

Finance - Self Study Guide for Staff of Micro Finance Institutions

LESSON 1

PRINCIPLES OF CREDIT - MEETING CLIENT NEEDS

Objectives: Designing loan products to meet client needs is fundamental to the success of a micro-finance organization. Understanding cash patterns of borrowers and the profitability of their businesses helps to match the loan product to their business cycles. The loan term and repayment frequency are possibly the most significant variables in micro-finance and should be suited to the borrowers' needs. The effect of an increased interest rate on the borrower is relatively less significant than increases in other costs. The method of calculating the interest rate and fees significantly influences the price of the loan.

The objective of this session is to highlight the effect of credit on borrower activities. Topics covered include:

- Cash Patterns
- Loan Term
- Loan Utilization
- Loan Purpose
- Interest Rate
- Fees/Service Charges



Cash Patterns

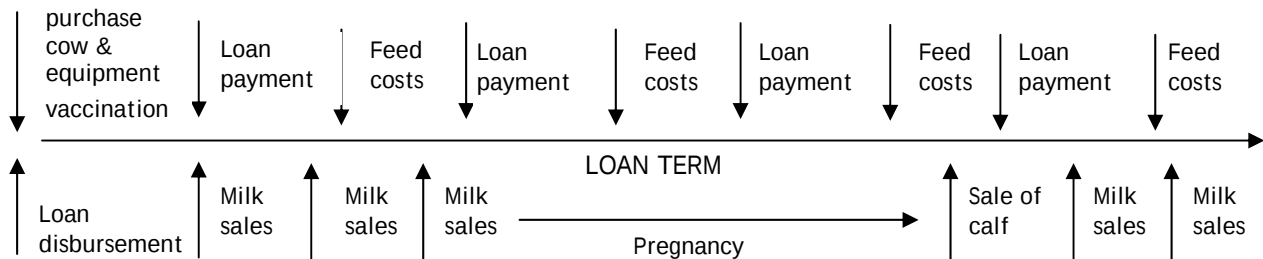
Think of examples of typical borrower activities to which a micro-finance organization lends. Consider the profitability of these businesses. Examples could include market vendors, paddy husking, poultry producers, dressmakers/tailors, carpenters, tricycle drivers, etc.

Now consider the cash inflows and outflows (cash patterns) of these businesses. *Cash inflows refer to revenue earned by the borrower's business, while cash outflows refer to payments or purchases made by the business.* Depending on the activity, cash patterns will vary. Some cash inflows and outflows occur on a regular basis, others at irregular intervals or on an emergency or seasonal basis only.

In the example on the next page, costs such as loan repayments and feed purchases are incurred at regular intervals. Vaccination is a one-time cost at the beginning of the loan. Revenues such as the sale of the milk occur regularly until the cow becomes pregnant, at which time they dry up. Further inflows from the sale of milk will not begin until some time after the calf has been born. Once the calf is born, it is also possible to obtain revenue from its sale.

IRREGULAR CASH FLOW MILCH COW LOAN

CASH OUTFLOWS

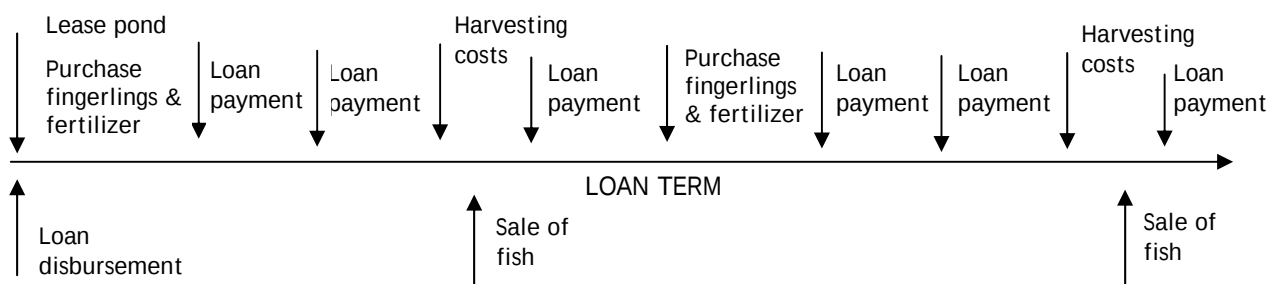


CASH INFLOWS

Certain borrower activities are seasonal in nature. For seasonal activities, there will be times when the borrower will generate revenues (such as after a harvest period) and times when there will be no revenue. The loan term may extend over several seasons during which there are gaps in revenues. One example of a seasonal borrower activity is a fish culture programme. Cash flows which are affected by the season are illustrated as follows:

SEASONAL CASH FLOW FISH CULTURE PROGRAMME

CASH OUTFLOWS



CASH INFLOWS

Note that cash outflows and inflows do not occur at the same time. The fish culture programme requires cash outlays for such items as supplies, loan payments and harvesting costs virtually throughout the season but only produces revenue at the end of the growing season. *Because revenue flows are inconsistent, it is necessary for the client to maintain a cash balance or obtain other income through wages or a second borrower activity to be able to make the loan repayments.*

Now consider different borrower activities and how cash patterns differ depending on the business and the season. Clients, faced with uneven cash flows, must learn to budget for both expected and emergency cash outflows. Think of various ways a client can manage during low revenue periods. Examples include: cash balances, a complementary activity and wage earnings of the borrower and/or other members of the family. **Regardless of the cash patterns of the borrower activity, periodic loan payments must be made to the micro-finance organization.** This will help the organization to avoid losses and discipline clients to manage their funds and build assets for themselves. In the past, some agriculture credit programmes experimented with balloon payments at the end of the loan term at harvest time. Experience has shown that this is relatively high-risk for the lender and client in that if something goes wrong with the harvest, the client is generally unable to repay the loan. In addition, by not making periodic payments, the client does not build up any savings over the term of the loan.

Loan Term

The loan term is one of the most important variables in micro-finance. *The loan term refers to the amount of time that the loan is used by the borrower.* The loan term determines the instalment amounts, the revenue to the organization, the interest cost to the client, and the ultimate suitability of the loan.

The following examples demonstrate that different loan terms best suit different kinds of businesses. The closer an organization gets to matching loan terms to client needs, the easier it is for the client to “carry” the loan and the stronger the loan portfolio quality is likely to be.

Take, for example, a dressmaker who has a four-month business cycle – she buys her inventory every four months to benefit from bulk purchasing. Suppose her net revenue (after expenses but before the loan repayment) over the four months is B1,600 (B400 per month).

Example 1 – four-month loan which matches her business cycle:

She borrows B1,000 for four months at 3% per month interest with monthly payments of B269. Total payments are B1,076 (interest expense of B76). Revenue of B1,600 less the loan repayment of B1,076 leaves B524 which she can reinvest in her business or add to her family income (or split between both). Cash flow over the four months is as follows:

	Business	Loan	Net Income
Period 0	(1,000)	1,000	–
Period 1	400	(269)	131
Period 2	400	(269)	131
Period 3	400	(269)	131
Period 4	400	(269)	131
Total	600	(76)	524

In this scenario, the dressmaker has some income to consume each month or reinvest as accumulated working capital if she chooses. Because the loan term perfectly suits her business cycle, excess income is evenly distributed through the loan term.

Example 2 – two-month loan which is shorter than her business cycle:

She borrows B1,000 for two months at 3% percent per month with monthly payments of B523 and sales of B400 per month:

	Business	Loan	Net Income
Period 0	(1,000)	1,000	-
Period 1	400	(523)	(123)
Period 2	400	(523)	(123)
Period 3	400	-	400
Period 4	400	-	400
Total	600	(46)	554

The reduced interest results in higher net income at the end of the loan term, but the family bore hardship during the first two months. If the borrower had no savings to begin with or no access to other income or credit to support the loan payments in the first two months, she would not have been able to take the loan.

Example 3 – six-month loan which is longer than her business cycle:

She borrows B1,000 for six months at 3% per month with monthly payments of B184.6 and sales of B400 per month for four months only (assume that because she does not have a full B1,000 built up in working capital at the end of the four months, she cannot buy more inventory at the “bulk purchase” price and thus has two months of no income):

	Business	Loan	Net Income
Period 0	(1,000)	1,000	-
Period 1	400	(184.6)	215.4
Period 2	400	(184.6)	215.4
Period 3	400	(184.6)	215.4
Period 4	400	(184.6)	215.4
Period 5	-	(184.6)	(184.6)
Period 6	-	(184.6)	(184.6)
Total	600	(107.6)	492.4

In this scenario, the cash flow is easier on the dressmaker but she may be tempted to spend the higher net income in the early months of the loan, resulting in a heavy burden during the last two months. This is why 12 month loans in busy urban markets often result in delinquent loans and defaults toward the end of the loan term. Also, the borrower ends up being under-employed for two months because she does not have access to credit to buy more inventory. If the loan term was shorter and she was thus able to borrow again, she could continue to be fully engaged in her business.

The preceding three examples show that it is important, *at this level of revenue*, for the loan term to match the client's cash flows. This becomes less of a concern the more profitable the business.

Suppose that we repeat *Example 2* with a loan term of two months but assume that the client's revenues (net of expenses except the loan payment) were high enough to cover the loan payments each month, e.g. revenues of B520 per month instead of B400.

Example 4 – two-month loan which is shorter than her business cycle but with higher revenue (B520 per month):

	Business	Loan	Net Income
Period 0	(1,000)	1,000	-
Period 1	520	(523)	(3)
Period 2	520	(523)	(3)
Period 3	520	-	520
Period 4	520	-	520
Total	1,080	(46)	1,034

In this example, the dressmaker is able to accumulate enough net income to *not* borrow again at the end of the four-month period (unless she wants to increase the size of her business). Does this mean that the micro-finance organization has failed? Often, micro-finance organizations treat low “client drop-out” as an indicator of success. This is not always an appropriate conclusion, depending on the clients' cash flows and credit needs.

Continuing with a similar example, suppose the client does not have a four-month business cycle but a one-month cycle which matches the payment frequency of her loan?

Example 5 – business cycle matches payment frequency, not loan term:

In this example, we consider her sales each month as 20% higher than the cost of her inventory. Inventory is replaced each month:

	Business Sales	Business Inventory	Loan	Net Income
Period 0		(1,000)	1,000	-
Period 1	1,200	(1,000)	(269)	(69)
Period 2	1,200	(1,000)	(269)	(69)
Period 3	1,200	(1,000)	(269)	(69)
Period 4	1,200		(269)	931
Total		800	(76)	724

In this example, the dressmaker does not have high enough monthly sales to cover the cost of replenishing her inventory *and* her loan payment (principal and interest). To maintain her level of business, she must dip into savings or other income sources for the first three months.

If other sources are not available, she must reinvest in a smaller amount of inventory, resulting in lower business volume each month and therefore lower Net Income:

	Business Sales	Business Inventory	Loan	Net Income
Period 0		(1,000)	1,000	-
Period 1	1,200	(900)	(269)	31
Period 2	1,080	(800)	(269)	11
Period 3	960	(700)	(269)	(9)
Period 4	840		(269)	571
Total		680	(76)	604

To prevent the business from continuing to shrink, a longer loan term should be offered in order for her to maintain the same level of business *with the same level of revenues*.

Example 6 – eight-month loan which matches her cash flows:

She borrows B1,000 for eight months with monthly payments of B143 and sales of B1,200 per month:

	Business Sales	Business Inventory	Loan	Net Income
Period 0		(1,000)	1,000	-
Period 1	1,200	(1,000)	(143)	57
Period 2	1,200	(1,000)	(143)	57
Period 3	1,200	(1,000)	(143)	57
Period 4	1,200	(1,000)	(143)	57
Period 5	1,200	(1,000)	(143)	57
Period 6	1,200	(1,000)	(143)	57
Period 7	1,200	(1,000)	(143)	57
Period 8	1,200		(143)	1,057
Total		1,600	(144)	1,456

In this case, monthly cash flow is manageable and she accumulates income (even though she pays additional interest totalling B68 for the extra four months of the loan term).

Prepayments

As mentioned, certain types of income producing activities are seasonal or cyclical in nature. In these types of income generation activities, increased revenues, and often increased profits associated with these revenues, are received at certain times of the season or year. With this increased cash, clients may elect to prepay the loans. Prepayments have several advantages for the client: they can reduce both the security risk and the temptation to spend excess amounts of cash, and they can reduce the burden of the loan payments later in the loan cycle.

Prepayments result in one clear advantage for a micro-finance organization. By having the loan repaid more quickly, the micro-finance organization can turn over

the loan portfolio faster and thereby reach more clients. However, prepayments are difficult to monitor and must be separated from regular payments. Prepayments also disrupt the cash flow of a branch and therefore affect the ability to predict cash flow requirements accurately.

If a particular income generating activity results in a number of prepayments, it is advisable to shorten the loan term to suit the needs of that activity. All loan terms should be designed to minimize the need for prepayments. This involves matching the cash flow to the loan term. Doing so will assist clients in budgeting their cash patterns and will also lower the likelihood of prepayments or delinquency.

For example, a growing cycle of four months should be matched by a loan term of four months. A new loan can be disbursed when the next growing season approaches.

The loan term will vary depending on what the loan is for. This will be discussed below under **Loan Purpose**.

Loan Utilization

It is important to ensure that clients, particularly new clients, use their loans for the purpose for which they are intended. If loan funds are used to purchase an asset which does not generate income or to cover everyday cash requirements outside of the business, the client may have difficulty repaying the loan because there may not be cash available to make loan installments.

[Note that more mature clients may borrow funds for a non-income generating activity (and often do) provided they are generating sufficient revenue from their business to cover the loan repayment and are able to manage their cash flows such that they are able to repay the loan.]

Production vs. Consumption – some clients may divert the loan proceeds from the intended productive activity into consumption, such as: school fees, food, repayment of old debts; or for an emergency such as death, crop failure, etc. If there are no longer any associated cash inflows, loan repayment becomes difficult. For example, if a borrower uses a loan intended to finance poultry rearing to pay for her children's school fees rather than purchasing chicks, she will have no revenue from the sale of eggs to repay the loan.

Read through the following example:

Maria is a member of a Dominican credit group. Prior to joining the group, Maria earned income by cleaning other people's homes. She is the only wage earner in the family because her husband is sick and the 4 children (3 daughters and 1 son) are young. After Maria completed two months of regular weekly savings, she was entitled to her first loan of P20,000 to buy vegetables to sell in the market. Maria successfully repaid the loan on time.

Then her daughter became engaged and a wedding was arranged at a cost of P50,000. It was impossible for Maria to save such a large amount. She decided to finance the wedding by taking out a second loan. Maria received a loan of P30,000 to purchase vegetables but instead used the loan to pay for her daughter's wedding. As a result, she had no money left and her revenue earning capacity was diminished. This made it very difficult for Maria to repay the loan.

Higher Income Generating Activity – clients may decide to use the loan funds for an income generating activity other than that for which the loan was intended, in the hopes that they will earn additional revenue. Clients may also give the loan proceeds to a family member to support a new venture. This usually implies a higher risk and potentially different cash patterns. This type of diversion is not advisable as the client may use the funds for an activity in which she/he has no previous training or experience. This increases the risk to the micro-finance organization because the client may not be able to manage the business and thus may not be able to repay the loan. The new business may also be an activity which the credit officer knows little about and so will be unable to advise the client or monitor the loan properly.

[Note that if the existing business which the client has been running for some time has built up enough working capital and is profitable enough to repay the new loan, then ventures into a new business may be justified.]

Read the example below and answer the question at the end.

Maritza is a borrower of the SMS Loan Fund in Bolivia. She took out a six month loan of Bs1,500 for a vegetable stall which she has been renting in a market in La Paz for several years. She used the loan to operate the stall. Her average daily sales were Bs75 and her cost of goods sold was 50% of sales. Other costs included monthly transportation charges of Bs100 and monthly rent of Bs200 on the stall. Maritza also has to pay the monthly installment of Bs286 on her loan.

Monthly sales (Bs75x30 days)	2,250
Cost of goods sold (50% monthly sales)	1,125
Transportation cost	100
Stall rental	200
Monthly loan installment	286
Total expenses	1,711
Monthly Income	539

After deducting her monthly expenses, Maritza's monthly income was Bs539.

Six months later, Maritza had paid her loan back in full. She decided to take out another six month loan for Bs2,000. However, she did not use this loan for her vegetable stall. Instead, she put the loan towards starting a handicraft business with her husband. She made the decision to switch based on a conversation she had with her brother-in-law who told her that he was making a monthly income of Bs750 from his handicraft business.

The details of Maritza's new business are:

Monthly sales (Bs125x30 days)	3,750
Cost of goods sold (65% monthly sales)	2,438
Transportation cost	150
Stall rental	300
Monthly loan installment	382
Total expenses	3,270
Monthly Income	480

After deducting her monthly expenses, Maritza's monthly income in this new activity was Bs480. What are some possible explanations for Maritza's reduced monthly income?

Subsidized Loans – some micro-finance organizations provide longer-term loans at subsidized (or lower) interest rates for clients to build houses. If clients use the loan funds for activities other than housing, they risk losing access to other loans with the organization. In addition, subsidized loans that are not appropriate for the activities financed distort the market place and may cause the repayment of non-subsidized loans to be at risk.

When a client diverts loan funds to another activity, the risk to the lending organization increases and the benefits to the client may decrease.

Loan Purpose

Fixed asset loans are those made for the purchase of an asset which is used in the income generating business. Fixed assets are those assets which are used in the production process but typically have a life span of more than one year. Fixed assets are usually defined as machinery/equipment and property. Examples of fixed assets include motorcycles, sewing machines, egg incubators, rickshaws, etc. Since the productive activity does not directly use up the fixed asset (e.g. it is not sold as part of the product), its impact upon profitability often is felt over a greater length of time.

A loan made for a fixed asset is generally for a larger amount and for a longer term. This results in higher risk for a micro-finance organization (offset somewhat if the organization takes the asset as collateral).

Although longer loan terms may be required for fixed asset purchases, many micro-finance organizations have found that they do not need to introduce special loan products for fixed asset purchases if they are relatively inexpensive fixed assets and the loan can be repaid over a period of 12 months or less.

Working capital loans are generally loans for current expenditures that occur in the course of the business. Working capital refers to the investment in current or short term assets. These are assets which are direct inputs into the business and are used within one year. Examples are: wood purchased for carpentry, food or goods purchased for market selling, or chick feed purchased for poultry rearing. A loan made for working capital should have a loan term which matches the business cycle of the borrower. In most micro-finance organizations, working capital loan terms are generally for two months to one year.

The table on the next page identifies business assets as either fixed assets or working capital. Read through each example.

Activity	Fixed assets	Working Capital
1. Vendor	• food stall • fridge • weigh scale	• merchandise • plastic bags • paper bags
2. Dress Maker	• sewing machine • sewing table • mannequin	• fabric • patterns • thread/needles
3. Carpenter	• miter saw • lathe • sander	• lumber • nails • sand paper
4. Industrial Laundry	• washing machine • dryer • drying rack	• laundry soap • starch/fabric softener • bags/labels
5. Lawn Care	• lawn mower • pick-up truck	• bags • weed killer/fertilizer
6. Bicycle Repair	• hoist • air hose • tire pump	• oil • replacement parts • flyers (advertising)
7. Computer Consultant	• cellular telephone • anti-virus software	• computer tools • transportation costs • flyers (advertising)
8. Catering	• food trays • pots/pans • baking dishes	• food • napkins • place cards
9. Poultry Hatchery	• incubator • baskets and bowl • wire & holder • thermometer • shelves	• purchase of eggs • electricity cost • cloths for wrappings • sterilizing of eggs

Interest Rate

What are the various costs incurred in a revenue-generating activity? Costs include the purchase of materials, equipment or livestock, fees, wages, transportation, etc. Interest cost is also incurred if the client borrows funds.

There are a number of ways to calculate interest on a loan. Two methods will be covered in this study guide: declining balance method and flat (face-value or add-on) method.

*The **declining balance method** means that the interest is calculated as a percentage of the amount outstanding during the loan term.*

*The **flat method** means that interest is calculated as a percentage of the initial loan amount and not the amount outstanding (declining) during the loan term.*

For example, a loan which is repaid over 26 weeks through weekly payments of principal and interest is reducing or declining every week by the amount of principal repaid. This means that the borrower has use of less than the original amount of the loan each week, until the end of the 26 weeks when she has no principal outstanding and has repaid the whole loan. Interest calculated on the declining balance means that interest is charged only on the amount which the borrower is still using. For example, by Week 13 of a Rnd1,000 loan, the borrower will only have approximately Rnd500 outstanding if she has paid regular weekly installments. At that point, she is paying interest only on Rnd500 and not Rnd1,000. [Note: with interest paid on the declining balance, a greater portion of the monthly payment is paid in interest during the early months of the loan with a greater portion of principal paid towards the end of the loan. This results in slightly more than half of the principal remaining outstanding at the mid-point of the loan. For example, in the loan example above, there is probably closer to Rnd550 than Rnd500 still outstanding by week 13.]

To calculate interest on the declining balance, a **financial calculator** is required. Using a financial calculator, calculate how much interest is payable on a one year VD300,000 loan with monthly payments and 20% interest calculated on the declining balance. The answer is VD33,600 (12 payments of VD27,800 for a total of VD333,600).

Interest calculated using the flat method means that interest is always charged on the total amount of the loan disbursed even though periodic payments cause the outstanding principal to decline (that is, the loan term does not affect the amount of interest paid). Generally a flat rate will be stated for the term of the loan, as opposed to being stated as a periodic (e.g., monthly or annual) rate.

To calculate interest using the flat rate method, the interest rate is simply multiplied by the initial amount of the loan. For example, if a micro-finance organization charges 15% interest using the flat rate method on a \$1,000 loan, the interest payable is \$150 ($\$1,000 \times 15\%$).

Calculate how much interest is payable on a VD300,000 loan with 20% interest calculated using the flat method. The answer is VD60,000. The difference between interest calculated on a flat basis or declining basis is substantial. Interest of VD60,000 (20% flat basis) is VD26,400 or 80% greater than interest of VD33,600 (20% declining balance).

Read the following example:

Teodora borrowed Tk2,000 from the Bangladesh Credit Company at a 20% annual rate calculated on a declining balance (DB) and a 3% loan fee. The term of her loan was one year with monthly payments. Teodora used the loan for her paddy husking business. Interest on a Tk2,000 loan at 20% DB is Tk224. Her revenues and expenses are as follows:

	<u>20% DB</u>
REVENUE	
Loan	Tk2,000
Rice Sale (2,000 kgs @ Tk2.0)	4,000
Rice Powder (500 kgs @ Tk1.4)	700
Total Revenue	6,700
EXPENSES	
Loan Installment - Principal	2,000
- Interest	224
Loan fee (3% of Tk2,000)	60
Purchase of Paddy (100 @ Tk17)	1,700
Husking Cost	800
Transportation	<u>400</u>
Total Costs	5,184
Net Profit	1,516

As a percentage of total costs (Tk5,184), interest of Tk224 (20% declining balance) represents 4.3%.

The same loan with interest charged at 20% flat results in an interest cost of Tk400, a difference of Tk176 or an increase of 80% in the interest cost.

	<u>20% Flat</u>
REVENUE	
Loan	Tk2,000
Rice Sale (2,000 kgs @ Tk2.0)	4,000
Rice Powder (500 kgs @ Tk1.4)	700
Total Revenue	6,700
EXPENSES	
Loan Installment - Principal	2,000
- Interest	400
Loan fee (3% of Tk2,000)	60
Purchase of Paddy (100 @ Tk17)	1,700
Husking Cost	800
Transportation	<u>400</u>
Total Costs	5,360
Net Profit	1,340

Interest of Tk400 (20% flat) represents 7.5% as a percentage of total costs compared to 4.3% with interest of 20% charged on the declining balance.

If Teodora's interest rate calculated on a declining balance is increased by 5 percentage points, the annual interest cost on a Tk2,000 loan at 25% DB becomes Tk281, an increase of Tk57 from Tk224 at 20% declining balance. As a percentage of total costs (Tk5,241) interest of Tk281 represents 5.4%.

	<u>25% DB</u>
REVENUE	
Loan	Tk2,000
Rice Sale (2,000 kgs @ Tk2.0)	4,000
Rice Powder (500 kgs @ Tk1.4)	700
Total Revenue	6,700
EXPENSES	
Loan Installment – Principal	2,000
- Interest	281
Loan fee (3% of Tk2,000)	60
Purchase of Paddy (100 @ Tk17)	1,700
Husking Cost	800
Transportation	<u>400</u>
Total Costs	5,241
Net Profit	1,459

The effect of a 5 percentage point increase in the interest rate is to increase interest payable from Tk224 to Tk281 (an increase of 1.1% on Teodora's total costs). When the nominal interest rate is not increased but the calculation method changed (declining balance to flat), the resulting increase in interest payable is Tk176 (Tk224 to Tk400) representing a 3.2% increase in Teodora's total costs.

	Interest 20% DB	Interest 25% DB	Variance	Interest 20% DB	Interest 20% Flat	Variance
Actual Costs	Tk224	Tk281	Tk57	Tk224	Tk400	Tk176
% of Total Costs	4.3%	5.4%	1.1%	4.3%	7.5%	3.2%

A change in the interest charged by a micro-finance organization from 20% to 25% has less of an impact on the overall costs to the borrower relative to the increase in interest cost if interest is charged on a flat rather than a declining balance basis.

Fees/Service Charges

Fees or service charges charged to the borrower increase the financial costs of the loan. Fees are generally charged as a percentage of the initial loan amount and are used to increase the revenue to the organization (particularly if the organization is operating in an interest-rate sensitive environment).

Measuring the Effect of a Change in Loan Fee

Read through the following example and note the result of increasing the loan fee by 5 percentage points. Rework the example with a decrease in the fee to 0% from 5%. *Because fees are generally not calculated on a declining balance, the effect of a decrease in fees is greater than a similar decrease in the interest rate (if interest is calculated on the declining balance).*

The ABC Credit Company wants to determine its future pricing policy. In doing so, it wants to calculate the effect on the borrower of an increase in the interest rate charged as well as an increase in the loan fee.

In the previous example, we saw the effect of a 5 percentage point increase in the interest rate (DB) on Teodora's business. If the ABC Credit Company were to increase the loan fee it charges from 3% to 8%, assuming that the interest rate remained at 20% on a declining balance, it would have the following effect on Teodora's Paddy Husking business:

	<u>20% DB</u> <u>3% Fee</u>	<u>20% DB</u> <u>8% Fee</u>
REVENUE		
Loan	Tk2,000	Tk2,000
Rice Sale (2,000 kgs @ Tk2.0)	4,000	4,000
Rice Powder (500 kgs @ Tk1.4)	700	700
Total Revenue	6,700	6,700
EXPENSES		
Loan Installment – Principal	2,000	2,000
– Interest	224	224
Loan fee	60	160
Purchase of Paddy (100 @ Tk17)	1,700	1,700
Husking Cost	800	800
Transportation	<u>400</u>	<u>400</u>
Total Costs	5,184	5,284
Net Profit	1,516	1,416

A loan fee of 3% on a loan of Tk2,000 is Tk60. As a percentage of total costs (Tk5,184), a 3% loan fee of Tk60 represents a 1.2% increase in total costs (from no loan fee).

If Teodora's loan fees were increased by 5 percentage points, the loan fee on Tk2,000 becomes Tk160, an increase of Tk100 from Tk60 at the previous 3% rate. As a percentage of total costs (Tk5,284), loan fees of Tk160 represent 3.0%.

Therefore, the effect of a 5 percentage point increase in the loan fees is an increase of Tk100 or a 1.8% (3.0% - 1.2%) increase in Teodora's total costs.

Let us compare this increase in loan fee to a 5 percentage point increase in the interest rate (calculated on a declining balance):

	Interest 20% DB	Interest 25% DB	Variance	Service Fee 3%	Service Fee 8%	Variance
Actual Costs	Tk224	Tk281	Tk57	Tk60	Tk160	Tk100
	4.3%	5.4%	1.1%	1.2%	3.0%	1.8%

The calculation shows that the effect on the costs to the borrower is greater with a 5 percentage point increase in services fees than a 5 percentage point increase in the interest rate when the interest is calculated on a declining balance. This is because the fee is charged on the initial loan amount whereas the interest is calculated on the declining (or reducing) balance of the outstanding loan. This follows from the calculations we did with interest calculated on a flat vs. declining balance. Although the interest rate may be the same *nominal* figure, the costs to the borrower and hence the yield to the lender vary greatly. This will be discussed further in the next lesson: the “Effective Cost of Borrowing”.



EXERCISES

Complete the “Principles of Credit” Exercises on the next page.

Principles of Credit

EXERCISES

1. What is meant by cash inflow and cash outflow?

2. Give some examples of activities that have regular cash flows.

3. Give some examples of activities that have irregular cash flows. How do clients manage to make loan payments during periods of no revenue?

4. Give an example of a loan diverted to another activity. In what circumstances might this i) increase risk to the lender; ii) not increase risk to the lender?

5. What is a fixed asset loan? Generally, how long should the loan term be to purchase a fixed asset?
6. What is a working capital loan? Generally, how long is the loan term?
7. List the potential uses of fixed asset and working capital loans of a poultry hatchery business.
8. What is the difference between calculating interest on a flat vs. declining balance basis?
9. For a \$5,000 loan with monthly payments:
 - annual interest at 20% declining balance = \$ 558
 - annual interest at 25% declining balance = \$ 703
 - loan fee at 5% = \$ 250
 - loan fee at 10% = \$ 500

Why does a 5 percentage point increase in the loan fee result in a higher nominal charge than the same percentage increase in the interest rate?

10. Ms. Amena is a group member who owns a small trading business called Hawker Trading International. Her average daily sales are \$150. She works 6 days/week, 50 weeks per year.

She borrowed \$5,000 for six months from the Toronto Micro-Finance Fund at a flat interest rate of 15%, a loan fee of 3% and with monthly payments. She learned from experience that the average cost of goods sold in her business is 65% of the sale price, and that all other costs amount to \$3,000 per annum.

- (a) Calculate how much profit she earns from her business in the six-month period that she has the loan outstanding.

- (b) If interest was calculated on the *declining balance* (monthly payments \$870.17/month), calculate her profit for the same six month period.

11. Lucia is a member of the Toronto Micro-Finance Fund. She began her Fabric Design Company with the help of a one year loan of \$5,000 at a 15% flat interest rate with monthly payments. Lucia used the loan amount to purchase silk screening supplies and fabric. She works out of a studio on which she pays rent monthly. After eight weeks, Lucia had designed several fabrics which she sold to friends.

Twelve weeks into the loan term, Lucia made a contact with a design company which wanted to purchase fabric for their Spring line. They agreed to pay Lucia an up-front fee to design the fabric, with the balance to be paid when the entire order was delivered.

Show a cash inflow and cash outflow diagram for the above case.

