Response to Meera's critique of the ZDBM

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Abstract

This paper responds to the criticism of the Zubair Diminishing Balance model for Islamic home financing that Ahmad Kameel Meera published in the ISRA Journal. The response argues that most of the comments of Meera are frivolous and misplaced. It reiterates that the ZDBM is much different from other models; it is cheaper for the customer without being costlier to the bank. more efficient in resource allocation and improves liquidity in the financial system. However, the mathematical appendix is a positive contribution of the paper.

Key words: *Islamic home financing, conventional model; BBA; MMP; ZDBM; Segmental murabahah*

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1. INTRODUCTION

Ahmad Kameel Meera has published an article in the current issue of ISRA Journal (2012) which "criticizes a new Islamic home financing model" based on diminishing balance as proposed in Hasan (2011) and named the ZDBM. For brevity, I shall refer to Meera's work as the *Critique*. The main points of criticism it contains are as follows (P.7).

1. ZDBM is similar to the conventional interest based loan, or at best, similar to the murabahah-based bay bi thaman ajil (BBA).
2. It is not cheaper to the customer. On the contrary, it is potentially more burdensome to him, particularly when it comes to early settlement.
3. Musharakah mutinaqisa program for home financing or the MMP is superior to the ZDBM and is recognized as fully Shari'ah compliant.

I shall deal with these observations in that order and show how the demonstrations in the *Critique* are at variance with the perceptions of its author.

II. NON-SIMILARITY WITH OTHER MODELS

All home financing models would have, as they do, some similar requirements. For example, the need for pricing, installment fixation, loan repayment and the like are common to them all. Similarities, however, need not make their substance also the same. For differences the models must be compared on the logic of their structuring and on the basis of legal observance and social efficacy of their consequences. One such similarity Meera indicates between the BBA and ZDBM. He says " ZDBM would face problems similar to those encountered in BBA financing particularly when it comes to early settlement, the balance of financing can even be more than

[1] The views expressed are of the author and need in no way be associated with INCEIF the Global University of Islamic finance where he currently works. Since the ISRA Journal does not accept as a policy comments on the material it publishes; this response is put on the internet as a short working paper.

the original financing amount (P.7)"[2] Presumably, problems of the sort could arise if the murabahah is initially contracted on the *full* value of the deferred payment as in BBA. However, in the ZDBM murabahah is *segmental;* it applies to *individual* installments, not to their collectivity. That is why ZDBM is a sort of financial innovation. It has no similarity with BBA[3].

Interestingly, the issue of similarities the *Critique* highlights has caused some serious inconsistencies in the formulation of its own arguments. Its Tables supply ample material to help fillip the proposition in the reverse direction. Table 1 below is drawn using data from Tables 1 and 3 of the *Critique*. We use the column identification as given in these tables. Columns B, C, D and E in Section 1 correspond to columns B_1, C_1, D_1 and E_1 in Section 2 of the Table.

Tab1e 1. ZDBM is different from other models which have identical structures and results

SECTION 1					SECTION 2			
	MODELS: Conventional and MMP					ZDBM		
Installment	Return of	Diminishing	4% Mark-	Installment	Return of	Diminishing	4% Mark-	Installment
	Capital	Balance	up on C	payments	Capital	Balance	up on C_1	Payments
A	B	C	D	E = B + D	B_1	C_1	D_1	$E_1 = B_1 + D_1$
0	0	80,000			0	80,000		
1	2686.54	77,313	3200.01	5886.54	4000	76,000	3200	7200
2	2794.01	74,519	3092.54	5886.54	4000	72,000	3040	7040
3	2905.76	71,614	2980.78	5886.54	4000	68,000	2880	6880
4	3021.99	68,592	2864.55	5886.54	4000	64,000	2720	6720
5	3142.87	65,449	2743.67	5886.54	4000	60,000	2560	6560
6	3268.59	62,180	2617.95	5886.54	4000	56,000	2400	6400
7	3399.33	58,781	2487.21	5886.54	4000	52,000	2240	6240
8	3535.31	55,246	2351.24	5886.54	4000	48,000	2080	6080
9	3676.72	51,569	2209.82	5886.54	4000	44,000	1920	5920
10	3823.78	47,745	2062.76	5886.54	4000	40,000	1760	5760
11	3976.74	43,768	1909.81	5886.54	4000	36,000	1600	5600
12	4135.81	39,633	1750.74	5886.54	4000	32,000	1440	5440
13	4301.24	35,331	1585.31	5886.54	4000	28,000	1280	5280
14	4473.29	30,858	1413.25	5886.54	4000	24,000	1120	5120
15	4652.22	26,206	1234.32	5886.54	4000	20,000	960	4960
16	4838.31	21,367	1048.23	5886.54	4000	16,000	800	4800
17	5031.84	16,336	854.71	5886.54	4000	12,000	640	4640
18	5233.11	11,103	653.43	5886.54	4000	8,000	480	4480
19	5442.44	5,660	444.11	5886.54	4000	4,000	320	4320
20	5660.13	0	226.41	5886.54	4000	0	160	4160
Total	**80,000**	**943,270**	**37730.85**	**117730.8**	**80000**	**840,000**	**33600**	**113600**

Data source: Meera's Tables 1 and 3.

The scrutiny as to why the details of the models – conventional and the MMP – in Section 1 are *identical* and why those for the ZDBM in Section 2 are so different from them would help clarify many misconceptions the *Critique* contains. The departures signify qualitative differences supportive of the Diminishing Balance Model.

[2] Meera shows how this could happen in the case of BBA on P. 12 but he does not show why and how this would happen in the ZDBM.

[3.] The focus of writings Meera reviews has been the comparison of MMP with the ZDBM. As such we shall skip over the references to BBA in the critique unless essential.

To Meera, the ZDBM *looks* cheaper because earlier installment payments are larger compared to those in the MMP. He then goes on to show (PP.17-19 Tables 5 and 6) as to how the variations in installment amount would affect the return on capital. But mathematics devoid of logic cannot create an srgument albeit it can help build or destroy its reasoning.. Amortization in the ZDBM at a uniform rate derives its justification from the Islamic norms of equity and fair play; the rate is not arbitrarily fixed.

It may well be noted that researches have confirmed the uniform amortization payments as the best from the viewpoint of ownership transfer to the customer (Chambers et al 2007). One disputing the claim has to show that any departure from uniformity in return of capital amounts could give logically better results on the touchstone of justice to the customer..

Finally, the claim that ZDBM is cheaper for the customer is confirmed by footnotes to tables 2 and 4 of the *Critique.* For both the conventional and MMP the average annual return for the bank is 4.72% while it is 4.20% in the case of ZDBM. But the IRR in either case remains the same at 8% a year. The reason is that the sum of funding deposits -- the outstanding balances -- is proportionately reduced in the ZDBM. Hasan (2012) provides the proof summarized as under.

$$\frac{Models\ ZDBM}{MMP} \quad \begin{matrix} Funding\ Deposis \\ = \\ 840000 \\ \hline 943270 \end{matrix} \quad = \quad \begin{matrix} Return\ on\ Capital \\ \\ 33600 \\ \hline 37731 \end{matrix} \quad = \quad 0.891$$

Thus, the ZDBM is not only cheaper it is also more efficient than the MMP: it absorbs fewer resources and to that extent improves liquidity in the financial system. In this context, Meera raises two interesting questions. First, the IRR in all models being the same, 8% a year; why the bank would not be indifferent to a choice between them? A more relevant question would perhaps be why would the bank not be attracted to the ZDBM to please the customers with lower payments without incurring any additional costs in the shape of lower rate of return; would it not give Islamic banks a competitive edge over their conventional rivals?

The second question of Meera is: from where Hasan got the 8% rental rate for the ZDBM and how? The question looks frivolous in the present context. Using the same rate, whatever be the percentage, is a methodological tool in model comparisons not an operational reality. In their illustration La-riba also fixes the rate at 8% a year. This helped me discover that they too are using the Excel formula. Meera himself uses 8% for all models in his *Critique* for comparing results.

III. EXCEL FORMULA AND COMPOUNDING: IMPACT ON MMP

Meera (2012 and with Razak 2009) concedes that the results in the MMP and conventional model would be identical if the rate of interest and the rental rate were identical but he does not explain why? *The reason is not that the rates used are identical.* The reason is that both models use the same Microsoft Excel amortization formula for the determination of the periodic installment payments. This formula is given below

$$A = P_0 \cdot \frac{r(1+r)^n}{(1+r)^n - 1} \qquad (1)$$

Here,

A = Installment amount the customer has to pay per time unit to the bank

P_0 = Bank's contribution (loan) to the purchase price of the house

r = the rate of interest payable on outstanding loan per period

n = number of time units the payment period is divided; be it a week, a month or a year.

I have shown in a recent paper that this formula involves compounding of interest (Hasan 2012). It adds the current period interest to the preceding period balance for calculating the current period balance. The simplified formula for determining the current period outstanding balance (P_n) is derived to be as under.

$$Pn = Pn\text{-}_1 (1 + r)^n - A \qquad (2)$$

Based on this formula the compounding process is explained by the following simple Figure 1 based on data in Table 1 above.

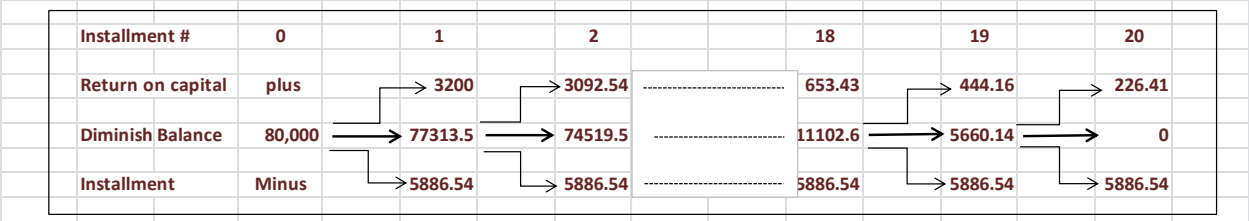

Figure 1: Compounding infests all home financing models - Conv and the MMP

A further un-Islamic consequence of using this formula additional to compounding is that until the successful completion of the contract the rate of ownership transfer to the customer remains lower with reference to amounts paid. It is obvious in the conventional model and would be so in the MMP if compounding is unavoidable. In the ZDBM the two rates stay identical all through. Table 2 and Figure 2 provide the evidence on the point.

Table 2: Home ownership transfer to the customer in conventional and MMP finance

Semi-annual units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Payment rate %	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Ownership rate %	3.35	6.85	10.48	14.36	18.19	22.27	26.52	30.94	35.54	40.32	45.29	50.46	55.83	61.42	67.24	73.29	76.56	86.12	92.92	100

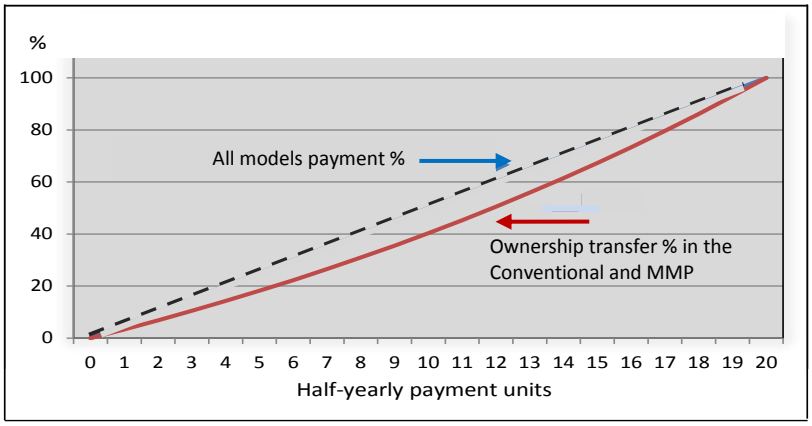

Figure 2: Conventional MMP home financing transfers ownership to customer at a slower than the payments rate

The explanation of this difference is as follows: In the case of conventional models the semi-annual installment amount is the same (RM 5886.54). In the ZDBM the corresponding amount is the return of capital (RM 4000) that remains unchanged. The uniformity in either case indicates 1/20 or 5% payment per time unit. This fixes the second row of Table 2 common to all models. However the ownership transfer *rate* to the customer with reference to the semi-annual outstanding balance is the same for the conventional and the MMP models but different from that for the ZDBM

For the conventional and the MMP models, we find it as follows. Divide the outstanding balance in column C of Table 1 by the total loan amount. Deduct the fraction so obtained from 1 and convert the result to a percentage. This has given us the bottom row of Table 2. Performing the same operation on column C_1 of the table, we get the same rates as in row 2 of the Table. Thus we find that there is slower ownership in the MMP compered to the ZDBM. The reason is a disproportionately higher allocation from installment payments to return on capital compared to return on capital in the MMP; half-way through in our example the split between the two Is about 60:40 percent. In contrast, If the same procedure is applied to the outstanding balance C_1 in the ZDBM we find that the balance diminishes at the same rate at which the return of capital increases. Thus, the ownership transfer to the customer is pro rata.

However, if we go by the equity the ownership transfer in the MMP can be claimed as pro rata. But the claim would be tenable only on allowing the compounding of return to enter the picture. Interestingly, provision of 100% bank financing for house purchase is no problem under the conventional model or the ZDBM (Hasan 2011) but one has to explain how MMP would operate if the customer has nothing to invest; how the initial ownership ratio would for example be determined? Unlike the BBA the participatory model (MMP) has yet to face the litmus tested of the courts. I am skeptical if it would be able to withstand the scrutiny when the time comes.

IV. CONCLUDING REMARKS

It comes about that on the Islamic requirements of avoiding interest, more so the compounding, and for the observance of justice - to each his due without delay - the MMP using the Excel formula, following the current practice is non-compliant and must be replaced with a better alternative like the ZDBM. The readers may refer to Hasan (2012) for detailed comparison of the two models. Finally, I must express my appreciation for Meera's valuable contribution and especially for the Appendix in his paper that neatly presents mathematical formalization of concepts in the ZDBM.

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