

# Establishing an Interest-Free Lending Platform Applying Optimum Premium, “Mesbah Point”, in Amortization and Time Value of Money

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## ABSTRACT

The concept of “Interest” has been viewed as a forbidden instrument in Islamic investments. This study has focused on establishing an interest-free platform, and introducing a new method of direct-to-consumer financing using the amortization and the time value of money. Based on this method, the borrower makes a pre-determined amount of upfront payment in order to receive zero percent interest rate financing and only makes monthly principal payments during the term of the loan. Using the same interest rate and the same term period as in amortization, the total amount of interest occurring during the amortized loan is replaced as future value and the discounted value is calculated as the amount of upfront payment. The relationship between the amount of upfront payment in each range of 30,20,15,10 and 5 year terms and the interest rates 1%-30% shows a parabolic pattern in each term, in which the amount of upfront payment will increase to a pivotal level in each term and will decrease as the interest rate increases. The vertex point of the parabola is named “Mesbah Point” in order to distinguish this conceptual point. Therefore, Mesbah Point is the optimum amount of upfront payment collected, irrespective of the interest rate, to receive an interest free, zero percent loan. In other words, Mesbah Point is as an interest rate-proof value in which the borrower, regardless of interest rates in the market, can contribute a pre-determined amount of upfront payment to receive an interest free, zero percent interest rate loan.

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## Introduction

The concept of Riba has indisputably forbidden interest in its totality. Interest can be traced back more than four thousand years and throughout the ensuing civilization has been condemned and prohibited by major religions including Judaism, Christianity and Islam (Swartz, 2009; Chapra 2006).

The vast application of interest over the past couple of centuries, with the contagion usurious banking system, has had a rippling effect in the way global consumer finance is shaped today. It is almost impermissible to imagine a world without this interest “addiction”, despite the prohibition of riba by major religions and scholars throughout human civilization.

The current modern day practice of Islamic banking is a successful revival of the original Shariah approved financial transactions that were dormant for a long time. In today’s global economy it is an ever-growing presence gaining strength and popularity in this industry. Throughout the 1980s, the Islamic financial industry that struggled to prove its viability and competitiveness in the global financial environment, started gaining international recognition and has survived financial turmoil by establishing itself as an efficient financial system at the beginning of the 21<sup>st</sup> century largely due to more effective supervision (Dogarawa, 2012) and being transacted on real and less risky assets (Beck, Demirgüç-Kunt and Merrouche, 2013).

Although Islamic finance has gained momentum, there are still remaining challenges faced today that need to be addressed in order for it to be accepted as a viable financial system within the global market. Islamic finance won’t culminate to its full potential without illustrating a competitive and innovative financial edge

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which brings greater justice to human society and distances itself farther from conventional finance rather than practicing tendencies of conventional finance, or in other words “socially recycling Riba”. There is an impending exigency to distinguish the current Islamic ways of finance by either modifying existing practices or by designing and engineering a new Islamic model from the ground up. Although it may take some more decades to treat this addiction, it is our individual responsibility to design a functional consumer financial system that can replace the usuries within the current system. The advancement of Islamic finance depends upon bringing new innovative mechanisms to the current designs of the global financial system. Islam never prohibited the structure but rather the mechanics of the financial system just as the existence of money is not the question, but how to utilize the money is the issue.

We have paid special attention to this societal dysfunction as amalgamation or incorporation of any type of riba or interest in direct-to-consumer finance is forbidden in Islam. Our goal has been to develop a new lending platform in which the interest to consumer is eliminated. We have paid special attention to current fully amortized loans since they are vastly being used in the conventional method. The new platform scrutinizes interest separate from principal and eliminates interest from the consumer financial equation by collecting optimum amount of upfront payment from the borrower named as Mesbah Point (MP). By grafting amortization and time value of money concepts together, the borrower pays a pre-determined upfront payment (UFP) to the lender and the lender in return provides zero percent interest financing. The borrower pays only principal during the term of the loan.

The monetary value of time has been recognized in Islamic transactions such as Murabaha (cost plus profit); where the lender has the ownership of the asset before transferring the right of ownership at disclosed profit. The permissibility and limitation of application of time value of money and interest have been explored by several recent Islamic scholars (Abdul Khir, 2013; Kahf, 1991; Ahmad and Hassan, 2006). In practice, the application of time value of money in Islam is treated to sale contracts like deferred sales and mark-up sales. On the other hand, in a conventional contract the compensation is deferred to the future (Abdul Khir, 2013). This article has mainly focused on explaining our view and introducing MP concept as a new way of lending finance. We believe our finding has a vast impact on the consumer related financial field, especially Islamic finance.

## **Methods and Analysis**

Our intent in this article is to introduce an interest free lending platform in which the borrower, by making an initial amount of upfront payment (UFP), receives a zero percent interest rate and will avoid any interest payments during the term of the loan (fig1). After making the initial UFP, the borrower is only obligated to pay the full principal in monthly installments during the loan period. The UFP as well as the monthly principal payments will be invested, through a special purpose vehicle (SPV), to generate at least the same return as in the conventional method (fig2).

### ***Amortization in conventional method***

Amortization is the method that is being used by conventional lending to distribute the interest and principal payments over a period of time, as determined by an amortization schedule. Monthly payments are divided into equal amounts for the duration of the loan, consisting of principal and interest. The principal payment each month will reduce the outstanding loan balance over the term of the loan until it is paid off. Table 1 shows an example of amortization schedule under the conventional method. It shows the amount of interest and principal that will occur in each month assuming the loan amount is \$100,000 and the loan term is 30 year at the interest rate of 4%. The borrower needs to make a total of \$171,878; the principal payment of \$100,000 and the total interest payment of \$71,878. The first monthly payment of \$477.42 includes \$333.33 toward the interest and \$144.09 toward the reduction of principal (table 1). Initially, the amount of interest paid in each month is greater than the amount contributed toward principal but later this trend will change course and the principal payment will accelerate toward the end of the term. Figure 3 shows the trend of the monthly accumulation of interest and principal payments for this example during the 30 year term. We have examined the total amount of interest occurring during the amortization period and throughout our study we have aimed to keep the interest separate from the principal payments.

### ***Present value***

Present Value (PV) describes the process of determining what a cash flow to be received in the future is worth today. Therefore, the PV of a future cash flow represents the amount of money today which, if

invested at a particular interest rate, will grow to the amount of the future cash flow at that time in the future. The process of finding present values is called discounting and it is the reverse of compounding to the future value (FV). The formula that has been commonly used to determine the PV is  $FV [1 / (1+i)^n]$  where  $i$  = interest rate in years or months and  $n$  = the term of the loan in years or months.

Using the same annual interest rate and the same term that is used in amortization and substituting the total amount of interest occurring during the amortized loan as FV, we have calculated the discounted value. The discounted value is the total amount of UFP required to be initially collected from the borrower in order to provide a zero percent interest rate loan. In our example (table 1), the total amount of occurring interest during the 30 year period is \$71,868. Collecting \$21,689.47 from the borrower at the beginning of the term of the loan and investing it in a SPV with the same interest rate should generate \$71,868 cash flow at the end of period. We have used compounding monthly interest rate and term in finding UFP.

$$\text{UFP: } \$21,689.47 = \$71,868 / [(1+0.04/12)^{30 \times 12}]$$

In other words, the compounding effect of the invested UFP in a SPV will equal the amount of total interest as in the amortized loan. Table 2 shows the monthly compounding schedule of invested \$21,689.47 UFP during the 30 year period at the interest rate of 4%. The table shows that if \$21,689.47 is invested today at 4% compounding annual interest, the investment will grow to \$71,868 at the end of 30 years. This is the same amount that is collected from the borrower during the 30 year conventional loan term at the interest rate of 4%. The borrower still makes a regular monthly principal payment of \$277.78 (\$100,000/360).

It is apparent that collecting UFP will help the borrower not only to receive an interest-free loan but to pay less during the term of the loan. In our example, the borrower will make a total of \$121,689 vs. \$171,868 in conventional method which is a saving of \$50,179. In addition, the borrower will make lower monthly payments compared to a conventional loan. In our example the borrower's monthly payment is \$277.78 vs. \$477.42 in conventional method. Hence, it can be deduced that the consumer demand toward making lower monthly payments and overall saving in the term of the loan are most advantageous toward the popularity of this type of loan. Figure 3 compares the return on the invested UFP vs. the amount of interest collected in a conventional loan (interest rate of 4% on a \$100,000 loan for 30 year). It shows it will take nearly 69 months in the conventional method to accumulate \$21,689 in interest while in our method the borrower has already paid that amount upfront. Also, the accumulated amount of interest in conventional method will take more than 99 months to surpass the amount of compounding upfront payment. The accumulated amount from compounding UFP should commutatively result in the same amount of interest collected in conventional method (Figure 3).

The higher the interest rate is the more interest will be materialized in a conventional loan. Table 3 shows the total amount of interest that transpires by lending \$100,000 for 30 year period at the interest rates ranging between 1% and 30%. The total amount of paid interest at 1% is \$15,790.90 while this amount will increase to \$801,396.60 at the interest rate of 30%. In the meantime, the amount of UFP will only increase to its highest level at interest rate of 3.875% and then will decline as the interest rate increases over 3.875% (table 3). The required amount of UFP at the interest rate of 3.875% is \$21,706.12 or 21.706% of loan amount ( $\$21,706.12 / \$100,000 \times 100$ ). This means that less UFP is required for the interest rates above or below 3.875% (table 3). In this regard, it would be true to reckon that the highest amount of UFP that is required to be collected in a 30 year term is \$21,706.12 or 21.706% of the loan amount, irrespective of interest rates or market conditions. The relationship between the interest rates between 1% and 30% and the amount of required UFP in table 3 has been illustrated in figure 4 which shows a parabolic pattern. We have named the vertex point of this graph "Mesbah Point" (MP) to distinguish this conceptual point which is the optimum amount of UFP collected regardless of market conditions.

The same pattern of Mesbah can be observed in 20, 15, 10 and 5 year terms (table 4); the amount of UFP will only increase to its highest level at certain interest rates and then will decline as the interest rate increases. The amount of MP will increase as the term of the loan shortens. MP at 20 year term will be \$21,749 (21.749% of the loan amount) and this amount will increase to \$22,136 (22.136% of the loan amount) in a 5 year term. Table 5 has summarized the amount of MP in varying terms including the related interest rates. The effect of interest rate between 1% and 30% shows the same parabolic effect as the 30 year term but with increasing amount of MP as the term shortens (fig 5).

The total occurring interest on a conventional loan when the interest rate is at 1% is \$15,790.19 (table 6). The matching UFP at this rate is \$11,699.12. At this rate, the amount of MP (\$21,706.12) is more than the amount of occurring interest in the conventional loan (\$15,790.19). This means that the borrower should receive \$10,006.88 (\$21,706.12-\$11,699.12) in credit toward the principal at the interest rate of 1% in a 30 year term loan. The borrower's total remaining principal will be \$89,993.12 and not \$100,000. Therefore, should the interest rate in the market be at 1% threshold, the amount of MP will be partially over-charged and needs to be adjusted by calculation in principal reduction. Table 6 shows the adjusted principal due to MP at different interest rate thresholds in the 30-5 year term loans. Therefore, by collecting the optimum amount of UFP based on MP in each term the borrower will receive a zero percent interest rate loan irrespective of the interest rate in the market. The amount of remaining principals needs to be adjusted at the associated thresholds in table 6 depending on the term of the loan.

Using the amortization method and the time value of money formula, we have demonstrated the amount of UFP required by the borrower in order to receive such an interest free loan (table 2-4). We have conceptualized the optimal amount of UFP in each term as MP, irrespective of the interest rate, as a base for our way of lending (table 5).

### **Discussion**

In our view, the collection or paying of interest is forbidden in direct-to-consumer related Islamic financial transactions as interest is a pre-determined fee charged to the borrower in the form of a percentage for the use of borrowed money. Hence, we have focused on the conventional amortization loan model and distinguished the interest from the principal. Our scope of view in this study, however, is limited to fully amortized conventional loans and not focused on all other types of loans; e.g. interest only or hybrid loans. We have analyzed the total amount of interest collected during the 5,10,15,20 and 30 year conventional loan terms with the interest rate ranging from 1% to 30% (table 3 and 4). By grafting the amortization and the time value of money, using the same interest rate and the same term as used in amortization, we have substituted the total amount of interest occurring during the amortized loan with FV and calculated the amount of UFP that is required to be initially collected from the borrower (table 3-6). The relationship between the amount of UFP in each of the range of 5-30 year terms and the interest rates 1%-30% shows a parabolic pattern (Fig 4 and 5) in which the amount of UFP will increase to a pivotal level in each loan term and it will decrease as the interest rate increases. We have referred to the vertex point of the parabola as "Mesbah Point" (MP) in order to distinguish this conceptual point. Therefore, MP is the optimum amount of UFP collected, irrespective of the interest rate, in order to issue an interest free, zero percent loan.

Here, we have presented MP as an interest rate-proof value in which the borrower, regardless of interest rates in the market, can contribute a pre-determined amount of UFP to receive interest free, zero percent interest rate loans. This way, we have recommended an interest-independent platform which allows the consumer to borrow without being quoted an interest rate. The borrower will be offered a pre-disclosed MP and will be required to make only monthly principal payments. By collecting MP allows the borrower to make less payment, in total, during the term of the loan. This is true even when the interest rates are below the threshold where the amount of MP is higher than the total interest occurring and a principal adjustment is needed (table 6).

In addition, the borrower will make lower monthly payments in comparison to conventional loans. The consumer benefits by making less total payment as well as lower monthly payment. Our model has an exceptional added value since the amount of MP is well-defined and disclosed to the borrower at the time of origination as a cost of borrowing under Murabaha (cost plus profit) transaction. It can be concluded that the consumer demand will be high due to the simplicity and the savings on this type of transaction. The consumer will focus on acquiring the fixed amount of MP rather than pursuing a fluctuating and unstable interest rate.

Although our main focus has been in introducing an innovative consumer financing platform, it is clear that further studies, including the risks and the returns, are required to be performed should our method be used: there still remains the need to address the feasibility of this method in the financial cycle and its liquidity. Here, we have attempted to present the securitization model that we think is most suitable to our platform. Securitization, in a conventional method, is the process of pooling and consolidating various types of debts via a SPV in which the debts are sold to investors in a secondary market. Purchasers of such

securities include institutional investors, such as pension funds, mutual funds, banks and insurance companies. The main objectives of SPV are to bring more liquidity to the market and reduce the costs and the risk associated with the underlying securities. Essentially, SPV structures the securities the way that the receivable interest and principal payments passes to the investor on a coupon basis schedule (amortized structure) or the interest is paid but the collected principal reinvested (revolving structure) or the principal and interest reinvested (zero coupon) to generate maximum profit to the investors. SPV, by creating several different tranches, is able to satisfy the needs of investors that have different investment objectives.

Notwithstanding we have shown investing MP and the remaining monthly principals in comparable cash flow bearing securities should induce at least the same amount of cash flow as in the conventional method, the investor is unable to receive any cash flow until the end of loan term. Hence, the most appropriate structural securitization model to the new platform is in part by SPV issuing zero coupon sukuk (Islamic bonds). SPV is also able to issue zero coupon and hybrid sukuk through Islamic promissory notes (Istisna) transactions. Zero coupon sukuk will render the principal and the profit to the investor at maturity. The compounding cash flow generated from MP will be at least equal to the total amount of interest paid by the borrower. It is notable that in our method, we have ignored the possible cash flows generated from the borrower's monthly principal payments and the possible pre-payments by the borrower so we could simplify developing our platform, as our current study is mainly focused on consumer and lending aspects. Although we intend to elucidate the benefits of our platform in investor aspects and elaborate more on securitization and credit risks of our method in a separate article, SPV has a significant role in assuring the investors of their returns. We believe by using upfront and remaining monthly principal payments in our method, not only will SPV be able to generate the same cash flows as in the conventional method but in addition will also offer the investors less default risk due to lower loan to value. Furthermore, pre-payment and refinancing risks are "positive" monetary values under our lending platform since they will enhance the compounding process, as opposed to being viewed as "negative" factors in the conventional method. Considering the monthly payment of the borrower is less than the monthly payment in the conventional loan, by purposely increasing the borrower's monthly principal payment in our method will even accelerate further cash flow formation.

In our SPV model, the risk resulting from the fluctuations in the interest rate (interest rate risk) is also contained. Should the securities in which MP has been invested be called, SPV will be able to retire the associated zero coupon sukuk, while SPV will reissue new zero coupon sukuk in which the yield is adjusted to the new lower interest rate. In case of increase in the interest rate in the market, no action is required by SPV as there is no interest rate risk on the upside. Securities in which MP has been invested will not be called and consequently zero sukuk issued by the SPV will remain locked at the original rate of return.

Although we believe our concept is rooted in consumer demand for a true interest-free product and operates on a distinctive new platform, our concept is in its infancy and will require proven practical application in order to be competitive with and ultimately eclipse conventional method and in the process provide prosperity for the global society.

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Table 1: The amortization schedule based on initial loan amount of \$100,000 at the interest rate of 4% during the 30 year term.

Month	Interest	Principal	Monthly Total	Total Payment
1	\$ 333.33	\$ 144.09	\$ 477.42	\$ 477.42
2	\$ 332.85	\$ 144.57	\$ 477.42	\$ 954.84
3	\$ 332.37	\$ 145.05	\$ 477.42	\$ 1,432.26
4	\$ 331.89	\$ 145.53	\$ 477.42	\$ 1,909.68
5	\$ 331.40	\$ 146.02	\$ 477.42	\$ 2,387.10
6	\$ 330.92	\$ 146.50	\$ 477.42	\$ 2,864.52
7	\$ 330.43	\$ 146.99	\$ 477.42	\$ 3,341.94
8	\$ 329.94	\$ 147.48	\$ 477.42	\$ 3,819.36
9	\$ 329.45	\$ 147.97	\$ 477.42	\$ 4,296.78
10	\$ 328.95	\$ 148.47	\$ 477.42	\$ 4,774.20
11	\$ 328.46	\$ 148.96	\$ 477.42	\$ 5,251.62
12	\$ 327.96	\$ 149.46	\$ 477.42	\$ 5,729.04
13	\$ 327.46	\$ 149.96	\$ 477.42	\$ 6,206.46
14	\$ 326.96	\$ 150.46	\$ 477.42	\$ 6,683.88
15	\$ 326.46	\$ 150.96	\$ 477.42	\$ 7,161.30
16	\$ 325.96	\$ 151.46	\$ 477.42	\$ 7,638.72
17	\$ 325.45	\$ 151.97	\$ 477.42	\$ 8,116.14
18	\$ 324.95	\$ 152.47	\$ 477.42	\$ 8,593.56
19	\$ 324.44	\$ 152.98	\$ 477.42	\$ 9,070.98
20	\$ 323.93	\$ 153.49	\$ 477.42	\$ 9,548.40
21	\$ 323.42	\$ 154.00	\$ 477.42	\$ 10,025.82
22	\$ 322.90	\$ 154.52	\$ 477.42	\$ 10,503.24
23	\$ 322.39	\$ 155.03	\$ 477.42	\$ 10,980.66
24	\$ 321.87	\$ 155.55	\$ 477.42	\$ 11,458.08
....				
50	\$ 307.81	\$ 169.61	\$ 477.42	\$ 23,871.00
51	\$ 307.25	\$ 170.17	\$ 477.42	\$ 24,348.42
52	\$ 306.68	\$ 170.74	\$ 477.42	\$ 24,825.84
53	\$ 306.11	\$ 171.31	\$ 477.42	\$ 25,303.26
54	\$ 305.54	\$ 171.88	\$ 477.42	\$ 25,780.68
55	\$ 304.97	\$ 172.45	\$ 477.42	\$ 26,258.10
56	\$ 304.39	\$ 173.03	\$ 477.42	\$ 26,735.52
57	\$ 303.82	\$ 173.60	\$ 477.42	\$ 27,212.94
58	\$ 303.24	\$ 174.18	\$ 477.42	\$ 27,690.36
59	\$ 302.66	\$ 174.76	\$ 477.42	\$ 28,167.78
60	\$ 302.08	\$ 175.34	\$ 477.42	\$ 28,645.20
....				
150	\$ 240.85	\$ 236.57	\$ 477.42	\$ 71,613.00
151	\$ 240.06	\$ 237.36	\$ 477.42	\$ 72,090.42
152	\$ 239.27	\$ 238.15	\$ 477.42	\$ 72,567.84
153	\$ 238.47	\$ 238.95	\$ 477.42	\$ 73,045.26
154	\$ 237.68	\$ 239.74	\$ 477.42	\$ 73,522.68

155	\$ 236.88	\$ 240.54	\$ 477.42	\$ 74,000.10
156	\$ 236.08	\$ 241.34	\$ 477.42	\$ 74,477.52
157	\$ 235.27	\$ 242.15	\$ 477.42	\$ 74,954.94
158	\$ 234.46	\$ 242.96	\$ 477.42	\$ 75,432.36
159	\$ 233.65	\$ 243.77	\$ 477.42	\$ 75,909.78
160	\$ 232.84	\$ 244.58	\$ 477.42	\$ 76,387.20
....				
250	\$ 147.44	\$ 329.98	\$ 477.42	\$ 119,355.00
251	\$ 146.34	\$ 331.08	\$ 477.42	\$ 119,832.42
252	\$ 145.24	\$ 332.18	\$ 477.42	\$ 120,309.84
253	\$ 144.13	\$ 333.29	\$ 477.42	\$ 120,787.26
254	\$ 143.02	\$ 334.40	\$ 477.42	\$ 121,264.68
255	\$ 141.90	\$ 335.52	\$ 477.42	\$ 121,742.10
256	\$ 140.78	\$ 336.64	\$ 477.42	\$ 122,219.52
257	\$ 139.66	\$ 337.76	\$ 477.42	\$ 122,696.94
258	\$ 138.54	\$ 338.88	\$ 477.42	\$ 123,174.36
259	\$ 137.41	\$ 340.01	\$ 477.42	\$ 123,651.78
260	\$ 136.27	\$ 341.15	\$ 477.42	\$ 124,129.20
....				
350	\$ 17.15	\$ 460.27	\$ 477.42	\$ 167,097.00
351	\$ 15.62	\$ 461.80	\$ 477.42	\$ 167,574.42
352	\$ 14.08	\$ 463.34	\$ 477.42	\$ 168,051.84
353	\$ 12.53	\$ 464.89	\$ 477.42	\$ 168,529.26
354	\$ 10.98	\$ 466.44	\$ 477.42	\$ 169,006.68
355	\$ 9.43	\$ 467.99	\$ 477.42	\$ 169,484.10
356	\$ 7.87	\$ 469.55	\$ 477.42	\$ 169,961.52
357	\$ 6.30	\$ 471.12	\$ 477.42	\$ 170,438.94
358	\$ 4.73	\$ 472.69	\$ 477.42	\$ 170,916.36
359	\$ 3.16	\$ 474.26	\$ 477.42	\$ 171,393.78
360	\$ 1.58	\$ 472.64	\$ 474.22	\$ 171,868.00

Table 2: The compounding monthly schedule of upfront payment (UFP) of \$21,689.47 in 30 year and interest rate of 4%. The initial loan amount is \$100,000. The borrower makes the principal payment of \$277.78 per month (\$100,000/360).

Month	Growth UFP	Interest	Compounded UFP	Total Monthly Principal Payments	Total value
1	\$ 21,689.47	\$ 72.30	\$ 21,761.76	\$ 277.78	\$ 22,039.54
2	\$ 21,761.76	\$ 72.54	\$ 21,834.30	\$ 555.56	\$ 22,389.86
3	\$ 21,834.30	\$ 72.78	\$ 21,907.08	\$ 833.34	\$ 22,740.42
4	\$ 21,907.08	\$ 73.02	\$ 21,980.11	\$ 1,111.12	\$ 23,091.23
5	\$ 21,980.11	\$ 73.27	\$ 22,053.37	\$ 1,388.90	\$ 23,442.27
6	\$ 22,053.37	\$ 73.51	\$ 22,126.89	\$ 1,666.68	\$ 23,793.57
7	\$ 22,126.89	\$ 73.76	\$ 22,200.64	\$ 1,944.46	\$ 24,145.10
8	\$ 22,200.64	\$ 74.00	\$ 22,274.64	\$ 2,222.24	\$ 24,496.88
9	\$ 22,274.64	\$ 74.25	\$ 22,348.89	\$ 2,500.02	\$ 24,848.91
10	\$ 22,348.89	\$ 74.50	\$ 22,423.39	\$ 2,777.80	\$ 25,201.19
11	\$ 22,423.39	\$ 74.74	\$ 22,498.13	\$ 3,055.58	\$ 25,553.71
12	\$ 22,498.13	\$ 74.99	\$ 22,573.13	\$ 3,333.36	\$ 25,906.49
13	\$ 22,573.13	\$ 75.24	\$ 22,648.37	\$ 3,611.14	\$ 26,259.51
14	\$ 22,648.37	\$ 75.49	\$ 22,723.87	\$ 3,888.92	\$ 26,612.79

15	\$ 22,723.87	\$ 75.75	\$ 22,799.61	\$ 4,166.70	\$ 26,966.31
16	\$ 22,799.61	\$ 76.00	\$ 22,875.61	\$ 4,444.48	\$ 27,320.09
17	\$ 22,875.61	\$ 76.25	\$ 22,951.86	\$ 4,722.26	\$ 27,674.12
18	\$ 22,951.86	\$ 76.51	\$ 23,028.37	\$ 5,000.04	\$ 28,028.41
19	\$ 23,028.37	\$ 76.76	\$ 23,105.13	\$ 5,277.82	\$ 28,382.95
20	\$ 23,105.13	\$ 77.02	\$ 23,182.15	\$ 5,555.60	\$ 28,737.75
21	\$ 23,182.15	\$ 77.27	\$ 23,259.42	\$ 5,833.38	\$ 29,092.80
22	\$ 23,259.42	\$ 77.53	\$ 23,336.95	\$ 6,111.16	\$ 29,448.11
23	\$ 23,336.95	\$ 77.79	\$ 23,414.74	\$ 6,388.94	\$ 29,803.68
24	\$ 23,414.74	\$ 78.05	\$ 23,492.79	\$ 6,666.72	\$ 30,159.51
25	\$ 23,492.79	\$ 78.31	\$ 23,571.10	\$ 6,944.50	\$ 30,515.60
26	\$ 23,571.10	\$ 78.57	\$ 23,649.67	\$ 7,222.28	\$ 30,871.95
27	\$ 23,649.67	\$ 78.83	\$ 23,728.50	\$ 7,500.06	\$ 31,228.56
28	\$ 23,728.50	\$ 79.10	\$ 23,807.60	\$ 7,777.84	\$ 31,585.44
29	\$ 23,807.60	\$ 79.36	\$ 23,886.96	\$ 8,055.62	\$ 31,942.58
30	\$ 23,886.96	\$ 79.62	\$ 23,966.58	\$ 8,333.40	\$ 32,299.98
31	\$ 23,966.58	\$ 79.89	\$ 24,046.47	\$ 8,611.18	\$ 32,657.65
32	\$ 24,046.47	\$ 80.15	\$ 24,126.62	\$ 8,888.96	\$ 33,015.58
33	\$ 24,126.62	\$ 80.42	\$ 24,207.05	\$ 9,166.74	\$ 33,373.79
34	\$ 24,207.05	\$ 80.69	\$ 24,287.74	\$ 9,444.52	\$ 33,732.26
35	\$ 24,287.74	\$ 80.96	\$ 24,368.70	\$ 9,722.30	\$ 34,091.00
36	\$ 24,368.70	\$ 81.23	\$ 24,449.92	\$ 10,000.08	\$ 34,450.00
37	\$ 24,449.92	\$ 81.50	\$ 24,531.42	\$ 10,277.86	\$ 34,809.28
38	\$ 24,531.42	\$ 81.77	\$ 24,613.20	\$ 10,555.64	\$ 35,168.84
39	\$ 24,613.20	\$ 82.04	\$ 24,695.24	\$ 10,833.42	\$ 35,528.66
40	\$ 24,695.24	\$ 82.32	\$ 24,777.56	\$ 11,111.20	\$ 35,888.76
41	\$ 24,777.56	\$ 82.59	\$ 24,860.15	\$ 11,388.98	\$ 36,249.13
42	\$ 24,860.15	\$ 82.87	\$ 24,943.02	\$ 11,666.76	\$ 36,609.78
43	\$ 24,943.02	\$ 83.14	\$ 25,026.16	\$ 11,944.54	\$ 36,970.70
44	\$ 25,026.16	\$ 83.42	\$ 25,109.58	\$ 12,222.32	\$ 37,331.90
45	\$ 25,109.58	\$ 83.70	\$ 25,193.28	\$ 12,500.10	\$ 37,693.38
46	\$ 25,193.28	\$ 83.98	\$ 25,277.26	\$ 12,777.88	\$ 38,055.14
47	\$ 25,277.26	\$ 84.26	\$ 25,361.51	\$ 13,055.66	\$ 38,417.17
48	\$ 25,361.51	\$ 84.54	\$ 25,446.05	\$ 13,333.44	\$ 38,779.49
49	\$ 25,446.05	\$ 84.82	\$ 25,530.87	\$ 13,611.22	\$ 39,142.09
50	\$ 25,530.87	\$ 85.10	\$ 25,615.97	\$ 13,889.00	\$ 39,504.97
51	\$ 25,615.97	\$ 85.39	\$ 25,701.36	\$ 14,166.78	\$ 39,868.14
52	\$ 25,701.36	\$ 85.67	\$ 25,787.03	\$ 14,444.56	\$ 40,231.59
53	\$ 25,787.03	\$ 85.96	\$ 25,872.99	\$ 14,722.34	\$ 40,595.33
54	\$ 25,872.99	\$ 86.24	\$ 25,959.23	\$ 15,000.12	\$ 40,959.35
55	\$ 25,959.23	\$ 86.53	\$ 26,045.76	\$ 15,277.90	\$ 41,323.66
56	\$ 26,045.76	\$ 86.82	\$ 26,132.58	\$ 15,555.68	\$ 41,688.26
57	\$ 26,132.58	\$ 87.11	\$ 26,219.69	\$ 15,833.46	\$ 42,053.15
58	\$ 26,219.69	\$ 87.40	\$ 26,307.09	\$ 16,111.24	\$ 42,418.33
59	\$ 26,307.09	\$ 87.69	\$ 26,394.78	\$ 16,389.02	\$ 42,783.80

60	\$ 26,394.78	\$ 87.98	\$ 26,482.76	\$ 16,666.80	\$ 43,149.56
61	\$ 26,482.76	\$ 88.28	\$ 26,571.04	\$ 16,944.58	\$ 43,515.62
62	\$ 26,571.04	\$ 88.57	\$ 26,659.61	\$ 17,222.36	\$ 43,881.97
63	\$ 26,659.61	\$ 88.87	\$ 26,748.47	\$ 17,500.14	\$ 44,248.61
64	\$ 26,748.47	\$ 89.16	\$ 26,837.64	\$ 17,777.92	\$ 44,615.56
65	\$ 26,837.64	\$ 89.46	\$ 26,927.09	\$ 18,055.70	\$ 44,982.79
66	\$ 26,927.09	\$ 89.76	\$ 27,016.85	\$ 18,333.48	\$ 45,350.33
67	\$ 27,016.85	\$ 90.06	\$ 27,106.91	\$ 18,611.26	\$ 45,718.17
68	\$ 27,106.91	\$ 90.36	\$ 27,197.26	\$ 18,889.04	\$ 46,086.30
69	\$ 27,197.26	\$ 90.66	\$ 27,287.92	\$ 19,166.82	\$ 46,454.74
70	\$ 27,287.92	\$ 90.96	\$ 27,378.88	\$ 19,444.60	\$ 46,823.48
71	\$ 27,378.88	\$ 91.26	\$ 27,470.14	\$ 19,722.38	\$ 47,192.52
72	\$ 27,470.14	\$ 91.57	\$ 27,561.71	\$ 20,000.16	\$ 47,561.87
73	\$ 27,561.71	\$ 91.87	\$ 27,653.58	\$ 20,277.94	\$ 47,931.52
74	\$ 27,653.58	\$ 92.18	\$ 27,745.76	\$ 20,555.72	\$ 48,301.48
75	\$ 27,745.76	\$ 92.49	\$ 27,838.25	\$ 20,833.50	\$ 48,671.75
76	\$ 27,838.25	\$ 92.79	\$ 27,931.04	\$ 21,111.28	\$ 49,042.32
77	\$ 27,931.04	\$ 93.10	\$ 28,024.15	\$ 21,389.06	\$ 49,413.21
78	\$ 28,024.15	\$ 93.41	\$ 28,117.56	\$ 21,666.84	\$ 49,784.40
79	\$ 28,117.56	\$ 93.73	\$ 28,211.29	\$ 21,944.62	\$ 50,155.91
80	\$ 28,211.29	\$ 94.04	\$ 28,305.32	\$ 22,222.40	\$ 50,527.72
81	\$ 28,305.32	\$ 94.35	\$ 28,399.67	\$ 22,500.18	\$ 50,899.85
82	\$ 28,399.67	\$ 94.67	\$ 28,494.34	\$ 22,777.96	\$ 51,272.30
83	\$ 28,494.34	\$ 94.98	\$ 28,589.32	\$ 23,055.74	\$ 51,645.06
84	\$ 28,589.32	\$ 95.30	\$ 28,684.62	\$ 23,333.52	\$ 52,018.14
85	\$ 28,684.62	\$ 95.62	\$ 28,780.23	\$ 23,611.30	\$ 52,391.53
86	\$ 28,780.23	\$ 95.93	\$ 28,876.17	\$ 23,889.08	\$ 52,765.25
87	\$ 28,876.17	\$ 96.25	\$ 28,972.42	\$ 24,166.86	\$ 53,139.28
88	\$ 28,972.42	\$ 96.57	\$ 29,069.00	\$ 24,444.64	\$ 53,513.64
89	\$ 29,069.00	\$ 96.90	\$ 29,165.89	\$ 24,722.42	\$ 53,888.31
90	\$ 29,165.89	\$ 97.22	\$ 29,263.11	\$ 25,000.20	\$ 54,263.31
91	\$ 29,263.11	\$ 97.54	\$ 29,360.66	\$ 25,277.98	\$ 54,638.64
92	\$ 29,360.66	\$ 97.87	\$ 29,458.53	\$ 25,555.76	\$ 55,014.29
93	\$ 29,458.53	\$ 98.20	\$ 29,556.72	\$ 25,833.54	\$ 55,390.26
94	\$ 29,556.72	\$ 98.52	\$ 29,655.24	\$ 26,111.32	\$ 55,766.56
95	\$ 29,655.24	\$ 98.85	\$ 29,754.09	\$ 26,389.10	\$ 56,143.19
96	\$ 29,754.09	\$ 99.18	\$ 29,853.27	\$ 26,666.88	\$ 56,520.15
97	\$ 29,853.27	\$ 99.51	\$ 29,952.79	\$ 26,944.66	\$ 56,897.45
98	\$ 29,952.79	\$ 99.84	\$ 30,052.63	\$ 27,222.44	\$ 57,275.07
99	\$ 30,052.63	\$ 100.18	\$ 30,152.80	\$ 27,500.22	\$ 57,653.02
100	\$ 30,152.80	\$ 100.51	\$ 30,253.31	\$ 27,778.00	\$ 58,031.31
101	\$ 30,253.31	\$ 100.84	\$ 30,354.16	\$ 28,055.78	\$ 58,409.94
102	\$ 30,354.16	\$ 101.18	\$ 30,455.34	\$ 28,333.56	\$ 58,788.90
103	\$ 30,455.34	\$ 101.52	\$ 30,556.86	\$ 28,611.34	\$ 59,168.20
104	\$ 30,556.86	\$ 101.86	\$ 30,658.71	\$ 28,889.12	\$ 59,547.83

105	\$ 30,658.71	\$ 102.20	\$ 30,760.91	\$ 29,166.90	\$ 59,927.81
106	\$ 30,760.91	\$ 102.54	\$ 30,863.44	\$ 29,444.68	\$ 60,308.12
107	\$ 30,863.44	\$ 102.88	\$ 30,966.32	\$ 29,722.46	\$ 60,688.78
108	\$ 30,966.32	\$ 103.22	\$ 31,069.54	\$ 30,000.24	\$ 61,069.78
109	\$ 31,069.54	\$ 103.57	\$ 31,173.11	\$ 30,278.02	\$ 61,451.13
110	\$ 31,173.11	\$ 103.91	\$ 31,277.02	\$ 30,555.80	\$ 61,832.82
111	\$ 31,277.02	\$ 104.26	\$ 31,381.27	\$ 30,833.58	\$ 62,214.85
112	\$ 31,381.27	\$ 104.60	\$ 31,485.88	\$ 31,111.36	\$ 62,597.24
113	\$ 31,485.88	\$ 104.95	\$ 31,590.83	\$ 31,389.14	\$ 62,979.97
114	\$ 31,590.83	\$ 105.30	\$ 31,696.13	\$ 31,666.92	\$ 63,363.05
115	\$ 31,696.13	\$ 105.65	\$ 31,801.79	\$ 31,944.70	\$ 63,746.49
116	\$ 31,801.79	\$ 106.01	\$ 31,907.79	\$ 32,222.48	\$ 64,130.27
117	\$ 31,907.79	\$ 106.36	\$ 32,014.15	\$ 32,500.26	\$ 64,514.41
118	\$ 32,014.15	\$ 106.71	\$ 32,120.87	\$ 32,778.04	\$ 64,898.91
119	\$ 32,120.87	\$ 107.07	\$ 32,227.94	\$ 33,055.82	\$ 65,283.76
120	\$ 32,227.94	\$ 107.43	\$ 32,335.36	\$ 33,333.60	\$ 65,668.96
121	\$ 32,335.36	\$ 107.78	\$ 32,443.15	\$ 33,611.38	\$ 66,054.53
122	\$ 32,443.15	\$ 108.14	\$ 32,551.29	\$ 33,889.16	\$ 66,440.45
123	\$ 32,551.29	\$ 108.50	\$ 32,659.80	\$ 34,166.94	\$ 66,826.74
124	\$ 32,659.80	\$ 108.87	\$ 32,768.66	\$ 34,444.72	\$ 67,213.38
125	\$ 32,768.66	\$ 109.23	\$ 32,877.89	\$ 34,722.50	\$ 67,600.39
126	\$ 32,877.89	\$ 109.59	\$ 32,987.48	\$ 35,000.28	\$ 67,987.76
127	\$ 32,987.48	\$ 109.96	\$ 33,097.44	\$ 35,278.06	\$ 68,375.50
128	\$ 33,097.44	\$ 110.32	\$ 33,207.77	\$ 35,555.84	\$ 68,763.61
129	\$ 33,207.77	\$ 110.69	\$ 33,318.46	\$ 35,833.62	\$ 69,152.08
130	\$ 33,318.46	\$ 111.06	\$ 33,429.52	\$ 36,111.40	\$ 69,540.92
131	\$ 33,429.52	\$ 111.43	\$ 33,540.95	\$ 36,389.18	\$ 69,930.13
132	\$ 33,540.95	\$ 111.80	\$ 33,652.76	\$ 36,666.96	\$ 70,319.72
133	\$ 33,652.76	\$ 112.18	\$ 33,764.93	\$ 36,944.74	\$ 70,709.67
134	\$ 33,764.93	\$ 112.55	\$ 33,877.48	\$ 37,222.52	\$ 71,100.00
135	\$ 33,877.48	\$ 112.92	\$ 33,990.41	\$ 37,500.30	\$ 71,490.71
136	\$ 33,990.41	\$ 113.30	\$ 34,103.71	\$ 37,778.08	\$ 71,881.79
137	\$ 34,103.71	\$ 113.68	\$ 34,217.39	\$ 38,055.86	\$ 72,273.25
138	\$ 34,217.39	\$ 114.06	\$ 34,331.45	\$ 38,333.64	\$ 72,665.09
139	\$ 34,331.45	\$ 114.44	\$ 34,445.88	\$ 38,611.42	\$ 73,057.30
140	\$ 34,445.88	\$ 114.82	\$ 34,560.70	\$ 38,889.20	\$ 73,449.90
141	\$ 34,560.70	\$ 115.20	\$ 34,675.91	\$ 39,166.98	\$ 73,842.89
142	\$ 34,675.91	\$ 115.59	\$ 34,791.49	\$ 39,444.76	\$ 74,236.25
143	\$ 34,791.49	\$ 115.97	\$ 34,907.46	\$ 39,722.54	\$ 74,630.00
144	\$ 34,907.46	\$ 116.36	\$ 35,023.82	\$ 40,000.32	\$ 75,024.14
145	\$ 35,023.82	\$ 116.75	\$ 35,140.57	\$ 40,278.10	\$ 75,418.67
146	\$ 35,140.57	\$ 117.14	\$ 35,257.70	\$ 40,555.88	\$ 75,813.58
147	\$ 35,257.70	\$ 117.53	\$ 35,375.23	\$ 40,833.66	\$ 76,208.89
148	\$ 35,375.23	\$ 117.92	\$ 35,493.15	\$ 41,111.44	\$ 76,604.59
149	\$ 35,493.15	\$ 118.31	\$ 35,611.46	\$ 41,389.22	\$ 77,000.68

150	\$ 35,611.46	\$ 118.70	\$ 35,730.16	\$ 41,667.00	\$ 77,397.16
151	\$ 35,730.16	\$ 119.10	\$ 35,849.26	\$ 41,944.78	\$ 77,794.04
152	\$ 35,849.26	\$ 119.50	\$ 35,968.76	\$ 42,222.56	\$ 78,191.32
153	\$ 35,968.76	\$ 119.90	\$ 36,088.66	\$ 42,500.34	\$ 78,589.00
154	\$ 36,088.66	\$ 120.30	\$ 36,208.95	\$ 42,778.12	\$ 78,987.07
155	\$ 36,208.95	\$ 120.70	\$ 36,329.65	\$ 43,055.90	\$ 79,385.55
156	\$ 36,329.65	\$ 121.10	\$ 36,450.75	\$ 43,333.68	\$ 79,784.43
157	\$ 36,450.75	\$ 121.50	\$ 36,572.25	\$ 43,611.46	\$ 80,183.71
158	\$ 36,572.25	\$ 121.91	\$ 36,694.16	\$ 43,889.24	\$ 80,583.40
159	\$ 36,694.16	\$ 122.31	\$ 36,816.47	\$ 44,167.02	\$ 80,983.49
160	\$ 36,816.47	\$ 122.72	\$ 36,939.19	\$ 44,444.80	\$ 81,383.99
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240	\$ 48,046.46	\$ 160.15	\$ 48,206.62	\$ 66,667.20	\$ 114,873.82
241	\$ 48,206.62	\$ 160.69	\$ 48,367.31	\$ 66,944.98	\$ 115,312.29
242	\$ 48,367.31	\$ 161.22	\$ 48,528.53	\$ 67,222.76	\$ 115,751.29
243	\$ 48,528.53	\$ 161.76	\$ 48,690.29	\$ 67,500.54	\$ 116,190.83
244	\$ 48,690.29	\$ 162.30	\$ 48,852.59	\$ 67,778.32	\$ 116,630.91
245	\$ 48,852.59	\$ 162.84	\$ 49,015.43	\$ 68,056.10	\$ 117,071.53
246	\$ 49,015.43	\$ 163.38	\$ 49,178.82	\$ 68,333.88	\$ 117,512.70
247	\$ 49,178.82	\$ 163.93	\$ 49,342.75	\$ 68,611.66	\$ 117,954.41
248	\$ 49,342.75	\$ 164.48	\$ 49,507.22	\$ 68,889.44	\$ 118,396.66
249	\$ 49,507.22	\$ 165.02	\$ 49,672.25	\$ 69,167.22	\$ 118,839.47
250	\$ 49,672.25	\$ 165.57	\$ 49,837.82	\$ 69,445.00	\$ 119,282.82
251	\$ 49,837.82	\$ 166.13	\$ 50,003.95	\$ 69,722.78	\$ 119,726.73
252	\$ 50,003.95	\$ 166.68	\$ 50,170.63	\$ 70,000.56	\$ 120,171.19
253	\$ 50,170.63	\$ 167.24	\$ 50,337.86	\$ 70,278.34	\$ 120,616.20
254	\$ 50,337.86	\$ 167.79	\$ 50,505.66	\$ 70,556.12	\$ 121,061.78
255	\$ 50,505.66	\$ 168.35	\$ 50,674.01	\$ 70,833.90	\$ 121,507.91
256	\$ 50,674.01	\$ 168.91	\$ 50,842.92	\$ 71,111.68	\$ 121,954.60
257	\$ 50,842.92	\$ 169.48	\$ 51,012.40	\$ 71,389.46	\$ 122,401.86
258	\$ 51,012.40	\$ 170.04	\$ 51,182.44	\$ 71,667.24	\$ 122,849.68
259	\$ 51,182.44	\$ 170.61	\$ 51,353.05	\$ 71,945.02	\$ 123,298.07
260	\$ 51,353.05	\$ 171.18	\$ 51,524.23	\$ 72,222.80	\$ 123,747.03
....					
340	\$ 67,017.08	\$ 223.39	\$ 67,240.47	\$ 94,445.20	\$ 161,685.67
341	\$ 67,240.47	\$ 224.13	\$ 67,464.61	\$ 94,722.98	\$ 162,187.59
342	\$ 67,464.61	\$ 224.88	\$ 67,689.49	\$ 95,000.76	\$ 162,690.25
343	\$ 67,689.49	\$ 225.63	\$ 67,915.12	\$ 95,278.54	\$ 163,193.66
344	\$ 67,915.12	\$ 226.38	\$ 68,141.50	\$ 95,556.32	\$ 163,697.82
345	\$ 68,141.50	\$ 227.14	\$ 68,368.64	\$ 95,834.10	\$ 164,202.74
346	\$ 68,368.64	\$ 227.90	\$ 68,596.54	\$ 96,111.88	\$ 164,708.42
347	\$ 68,596.54	\$ 228.66	\$ 68,825.19	\$ 96,389.66	\$ 165,214.85
348	\$ 68,825.19	\$ 229.42	\$ 69,054.61	\$ 96,667.44	\$ 165,722.05
349	\$ 69,054.61	\$ 230.18	\$ 69,284.79	\$ 96,945.22	\$ 166,230.01
350	\$ 69,284.79	\$ 230.95	\$ 69,515.74	\$ 97,223.00	\$ 166,738.74

351	\$ 69,515.74	\$ 231.72	\$ 69,747.46	\$ 97,500.78	\$ 167,248.24
352	\$ 69,747.46	\$ 232.49	\$ 69,979.95	\$ 97,778.56	\$ 167,758.51
353	\$ 69,979.95	\$ 233.27	\$ 70,213.22	\$ 98,056.34	\$ 168,269.56
354	\$ 70,213.22	\$ 234.04	\$ 70,447.26	\$ 98,334.12	\$ 168,781.38
355	\$ 70,447.26	\$ 234.82	\$ 70,682.09	\$ 98,611.90	\$ 169,293.99
356	\$ 70,682.09	\$ 235.61	\$ 70,917.69	\$ 98,889.68	\$ 169,807.37
357	\$ 70,917.69	\$ 236.39	\$ 71,154.08	\$ 99,167.46	\$ 170,321.54
358	\$ 71,154.08	\$ 237.18	\$ 71,391.26	\$ 99,445.24	\$ 170,836.50
359	\$ 71,391.26	\$ 237.97	\$ 71,629.24	\$ 99,723.02	\$ 171,352.26
360	\$ 71,629.24	\$ 238.76	\$ 71,868.00	\$ 100,000.00	\$ 171,868.00

Table 3: The effect of interest rates between 1% and 30% on the total amount of interest produced in a 30 year amortized conventional loan with a principal amount of \$100,000. Using the total amount of interest produced in a 30 year conventional loan as future value in the discounting formula, the amount of upfront payment (present value) at the same interest rate between 1% and 30% are shown.

Interest Rate	Total Interest in Conventional	Upfront Payment
1	\$ 15,790.19	\$ 11,699.12
2	\$ 33,062.92	\$ 18,154.38
3	\$ 51,778.36	\$ 21,075.17
3.875	\$ 69,284.52	\$ 21,706.12
4	\$ 71,868.00	\$ 21,689.47
5	\$ 93,256.32	\$ 20,873.24
6	\$ 115,838.42	\$ 19,234.03
7	\$ 139,510.98	\$ 17,188.57
8	\$ 164,160.39	\$ 15,011.38
9	\$ 189,667.92	\$ 12,875.80
10	\$ 215,928.60	\$ 10,884.92
11	\$ 242,846.01	\$ 9,092.60
12	\$ 270,307.77	\$ 7,519.07
13	\$ 298,231.37	\$ 6,164.72
14	\$ 326,562.38	\$ 5,017.50
15	\$ 355,226.70	\$ 4,057.83
16	\$ 384,089.26	\$ 3,262.82
17	\$ 413,192.86	\$ 2,610.92
18	\$ 442,484.79	\$ 2,080.29
19	\$ 472,045.27	\$ 1,651.57
20	\$ 501,531.72	\$ 1,306.19
21	\$ 531,225.45	\$ 1,030.12
22	\$ 561,136.49	\$ 810.37
23	\$ 590,802.27	\$ 635.57
24	\$ 620,874.86	\$ 497.67
25	\$ 650,382.12	\$ 388.53
26	\$ 680,538.95	\$ 303.06
27	\$ 709,871.51	\$ 235.71

28	\$ 740,480.01	\$ 183.38
29	\$ 770,980.72	\$ 142.43
30	\$ 801,396.60	\$ 110.47

Table 4: The effects of interest rates between 1% and 30% on the total amount of interest produced in a 20, 15, 10 and 5 year amortized conventional loan with a principal amount of \$100,000. Using the total amount of interest produced in each 20, 15, 10 and 5 year terms as future value in the discounting formula, the amount of upfront payment (present value) at the same interest rate between 1% and 30% are shown.

Interest Rate	Total Interest 20	Upfront 20	Total Interest 15	Upfront 15	Total Interest 10	Upfront 10	Total Interest 5	Upfront 5
1	\$ 10,374.74	\$ 8,494.83	\$ 7,729.11	\$ 6,652.92	\$ 5,124.94	\$ 4,637.43	\$ 2,562.51	\$ 2,437.59
2	\$ 21,412.23	\$ 14,357.83	\$ 15,831.58	\$ 11,731.25	\$ 10,416.22	\$ 8,529.50	\$ 5,166.53	\$ 4,675.26
3	\$ 33,103.24	\$ 18,181.05	\$ 24,304.76	\$ 15,506.10	\$ 15,872.91	\$ 11,763.34	\$ 7,812.15	\$ 6,725.24
3.875	\$ 42,293.01	\$ 20,001.18	\$ 30,900.24	\$ 17,621.88	\$ 20,782.91	\$ 14,115.03	\$ 10,160.97	\$ 8,373.87
4	\$ 45,435.21	\$ 20,442.53	\$ 33,143.79	\$ 18,207.86	\$ 21,494.25	\$ 14,417.61	\$ 10,499.17	\$ 8,598.85
5	\$ 58,388.56	\$ 21,524.62	\$ 42,343.24	\$ 20,032.72	\$ 27,278.46	\$ 16,562.42	\$ 13,227.49	\$ 10,306.93
5.75	\$ 68,500.81	\$ <b>21,749.53</b>	\$ 49,473.79	\$ 20,926.22	\$ 31,723.19	\$ 17,825.32	\$ 15,300.55	\$ 11,485.39
6	\$ 71,943.79	\$ 21,733.94	\$ 51,893.80	\$ 21,145.81	\$ 33,224.31	\$ 18,261.17	\$ 15,996.83	\$ 11,859.60
7	\$ 86,071.47	\$ 21,311.47	\$ 61,788.73	\$ 21,688.27	\$ 39,330.35	\$ 19,570.64	\$ 18,807.22	\$ 13,266.71
7.875	\$ 98,881.62	\$ 20,574.84	\$ 70,720.89	\$ <b>21,787.80</b>	\$ 44,801.76	\$ 20,436.45	\$ 21,299.78	\$ 14,385.68
8	\$ 100,745.52	\$ 20,448.46	\$ 72,017.71	\$ 21,777.87	\$ 45,592.79	\$ 20,540.62	\$ 21,658.39	\$ 14,537.34
9	\$ 115,932.83	\$ 19,292.71	\$ 82,567.37	\$ 21,512.88	\$ 52,010.76	\$ 21,217.13	\$ 24,550.08	\$ 15,680.13
10	\$ 131,606.05	\$ 17,959.16	\$ 93,427.99	\$ 20,976.58	\$ 58,580.53	\$ 21,640.06	\$ 27,482.30	\$ 16,703.43
11	\$ 147,724.22	\$ 16,533.18	\$ 104,586.46	\$ 20,237.37	\$ 65,300.02	\$ 21,845.68	\$ 30,454.64	\$ 17,614.88
11.5	\$ 155,942.92	\$ 15,806.81	\$ 110,274.02	\$ 19,809.89	\$ 68,715.02	\$ <b>21,877.16</b>	\$ 31,955.65	\$ 18,030.90
12	\$ 164,257.65	\$ 15,079.81	\$ 116,029.68	\$ 19,351.82	\$ 72,165.06	\$ 21,865.64	\$ 33,466.83	\$ 18,421.80
13	\$ 181,174.64	\$ 13,645.96	\$ 127,744.33	\$ 18,366.30	\$ 79,172.62	\$ 21,728.43	\$ 36,518.40	\$ 19,131.03
14	\$ 198,446.68	\$ 12,264.73	\$ 139,714.18	\$ 17,318.14	\$ 86,320.38	\$ 21,459.54	\$ 39,609.35	\$ 19,749.28
15	\$ 216,029.09	\$ 10,957.33	\$ 151,924.45	\$ 16,237.60	\$ 93,601.96	\$ 21,080.51	\$ 42,739.65	\$ 20,282.85
16	\$ 233,895.32	\$ 9,737.84	\$ 164,366.68	\$ 15,149.37	\$ 101,016.12	\$ 20,611.58	\$ 45,908.25	\$ 20,737.24
17	\$ 252,033.55	\$ 8,614.27	\$ 177,023.72	\$ 14,071.87	\$ 108,556.58	\$ 20,069.49	\$ 49,115.40	\$ 21,118.24
18	\$ 270,397.93	\$ 7,588.45	\$ 189,876.52	\$ 13,019.18	\$ 116,222.59	\$ 19,469.98	\$ 52,360.65	\$ 21,431.00
19	\$ 288,975.47	\$ 6,659.95	\$ 202,914.59	\$ 12,002.47	\$ 124,007.54	\$ 18,825.78	\$ 55,643.09	\$ 21,680.22
20	\$ 307,730.79	\$ 5,825.20	\$ 216,129.83	\$ 11,029.85	\$ 131,905.94	\$ 18,148.23	\$ 58,963.27	\$ 21,870.89

21	\$326,645.14	\$ 5,079.44	\$229,512.51	\$10,106.74	\$139,917.12	\$17,447.80	\$62,319.97	\$ 22,007.07
22	\$345,695.45	\$ 4,416.75	\$243,031.78	\$ 9,235.71	\$148,036.15	\$16,732.95	\$65,713.49	\$ 22,093.11
23	\$364,897.13	\$ 3,831.07	\$256,704.64	\$ 8,419.68	\$156,256.69	\$16,010.81	\$69,142.66	\$ 22,132.65
23.5	\$374,526.86	\$ 3,564.74	263,585.28	\$8,032.12	\$160,406.59	\$15,649.30	\$70,870.72	<b>\$ 22,136.21</b>
24	\$384,166.61	\$ 3,314.96	\$270,495.15	\$ 7,658.23	\$164,577.07	\$15,287.93	\$72,607.61	\$ 22,129.51
25	\$403,543.56	\$ 2,862.39	\$284,393.11	\$ 6,951.00	\$172,991.27	\$14,569.45	\$76,108.02	\$ 22,087.16
26	\$423,023.08	\$ 2,466.89	\$298,397.95	\$ 6,297.03	\$181,497.89	\$13,860.05	\$79,642.59	\$ 22,008.58
27	\$442,609.10	\$ 2,122.39	\$312,519.19	\$ 5,694.82	\$190,086.64	\$13,162.96	\$83,212.07	\$ 21,897.14
28	\$462,229.57	\$ 1,822.84	\$326,714.81	\$ 5,141.47	\$198,761.52	\$12,481.82	\$86,815.13	\$ 21,755.46
29	\$481,900.44	\$ 1,563.14	\$340,985.92	\$ 4,634.70	\$207,512.68	\$11,818.66	\$90,451.04	\$ 21,586.16
30	\$501,600.90	\$ 1,338.54	\$355,351.84	\$ 4,172.18	\$216,341.38	\$11,175.73	\$94,120.29	\$ 21,392.00

Table 5: The optimum amount of upfront payment “Mesbah Point” (MP) based on 30,20,15,10 and 5 year terms.

Term	Interest rate	Mesbah Point
30	3.875%	\$21,706.12 or 21.706%
20	5.75%	\$21,749.53 or 21.749%
15	7.875%	\$21,787.80 or 21.787%
10	11.5%	\$21,877.16 or 21.877%
5	23.5%	\$22,136.65 or 22.136%

Table 6: The amount of adjusted principal (MP-UFP) at interest rates in which the amount of Mesbah Point (MP) is higher than the amount of total interest payment during the 30,20,15,10 and 5 year periods. The initial loan amount is \$100,000.

Term	Interest Rate	Total Interest Payment	UFP	MP	MP-UFP	Remaining total Principal
30 Year	1%	\$15,790.19	\$11,699.12	\$21,706.12	\$10,006.88	\$89,993.12
20 Year	1%	\$10,374.74	\$8,494.83	\$21,749.53	\$13,254.70	\$86,745.30
	2%	\$21,412.23	\$14,357.83	\$21,749.53	\$7,391.70	\$92,608.30
15 Year	1%	\$7,729.11	\$6,652.92	\$21,787.80	\$15,134.88	\$84,865.12
	2%	\$15,831.58	\$11,731.25	\$21,787.80	\$10,056.55	\$89,943.45
10 Year	1%	\$5,124.94	\$4,637.43	\$21,877.16	\$17,239.73	\$82,760.27
	2%	\$10,416.22	\$8,529.50	\$21,877.16	\$13,347.66	\$86,652.34
	3%	\$15,872.91	\$11,763.34	\$21,877.16	\$10,113.82	\$89,886.18
	4%	\$21,494.25	\$14,417.61	\$21,877.16	\$7,459.55	\$92,540.45
5 Year	1%	\$2,562.51	\$2,437.59	\$22,136.12	\$19,698.62	\$80,301.38
	2%	\$5,166.53	\$4,675.29	\$22,136.12	\$17,460.97	\$82,539.03
	3%	\$7,812.15	\$6,725.24	\$22,136.12	\$15,410.97	\$84,589.03
	4%	\$10,499.17	\$8,598.85	\$22,136.12	\$13,537.36	\$86,462.64
	5%	\$13,227.49	\$10,306.93	\$22,136.12	\$11,829.28	\$88,170.72

	6%	\$15,996.83	\$11,859.60	\$22,136.12	\$10,276.52	\$89,723.48
	7%	\$18,807.22	\$13,266.71	\$22,136.12	\$8,869.50	\$91,130.50
	8%	\$21,658.39	\$14,537.34	\$22,136.12	\$7,598.78	\$92,401.22

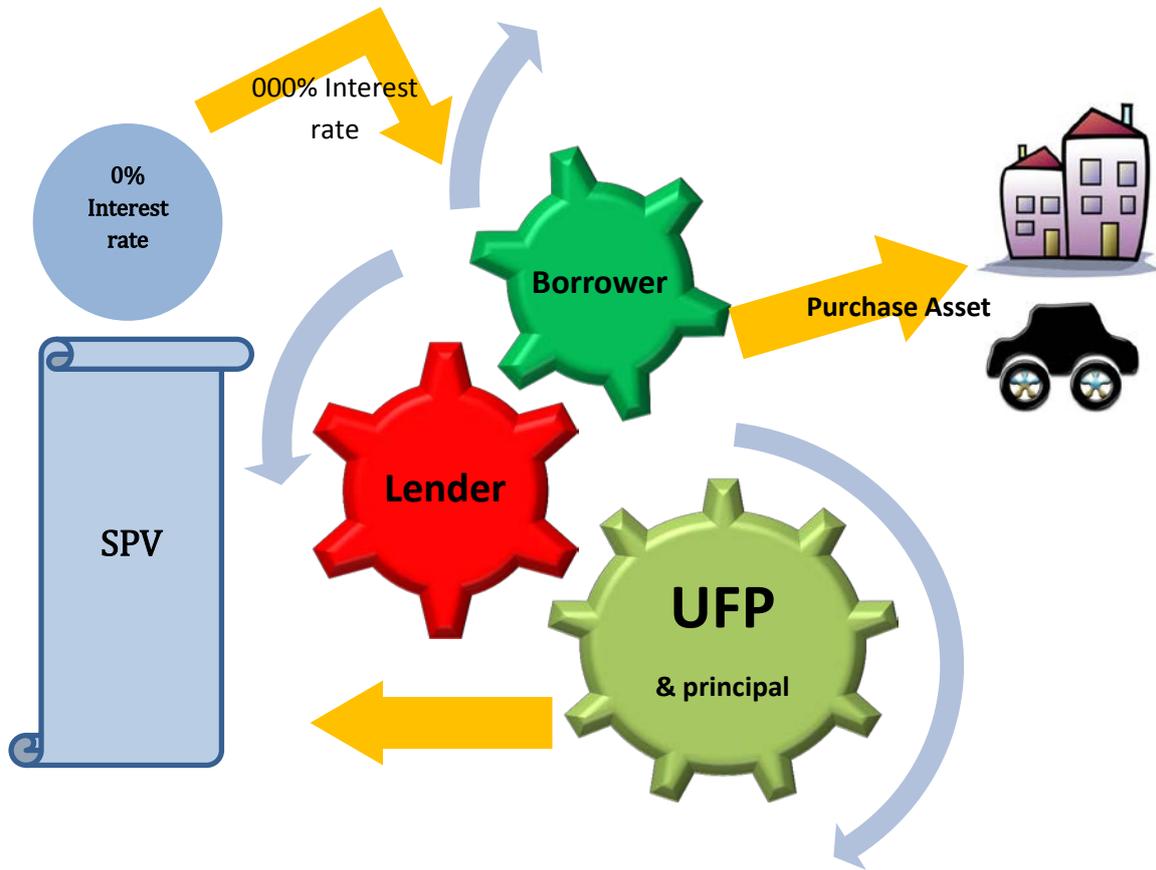


Figure 1: The new lending method is based on the borrower making an upfront payment (UFP) in order to purchase an asset with a zero percent interest rate loan. The borrower only makes principal payment during the term of the loan. The amount of UFP and the remaining principal will be invested in a special purpose vehicle (SPV).

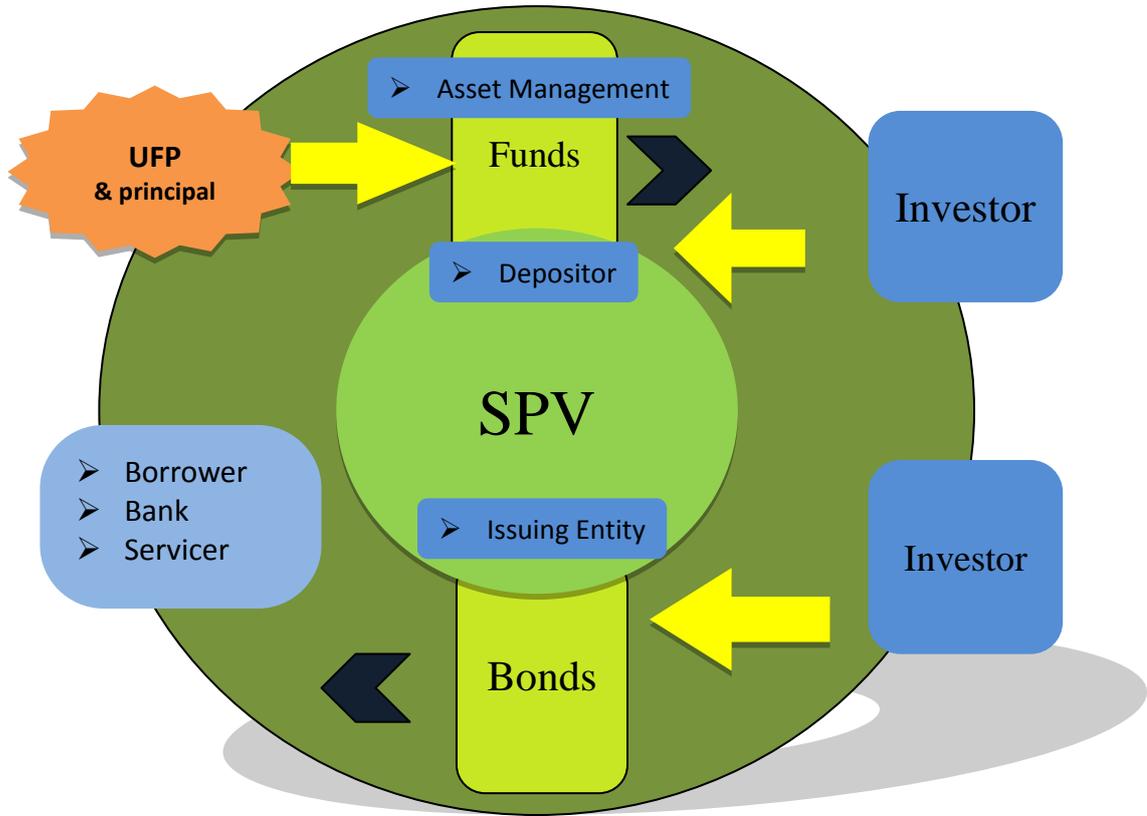


Figure 2: The upfront payment (UFP) and the monthly principal payments will be deposited in a fund that is designed by Special Purpose Vehicle (SPV). The role of the fund is to invest the capital in securities that bear the same cash flow as in the conventional method. SPV will issue Skuk (Islamic bonds), including Z bonds, to the investors against the underlying funds.

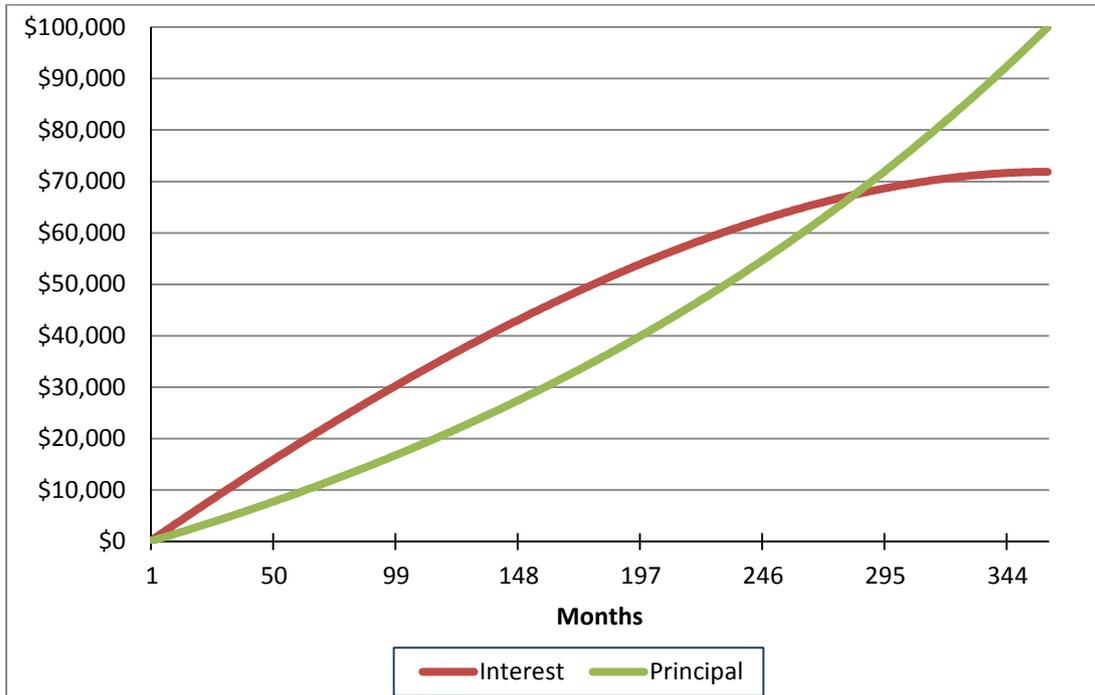


Figure 3: Monthly accumulation of interest and principal repayments during the 30 year conventional amortized loan at the interest rate of 4% and \$100,000 initial principal

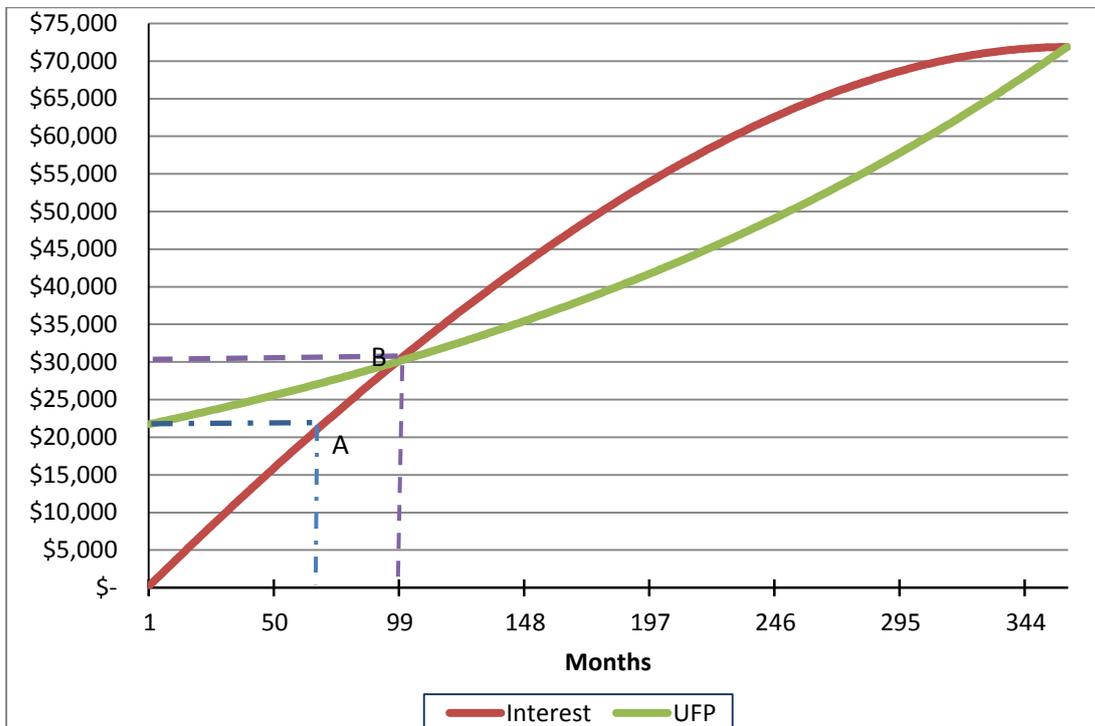


Figure 4: Comparison between the compounding monthly upfront payment (UFP) and the accumulated amount of interest in a conventional loan during the 30 year term at the interest rate of 4% and \$100,000

initial loan amount. It will take the accumulated interest in the conventional loan 69 months to be equal to the amount of initial UFP (A) and 99 months to surpass the compounding UFP (B).

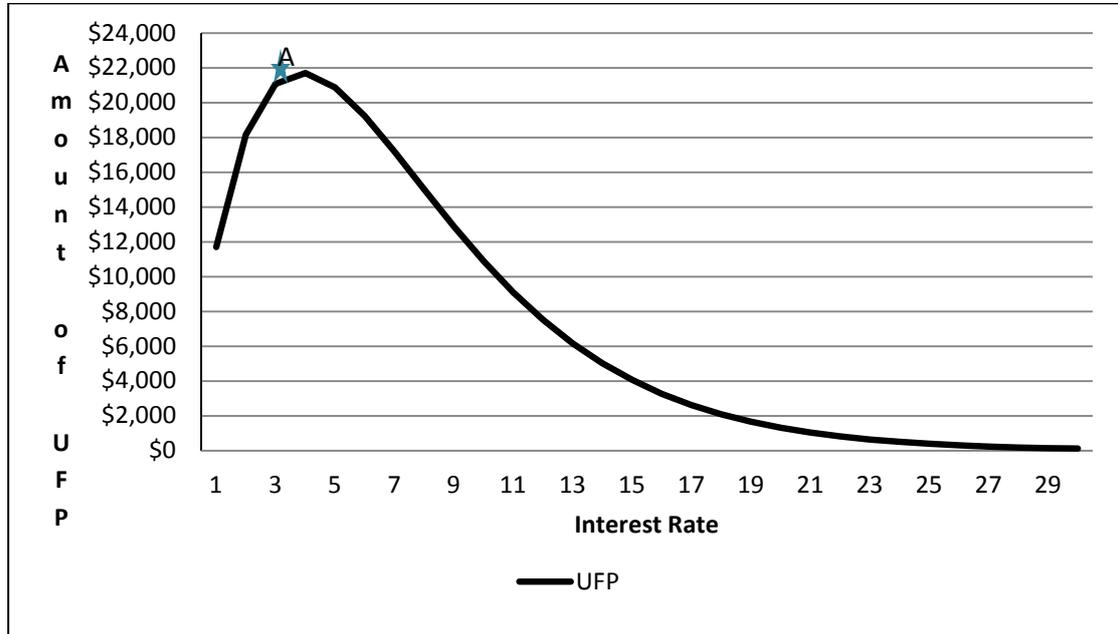


Figure 5: The amounts of upfront payment (UFP) at interest rates between 1% and 30% based on \$100,000 loan and 30 year period. The highest amount of UFP is \$21,706.12 with corresponding interest rate of 3.875%. The pivotal point is referred to as “Mesbah Point” (A).

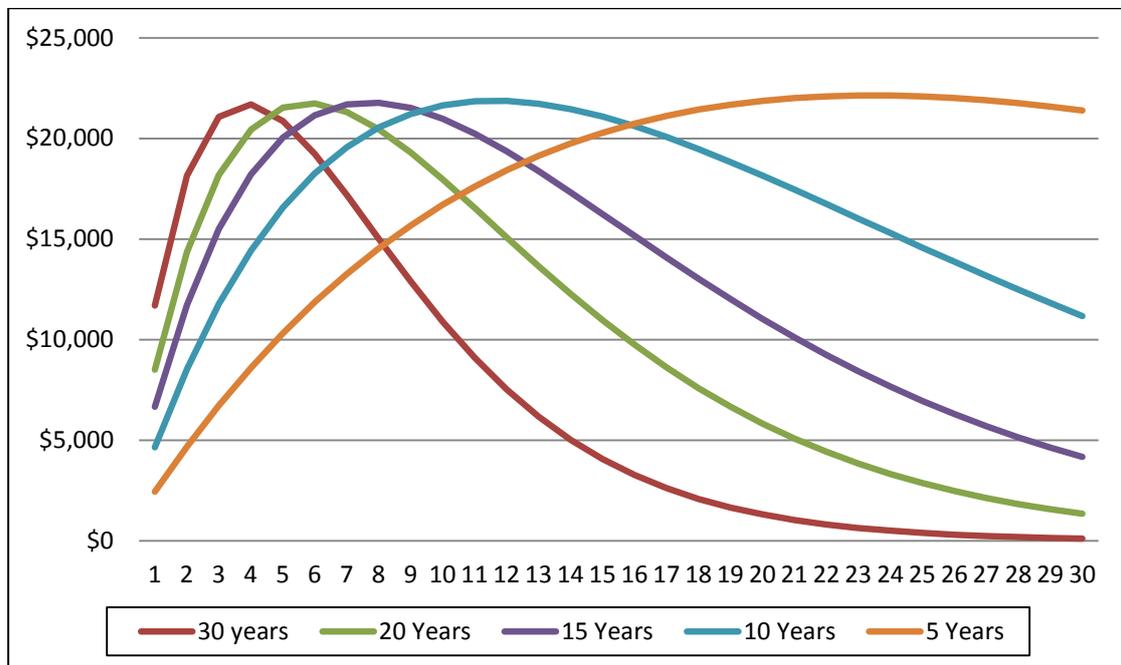


Figure 6: The amounts of upfront payments (UFP) at interest rates between 1% and 30% in 30,20,15,10 and 5 year terms and \$100,000 principal loan amount.