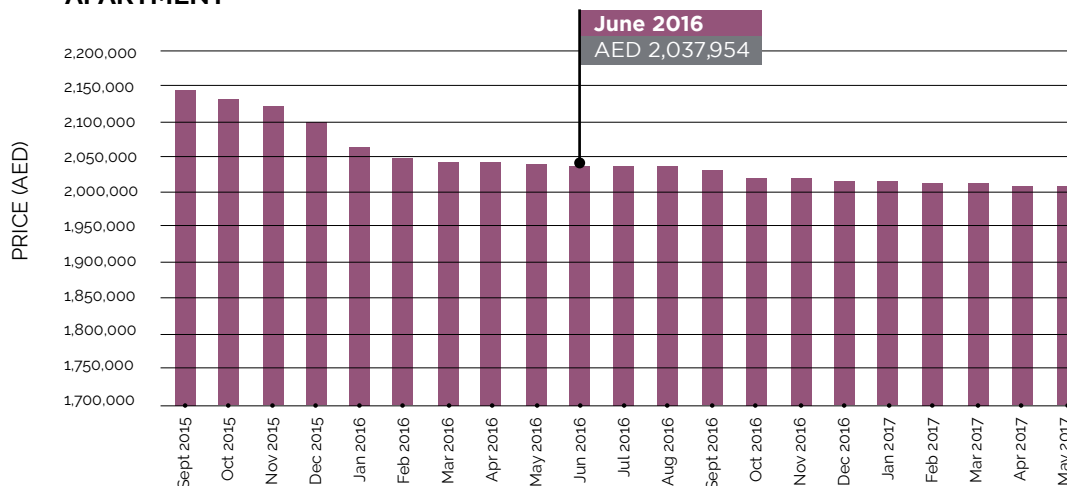
## Currency Adjusted Real Estate Indices

All existing international real estate performance indices are expressed in local currency<sup>4</sup>; some chartered surveyors publish time series in USD as well, but they are market indicator numbers not transaction-based indices. It is possible to cross-multiply real estate prices with currencies manually, but it is a relatively laborious process to have to undertake every time an international investor wants to calculate their currency adjusted returns over time, and not every smaller or individual investor has currency data immediately to hand.

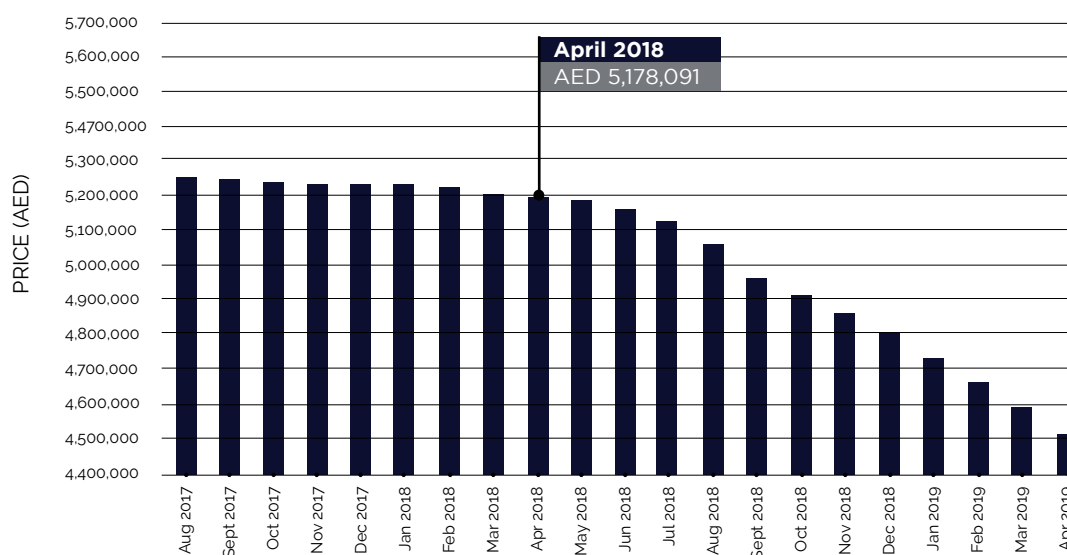
Cavendish Maxwell has therefore sought to improve investor understanding of returns in the UAE market for international investors by presenting those returns in local currencies. The resultant Currency Adjusted Real Estate indices enable instantaneous comparison of returns.

The starting point for the new indices will be the Property Monitor indices for the UAE. For the purposes of this whitepaper, I have used the overall house price performance index, both for apartments and villas. In AED, the track looks as follows:

### APARTMENT

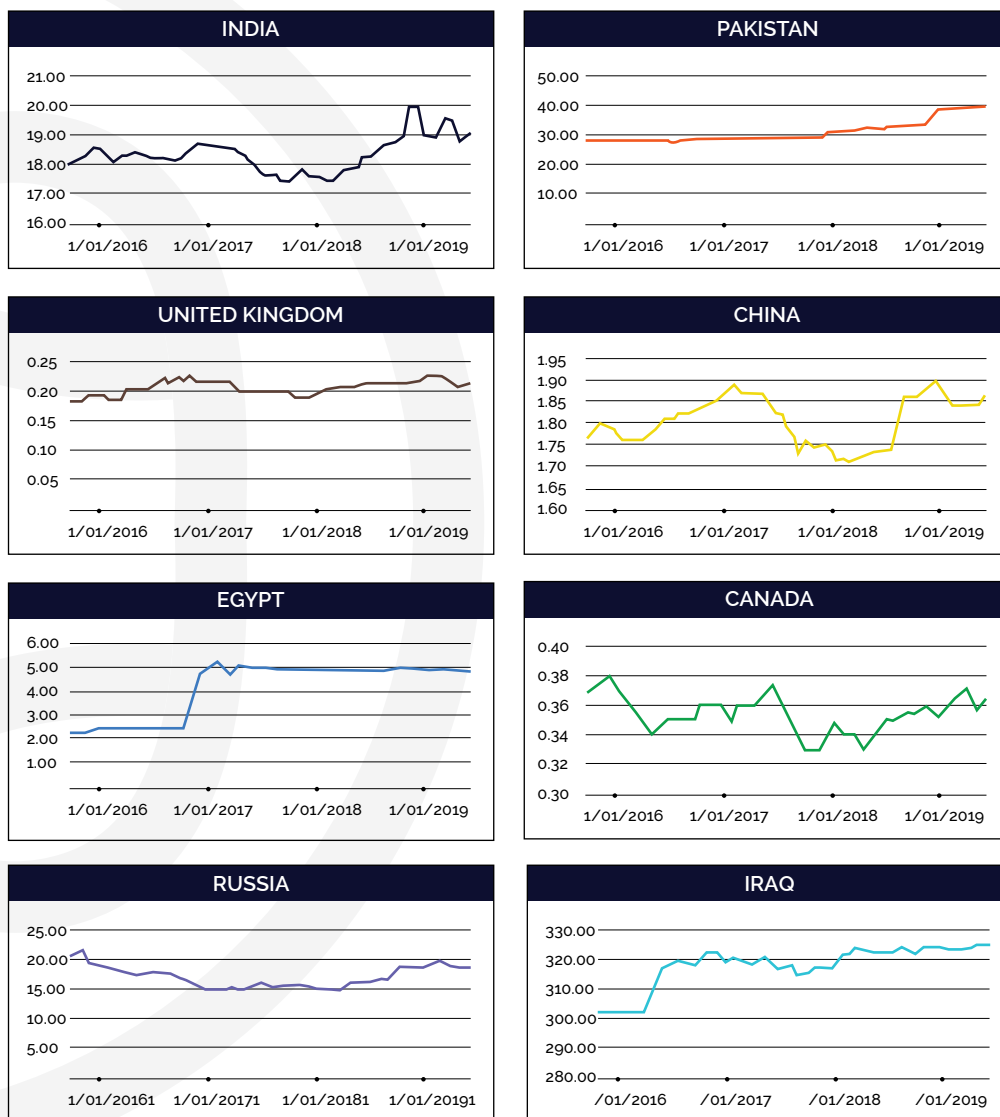


### VILLA/TOWNHOUSES





Next, the graphs below show what has happened to the currencies of the key markets for the Currency Adjusted Real Estate indices in terms of the USD and therefore the AED.



Source: Yahoo Finance

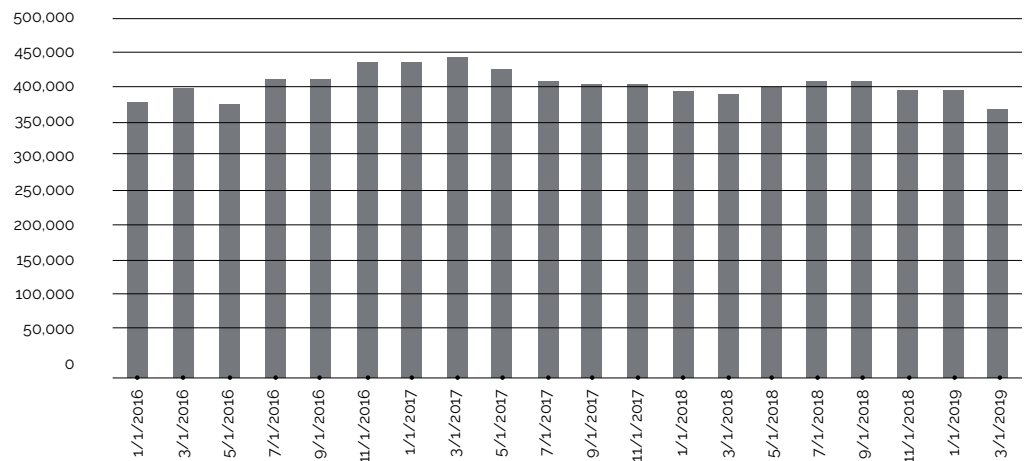
The charts above deliver the truth of international currency volatility since 2016. Compared to the effect of Egyptian and Iraqi devaluation, Brexit, tension with Russia, and the troubles of the Pakistani budget are relatively small. Noticeably too, intra-year volatility is higher for Canada than it is for Pakistan or Russia.

Now putting the two together, here are the charts for the Currency Adjusted Real Estate indices for Dubai apartments and villas over the same period:





## DUBAI APARTMENT IN UK STERLING



## A rational strategy

The evidence of Cavendish Maxwell's Currency Adjusted Real Estate indices is that real estate returns are as the Russell Group expects for equities, heavily influenced by currency movements. As the US Federal Reserve stops their program of quantitative easing and increases interest rates – gradually, to be sure – the strength of the USD has been marked. The net result has been that in local currencies, investment in USD-denominated markets has been far more successful than the local market performance would itself indicate. The actual results in local currency are indicated by the Currency Adjusted Real Estate indices, and in recent years, unhedged investors in Egyptian pounds and Iraqi dinars will have profited considerably by the fall in their currency against the USD to which the AED is pegged.

This is not to suggest, however, that an unhedged investment strategy is either appropriate or even for the most part even sensible, as the Avatar example above demonstrates. There are a number of alternative strategies that real estate companies have adopted in practice to mitigate currency risk, ranging from the ineffectual to the cautious. The most risk-averse is that of currency hedging. The logic of eliminating some or all of the foreign exchange volatility from holding international assets is impeccable, and the methods well-known and readily available to all but a small minority of international investors. A currency swap would – at the price of introducing credit risk – eliminate the currency risk, at least of the initial capital, hedging the terminal value being inherently difficult to achieve because of uncertainty<sup>5 6</sup>. The effect is to produce a floor below which the exchange rate cannot travel. This in turn prevents any reduction in the Internal Rate of Return (IRR) of the investment as a result of currency movement, albeit at the cost of reducing the overall performance of the investment. The price of the swap should therefore be factored into the Discounted Cash Flow model. The resultant currency-adjusted return using a swap should be regarded as the benchmark return for comparison both with alternative risk management strategies, and with alternative local investments.

<sup>5</sup> See Johnson, R., Lizieri, C.M., Soenen, C.M. and Worzala, E.M. (2006) Simulating currency risk on private investments in real estate. *Journal of Real Estate Portfolio Management* 12(2), 91-101 for a worked example

<sup>6</sup> See also Bejol, P. and Livingstone, N. (2018) Revisiting currency swaps: hedging real estate investments in global city markets. *Journal of Property Investment & Finance* 36(2), 191-209 for a further worked example for a Swiss investor.



The most logical strategy, however, is less extreme and allows for the retention of some currency risk. This would be for international investors to buy put options in the local currency vis-à-vis their domestic currency. The question remains as to what strike price the option should be bought for – in my opinion, it should be at that point where sensitivity analysis indicates that the IRR will have reduced to the investment cost of capital<sup>7</sup>. Such an approach is more risk-averse than developing a hedge ratio, whereby the investors determine what percentage of their portfolio is hedged, but less so than the swap outlined above. It also has the advantage of showing actual returns for each investment and avoiding the possibility of cross-subsidisation if some investments are hedged and not others.

**In the future, no one will ignore currency when they buy property.**

The time between Johnson et al (2006) and Bejol & Livingstone (2018) saw increasing international investment in real estate, especially by individuals in residential properties. The UAE, and Dubai in particular, have been at the forefront of the international trend to acquire villas and apartments abroad. Yet the currency impact of investment has been poorly understood until now. The Cavendish Maxwell Currency Adjusted Real Estate indices should become the go-to resource for existing and potential international investors in the UAE real estate market to remedy that deficiency, using them to devise appropriate strategies to mitigate currency risk.

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<sup>7</sup> Either the WACC or cost of equity, depending on whether the project is locally funded or not



