

Fee Amortization

The ever-expanding scope of treasury operations and risk management activities means that treasurers need to make multiple complex calculations, quickly and accurately, on a daily basis.

In this memorandum, we'll talk you through the principles and methodology behind fee amortization and give you some useful tools and resources to simplify the task and ease the burden of this complex issue.

TABLE OF CONTENT

What is Fee Amortization?

Effective Interest Rate (EIR)

Fee Amortization Worksheet Tool

Step-by-Step Instructions

Accounting for Fee Amortization.

What is Fee Amortization?

Fee Amortization is the process of matching the costs of a loan to the accounting periods during which the loan is outstanding.

In other words, making sure that when a debt is carried on your books, your records not only accurately reflect the interest cost that month or quarter, but include fees associated with the debt. This means that rather than putting through all of your debt fees in one big lump (usually upfront), accounting standard requires you to apportion it appropriately over the life of the loan.

When it comes the kind of loans handled by treasury, this can become a complex issue. There are significant fees and costs wrapped up with debt raising.

Effective Interest Rate (EIR)

Based on IFRS 9, fees must be amortized using the effective interest rate (EIR)

The definition of EIR is as follows:

The rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial asset or financial liability to the gross carrying amount of a financial asset or to the amortised cost of a financial liability. When calculating the effective interest rate, an entity shall estimate the expected cash flows by considering all the contractual terms of the financial instrument.

IFRS 9—Appendix A

The rules are similar for IAS 39 and FRS 102, but not identical, so make sure you take a good look at the details of all accounting standards that apply to you and get clearance from your auditor before you start.

Fee Amortization Worksheet Tool

In this memorandum, we will use the worksheet that you can download below, to show you how to compute the fee amortization profile associated with loans and debt issuances.

Fee Amortization Worksheet

[Download](#)

This fee amortization worksheet is made up of two resources, used for different types of loan profile. The first is for calculating amortization on loans with bullet principal repayment on maturity. The second should be used if principal is repaid over the life of the loan.

We've filled these documents out with example figures for guidance. To use them yourself, replace the loan structure and fee amounts with your own numbers as appropriate and re-compute the amortization amounts.

Step-by-Step Instructions

We'll begin with computing the amortize fee on a loan with bullet repayment.

For the purposes of this demo, we'll consider a loan with the following parameters:

Principal	1,000,000
Interest/Coupon	6.15% pa (Act/365)
Frequency	Semi-annual
Tenor	3 years

Here's how that looks in the worksheet:

Start Date	End Date	Opening Loan Balance	Principal Repayment	Interest Repayment
1-Apr-2013	1-Apr-2013		1,000,000.00	
1-Apr-2013	1-Oct-2013	1,000,000.00	-	(30,834.25)
1-Oct-2013	1-Apr-2014	1,000,000.00	-	(30,665.75)
1-Apr-2014	1-Oct-2014	1,000,000.00	-	(30,834.25)
1-Oct-2014	1-Apr-2015	1,000,000.00	-	(30,665.75)
1-Apr-2015	1-Oct-2015	1,000,000.00	-	(30,834.25)
1-Oct-2015	1-Apr-2016	1,000,000.00	(1,000,000.00)	(30,834.25)

Now let's assume a fee of 45,000 is paid on draw down. The net cash flow is shown below:

Start Date	End Date	Opening Loan Balance	Principal Repayment	Interest Repayment	Fee	Net Cash Flow
1-Apr-2013	1-Apr-2013		1,000,000.00		(45,000.00)	955,000.00
1-Apr-2013	1-Oct-2013	1,000,000.00	-	(30,834.25)		(30,834.25)
1-Oct-2013	1-Apr-2014	1,000,000.00	-	(30,665.75)		(30,665.75)
1-Apr-2014	1-Oct-2014	1,000,000.00	-	(30,834.25)		(30,834.25)
1-Oct-2014	1-Apr-2015	1,000,000.00	-	(30,665.75)		(30,665.75)
1-Apr-2015	1-Oct-2015	1,000,000.00	-	(30,834.25)		(30,834.25)
1-Oct-2015	1-Apr-2016	1,000,000.00	(1,000,000.00)	(30,834.25)		(1,030,834.25)

Based on the above, the net loan is 955,000.

Next, you need to enter the derive the EIR, using the Excel Goal Seek Feature.

We begin with an "estimated" EIR of 7%.

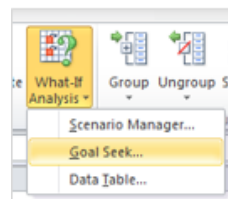
Effective Interest Rate		7.0000000%	
Opening Outstanding	Period Interest	Period Repayment	Closing Outstanding
955,000.00	33,516.58	(30,834.25)	957,682.33
957,682.33	33,427.05	(30,665.75)	960,443.62
960,443.62	33,707.62	(30,834.25)	963,317.00
963,317.00	33,623.72	(30,665.75)	966,274.97
966,274.97	33,912.28	(30,834.25)	969,353.00
969,353.00	34,020.31	(1,030,834.25)	(27,460.94)

N.B. These are the equations that are being used to work out the period interest, period repayment and closing/outstanding figures:

Period Interest	$= \text{Opening} * \frac{\text{Period Tenor}}{365} * \text{EIR}$ $= 955,000 * \frac{183}{365} * 7\% = 33,516.58$ <p>where days from 1-Apr-13 to 1-Oct-13 = 183)</p>
Period Repayment	Cash repayment in the period.
Closing Outstanding	Opening Outstanding + Period Interest – Period Repayment.

At 7%, you can see that there is a negative net residual balance on the maturity.

Using the goal seek tool in Excel, we can now "seek" the EIR that will completely repay the net outstanding balance:



The screenshot shows the Excel spreadsheet with the amortization table and the Goal Seek dialog box. The Effective Interest Rate cell (M4) is highlighted with a red box and contains the value 7.0000000%. The Goal Seek dialog box is open, showing the following configuration:

- Set cell: M13
- To value: 0
- By changing cell: M4

The final results are as follows:

Effective Interest Rate		7.8616299%	
Opening Outstanding	Period Interest	Period Repayment	Closing Outstanding
955,000.00	37,642.13	(30,834.25)	961,807.88
961,807.88	37,703.31	(30,665.75)	968,845.44
968,845.44	38,187.86	(30,834.25)	976,199.05
976,199.05	38,267.45	(30,665.75)	983,800.75
983,800.75	38,777.34	(30,834.25)	991,743.83
991,743.83	39,090.42	(1,030,834.25)	(0.00)

The required EIR is 7.8616299% (rounded). The table below profiles the amortized fee balance at the semi-annual dates interest payment dates.

HIGHLIGHT

future cash payments or receipts through the expected life of the financial asset or financial liability to the gross carrying amount of a financial asset or to the amortised cost of a financial liability. When calculating the effective interest rate, an entity shall estimate the expected cash flows by considering all the contractual terms of the financial instrument.

IFRS 9 – Appendix A

Start Date	End Date	Opening Fee Balance	Period Amortization	Closing Fee Balance
1-Apr-2013	1-Apr-2013			
1-Apr-2013	1-Oct-2013	45,000.00	(6,807.88)	38,192.12
1-Oct-2013	1-Apr-2014	38,192.12	(7,037.56)	31,154.56
1-Apr-2014	1-Oct-2014	31,154.56	(7,353.61)	23,800.95
1-Oct-2014	1-Apr-2015	23,800.95	(7,601.70)	16,199.25
1-Apr-2015	1-Oct-2015	16,199.25	(7,943.09)	8,256.17
1-Oct-2015	1-Apr-2016	8,256.17	(8,256.17)	-

Accounting for Fee Amortization

For accounting purposes, the unamortized fee outstanding need to be stated at the month end date. The worksheet provides a simple linear interpolation calculator. To use this, enter the semi-annual dates into the table below and it will interpolate the unamortized balances on those month-end dates from the semi-annually interest period.

Linear Interpolation Fee Balance	
Date	Balance
30-Apr-2013	43,921.16
31-May-2013	42,767.91
30-Jun-2013	41,651.86
31-Jul-2013	40,498.61
31-Aug-2013	39,345.37
30-Sep-2013	38,229.32
31-Oct-2013	37,032.08
30-Nov-2013	35,872.05
31-Dec-2013	34,673.34

Please note that linear interpolation is an approximation. A better estimate can be derived using cubic spline interpolation. This will generate a curve that runs through all the semi-annual points.

Click on the link to download a copy of the CS Lucas accounting treatment for Fee Amortization. [Download](#)