LEONARDO DA VINCI
Transfer of Innovation

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Financial Management

Leonardo da Vinci programme project

„Development and Approbation of Applied Courses Based on the Transfer of Teaching Innovations in Finance and Management for Further Education of Entrepreneurs and Specialists in Latvia, Lithuania and Bulgaria"

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Course Introduction

Motivation for Developing the Course

Research by the members of the project consortium Employers' Confederation of Latvia and Bulgarian Chamber of Commerce and Industry indicated the need for further education courses.

Innovative Content of the Course

The course is developed to include the following innovative content:

- Key concepts of financial management, which are explained from an applied perspective with case studies and problems emphasizing the input financial management provides to decision makers in the firm;
- Applied exercises, which cover applied problems such as analysis and interpretation of financial statements, preparation and control of corporate budgets, determining the cost of capital and identification of capital requirements, evaluating capital investment projects.
- Solutions to the exercises are provided, which aids revision and control of knowledge acquisition during self-study;

Innovative Teaching Methods of the Course

The course is developed to utilise the following innovative teaching methods:

- Availability on the electronic platform with interactive learning and interactive evaluation methods;
- Active use of case studies and participant centred learning;
- Availability in modular form;
- Utilising two forms of learning - self-study and tutorial consultations;
- Availability in several languages simultaneously.

Target Audience for the Course

The target audience are: entrepreneurs, finance and management specialists from Latvia, Lithuania and Bulgaria and, in the longer term, similar groups in any other European country.
The course assumes little prior applied knowledge in the area of financial and operation analysis.
The course is intended for 32 academic hours (2 credit points).

Course Objective

The objective of the course is to provide entrepreneurs with the knowledge in the area of financial management, in order to enable them to successfully make financial decisions and successfully plan financial and business operations.

After successfully completing this course, the entrepreneurs will gain an understanding of the most accepted systems of financial management and different decision-making technologies, will be able to independently assess company's financial position and present it in financial statements. They will also be able to plan, assess and present cash flow in financial statements, analyse and interpret financial statements as a whole and evaluate the efficiency of firm's long-term investments.

Description of Course Sections

1. Main types of financial statements
2. Assessment of the financial position of an enterprise and its presentation in financial statements
3. Assessment of company financial position and its presentation in financial statements
4. Cash flow planning, assessment and presentation in the financial statements
5. Analysis and interpretation of financial statements
6. Types of Corporate Budgets, their Preparation and Control
7.Enterprise capital and its structure. Identification of capital requirements
8. Methods of Capital Investment Project Appraisal

1. Main types of financial statements

2. Assessment of the financial position of an enterprise and its presentation in financial statements

After covering this material student will be able to:

- describe the purposes of the main financial statements;
- draw up a simple balance sheet and interpret the information provided therein;
- name the main principles and the underlying assumptions used in preparation of a balance sheet;
- name the weaknesses of balance sheet as a financial statement.

3. Assessment of company financial position and its presentation in financial statements

After covering this learning material student will be able to:

- Distinguish the cash inflows and outflows from revenues and expenses in the accounting sense;
- Determine the appropriate timing for recognition of revenues and expenses;
- Prepare the profit or loss statement by using the requisite financial data;
- Assess the impact of the method used for calculation of depreciation on the amount of profit;
- Assess the effect of stock valuation methods and the effect of bad debts on the amount of profit.

4. Cash flow planning, assessment and presentation in the financial statements

After covering this learning material student will be able to:

- plan the enterprise cash flow;
- explain what is the role of cash assets in enterprise operations;
- describe the component parts of the cash flow statement and explain how the cash flow statement can assist in identifying any cash flow problems;
- prepare the cash flow statement.

5. Analysis and interpretation of financial statements

After covering this learning material student will be able to:

- restructure (transform) the financial statements for the purposes of analysis;
- apply the management accounting data for the purpose of improving the performance results of the enterprise;
- prepare analytical tables for the purposes of your own enterprise, by summarising the most significant information illustrating the enterprise performance;
- correctly interpret the information at your disposal;
- identify the financial position and development perspectives for your own enterprise, using the established analytical tables;
- prepare the management report on the financial position of the enterprise.

6. Types of Corporate Budgets, their Preparation and Control

After covering this material student will be able to:

- to draw up the enterprise budgeted balance sheet and profit or loss account and to determine the amount of the required financing;
- prepare the enterprise cash flow forecast;
- prepare the overall enterprise cash budget by applying some useful correlations in budget planning.

7. Enterprise capital and its structure. Identification of capital requirements

After covering this topic student will be able to:

- Identify capital requirements and distinguish between fixed and current assets for their business;
- Distinguish between conservative, balanced and aggressive policies for management of current asset and short-term liabilities.
- Manage stocks and receivables;
- Analyse concerns arising due to inefficient capital structure and length working capital cycle;

8. Methods of Capital Investment Project Appraisal

After covering this topic student will be able to evaluate the economical benefits of an investment project through application of quantitative techniques for adoption of decisions on different investment projects by determining the effective project rate of return. These estimates will help to select the most beneficial among several proposals.

Evaluation Methods

As has been mentioned before, every chapter of the course contains opportunities to test the knowledge of the audience, which are in the form of exercises and case studies. Case studies involve processes such as creating cash flow report or drawing up balance sheet. Exercises, for example, involve distinguishing between cash and accounting income or expenditure, etc. Both case studies and exercises have solutions provided and are designed so that audience members can apply them to situations at their companies.

Summary of the Course and Evaluation Methods

The course provides the target audience with a broad knowledge on the key topics of financial management and its application in an enterprise.

The focus is on practical application of knowledge – entrepreneurs and finance specialists using the course and questions of the course to assess the situation in their own company.

The course can be combined with other further professional education courses developed in the project.

1. Main types of financial statements
2. Assessment of the financial position of an enterprise and its presentation in financial statements:
2.1. Description of balance sheet and its formats;
2.2. Impact of turnover on balance sheet data;
2.3. Basis for asset evaluation in balance sheet;
2.4. Basic principles for preparation of balance sheet (financial statements) and the underlying assumptions

After covering this material student will be able to:
- describe the purposes of the main financial statements;
- draw up a simple balance sheet and interpret the information provided therein;
- name the main principles and the underlying assumptions used in preparation of a balance sheet;
- name the weaknesses of balance sheet as a financial statement.

1. Main types of financial statements

Question	**Types of financial statements**
1. What was the cash flow (incoming and outgoing cash) of an enterprise in each given period?	Cash flow statement: According to the direct method: Opening cash balance for the period + incoming cash - outgoing cash = cash balance at the end of period. According to the indirect method: Income + (-) adjustments = cash balance at the end of period.
2. How much material value (income) has an enterprise generated in each period?	Income statement: Revenue (as per financial accounts) - costs (as per financial accounts) = profit (loss)
3. How many assets has an enterprise accrued at the end of each period?	Balance sheet: Assets = Equity + Liabilities

Exercise 1
The opening capital of a private entrepreneur is 2,000 CU (Currency Units).

During Period 1 of trading he bought goods for 2,000 CU and sold ¾ of the goods for 2,250 CU.

4. What cash flow (incoming and outgoing cash) did the entrepreneur have at the end of Period 1?
5. What profit did the entrepreneur receive at the end of Period 1?
6. How many assets did the entrepreneur accrue at the end of Period 1?

Solution:

Cash Flow Statement (according to direct method):

Opening cash balance for the period	2,000 CU
+ incoming cash	2,250 CU
- outgoing cash	2,000 CU
= cash balance at the end of period	250 CU

Income statement:

Revenue (as per financial accounts) or sales	2,250 CU
- costs (as per financial accounts) or cost of goods sold	1,500 CU (3/4 of 2,000 CU)
= profit	750 CU

Balance sheet:

Assets	Cash 2,250 CU Stock 500 (1/4 of 2,000) Total: 2750 CU
Equity + Liabilities	Opening capital 2,000 CU Profit 750 CU Total: 2,750 CU

Exercise 1 Continued

In Period 2 the entrepreneur bought some more goods for 1,000 CU and sold both the goods just purchased and the goods previously bought for 3,200 CU in total. What would his statements look like at the end of Period 2?

Cash Flow Statement (according to direct method):

Opening cash balance for the period	2250 CU
+ incoming cash	3200 CU
- outgoing cash	1000 CU
= cash balance at the end of period	4450 CU

Income statement:

Revenue (as per financial accounts) or sales	3,200 CU
- costs (as per financial accounts) or cost of goods sold	1,500 CU (1/4 of 2,000 CU + 1,000 CU)
= profit	1,700 CU

Balance sheet:

Assets	Cash 4,450 CU Stock 0 Total: 4,450 CU
Equity + Liabilities	Opening capital 2,000 CU Profit 2,450 CU Total: 4,450 CU

In Period 3 the salesman purchased goods for 2,300 CU and was able, however, to sell only ½ of his stock for a total of 3,100 CU. What would his statements be like at the end of Period 3?

Cash Flow Statement (according to direct method):

Opening cash balance for the period	4,450 CU
+ incoming cash	3,100 CU
- outgoing cash	2,300 CU
= cash balance at the end of period	5,250 CU

Income statement:

Revenue (as per financial accounts) or sales	3,100 CU
- costs (as per financial accounts) or cost of goods sold	1,150 CU (1/2 of 2,300 CU)
= profit	1,950 CU

Balance sheet:

Assets	Cash 5,250 CU Stock 1,150 CU (1/2 of 2,300 CU) Total: 6,400 CU
Equity + Liabilities	Opening capital 2,000 CU Profit 4,400 CU Total: 6,400 CU

Therefore, ***the Cash Flow Statement shows changes in cash and profit having taken place in a certain period of time, while the Balance Sheet reflects the financial position of the enterprise at the end of a given period.***

2 Assessment of the financial position of an enterprise and its presentation in financial statements

2.1. Description of balance sheet and its formats

Balance Sheet The underlying formula for the Balance Sheet is as follows:

Assets = Equity + Liabilities

Structure of the Balance Sheet:

Assets:	**Liabilities:**
1. Long-term investments	**3. Equity**
✓ intangible assets	✓ statutory capital (fixed capital)
✓ **fixed assets**	✓ **reserve**
✓ long-term financial investments	✓ retained earnings
2. Working capital	**4. Provisions**
✓ inventory	5. Accounts payable
✓ **accounts receivable**	✓ **long-term liabilities**
✓ **securities and participation in other enterprises**	✓ **short-term liabilities**
✓ **cash**	✓

Description of the major positions of the Balance Sheet
(see the Balance Sheet Form)

Assets – shows the assets owned by the enterprise.
The basis for sub-division of assets into items is their ability to transform the assets into cash (the level of liquidity of the assets).

1. **Long-term investments –** investments of the enterprise into assets purchased for a time period above 1 year:

- intangible assets – material values purchased in exchange for money without any tangible form (patents, licences, concessions, trademarks etc. values). The cost of intangible assets is gradually written off against expenses.

- fixed assets – means of production in a tangible form purchased for money, with the help of which the enterprise either carries out the process of production or provision of services and which are purchased for a longer period of time and gradually deteriorate (buildings, constructions, long-term plantings, plant and machinery, land etc.);

Fixed assets are recognised in the Balance Sheet according to the book value (the estimated amount of depreciation is deducted from the purchase value). Fixed assets are

sub-divided into five categories and the depreciation rate in the tax period is established in per cent for each category (see Table 1).

Categories of Fixed Assets and Depreciation Rates:

Category	Depre-ciation Rate	Description of fixed assets
1	5%	Buildings, constructions, long-term plantings
2	10%	Railway rolling stock and machinery, sea and river fleet transport vehicles, fleet and harbour plants, power plants
3	35%	Computer equipment and auxiliary equipment, including printing equipment, information systems, computer software applications and data storage equipment, communications equipment, photocopying machines and their auxiliaries
4	20%	Miscellaneous fixed assets, except fixed assets under Category 5
5	7.5%	Platforms for research and extraction of crude oil together with equipment necessary for provision of their functionality, located on these platforms, ships used in oil research and extraction

- **long-term financial investments** – investments of an enterprise held in other enterprises for a period of time exceeding 1 year or long-term loans of an enterprise to other enterprises or individuals with the purpose of gaining regular income in the form of interest from such borrowings or credit facilities or dividends from investments in shares of other enterprises.

2. Current assets – investment of an enterprise in assets used in operations during the reporting period (turnover time – one year).

- inventory – assets owned by an enterprise required to ensure the production process or the process of service provision (raw materials, consumables, unfinished goods or orders, finished goods);

- accounts receivable – debtors of an enterprise independent of whether the debt is or is not due, or whether it is overdue. These are customers that have not yet paid for the goods or services received as well as other accounts receivable.

- **securities and participation in other enterprises** – investments of an enterprise in other enterprises for a period of time less than 1 year or investments of an enterprise in short-term securities; most often such securities happen to be treasury bonds which may be converted in cash as necessary.

- cash assets – cash at hand or in bank accounts (cash in till or at bank).

Description of Balance Sheet Assets

Feature	**Explanation**

there will be a future return (benefit) from them;	If applied by an enterprise for its own use, leased out, sold
an enterprise has exclusive rights for this benefit;	If an enterprise organises trips by boats on a river, the boats are assets, while the river is not.
the opportunities for gaining benefits arose as a result of the closed deal;	If a contract is signed on a purchase of equipment, but the purchase has not yet been executed, the asset is not yet an asset.
assets can be estimated in cash.	Customer loyalty, for example, cannot be estimated in terms of cash.

Exercise 3
Are the following enterprise-owned assets?

- Customer owes an enterprise one thousand CU, however, he cannot pay the debt;
- An enterprise has purchased a patent and will be able to produce a new product that would lead to increase in profit;
- An enterprise has hired a new Marketing Director who would help to increase the profit by 30%;
- An enterprise purchased a production equipment item for which it has not yet paid, but already uses it in production; the equipment item allows for an annual saving of 10 thousand CU.

Exercise 4 Group the following BS items into assets or liabilities:

- production equipment;
- transport vehicles;
- equity;
- debts of an enterprise for the goods;
- deferred income;
- bank loan;
- buildings and constructions;
- cash on bank account;
- stock in warehouse;
- cash in till of an enterprise;
- profit;
- trade accounts receivable (customer debts);
- prepaid expense.

Exercise 5 Draw up a balance sheet:

- equity – 36,000
- equipment – 18,500
- stock of raw materials – 2,500
- transport vehicles – 6,300
- accounts receivable - 2,650
- stock of goods – 3,500
- cash on bank account – 3,550
- accounts payable - ?

Exercise 6 Are the following statements true or false?

Assets on the balance sheet of an enterprise provide with the following information:

- asset condition in an enterprise
- position of accounts payable
- net turnover of an enterprise
- sources of enterprise assets
- amount of current assets
- size of equity
- enterprise costs.

Liabilities on Balance Sheet show the sources of enterprise assets (liabilities).

3. Own capital (equity) – investments made by the owners upon foundation of an enterprise and the financial results of an enterprise – profit or loss and other own assets.

- fixed capital (statutory capital) – established by all enterprise owners upon foundation of company.

- reserve – generally established as deductions from the enterprise net income;

- retained earnings – a share of profit remaining at the disposal of an enterprise after all deductions have been made (after covering of outstanding losses brought forward from previous years, establishment of the reserve capital, increases in equity, sponsorship as well as after distribution of profit to company owners in dividends).

4. Accruals are made, if payments are expected to be made by an enterprise in the following year that cannot be established with due certainty as of the date of preparation of the financial statements or if the payment date is not yet finalised.

5. Creditors – either physical persons or legal entities to which an enterprise owes money. Debts to creditors are also called liabilities. These are classified as long-term liabilities (payment term exceeding 1 year) and short-term liabilities (payment term not exceeding 1 year).

***- debts to suppliers (trade creditors)* –** most often used accounting item, established at the moment of asset acquisition when the receipt (purchase of raw materials, consumables) does not match the date of payment. Debts may be incurred not only in the effect of receipt of assets but also of different services;

***- debts to credit institutions (bank loans)* –** important and often used item under creditors, that can be both long-term and short-term, i.e., this item is included in enterprise annual reports or if an enterprise has a debt due to a bank loan.

- ***tax payable*** **–** tax payments to be made pursuant to the laws and regulations of the Republic of Latvia by all enterprises regardless of the form of ownership and its legal status. Tax debts are incurred within the time period from the moment of tax estimation until the payment (regardless of whether the tax payment is or is not due or if it is overdue);

- ***salary payments*** **–** debts to employees for salaries from the moment of estimation of the salary amounts until the date of payment.

Exercise 8 Are the following statements true or false?

Liabilities on the balance sheet of an enterprise provide the following information:

- taxes due / overdue
- revenue earned by the enterprise
- profit made by the enterprise
- investments made by the enterprise in securities
- trade accounts receivable
- long-term investments made by the enterprise.

Exercise 8

Opening capital of an enterprise is 40 thousand CU deposited on a bank account on March 1. Of which, 12 thousand CU belongs to the owner and 28 thousand CU belongs to a creditor.

Draw up the opening balance sheet of the enterprise.

Solution

Balance sheet as of March 1

Assets	**Liabilities**
Cash 40,000	Equity 12,000
	Liabilities towards creditors 28,000
Total: 40 000	***Total:*** 40 000

Exercise 8 Continued

1. 2. On March 2 a fixed asset item worth 10 thousand CU was bought and paid for.
2. 3. On March 3 goods for 6 thousand CU were bought on credit (credit period 1 month).
3. 4. On March 4 a payment was made to creditors of 4 thousand CU.
4. 5. On March 5 the owner deposited another 8 thousand (CU) on the bank account as an increase in equity.

Draw up a balance sheet as of the end of each day and describe the effect of each transaction on balance sheet assets and liabilities.

Balance sheet as of March 2

Assets	**Liabilities**
Fixed asset 10,000	Equity 12,000
Cash 30,000	Liabilities towards creditors 28,000
Total: 40 000	***Total:*** 40 000

Balance sheet as of March 3

Assets	**Liabilities**
Fixed asset 10,000	Capital 12,000
Stock of goods 6,000	Liabilities towards creditors 28,000
Cash 30,000	Liabilities towards trade creditors 6,000
Total: 46 000	***Total:*** 46 000

Balance sheet as of March 4

Assets	**Liabilities**
Fixed asset 10,000	Equity 12,000
Stock of goods 6,000	Liabilities towards creditors 24,000
Cash 26,000	Liabilities towards trade creditors 6,000
Total: 42 000	***Total:*** 42 000

Balance sheet as of March 5

Assets	**Liabilities**
Fixed asset 10,000	Equity 20,000
Stock of goods 6,000	Liabilities towards creditors 24,000
Cash 34,000	Liabilities towards trade creditors 6,000
Total: 50 000	***Total:*** 50 000

Horizontal balance sheet layout equation:

Long-term investments + Current Assets = Capital + Long-term Liabilities + Short-term Liabilities

Vertical balance sheet layout equation:

Long-term investments + Current Assets – Short-term Liabilities – Long-term liabilities[1] = Capital

Long-term Investments + Current Assets – Short-term Liabilities = Capital + Long-term Liabilities

Current Assets – Short-term Liabilities = Net Current Assets (Working Capital)

[1] Long-term investments + Current Assets – Short-term Liabilities – Long-term Liabilities = Net Assets

Exercise 9 Draw up a balance sheet according to the vertical layout and to the horizontal layout.
The following enterprise data are available as of December 31 (in thousands of CU)

Position item	**Amount (thous. CU)**
Plant and machinery	25
Trade accounts payable	18
Bank overdraft	26
Stock of goods	45
Buildings and constructions	72
Long-term bank loan	51
Trade accounts receivable	48
Equity	117,5
Cash in till	1,5
Transport vehicles	15
Furniture and computers	9
Profit for the year reported	3 000

Solution
Balance sheet according to the vertical layout:

Position item	**Amount (thous. CU)**
Long-term investments	
Buildings and constructions	72
Plant and machinery	25
Transport vehicles	15
Furniture and computers	9
Total long-term investments	121
Working capital	
Stock of goods	45
Trade accounts receivable	48
Cash in till	1,5
Total current assets	94,5
Short-term liabilities	
Trade accounts payable	(18)
Bank overdraft	(26)
Total short-term liabilities	(44)
Long-term liabilities	
Long-term bank loan	(51)
Total long-term liabilities	(51)
Net assets	**120,5**
Capital	
Equity	117,5
Profit for the year reported	3 000
Total capital	**120,5**

Balance sheet according to the horizontal layout:

Assets	**Amount (thous. CU)**	**Liabilities**	Amount **(thous. CU)**
Long-term investments		***Capital***	
Buildings and constructions	72	Equity	117,5
Plant and machinery	25	Profit for the year reported	3
Transport vehicles	15	***Total capital***	***120,5***
Furniture and computers	9	***Long-term liabilities***	
Total long-term investments	***121***	Long-term bank loan	51
Working capital		***Total long-term liabilities***	***51***
Stock of goods	45	***Short-term liabilities***	
Trade accounts receivable	48	Trade accounts payable	18
Cash in till	1,5	Bank overdraft	26
Total current assets	***94,5***	***Total short-term liabilities***	***44***
Total assets	**215,5**	**Total liabilities**	**215,5**

Balance sheet is a financial statement providing with answers to the following questions:

- ✓ Which amount of capital (assets) is used by the enterprise? (provides reference to the value of an enterprise);
- ✓ What is the degree of liquidity of the enterprise? (ability of an enterprise to pay off its short-term liabilities);
- ✓ What is the paying capacity of the enterprise?
- ✓ How is the enterprise funded? (sources of finance for an enterprise and their description);

However, in a balance sheet analysis one has to take into consideration several balance sheet limitations (weaknesses) that may materially affect the evaluation of the financial indicators of an enterprise:

- ✓ The balance sheet does not reflect the main trends and the dynamics of an enterprise, it is a photo of an enterprise of one particular day;
- ✓ at the time of performing the analysis the balance sheet data used are more or less 'out-of-date';
- ✓ the effect of inflation is not taken into consideration;
- ✓ it is difficult to decide on future opportunities according to financial sheet data – the financial position of an enterprise and future developments are not affected by financial aspects only, but also by political and economic changes in the country, current trends and factors of a seasonal character.

2.2. Impact of turnover on balance sheet data

Exercise 10 (Exercise 8 Continued)
Let us assume that on March 7 an enterprise sold all of its stock of goods for 10 thousand, but did not receive payment yet.

Income Statement for March 7:

Sales proceeds (as per financial accounts) or turnover	10 000
- costs (as per financial accounts) or cost of goods sold	6 000
= profit (loss)	4 000

Balance sheet as of March 7:

Assets	**Liabilities**
Fixed asset 10,000	Equity 20,000
Trade accounts receivable 10,000	Profit 4,000
Cash 34,000	Liabilities towards creditors 24,000
	Liabilities towards trade creditors 6,000
Total: 54 000	***Total:*** 54 000

Conclusion: Along with the increase in assets as a result of sales or other income transactions, the capital of the enterprise has risen too, hereby increasing the owners' share in the enterprise.

How would the balance sheet change, if on March 7 all of the goods were sold for 2 thousand CU instead of 10 thousand CU?

Income Statement for March 7:

Sales proceeds (as per financial accounts) or turnover	2 000
- costs (as per financial accounts) or cost of goods sold	6 000
= profit (loss)	(4 000)

Balance sheet as of March 7:

Assets	**Liabilities**
Fixed asset 10,000	Equity 20,000
Trade accounts receivable 2,000	Profit (4,000)
Cash 34,000	Liabilities towards creditors 24,000
	Liabilities towards trade creditors 6,000
Total: 46 000	***Total:*** 46 000

Conclusion: any decrease in turnover results in a decrease of enterprise capital and a reduction of owner share of enterprise capital.

2.3.Basis for asset evaluation in balance sheet

Current assets:

It is assumed that the value of stock is equal to the lower of the two possible values – its cost or market value (net realisable value[2]).
Fixed assets: - according to book value.
Book value = cost – depreciation.
Fixed assets can be re-valued.

Exercise 11

At the beginning of 1999 an enterprise bought machinery and production equipment for a total of 15 mln CU. Linear depreciation is used with the expected useful lifespan of 10 years and a disposal value of 0. As of the end of 2001 the following transactions had been recorded.

Period	Indicators	Value, mln CU	Depreciation, mln CU	Book value, mln CU
1999	Fixed asset acquisition costs	15		
	Depreciation		1.5	13.5
2000	Depreciation		1.5	12.0
2001	Depreciation		1.5	10.5

In the year 2002 a re-evaluation of machinery and production equipment took place by using the replacement cost index. The index applicable at the purchase date of machinery and production equipment in 1999 was 110.0 CU, while at the date of re-evaluation it was 124.7 CU.

You are required:

To illustrate, how you would perform the re-evaluation pursuant to IFRS 16.

Solution

1) Define the rate of growth of the replacement cost index.

$$K = \frac{124,7}{110,0} = 1,336$$

2) Perform re-evaluation of the purchase value of the machinery and production equipment.
15 mln CU x 1,336 = 17 mln CU;
Perform re-evaluation of depreciation (as of 31.12.2001)
4,5 mln CU x 1,336= 5,1 mln CU

3) Re-valued book value of the machinery and production equipment:

[2] Net realisable value = selling price – expenses involved in selling (marketing, selling costs)

17,0 mln CU – 5,1 mln CU = 11,9 mln CU
4) Amount of re-evaluation reserve: 11.9 -10.5 = 1.4 mln CU

2.4. Basic principles for preparation of balance sheet (financial statements) and the underlying assumptions

2.4.1. Principles for preparation of financial statements

Legislation prescribes that proper accounting principles must be used. The information provided in the accounts must be:

- ***accurate*** – false and incorrect entries are not allowed;
- ***comparable*** – such system of accounting records must be introduced that is consistent and changeless;

  Comparable data for previous periods should be disclosed in financial statements. Comparable data should be included both in the layout and the explanation sections if this helps to understand financial statements for the current period.

  In some occasions information disclosed in financial statements for the preceding period(s) is important and must be also disclosed in the current period, for example, details of an unresolved legal dispute from the previous reporting period.

  If disclosure of an item or information classification is changed in financial statements, comparable data also must be re-classified. A note must be added stating the concept of re-classification, the amount and the reason. If comparable amounts cannot be actually re-classified, the reason should be given along with the concept of changes that would have been made if the amounts would have been re-classified.

  Re-classification of items should not affect the net profit or loss position for the period and own capital positions.

  In some cases comparable data cannot be actually re-classified, for example, if the relevant data for previous periods is not available and if collection of such data would require inadequate costs. In such cases notes are added on adjustments to be made.

- ***timely*** – accounting records should be made by the 15th day of the month following the reporting month;
- ***meaningful*** – they should reflect all most significant events in an enterprise having taken place in the reporting period;
- ***understandable*** – qualified third parties should get a fair view on the financial position of an enterprise and its business transactions within a certain time period and should be able to identify the beginning of each business transaction and to track it in the course of completion;
- ***complete*** – all business transactions with justifying documents must be registered in accounting records.

2.4.2. Underlying assumptions for the preparation of a balance sheet (financial statements)

- **Enterprise going concern concept**

In preparing the financial statements it is generally assumed that an enterprise is a going concern and will continuously remain in operational existence for the foreseeable future. Thus it is assumed that the enterprise does neither have the intention nor is required to go into liquidation or to make drastic cutbacks to the scale of its operations. If such an intention arises or if the enterprise is required to do so, it is possible that the financial statements will have to be prepared in accordance with another assumption (closure, for example), and in this case this assumption applied is to be noted.

While preparing the financial statements the management of the enterprise must assess the ability of the enterprise to continue its operations. The financial report is prepared on the assumption that the enterprise will continue its operations unless the management intends to close its activities or if other circumstances exist that require closure of the enterprise. If the management is notified of a substantial uncertainty due to events or circumstances causing serious doubts concerning the ability of the enterprise to continue its operations, this fact should be disclosed in a note by stating the principles used in preparation of the financial statements and the reason justifying the going concern assumption. If the going concern concept is not used as the basis for preparation of the financial report, then this fact should be disclosed in a note by stating the principles used in the preparation of the financial statements and the reason for the going concern concept being unjustified.

By assessing whether the going concern concept is justified executives of an enterprise should evaluate all the information at their disposal regarding the plans and prospects of the enterprise for the foreseeable future or a period of at least 12 months from the date of the balance sheet. If operations of an enterprise have been profitable up to that date and if there are financial resources available, the going concern concept should be applied without performing an in-depth analysis. Otherwise the executive team of the enterprise must analyse the factors affecting its current and estimated profitability, debt repayment schedules and possible sources of re-financing.

- **The prudence (conservative) concept**

If there is a choice between two or more assessment methods of a business activity, one should keep to the method providing for the lowest profit and/or the lowest net value. Being conservative essentially means that accountants should take into consideration the lowest possible asset and revenue amounts available and the highest possible liability and cost amounts. Thus prudence determines the following:

- **assets** represented in the balance sheet of the period in question must be given the lowest of all possible assessment values;

- **costs** potentially incurred in the given reporting period are not attributed to future reporting periods but are recognised in the current reporting period;
- **liabilities** shown on the balance sheet of the period in question must be given the highest possible assessment values;
- **revenue** potentially gained during the current reporting period must be recognised in the same reporting period when it is realised.

- **Publicity concept**

The laws governing accounting provide that at the end of each year an enterprise must prepare an annual report consisting of the balance sheet and the income statement with the notes. The annual report of an enterprise is accessible to all interested parties and this condition defines the publicity concept to be applied. None of the financial accounting data are confidential and are available to users outside the enterprise.

- **Consistency concept**

When switching from one reporting period to another, an entity must apply the same accounting methodology that was earlier opted for, in order to provide for comparability of reporting data over time.
25. Article 25 of the law 'On Annual Reports of Enterprise' says: '… 2) is required to maintain the same evaluation methods that were used in the preceding reporting period.'

- **Double entry concept**

In financial accounting, the concept of double entry is used (explanation given in Class 5)

- **Accounting period relevance principle (accruals and matching concept)**

  - Revenue and costs must be recognised at the moment of incurring (but not when cash or cash-equivalent is received or paid).
  - Revenue is matched against the expenditure incurred in earning it and the time period referred to.

According to the principle of accrual, transactions and events are recognised in the period when they are incurred, independent of when the payment takes place. Costs are recognised in the income statement based on the close correlation between incurring of expenditure and earnings of the specific revenue item (matching principle).

- **Concept of relative importance (materiality and capping of positions)**

Information should be regarded material if non-disclosure of such information could affect the decisions made by users of financial statements. Materiality depends on

the amount and type of the position. By determining materiality of a certain item, the type and the amount of the position are simultaneously assessed. Depending on the context the decisive aspect is either the type or the amount of an item. Individual assets with similar qualities and functions are lumped together under one caption even if their amounts are considerably large, but smaller items in terms of cash with different qualities or functions are disclosed separately.

Each significant item should be individually disclosed in the financial report. Insignificant items should be lumped together under one caption with similar type and functionality items.

In preparation of financial reports a large number of transactions are systemised by grouping together according to their concept or functionality. Capped and grouped data are disclosed in financial statement positions or notes. If a position is not material enough to separately disclose it in the balance sheet or in the income statement, it should be included under a similar item and disclosed in a note.

- **Separate asset and liability valuation principle**

Assets and liabilities should not be offset against each other, except if an offset is required or allowed by other Accounting Standards of Latvia.

Offset of revenue and expenditure items is only possible if:

- it is prescribed or permitted in the law 'On annual reports of enterprises' and/or in the law 'On consolidated annual reports', and/or in the Latvian Accounting Standards;
- benefits, losses and associated expenses incurred by the same or similar transactions and events are not material. Such amounts are aggregated pursuant to paragraph 25 of this standard.

Material assets and liabilities, income and expenses are disclosed separately. Offset of financial report positions limits the ability of users of financial statements to understand the transactions closed and to assess the future cash flow of an enterprise, except in cases when such offset discloses the concept of the transaction or event. Disclosure of assets, except re-evaluation provisions, should not be considered an offset, for example, provision for obsolete stock and provision for doubtful customer debts.

If in the regular course of activity an enterprise carries out transactions the purpose of which is not earning of revenue, the results of such transactions are presented net of all income less attributable expenses, for example:

- gains and losses from disposal of long-term investments, including financial investments and long-term assets engaged in core operations, should be disclosed by deducting the book value of assets and the selling expenses from the proceeds made;

- costs incurred due to contractual obligations towards third parties (for example, in case of a sub-lease contract) are being deducted from the attributable proceeds;
- extraordinary items may be disclosed by deducting the respective tax amounts and minority interest by disclosing the gross amounts in a note.

Gains and losses incurred in similar transactions, for example, profit or loss from currency exchange rate fluctuations and the financial instruments for sale, are disclosed net except in cases when otherwise prescribed by other Latvian accounting standards.

- **Revenue and cost realisation concept**

The following rule applies:
If expenditure incurred result in **future benefits**, these are reflected as assets;
If it results in current benefits – as **costs**;
If it does not result in any benefits at all – as **losses**.

Expenditure recognition

- Expenditure is recognised in the income statement after recognition of revenue earned as a result of this expenditure. For example, cost of goods sold is recognised as a cost in the income statement only after recognition of income from realisation of products.
- If expenditure is a pre-condition for gaining of revenue over several reporting periods and the correlation between expenditure and revenue cannot be assessed with reasonable certainty or can be assessed as a best estimate only, expenses are recognised in the income statement by appropriately splitting them between the periods.
- An item is recognised as cost in the reporting period if the respective item will not bring future benefits to the enterprise or if these future benefits do not correspond to the criteria that need to be achieved for reflection of assets in the balance sheet.

Revenue recognition A transaction is considered complete and revenue is earned, as well as profits accrued, if:

- The sale of goods transaction is believed to have taken place at the moment the goods were transferred to the possession of the customer;
- The provision of services is the moment of completion of the service;
- For lease or interest income the time period is the decisive factor.

In all these cases income is the total amount of cash due from the customer that is justified by the justifying documents for receipt of goods or services.

Exercise 12

Opening balance sheet:

Assets	**Amount**	**Liabilities**	Amount
Long-term investments		***Capital***	
Buildings and constructions	290	Equity	406
Furniture and computers	126	***Total capital***	***406***
Total long-term investments	***416***	***Short-term liabilities***	
Working capital		Trade accounts payable	46
Stock of goods	56	Bank overdraft	86
Trade accounts receivable	66	***Total short-term liabilities***	***132***
Total current assets	***122***		
Total assets	**538**	**Total liabilities**	**538**

The following operations were executed in one week's time:

1. Goods (purchase value 16 thousand CU) were sold for 22 thousand CU in cash;
2. Goods (purchase value 34 thousand CU) were sold for 46 thousand CU on credit;
3. 36 thousand CU were received from trade debtors;
4. Enterprise owners deposited 200 thousand (CU) on the bank account as an increase in equity;
5. Enterprise owners have invested in equity assets in kind – a car worth 20 thousand CU;
6. Goods on credit have been purchased for 28 thousand CU;
7. Trade creditors were paid an amount of 26 thousand CU.

Draw up a balance sheet for the end of the week.

Solution:

Assets	**Amount**	**Liabilities**	Amount
Long-term investments		***Capital***	
Buildings and constructions	290	Equity	626
Car	20	Income	18
Furniture and computers	126	***Total capital***	***644***
Total long-term investments	***436***	***Short-term liabilities***	
Working capital		Trade accounts payable	48
Stock of goods	34	***Total short-term liabilities***	***48***
Trade accounts receivable	76		
Cash	146		
Total current assets	***256***		
Total assets	**692**	**Total liabilities**	**692**

3. Assessment of company financial position and its presentation in financial statements

3.1. Cash receipts and payments, their distinction from revenue and expense in the accounting sense
3.2. Measurement of profit and revenue (expense) recognition
3.3. Preparing the income statement
3.4. Accrued depreciation and profit
3.5. Assessment of profit and the issue of bad debts
3.6. Effect of stock evaluation methods on profit

After covering this learning material you will be able to:

- Distinguish the cash inflows and outflows from revenues and expenses in the accounting sense;
- Determine the appropriate timing for recognition of revenues and expenses;
- Prepare the profit or loss statement by using the requisite financial data;
- Assess the impact of the method used for calculation of depreciation on the amount of profit;
- Assess the effect of stock valuation methods and the effect of bad debts on the amount of profit.

3.1. Cash receipts and payments, their distinction from revenues and costs in the accounting sense

Enterprise receipts in the accounting sense or revenues are amounts receivable in the reporting period for sale of goods, provision of services or sale of assets. They include:

- Revenue from sale of goods (rendering of services, performance of works);
- Proceeds from interests in other businesses (income from shares, interests etc.)
- Revenue from lease of enterprise property;
- Proceeds from sale of assets;
- Interest income on issued loans;
- Revenue received in sanctions against debtors (fines, contractual penalties);
- Revenue from issuance of securities;
- Income from exchange rate differences with freely convertible currencies;
- Others.

Cash receipts are not necessarily revenues in the accounting sense, for example, returning of debtors' debts, receiving a loan.

Cash receipts are recognised based on the cash accounting principle. Any cash amount received in till or on the bank account is classified as cash revenue. Obviously not all of the cash revenue constitutes revenue in the accounting sense and also there may be revenue for an enterprise in the accounting sense that has not been yet received in cash.

Enterprise cash disbursements in the accounting sense or expenditure are the amounts payable for any services used and for quickly depreciable value of materials in the reporting period.

These may include:

- Cost of raw materials and consumables;
- Amortisation (depreciation) deductions;
- Salaries and bonus rewards (personnel costs);
- Statutory social insurance payments;
- Lease payments for land, fixed assets;
- Payments for use of natural resources and pollution of environment;
- Interest payments on received loans;
- Insurance payments;
- Costs on production related works outsourced to other enterprises;
- Advertising expenses;
- Losses on exchange rate differences of the lat;
- Others.

Cash disbursements are not necessarily expenses in the accounting sense, for example:

- purchase of fixed assets;
- repayment of loan;
- payment for services to be rendered in the upcoming period.

Examples which illustrate the differences between the income statement (P&L account) and the cash flow statement:

- in the cash flow statement the enterprise presents the amount of cash actually spent, including on investments (acquisition of fixed assets and others); these amounts will not be included in the income statement as expenses as they are long-term investments;
- Revenue is presented in the income statement even if the enterprise has some debtors that have not yet paid for the goods, therefore, the incoming cash flow is not yet presented in the cash flow statement;
- expenses of amortisation (depreciation) are presented in the income statement, while in the cash flow statement the amortisation costs are not presented as depreciation deductions do not create outgoing cash flows;
- income statement includes materials purchase costs, but these can be bought on credit, therefore, the amounts will not be included in the cash flow statement;
- in income statement therefore, the profit is assessed as the difference between revenues and expenses, that may be not yet actually received or paid in cash.

Exercise 1 Distinction between cash receipts and revenues in the accounting sense
Do the following transactions result in revenues for the enterprise? Please, show, which statements will be affected by these transaction postings.

Solution

Type of transaction	**Do the following transactions result in enterprise revenues?**	**Changes to the balance sheet: (assets increase/decrease; (liabilities increase/decrease;**	**Changes to the income statement (increase in revenues/ expenses)**	**Changes to the cash flow statement: (incoming/ outgoing cash flow)**
Provision of services on credit	Yes	accounts receivable under assets increase	revenues increase	-
Repayment of accounts receivable	No	accounts receivable under assets decrease and cash balance increases	-	incoming cash flow
Raising of a bank loan	No	cash under assets increases; debts to banks under liabilities increase	-	incoming cash flow
Sale of fixed assets	Yes	cash under assets increases	revenues increase	incoming cash flow
Receipt of rents immediately upon renting out premises	Yes	cash under assets increases	revenues increase	incoming cash flow
Payment of enterprise capital amount into the bank account	No	cash under assets increases; equity capital under liabilities increases	-	incoming cash flow
Receipt of interest on a loan issued	Yes	cash under assets increases	revenues increase	incoming cash flow
Sale of goods to customers on credit	Yes	accounts receivable under assets increase	revenues increase	-
Sale of goods for cash	Yes	cash under assets increases	revenues increase	incoming cash flow
Receipt of down-payment from a client	No	cash under assets increases; debts to customers under liabilities increase	-	incoming cash flow
Payment for premises leased out received for the following year	No	cash under assets increases; deferred income under liabilities increases	-	incoming cash flow
Purchase of plant and equipment for cash	No	cash under assets decreases and fixed assets increase	-	outgoing cash flow

Exercise 2 Identification of cash disbursements and expenditure in the accounting sense

Do the following transactions result in expenditure for the enterprise?

Please, show, which statements will be affected by these transaction postings.

Solution

Type of transaction	**Do the following transactions result in enterprise expenditure?**	**Changes to the balance sheet: (assets increase/decrease; (liabilities increase/decrease;**	**Changes to the income statement (increase in revenues/ expenses)**	**Changes to the cash flow statement: (incoming/ /outgoing cash flow)**
Payment of trade accounts payable	No	cash under assets decreases; accounts payable under liabilities decreases	-	outgoing cash flow
Purchase of stationery on credit	Yes	cash under assets decreases;	expenses increase	outgoing cash flow
Accrued (not paid) employee salaries	Yes	accounts payable under liabilities increase	expenses increase	-
Fines paid upon charging	Yes	cash under assets decreases;	expenses increase	outgoing cash flow
Loan interest paid for the reporting period	Yes	cash under assets decreases;	expenses increase	outgoing cash flow
A part of the loan principal paid	No	cash under assets decreases;	-	outgoing cash flow
Payment of taxes to the budget	No	cash under assets decreases; debts to budget under liabilities decrease	-	outgoing cash flow
Sale of goods on credit	No	accounts receivable under assets increase	revenues increase	incoming cash flow
Payment for an advertisement to be placed in the upcoming period	No	Cash under assets decreases and prepaid expenses increase	-	outgoing cash flow
Current period rent payment made for enterprise premises	Yes	cash under assets decreases;	expenses increase	outgoing cash flow
Payment for bank services	Yes	cash under assets decreases;	expenses increase	outgoing cash flow
Return of the tax amount overpaid from the budget	No	cash increases under assets and accounts receivable decrease	-	incoming cash flow

3.2. Measurement of profit and revenue (expense) recognition

Assumption of periodicity

1. Under **the assumption of periodicity** business activities of an entity can be divided into certain time periods. Reporting period as a rule is a month, a quarter or a year. Reporting periods with the duration of one year are called **a financial year**.

Principle of revenue recognition

2. The main issue arising in the accounting for revenues refers to the moment of recognition.
3. **The principle of revenue recognition** means that revenue is recognised in the same reporting period when earned.

Matching principle

4. In accordance with **the matching principle** the resources consumed (expenditure) should be matched against the results achieved by those resources (revenues).

Adjusting entries

5. Adjusting entries are made to ensure the following:
   a. recognition of revenue in the period when they were earned, and recognition of expenditure in the period when incurred;
   b. the compliance with the principle of revenue recognition and the matching principle.

6. It is necessary to make adjusting entries every time when financial statements are prepared. Adjusting entries may be classified as (a) **prepayments** (deferred income or prepaid expenses recognised on the account of future periods), or as (b) **accruals** (accrued income or expenses).

Prepayments

Prepaid expenses are expenses which have already been paid and are recognised under assets until the respective economic benefits are realised or consumed.

- Prepaid expenses are reduced either after a certain amount of time or as they are realised or consumed.
- In the case of prepaid expenses the principle of matching **the asset and expenditure accounts** is applied.
- Until adjustment **the assets are overestimated**, while **the expenditure is underestimated**.
- Adjustments are made by increasing (debiting) the expense account and reducing (crediting) the asset account.
- An example of prepaid expenses is the expenditure made for insurance, purchase of consumables, prepayments for services.

To illustrate the adjusting entry for prepaid expenses, let us consider the following example.

Example
Let us assume that on 1st October an entity 'Storm' remitted to an insurance company 'Umbrella' an amount of 2,400 CU as a payment for insurance policy covering one year, which takes effect on 1st October, and that is posts the whole amount as prepaid expenses. The company opening balance is as follows:

Assets	**Amount**	**Liabilities**	**Amount**
Cash	10 000	Capital	10 000

The balance sheet as of 1st October is as follows:

Assets	**Amount**	**Liabilities**	**Amount**
Prepaid expenses		Capital	
Cash			

On 31st October the following adjustment is made:
Balance sheet:

Assets	**Amount**	**Liabilities**	**Amount**
Prepaid expenses	2 200	Capital	10 000
Cash	7 600		

Income statement:

	Amount
Revenue (as per financial accounts)	0
- expenses (in the accounting sense)	200
= profit	(200)

Revenues that are gained on the account of future periods - revenues already collected, which are recognised under liabilities until they are actually earned.

- Deferred revenues are earned after the delivery of goods to buyers or rendering of services to customers.
- In the case of deferred revenue the principle of matching **the liability and revenue accounts** is applied.
- Until adjustment **the liabilities are overestimated**, while **the revenue is underestimated**.
- The adjusting entries are made by reducing (debiting) the liability account and increasing (crediting) the revenue account.

- An example of deferred income is income from leases, subscription for newspapers as well as the prepayments made by customers by thus paying for future supplies of goods and provision of services.

To illustrate the adjusting entry for deferred income, let us look at the following example.

Example
Let us assume that on 1st October the entity 'Roof' receives a fee of 3,000 CU as a rent payment for the period from October through to December inclusive.

Assets	**Amount**	**Liabilities**	**Amount**
Cash	10 000	Capital	10 000

Opening balance

The balance sheet as of 1st October is as follows:

Assets	**Amount**	**Liabilities**	**Amount**
		Capital	10 000
Cash	13 000	Deferred revenues	3 000

On 31st October the following adjustment is made to account for rent earned in October:

Balance sheet:

Assets	**Amount**	**Liabilities**	**Amount**
		Capital	10 000
Cash	13 000	Deferred revenues	2 000

Income statement:

	Amount
Revenue (as per financial accounts)	1 000
- expenses (in the accounting sense)	0
= profit	1 000

Provisions

Accrued revenues - revenues earned but not yet received in terms of money (or in respect of which no invoices are received).

- Accrued revenues may arise either after a certain passage of time (for example, in the case of interest or rent payments) or as a result of rendering some services which haven't been billed or collected yet;
- Upon accruing for revenue **the matching of asset and revenue accounts** is used;
- Until adjustments are made both **assets and revenues are underestimated**;

- The adjusting entry is made by reducing (debiting) the asset account and increasing (crediting) the revenue account.

To illustrate the adjusting entry for accrued future period revenue, let us consider the following example.

Example

Let us assume that in October the dentists 'Aibolit' rendered dentistry services for the amount of 800 CU, and the bills for those services will be only paid in November.

Opening balance

Assets	**Amount**	**Liabilities**	**Amount**
Cash	10 000	Capital	10 000

On 31st October the following entry is made:

Assets	**Amount**	**Liabilities**	**Amount**
Accounts receivable	800	Capital	10 000
Cash	10 000		

Income statement:

	Amount
Revenue (as per financial accounts)	800
- expenses (in the accounting sense)	
= profit	800

Accrued expenditure – expenditure incurred but not yet paid (or for which no invoices have been received).

- Accrued expenditure arises due to the same reasons as accrued revenue. Accrued revenue includes interest, rent and labour fees.
- In the case of accrued expenses the principle of matching **the liability and expenditure accounts** is applied.
- Until adjustment **both liabilities and expenses** are underestimated.
- Adjusting entry is made by increasing (debiting) the expense account and reducing (crediting) the asset account.

To illustrate the adjusting entry for accrued expenses, let us consider an example.

Example

Let us assume that the salary charges in company 'Cap' constituted 4,000 CU for the second half of October, but the disbursement will take place only in November.

Opening balance

Assets	**Amount**	**Liabilities**	**Amount**
Cash	10 000	Capital	10 000

On 31st October the following entry is made:

Assets	**Amount**	**Liabilities**	**Amount**
Cash	10 000	Capital	10 000
		Accrued salaries	4 000

Income statement:

	Amount
Revenue (as per financial accounts)	0
- costs (as per financial accounts)	4 000
= profit	(4000)

NB! Each adjusting entry affects one balance sheet and one income statement account.

Revenues may not be recognised until the moment when they are: a) earned and b) realised.
Subsequently the profit also may be recognised only when earned or realised.

Recognition of revenue from sale of goods depends on the fulfilment of the following requisite conditions. If any of the three conditions is missed out no recognition is possible. The following conditions apply:

1) transfer of significant risks and rewards of ownership of the goods from entity to buyer;
2) loss of continuing managerial involvement (to the degree usually associated with ownership) and effective control over the goods sold by the entity;
3) there is a high probability that the economic benefits associated with the transaction will flow to the entity; and
4) the amount of revenue and the costs incurred in respect of the transaction can be measured reliably.

Bases for recognition of revenues:

1) Recognition upon delivery means the recognition of revenue in the period when the goods are supplied or services rendered. Shipment of goods is a generally accepted revenue recognition moment in accounting. Moment of sale (for revenue recognition) is the moment when goods and products are dispatched, services are rendered.

2) Sale on order with a full or partial prepayment – revenues are recognised at the moment of delivery of goods.

3) On consignment contract – revenues are recorded at the moment of selling the goods to the third party. Consignor (supplier) ships the goods to the consignee who tries to sell them. However, until the goods are sold they remain under the ownership of the supplier and can be returned to the supplier. Therefore, the consignee may not recognise any revenue from sale until the actual moment of sale of the goods.

4) Entities possessing exclusive rights (for example, for trademarks, know-how), upon sale must recognise the revenues during the entire term of such transaction instead of only when cash from their use is received ('*franchising*').
5) *Basis for revenue recognition by stages of completion of a contract* is used when any works are performed the completion of which requires several years, i.e., the term of contract (construction, spatial development etc.). The contract stipulates either (1) any agreed amounts that the customer shall pay at different stages of completion of the project (a fixed value contract); or (2) a formula according to which the payments made by the customer will depend on the actual expenditure incurred plus a margin of profit (contract with the reimbursement of expenditure). Performance of the works takes place in every reporting period within the term of the contract. If the profit made as a result of the work performance during the period can be reliably measured, then the revenues are recognised in each of such reporting periods. This basis for revenue recognition is called *recognition by stages of contract completion*. If, however, the amount of profit made during the accounting period cannot be reliably measured, any revenue is recognised after the completion of contract. This *basis of accounting for revenue is called recognition upon completion of contract*.
6) *Rendering of services: brokerage commission fees* in advertising and insurance – revenues are recorded only when the services are rendered, i.e., in those periods when the advertisement was actually published or broadcast.
7) Recognition of *subscription fees for press publications and similar items* is spread evenly over the entire period when such items were supplied.
8) Admission fees, joining and membership fees Admission fees are included under revenues after the event has been actually held. Joining and membership fees are included under revenues in the period when it is due.
9) *Fees for the development of specialised software* is recognised under revenues consistent with the development completion stage.
10) Interest, i.e., the charge for use of cash or cash equivalents must be recognised proportionate to the time basis.
11) *Licensing fees* are recorded and recognised evenly throughout the entire period of use of the licence rights.
12) *Dividends* are recognised as revenues at the moment when the shareholders are entitled to receive them, i.e., upon the decision of the general shareholders' meeting.
13) *Cash basis* – recording of revenue upon receipt of cash.

3.3. Preparing the income statement

Cost of goods sold:

Period opening stock balance
\+ Purchases made
\- Period closing stock balance
= Cost of goods sold

Exercise 3

The following information is available as of 31.12.200X.

	Amount
Road transport operating and maintenance costs	1200
Rent payments received from tenants	2000
Closing stock (as of 31st of December)	3000
Rent payments paid for the period to 31st of December	5000
Trucks	6300
Annual depreciation of trucks	1500
Lighting and heating costs	900
Telephone and postal services	450
Sales and distribution	97400
Purchases of goods	68350
Insurance costs	750
Accounts receivable	1000
Interest on bank loan payable for the period to 31st of December	620
Bank loan	150000
Balance of cash assets	4780
Salaries to employees and social payments	10400
Opening stock as at 1st of January	4000

Prepare the income statement for the year ended 31st of December

Income statement for the year ended 31st of December

Sales (Turnover)	97400
Less Prime cost of goods sold:	
Opening stock as at 1st of January	*4000*
Add Purchases of goods	*68350*
Less Closing stock (as of 31st of December)	*(3000)*
	(69350)
Gross profit	***28050***
Rent payments received from tenants	2000
Salaries to employees and social payments	(10400)
Rent payments paid for the period to 31st of December	(5000)
Lighting and heating costs	(900)
Telephone and postal services	(450)
Insurance costs	(750)
Road transport operating and maintenance costs	(1200)
Interest on bank loan payable for the period to 31st of December	(620)
Annual depreciation of trucks	(1500)
Profit	***9230***

3.4. Accrued depreciation and profit

Depreciation **–** reduction on a systematic basis of the depreciable value of a asset over the entire estimated useful life. Amortizācijas summas ir izdevumi grāmatvedības izpratnē un samazina uzņēmuma peļņu.

Depreciable amount **–** the initial (or re-valued) value of fixed assets, less the estimated residual value.

Residual value – net amount the enterprise expects to gain on disposal of an asset at the end of its estimated useful life, less any expected costs of withdrawal from use.

The depreciation method used should reflect the pattern in which the assets economic benefits are consumed by the enterprise;

Several alternative depreciation methods are allowed (at the choice of the enterprise):

- straight line method;
- reducing balance method;
- asset productivity method.

The useful life of an asset should be periodically reviewed. Not only the physical wear-and-tear factors, but also the factors of moral obsolescence (technology changes, fluctuation in market demand levels, etc.) as well as the policy of asset management - repairs and servicing, should be taken into consideration.

The method selected must be applied consistently from one period to the next. The fact and the necessity of changing depreciation methods should be disclosed in the statements. With each revaluation the carrying amount the residual value must be adjusted.

Exercise 4

Estimate the schedule for accrual of depreciation over the entire useful life of a fixed asset item, using the 3 depreciation methods, on the following conditions:

Initial cost of a fixed asset item – 20,000 CU;

Residual value – 2,000 CU;

Useful life – 5 years.

The following amount of output is planned from the asset: Year 1 – 2,500 units; Year 2 – 2,800 units; Year 3 – 1,900 units; Year 4 – 1,700 units; Year 5 – 1,100 units.

Estimate the amount of depreciation according to the reducing balance method, use a double rate of depreciation.

Please enter your depreciation estimates in the table below.

Year	**Straight line method**	**Proportional output of units method**	**Reducing balance method**
1	18 000:5=3600	18000:10000x2500=4500	20000x40%=8000
2	3600	5040	(20000-8000)x40%=4800
3	3600	3420	(20000-12800)x40%= 2880
4	3600	3060	1728
5	3600	1980	592 (at residual value of 2000)
Total	18000	18000	18000

3.5. Assessment of profit and the issue of bad debts

Doubtful debts include accounts receivable which are not settled within the usual term and are not fully covered by any legal obligations or guarantees.

Doubtful debts are considered as expenses when making accruals (provisions).

The normally accepted term for repayment of accounts is 30 days or as stipulated in the contract. International financial reporting standards recommend the making of provisions as an offset for doubtful debts (bad debt write-offs). Why is this necessary?

By recognising the products as sold upon shipment and submission of invoices an entity calculates its profit for the respective sales amount as well as the relevant taxes. If the debtor does not pay, losses will be incurred for the enterprise.

Two ways of estimating provisions are generally known:

1) Based on the analysis of accounts receivable for the previous years (year) the % rate of doubtful debts from the total amount of accounts receivable is estimated (net turnover interest rate method);
2) Based on analysis carried out for each of the invoices payable the invoices are classified into the following groups: a) the payment term is not yet due; b) overdue by 1 – 30 days; 31 – 60 days; delay of 61 – 90 days; delay of above 90 days. After that the expected interest rate of doubtful debts is set for each group of invoices.

The source for creation of provisions is the enterprise profit.

Example

The outstanding balance of accounts receivable (account 'Invoices issued') as of 31st December 2006 constituted 500 thousand CU. In accordance with the estimates made by the enterprise 2% of the debts will not be recoverable. A provision is made for this amount in Year 2007:

Assets	**Amount**	**Liabilities**	**Amount**
Stock of goods	20 000	Capital	400 000
Accounts receivable	500 000	Profit	130 000
Cash	10 000		
Total	530 000	Total	530 000

Opening balance sheet:

Assets	**Amount**	**Liabilities**	**Amount**
Stock of goods	20 000	Capital	400 000
Accounts receivable	500 000	Profit	120 000
Cash	10 000	Provisions for doubtful debts	10 000
Total	530 000	Total	530 000

Balance sheet and income statement after the adjustment

Income statement:

	Amount
Revenue (as per financial accounts)	
- costs (as per financial accounts)	(10 000)
= profit	(10 000)

In Year 2003 debts in the amount of 5,000 lats is recognised as bad debts and therefore must be written off by offsetting it against the provision:

Assets	**Amount**	**Liabilities**	**Amount**
Stock of goods	20 000	Capital	400 000
Accounts receivable	495 000	Profit	120 000
Cash	10 000	Provisions for doubtful debts	5 000
Total	525 000	Total	525 000

Balance sheet and income statement after the adjustment

On 31st December 2007 a new assessment of accounts receivable is carried out and the respective amount of provisions required for 2008 is estimated. If necessary, the deficit amount of provisions is additionally recognised in the provisions account.

Many small enterprises write off debts which are recognised as bad using the direct write-off method without making any provisions.

The right to write off bad debts is laid down in the law of the LR 'On Corporate Income Tax' (Article 9), which provides the following: when assessing the amount of income taxable by the corporate income tax, this amount may be reduced if the entity observes full compliance with the provisions of this Article of the law.

It is necessary to understand the following:

- Sale of goods is recognised as completed when *the goods are shipped to the buyer*.
- Recognition of revenue till the cash is received leads to the creation of *accounts receivable*.
- The concept of *prudence* requires taking account of the probability that any of the debtors will not pay the debts. In other words:
    - The amount of accounts receivable shown on the balance sheet may not be overestimated only because the probability of a real default on the payment of debts had not been provided for.
    - The measurement of accounts payable in the balance sheet is adjusted by *provisions for doubtful debts*.
- Provisions for doubtful debts are made against *profit*.
- The amount of provisions in practice is estimated based on the degree of probability of occurrence of a certain event, following past experience and on the evaluation of the usual term for repayment of debts.
- By establishing the provisions the account 'Trade accounts receivable' remains unchanged as it is probable that the debt will be settled. Thus, provisions only insure against the possibility of occurrence of bad debts.

3.6. Effect of stock evaluation methods on profit

The FIFO technique is based on the assumption that the items of inventory that were purchased first are sold first.

- The actual movement of inventories is seldom accounted for under this method.
- Under this method inventories at the end of the period are measured at the cost of purchases made last.

The LIFO technique is based on the assumption that the items of inventory that were purchased last are sold first.

- The actual movement of inventories is seldom accounted for within this method.
- This method assumes that any goods purchased during the reporting period can be offered for sale regardless of the date of their purchase.
- Under this method inventories at the end of the period are measured at the cost of purchases made first.

Valuation at the weighted average cost is based on the assumption of the similar nature of the items of goods for resale.

- Under this method the value of inventories is related to the cost of goods sold, based on **the weighted average value of an item of goods**.
- The weighted average value of the item of goods is calculated as the total value of items divided by the number of items.

Effect of the stock valuation methods on financial performance results:

In conditions of increasing prices the use of the FIFO technique results in the presentation of the maximum amount of net profit, LIFO – in the minimum amount, while valuing at the weighted average cost – to a medium indicator. In conditions of falling prices, it is vice versa.

Companies apply different cost valuation methods due to the following factors:

- Effects made on the balance sheet results: the value of stock according to the FIFO technique is more suitable for the current market price level than the LIFO technique.
- Effects made on the amount of taxable income: in periods of high inflation LIFO leads to the maximum amount of reduction in income tax.

Example
Calculation of the cost of inventories under the LIFO, FIFO and the weighted average cost techniques (by using the periodic inventory accounting method)

The following information is available for the reporting year:

	Number of units	Cost per unit, CU	Total value
1st January	80	15	1,200
Purchase on 15th March	60	16	960
Purchase on 20th	100	17.5	1,750

June			
Purchase on 25th October	90	18	1,620
Total goods for sale	330		5,530

It is certain that the quantity of inventories as of 31st December is 110 units.
Calculate the period closing cost of inventories using the inventory valuation techniques familiar to you.

	FIFO	**LIFO**	Weighted average
Cost of goods intended for sale	5,530	5,530	5,530
LESS: Period closing stock **(FIFO)** Dates: Quantity x Cost per unit On 25th October (90 x 18) = 1,620 20th June (20 x 17.5) = 350 1,970			
LESS: Period closing stock **(LIFO)** Dates: Quantity x Cost per unit 1st January (80 x $ 15) = 1,200 15th March (30 x 16) = 480 1,680			
LESS: Period closing stock **(Weighted average cost)** Total value / Quantity = Cost per unit of product 5,530 / 330 = 16.76 16.76 x 110 =1843,60			

Shown in the balance sheet

Cost of goods sold	**3,560**	**3,850**	**3,686**

Shown in the income statement

Homework

The enterprise prepared its income statement and balance sheet as of 31 December, 2006, however, there were three adjustment postings missing. In the incorrect income statement net profit has been reflected in the amount of 40,000 CU. In the accounting balance sheet the amount of total assets was 120,000 CU, liabilities – 50,000 CU, while the share capital was 70,000 CU.

The following information on the three adjustment postings is available:

1. No provisions for depreciation were posted in the amount of 9,000 CU.
2. Salaries for the two final days in December of 6,000 were not paid and recorded in the accounts. The next disbursement of salaries is planned for January.
3. On 30th of December rent was paid for two months ahead of 10,000 CU. The entire amount was recognised as the rent expense for the reporting year (in the income statement).

Complete the following table for adjustment of the data reflected in the financial statements (any deductible amounts should be put in brackets).

Item	Net profit	Total assets	Total liabilities	Equity capital
Incorrectly entered balances	40,000	120,000	50,000	70,000
Amounts not included in the accounts:				
Depreciation	(9000)	(9000)		(9000)
Salary	(6000)		6000	(6000)
Rent payment	10 000	10000		10 000
Adjusted balances	35 000	121 000	56 000	65 000

4. Cash flow planning, assessment and presentation in the financial statements

4.1. Preparation of the enterprise cash flow forecast (planning)
4.2. The application of cash flow statements
4.3. Basis for preparation of cash flow statements
4.4. Steps to be undertaken in the preparation of cash flow statements

After covering this learning material you will be able to:

- plan the enterprise cash flow;
- explain what is the role of cash assets in enterprise operations;
- describe the component parts of the cash flow statement and explain how the cash flow statement can assist in identifying any cash flow problems;
- prepare the cash flow statement.

4.1. Preparation of the enterprise cash flow forecast (planning)

In order to carry out its business activities an enterprise needs cash assets. To provide for the necessary cash in a sufficient amount on time cash budgets are being prepared, i.e., cash flow (turnover) forecasts are made.

In the course of forecasting the ability of an enterprise to generate cash and its equivalents (cash balances in bank accounts, short-term deposits, highly liquid securities) may be assessed. The cash flow forecast shows when and in what amounts an enterprise will have any cash receipts, how much and how it will spend it, when any cash deficit can be expected or – any cash surplus.

Therefore, it is possible to early perform any measures in order to raise the additional amount of cash required, for example, receive a short-term bank loan.

If any cash surplus is expected, a timely decision can be made on rational utilisation of the free cash assets.

It is significant to remember that **the profit or loss of an enterprise for the budget period usually do not correspond to the difference between cash receipts and cash payments of the same period**, as many cost items included in the budgeted profit or loss account are unrelated to the budgeted payments within a certain calendar period of time which are planned in the cash flow forecast for the same period, for example:

- ✓ materials that will be used can be purchased and paid several months before usage and recognition in the budgeted profit or loss account;
- ✓ upon purchasing any fixed assets the amount of payment associated with their purchase will be reflected in the expense section of the cash flow forecast, while in the budgeted profit or loss account only the fixed asset depreciation amount will be recognised in the respective period.

Upon developing the cash flow forecast higher efficiency may be achieved by using the continuous or rolling budget planning method. By using this method the budgeted cash flow is regularly (on a weekly, monthly, quarterly basis) reviewed and a new future

period is added to the forecast. In this way the cash flow forecast is constantly controlled and revised in view of the actual deviations occurring as a result of the impact of various factors.

Cash flow forecast (budget) for year 20XX

Measures	January		February		March		Q1		…		Year 20XX	
	Fore-cast	Ac-tual	Fore-cast	Ac-tual	Fore-cast	Ac-tual						
A Opening cash balance for the period												
Revenue												
Owners' capital Sales revenue External (loan) capital %, dividends Other receipts (to be listed)												
B Total receipts												
Expenses												
Purchase of fixed assets Purchases of materials Personnel salary payments Taxes, duties Interest payments Other payments (to be listed)												
C Total expenses												
D Balance of cash assets (A+B-C) for the period												

The following formula lies at the basis of a cash flow forecast:

Opening cash for the year
+ cash receipts (incoming cash flow)
- cash payments (outgoing cash flow)
= Closing cash for the year

Exercise 1 Preparing a cash flow forecast

A limited liability company is being founded with the equity capital of 140 thous. CU, of which 40 thous. CU are invested in a property comprising land and buildings, 25 thous. – in production facilities and equipment, 20 thous. – in transport vehicles. The remaining amount remains as cash. The plans of the enterprise for the following 6 months are as follows:

Sales volume for the 6 months		650000
Cost of materials of goods sold		280000
Salaries		180000
Other costs, including depreciation deductions:		160000
of which production buildings	5000	
vehicles	5000	
Material supplies		300000

Incoming and outgoing cash flow for the 6 months:

	Cash receipts from the sale of goods	Cash payments – accounts payable for the materials	Other expenses
July	30000	70000	Are paid each month, in equal amounts
August	60000	70000	
September	40000	10000	
October	80000	10000	
November	110000	20000	
December	160000	20000	
Total	480000	200000	

Based on the above data prepare the cash flow forecast, the income statement for the period from July to December and the balance sheet as of 31.12.

Cash flow statement:

	July	August	September	October	November	December	Total
Incoming cash flow							
Capital	**140 000**	**-**	**-**	**-**	**-**	**-**	**140 000**
Sales	**30 000**	**60 000**	**40 000**	**80 000**	**110 000**	**160 000**	**620 000**
Total (A):	**170 000**	**60 000**	**40 000**	**80 000**	**110 000**	**160 000**	**620 000**
Outgoing cash flow							
Purchase of fixed assets	**85 000**	**-**	**-**	**-**	**-**	**-**	**85 000**
Purchase of materials	**70 000**	**70 000**	**10 000**	**10 000**	**20 000**	**20 000**	**200 000**
Salary payments	**30 000**	**30 000**	**30 000**	**30 000**	**30 000**	**30 000**	**180 000**
Other payments	**25 000**	**25 000**	**25 000**	**25 000**	**25 000**	**25 000**	**150 000**
Total (B):	**210 000**	**125 000**	**65 000**	**65 000**	**75 000**	**75 000**	**615 000**
Net balance: A-B	**- 40 000**	**- 65 000**	**- 25 000**	**15 000**	**35 000**	**85 000**	-
Opening balance	**0**	**-40 000**	**-105 000**	**-130 000**	**-115 000**	**-80 000**	-
Closing balance	**-40 000**	**-105 000**	**-130 000**	**-115 000**	**-80 000**	**5 000**	**5000**

Income statement:

1 Net turnover (the 6 months sales amount)	**650 000**
2 Production (materials) costs of goods sold	**280 000**
5 Salaries	**180 000**
7 Other operating expenses of the enterprise	**160 000**
13 Profit or loss before extraordinary items and tax	**30 000**

Balance sheet:

Assets	**CU**
1. Long-term investments	
II Fixed assets	
1. Land, buildings, constructions and long-term plants	**35 000**
3. Plant and machinery	**40 000**
1. Total for Section 1	**75 000**
2. Current assets	
I Inventories	
1. Raw materials, primary materials and auxiliary materials	**20 000**
II Accounts receivable	
1. Trade accounts receivable	**170 000**
IV Cash	**5 000**
2. Total for Section 2	**195 000**
Balance	**270 000**
Liabilities	
I Equity capital	
1. Shareholders' funds and share capital (equity capital)	**140 000**
5. Retained earnings	**30 000**
Total for Section 1	**170 000**
Accounts payable	**100 000**
Balance	**270 000**

In the contemporary situation, when commercial banks do not lack cash resources, arranging a loan is indeed one of the fastest and easiest methods to meet the problem of cash shortage. But is it also the most economic one? In many cases, in fact, enterprise managers are not certain about how to manage their cash flow and it seems to them that there are no other solutions.

To offset the adverse impact caused by the cash deficit, the following actions may be undertaken:

1. ***Ensuring of efficient debtor management*** based on the accounting data. Analysis of the debtors' turnover period and debtor ageing shows when an enterprise actually collects cash from sales on credit (the debtors' cycle is being identified and assessed) – this analysis also provides with a view on customer settlements with the enterprise and allows to identify the amount of customer debt and its composition by repayment dates.
2. ***Reducing or postponing investments into long-term assets*** - fixed assets and intangible assets.
3. Consider the possibility of ***offering discounts to customers*** on goods sold by payment in advance.

4. ***Reduce the scope of selling on credit*** as well as to set beneficial terms for selling on credit to be offered to customers.
5. ***Offering transaction settlements in kind*** can be a solution if it is not possible to collect cash payments from customers.
6. ***Reaching of an agreement with the vendors*** on more beneficial terms of delivery of the goods, for example, extended payment terms, or on contrary - to use discounts on prices for goods offered by the suppliers of goods.
7. ***Using of cash assets*** that are not tied up ***by defining the terms of payment for the financial instruments issued***. For each particular instrument of payment the time period between issuance of the document of payment and the actual payment date should be considered. By maximising the time period between the date of issuance of the instrument and its payment the enterprise can artificially increase the average amount of cash balance without the involvement of additional assets.
8. ***It can replace the purchase of fixed assets by either financial or operating leasing***.
Certainly the development and application of the above mentioned cash flow improvement measures require a lot of time, arrangements and management decisions.

4.2. The application of cash flow statements

Why is it necessary to prepare a cash flow statement?
This statement helps to answer the following questions that may arise to the users:

- How the financing of an entity was established (what are the sources of finance)?
- For what purposes were the funds used?
- How is the growth in investment financed?
- How is the repayment of debts arranged? Etc.

The answers for these and for similar questions you may find only in the cash flow statement showing the flow of financing (cash flow) in business activities.

It is assumed to believe that the main cause of business failure is not the shortage of profit, but the shortage of financing for the repayment of debts.

Exercise 2

Try to answer the questions below which confirm that the efficiency of performance and the perspectives of an entity do not depend on profit made for a certain period of time alone, but also on the degree of liquidity.

1) Why has the solvency of an entity deteriorated compared to the preceding year in spite of the fact that it operated at a profit?
2) If you were one of the creditors, would you be convinced that a profitable company is operating successfully and that your loans will be repaid?
3) The net profit of a company for the reporting year is 1 million lats. Can the founders hope for obtaining of dividends and the employees - to a rise in their salaries?

So, the amount of profit as a rule does not match the amount of cash acquired. It is largely possible that the entity closed the financial year with high profit, but the balances of the cash accounts are low. The reason is the differences between the principles for preparation of the income statement and the statement of cash flows.

4.3. Basis for preparation of cash flow statements

Let us consider an example illustrating the differences in the bases for preparation of financial statements, by using the information below about the activities of entity N in the current month.

Exercise 3
You are required to prepare the income statement and to assess the changes in cash balances in the reporting month:

Net sales were 20,000 lats, of which, 3,000 lats on credit;
Purchases for an amount of 25,000 lats, of which, debts to trade suppliers 9,000;
During the reporting month 60% of the purchases of the month were sold;
The amount on the invoice submitted to N by a transport company is 1,000 lats;
Shop rental constitutes 500 lats.

Income statement	**Amount**	***Cash flow statement***	**Amount**
Net turnover		Cash receipts:	
Cost of goods sold		Sales	
Gross profit		Cash payments:	
Sales and distribution costs:		Purchases	
rental		Rental	
transport		Changes in cash items:	
Net profit			

Let us assume that at the beginning of month the balance sheet of the entity looked as follows:

Assets	**Amount**	***Liabilities***	**Amount**
Cash	2 000	Capital	2 000

At the end of the month, given the above information, the balance sheet would look as follows:

Assets	**Amount**	***Liabilities***	**Amount**
Goods (inventories)		Capital	
Accounts receivable		Profit	
Cash		Trade accounts payable	
		Accounts payable to transport enterprise	
Total		Total	

The differences between the income statement and the cash flow statement occur due to the different basis of their preparation:

	Income statement	*Cash flow statement*
Basis	Matching basis: revenue and expenses are 'attributed' to a reporting period.	Cash basis: recording of the fact of cash inflow or outflow, irrespective of the period to which they refer
Components of the statement	Revenues and expenses	Receipts and payments (disbursements)
Object of statement	Overall activities of a company	Operating, investing and financing activities, as well as overall activities of a company
Outcome	Financial performance results: Profit / Loss	Changes in cash items: An increase or a decrease

In the income statement which is prepared on an accruals and matching basis, non-monetary revenue and expense items may be included, such as: revenue from sale on credit, depreciation charge, loss on disposal of fixed assets, cost of goods sold, accrued expenses (accrued salaries, invoices issued and not yet paid), accrued revenues (interest on deposit etc.). Such items are not presented in the statement of cash flows.

4.4. Steps to be undertaken in the preparation of cash flow statements

Cash flow statements can be named the 'From Where To Where' statement as it is a summary of the sources and the areas of use of an enterprise financing:

Sources (increase in cash)

Cash gained as a result of operating activities:
- net profit;
- depreciation;

Decrease in any item of assets:
decrease in inventories;
decrease in accounts receivable (except write-off of bad debts);
decrease in total fixed asset amount;

Increase in any item of liabilities:
- outstanding payments;
- obtaining of loans;
- issue of debentures;

Increase in share capital

Areas of use (decrease in cash)

Increase in any item of assets:
increase in inventories;
increase in fixed assets;
increase in accounts receivable;
purchase of securities;

dividend payout;
Decrease in inventories (write-off of bad debts);

Decrease in any item of liabilities:
- payment of accrued expenses;
- repayment of loans;
- redemption of debentures;

Increase in prepaid expenses;
Increase in tax advance payments;

Before you start preparing a statement you need to do the following:

1) Classify the cash flows of a company according to the following areas:

- Operating activities, i.e., the core operations under which the revenue and expenses of an enterprise are accounted for the assessment of net profit or loss:
- Investing activities which are as follows:
    - acquisition and disposal of investments and long-term assets;
    - issuance of loans and repayment of loan assets;
- Financing activities affecting the items under equity and liabilities, including:
    - obtaining cash from issuance of debt instruments and repayment of borrowed assets;
    - obtaining of cash from issue of shares or other equity instruments.

Significant transactions which are not related with the use of cash (such as conversion of bonds into ordinary shares and acquisition of assets in exchange for shares or bonds) must be excluded from the statement of cash flows. These transactions must be presented separately either in the closing part of the cash flow statement or in notes to the financial statements.

Classification of cash receipts and disbursements by types of activity

Operating activities

Cash receipts

From sale of goods and services

From loan *interest* and dividends

Cash payments

To suppliers of goods

To employees

Tax expenses

Loan interest

Other expenses

Investing activities

Cash receipts

From disposal of fixed assets and other long-term investments

From sale of securities in other companies

From repayment of loans issued to other entities

Cash payments

For purchase of fixed assets

For purchase of shares in other companies

Issuance of loans to other entities

Financing activities

Cash receipts

From issue of shares

From issuance of own debt instruments (bonds and bills of exchange)

Cash payments

To shareholders in the form of dividends

For redemption of debt instruments and repurchase of own shares

2) **To select the method for preparation of the statement** to be applied to the basic operations of the company:
   - the direct method;
   - or the indirect method.

By applying these methods, the data from the income statement are converted from *the matching basis* system to *the cash basis* systems.

According to the direct method:

Under the direct method each item of the income statement is transformed.
The basis for assessment (initial point) – the amount of net sales.
Assessment of changes in cash flows from operating activities:

Formula used in calculating the cash receipts from trade customers:

Sales revenue	+	Decrease in accounts receivable
		or
	–	increase in accounts receivable;

Formula used in calculating the cash payments to trade creditors:

Cost of goods sold	+	Increase in inventories	+	Decrease in accounts payable	
		or		or	
	–	Decrease in inventories	–	increase in accounts payable;	

Formula used in calculating cash payments for operating expenses:

Operating expenses (less depreciation)	+	Increase in prepaid expenses	+	Decrease in accrued expenses payable	
		or		or	
	–	Decrease in prepaid expenses	–	Increase in accrued expenses payable	

Formula used in calculating cash payments for corporate income tax:

Income tax	+	Decrease in corporate income tax payable
		or
	–	Increase in corporate income tax payable

According to the indirect method:

Initial point – net profit (outcome under the income statement); therefore, the transformation of each item of the income statement is not required All information is

drawn from the balance sheet; information on other income and losses – from the income statement.

Under the indirect method any increase in cash ***from operating activities*** can be assessed according to the following format:

Net profit / (loss)	x; (x)
Adjustments to items:	
Depreciation	x
(Profit) / loss on disposal of assets	(x); x
(Increase) / decrease in inventories	(x); x
(Increase) / decrease in accounts receivable	(x); x
Increase / (decrease) in accounts payable	x; (x)
Increase/(decrease) in cash	x; (x).

3) Prepare the cash flow statement

In this stage four steps can be distinguished in preparing a cash flow statement:

1) Assessment of cash flows from operating activities;
2) Assessment of cash flows from investing activities;
3) Assessment of cash flows from financing activities;
4) Summarising the results of the assessments made during the previous three steps.

Step one:

Cash flow from operating activities can be assessed using the direct or indirect method.

Steps two and three

Under Step three **net cash from investing and financing activities** are assessed, generally based on the data presented in balance sheet items referring to changes in long-term assets and liabilities as well as based on other information.

Step four

A summary of the results of the calculations and the assessment of total changes in cash is made. The total amount of changes in cash calculated in accordance with the cash flow must agree with the amounts of changes in cash calculated by reconciliation of the period opening and closing balance sheet data.

Example of an enterprise cash flow statement[3]

1. In the above example the data have been included solely for the purposes of preparing a cash flow statement and they are not intended for presentation of the income statement or the balance sheet as required by other Latvian Accounting Standards or the law 'On Enterprise Annual Reports'.

[3] **Annex 3 to the Latvian Accounting Standard No 2 'Cash Flow Statement'**

2. The following information must be used in the preparation of the cash flow statement:
2.1. During the reporting period the enterprise acquired a subsidiary for 590 CU, by purchasing 100% of its shares and joining the subsidiary to the enterprise. The fair value of all the assets and liabilities of the subsidiary purchased as of the moment of acquisition was as follows:

	(in lats)
Fixed assets	650
Inventory	100
Trade accounts receivable	100
Cash	40
Long-term loans from banks	200
Trade accounts payable	100;

2.2. In the result of issuance of new shares the enterprise raised an amount 250 CU. In the reporting period the enterprise has also received a long-term loan of 230 CU;

2.3. In the income statement for the reporting period the enterprise has recognised interest costs of 400 CU. Of this amount the enterprise has paid 170 CU. In the reporting period the enterprise also paid the interest accrued for the previous period of 100 CU;

2.4. The enterprise paid out dividends in the amount of 1200 CU in the reporting period.

2.5. The tax liability of the enterprise at the beginning of the reporting period constituted 1000 CU, while at the end of the period – 400 CU. The cost of the corporate income tax incurred by the enterprise in the reporting period amounted to 300 CU.

2.6. The enterprise bought fixed assets worth 1250 CU in the reporting period. The enterprise paid 350 CU on purchase of the fixed assets. The fixed assets for 900 CU were acquired by the enterprise on the terms of a finance lease from a bank. 90 CU of the principal amount have been repaid during the reporting period;

2.7. In the reporting period the enterprise sold an item of equipment for 20 CU with the purchase cost of 80 CU, while the accumulated depreciation at the moment of sale was 60 CU;

2.8. Balance of trade accounts receivable at the end of the reporting period and the preceding period:

(CU)

of	**As of the end of the reporting period**	**As of the end the preceding period**
Trade accounts receivable	1800	1200
Interest receivable	100	–

Accounts receivable for the subsidy	–	350

2.9. The interest income recognised in the income statement of 500 CU, of which 100 CU were not yet received by the end of the reporting period;

2.10. The production cost of goods sold includes the depreciation amount of fixed assets of 450 CU;

2.11. Under the item 'Extraordinary income' the insurance remuneration for the damage caused by floods has been included;

2.12. Losses from currency exchange differences are made up from 10 CU referring to the revaluation of foreign currency cash balances and 30 CU referring to the revaluation of long-term loans from banks;

2.13. In the reporting period the enterprise received subsidies of 400 CU of which 350 CU were received as a financial aid for the air pollution monitoring device installed by the enterprise in the preceding period, while 50 CU refer to services provided at a reduced charge to educational establishments in the region during the reporting period. These 50 CU have been included in the net turnover for the reporting period. The amount of accounts receivable for the subsidy of 350 CU had been already recognised in the balance sheet of the preceding period.

Data from the enterprise income statement for reporting period

	Reporting period (in lats)
1	**2**
Net turnover	30 650
Production cost of goods sold	(26 400)
Gross profit	4250
Administration expenses	(910)
	500
Interest income	
Interest expenses	(400)
Losses from foreign exchange differences	(40)
Profit before extraordinary items and taxes	3400
Extraordinary income	180
Profit before tax	3580
Corporate income tax charge for the reporting period	(300)
Profit for the reporting period	**3280**

Data from the enterprise balance sheet

	At end of reporting period (lats)	**At the end of preceding period (lats)**

1	2	3
Assets		
Long-term investments		
Fixed assets	2280	850
Long-term financial investments	2500	2500
Current assets		
Inventories	1000	1950
Accounts receivable	1900	1550
Cash	760	160
	8440	**7010**
Liabilities		
Equity capital		
Equity	1500	1250
Retained earnings	3460	1380
Accounts payable		
Long-term loans from banks	2310	1040
Trade accounts payable	250	1890
Taxes	400	1000
Accrued interest expenses	230	100
Deferred revenues	290	350
	8440	**7010**

Enterprise cash flow statement

Prepared by using the direct method

(in lats)

1	Notes 2	**Reporting period** 3	**Preceding period*** 4
Cash flow from operations			
Cash from trade creditors		30 100	
Subsidies received		50	
Cash paid to suppliers and employees		(27 610)	
Cash inflow from operating activities		2540	

Interest paid		(270)
Corporate income tax paid		(900)
Cash flow before extraordinary items		1370
Insurance remuneration received for the damage caused by flood		180
Net cash flow from operations		1550
Cash flow from investing activities		
Purchase of a subsidiary in net cash amount	A	(550)
Purchase of fixed assets	B	(350)
Sale of fixed assets		20
Interest proceeds received		400
Net cash flow from investing activities		(480)
Cash flow from financing activities		
Share issue		250
Long-term loans received		230
Liabilities under finance lease paid		(90)
Subsidies received		350
Dividends paid		(1200)
Net cash flow from financing activities		(460)
Effect of foreign currency exchange differences		**(10)**
Net increase in cash and cash equivalents		**600**
Period opening cash and cash equivalents	C	**160**
Period closing cash and cash equivalents	C	**760**

*** – data from the preceding period must be presented in the cash flow statement.**

Enterprise cash flow statement
Prepared by using the indirect method

(in lats)

	Notes	**Reporting period**	**Preceding period***

1	2	3	4
Cash flow from operations			
Profit before extraordinary items and taxes		3400	
Adjustments:			
Depreciation of fixed assets		450	
Losses from foreign exchange differences		40	
Income from long-term financial investments		(500)	
Recognition of revenue from subsidies		(60)	
Interest expenses		400	
Profit before changes in working capital		3730	
Increase in trade accounts receivable		(500)	
Decrease in stock		1050	
Decrease in trade accounts payable		(1740)	
Cash flow from operations		2540	
Interest paid		(270)	
Corporate income tax paid		(900)	
Cash flow before extraordinary items		1370	
Insurance remuneration received for the damage caused by flood		180	
		1550	
Net cash flow from operations			
Cash flow from investing activities			
Purchase of a subsidiary in net cash amount	A	(550)	
Purchase of fixed assets	B	(350)	
Sale of fixed assets		20	
Interest proceeds received		400	
Net cash flow from investing activities		(480)	
Cash flow from financing activities			
Share issue		250	
Long-term loans received		230	
Liabilities under finance lease paid		(90)	
Subsidies received		350	
Dividends paid		(1200)	
		(460)	
Net cash flow from financing activities			
Effect of foreign currency exchange differences		(10)	

Net increase in cash and cash equivalents		600
Period opening cash and cash equivalents	C	160
Period closing cash and cash equivalents	C	760

* – data from the preceding period must be presented in the cash flow statement.

Notes to the financial statements of the enterprise

Explanatory notes to the cash flow statement prepared using the direct or the indirect method

Note A Acquisition of the subsidiary

During the reporting period the enterprise acquired its subsidiary 'A' which was merged with the holding company. The fair value of assets and liabilities acquired at the moment of acquisition was as follows:

	(in lats)
Fixed assets	650
Inventories	100
Trade accounts receivable	100
Cash	40
Long-term loans from banks	(200)
Trade accounts payable	(100)
Total acquisition value	590
Cash balance of the subsidiary	(40)
Net amount of cash paid for the acquisition of the subsidiary	550

Note B Fixed assets

During the reporting period the enterprise purchased fixed assets with the total value of 1250 CU. The enterprise paid 350 CU for the fixed assets. Other fixed assets worth 900 CU were purchased under a finance lease contract. In the reporting period the enterprise received 350 CU as a subsidy for the fixed assets installed in the preceding year.

Note C Cash and cash equivalents

Cash and cash equivalents comprise cash on hand, deposits with banks and short-term investments in easily convertible debt securities. Included under cash and its equivalents presented in the cash flow statement are the following items:

(in lats)

	As of the end of the reporting period	**At the end of the preceding period**

Cash on hand and deposits with banks	**390**	**25**
Short-term investments in securities	**370**	**135**
Cash and cash equivalents	**760**	**160**

Estimates for the preparation of cash flow statements

1	2
1. Cash received from customers (according to the direct method)	
	(in lats)
Net turnover	**30 650**
Net increase in trade accounts receivable (difference between the balance as of the end of the reporting period and the end of the preceding period)	**(600)**
Trade accounts receivable of the subsidiary at the moment of acquisition	**100**
Subsidies received and included in net turnover	**(50)**
	30 100
2. Cash paid to suppliers and employees (according to the direct method)	
Production cost of goods sold	**26 400**
Administration expenses	**910**
Net decrease in trade accounts payable (difference between the balance as of the end of the reporting period and the end of the preceding period)	**1640**
Accounts payable by the subsidiary at the moment of acquisition	**100**
Net decrease in stock (difference between the balance as of the end of the reporting period and the end of the preceding period)	**(950)**
Stock balance of the subsidiary at the moment of acquisition	**(100)**
Depreciation of fixed assets	**(450)**
Recognition of the subsidy under revenue (from deferred income)	**60**
	27 610
Recognition of the subsidy under revenue	
Balance of deferred income at the end of the preceding period	**350**
Balance of deferred income at the end of the reporting period	**(290)**
Difference – part of the subsidy recognised under revenue	**60**
Increase in trade accounts receivable (according to the indirect method)	
Net increase in trade accounts receivable (difference between the balance as of the end of the reporting period and the end of the preceding period)	**600**
Trade accounts receivable of the subsidiary at the moment of acquisition	**(100)**
	500
Increase in trade accounts payable (according to the indirect method)	
Net decrease in trade accounts payable (difference between the balance as of the end of the reporting period and the end of the preceding period)	**1640**

Accounts payable by the subsidiary at the moment of acquisition	**100**
	1740
Decrease in stock (according to the indirect method)	
Net decrease in stock (difference between the balance as of the end of the reporting period and the end of the preceding period)	**950**
Stock balance of the subsidiary at the moment of acquisition	**100**
	1050
Interest paid	
Interest expenses as per income statement	**400**
Net increase in accrued interest expenses (difference between the balance as of the end of the reporting period and the end of the preceding period)	**(130)**
	270
Corporate income tax paid	
Enterprise corporate income tax expenses as per income statement	**300**
Decrease in corporate income tax liability	**600**
	900
Interest proceeds received	
Interest income as per income statement	**500**
Net increase in accounts receivable from interest income (difference between the balance as of the end of the reporting period and the end of the preceding period)	**(100)**
	400
Amount of long-term loan received	
Net increase in long-term loans (difference between the balance as of the end of the reporting period and the end of the preceding period)	**1270**
Long-term loans of the subsidiary at the moment of acquisition	**(200)**
Increase in liabilities under finance lease (non-cash, difference between the balance as of the end of the reporting period and the end of the preceding period)	**(900)**
Repayment of the principal amount of the finance lease liability	**90**
Losses from currency exchange differences	**(30)**
	230

Exercise 5

Below individual transactions of Company 'AAA' are listed:

1. Ordinary shares were sold at a price above their par value.
2. Debentures have been issued in exchange for cash.
3. Interest has been received on short-term bills of exchange for which the redemption term is due.
4. Goods have been sold for cash.
5. Purchases of the stock of goods and materials have been made in cash.

6. Equipment has been bought for which it has been paid by a 10% bill of exchange with the redemption period of up to three years.
7. Dividends on ordinary shares have been announced and paid out.
8. 100 shares of Company 'XYZ' have been purchased in cash.
9. Land has been sold in cash according to the book value.
10. Debentures have been converted into ordinary shares.

Please, state, to which of the following types of transactions each of the above mentioned transactions belong.

a) operating transaction;
(b) investing transaction;
c) financial transaction or
d) investing and financing activity without the use of cash.

Exercise 6 The balance sheet of Corporation 'KLM' is shown below:

Assets	**Year 2006**	**Year 2005**
Cash	41,000	31,000
Accounts receivable	80,000	60,000
Prepaid insurance expenses	22,000	17,000
Land	22,000	40,000
Equipment	70,000	60,000
Provision for depreciation	(20,000)	(13,000)
Total assets	215,000	195,000
Liabilities and shareholders' equity		
Accounts payable	11,000	6,000
Debentures payable	27,000	19,000
Ordinary shares	140,000	115,000
Retained earnings	37,000	55,000
Total liabilities and shareholders' equity	215,000	195,000

Further information:

1. Net loss constituted 15,000.
2. Cash dividends in the amount of 3,000 were announced and disbursed in Year 2003.
3. Land was sold for cash. Losses constituted 10,000. This transaction has been the only transaction with land performed in Year 2003.
4. Equipment was sold for 5,000. The original value of equipment was 15,000, accumulated depreciation – 10,000.
5. Debentures in the amount of 12,000 were redeemed during the year.
6. Equipment was bought, for the payment of which ordinary shares were issued. The fair value of the shares at the moment of exchange was 25,000.

Prepare the cash flow statement for the year ended 31st December, 2005 (indirect method).

Solution	**Amount**
Net loss	
Cash flow from operating activities:	
Depreciation	

Loss on disposal of land	
Increase in accounts receivable	
Increase in prepaid expenses	
Increase in accounts payable	
Net cash flow from operating activities	
Cash flow from investments:	
Cash receipt from disposal of land	
Cash receipt from disposal of equipment	
Cash flow from investments	
Cash flow from financial activities:	
Repayment of liabilities for the debentures	
Dividend payout	
Issue of debentures	
Cash flow from financial activities:	
Total	
Opening cash balance	
Closing cash balance	

Exercise 7

During the year of reporting there was a net profit of 300,000 disclosed by the enterprise. The value of accumulated depreciation on buildings and equipment was 80,000. Below are given the year opening and closing balances of short-term assets and liabilities:

	At the end of the year	**At the beginning of the year**
Cash	20,000	15,000
Accounts receivable	19,000	30,000
Stock of goods and materials	50,000	65,000
Prepaid expenses	7,500	5,000
Accounts payable	12,000	16,000
Taxation payable	1,600	1,200

Using the indirect method, estimate the amount of net cash flow from operating activities.

Solution

	Amount (thous.)
Net profit	**300**
Depreciation	**80**
Decrease in accounts receivable	**11**
Decrease in stock	**15**
Increase in prepaid expenses	**(2.5)**
Decrease in accounts payable	**(4)**
Increase in taxation payable	**0.4**
Net cash flow from operating activities	**399.9**

5. Analysis and interpretation of financial statements

5.1. Introduction
5.2. Cash flow statement
5.3. Value added as an intermediary stage
5.4. Current cost accounting
5.5. Data evaluation
5.6. Interpretation of financial information

After covering this learning material you will be able to:

- restructure (transform) the financial statements for the purposes of analysis;
- apply the management accounting data for the purpose of improving the performance results of the enterprise;
- prepare analytical tables for the purposes of your own enterprise, by summarising the most significant information illustrating the enterprise performance;
- correctly interpret the information at your disposal;
- identify the financial position and development perspectives for your own enterprise, using the established analytical tables;
- prepare the management report on the financial position of the enterprise.

5.1. Introduction- stages of financial data interpretation and structuring of data

The process of interpreting the financial information is not simple. It may be started only when you have been equipped with the necessary knowledge obtained in the result of cognition of the incoming information and by getting acquainted with all of the methods assisting in the cognition.

Table 1 shows three stages of financial data interpretation which we will consequently discuss.

Table 1 Stages of financial data interpretation

Stage 1	Data must be understood
Stage 2	Data must be organised: - by analysing the cash flow reflected in the respective statement; - by calculation of full costs and cost margins; - by analysing the profitability, gross profit etc. - by analysing profit and investments; - by performing the current cost accounting and making the necessary adjustments.
Stage 3	Data must be evaluated: - based on common sense; - by analysing the ratios.
And only then the data can be interpreted	

Organisation of the financial statement data (Stage 2)

Table 2 Manufacturing company A: profit and loss accounts for the 1st and 2nd year of operation

	2. Year 2			**1. Year 1**		
	Thous. CU		**%**	**Thous. CU**		**%**
Amount of sales		5.000	100		3.200	100
Less:						
Cost of materials						
Labour costs	2.500		50	1.600		50
Expenses						
Profit	1.250	4.500	25	800	2.960	25
	750		15	560		17,5
		500	10		240	7,5

Table 3 Manufacturing company A: restructured profit and loss accounts for the 1st and 2nd year of operation

	2. Year 2			**1. Year 1**		
	Thous. CU		**%**	**Thous. CU**		%
Amount of sales						
Less:						
Cost of materials						
Labour costs						
Variable costs						
Gross profit						
Fixed costs						
Profit						

The above given illustrates that if the information is not structured in a format contributing to identification of the exact variable and fixed cost amounts, the conclusions drawn from the analysis may be misleading.

5.2. Cash flow statement

There are several types of structuring the information. And by disclosing the changes in the level of investments and the sources of their financing in the cash flow statement we are aiming for such structuring of data providing the picture that is most understandable and clear to us.

To illustrate this let us look at Table 4 which presents the balance sheet of company B of the current year and the preceding year. If compared to Table 5, it can be seen that the variances between these two tables have been expressed in the form of a cash flow statement.

Such restructuring of the balance sheet makes it clear that the amount of cash available for investing in the current year has increased to an amount of 170 thousand CU arising from the following sources:

(1) Internal sources, i.e., enterprise operations, of which, from retained earnings and depreciation 90 thous. CU;

(2) internal sources (new share issuance of the enterprise and new loans for the total amount of 70 thous. CU plus the sale of some investments for 10 thous. CU) – in total 80 thous. CU.

As we can also see, this cash was invested in fixed assets worth 120 thous. CU and in the working capital for the amount of 70 thous. CU, and the total amount of investments is 190 thous. CU. This means that partly the investments were financed by reducing of cash balances – 20 thous. CU. This part is the so-called negative cash flow and explains the reduction of the cash balance in the balance sheet from 40 thous. CU to 20 thous. CU.

Table 4 Company B: Balance Sheet as of 31 December (in CU)

	Current year	**Preceding year**
Fixed assets:		
Land and buildings	170.000	120.000
Plant and equipment	110.000	90.000
Total:	280.000	210.000
Investment	160.000	170.000
Working capital:		
Current assets:		
Inventories	150.000	90.000
Accounts receivable	160.000	120.000
Cash on hand and in bank accounts	20.000	40.000
Total:	330.000	250.000
Less:		
Current liabilities:		
Accounts payable	(130.000)	(100.000)
Total net assets	640.000	530.000
Sources of financing:		
Share capital	350.000	300.000
Profit and loss account	200.000	160.000
Loans	90.000	70.000
Total:	640.000	530.000

Table 5 Company B: Cash Flow Statement (in CU)

Sources of funds:		
Retained earnings	40 000	
Add:		
Depreciation	50 000	90 000
Share capital	50 000	
Debt capital	20 000	

Sale of investments	10 000	80 000
Subtotal A		**170 000**
Use of funds:		
Purchase of fixed assets:		
Land and buildings	50 000	
Plant and equipment	70 000	
Subtotal B		**120 000**
	Sources	**Use**
Inventories		60 000
Accounts receivable		40 000
Accounts payable	30 000	
Subtotal C	**70 000**	
Negative cash flow	**20 000**	

In Table 5 we can see that the enterprise received 90 thous. CU from operating activities (profit and depreciation) and 80 thous. CU from share issuance, loans and sale of investments, in total – 170 thous. CU. The enterprise, however, had invested 190 thous. CU, of which, 120 thous. CU in fixed assets and 70 thous. CU in working capital.

The enterprise thus has been living above its means. The amount overspent is 20 thous. CU and this is the reason for the reduction in the balances of both cash on hand and in bank accounts.

The situation is probably neither dangerous, nor dramatic, but this fact causes further concerns about the consequences of the diminishing liquid assets of the enterprise. But if the enterprise would be in just the opposite situation and if the enterprise would invest a smaller amount of assets than it has received? Another question would arise – what is the enterprise doing with this surplus capital?

Structuring of information does not, of course, provide with ready-made answers, but helps to formulate and ask more reasonable questions.

Therefore, ***in order to be able to interpret the information successfully, it is important to interpret it correctly***.

5.3. Value added as an intermediary stage

Within this stage we will discuss the respective type of information restructuring, clarify the intermediary stage between the creation and distribution of wealth (data contained in the income statement) and its further investment (given in the balance sheet). For this purpose the profit and loss account must be transformed into the value added statement. The example of such a statement is provided in Table 6.

Analysis of Value Added

Table 6

Company C Statement of Value Added for the Year Ended 31.12 (Thous. CU)

Amount of sales	100	
Less		
Bought-in materials and services	40	
Value added	**60**	

Applied as follows: To pay employees	20	Izmaksas, kas jāveic šodien
Dividends	10	
Interest	5	
Taxes	10	
Depreciation	5	Costs that can be deferred
Retained earnings	10	
	60	
Funds remaining for re-investment		
Retained earnings	10	For re-investing in fixed assets and working capital
Depreciation	5	
	15	

5.4. Current cost accounting

The need to take decisions on re-investing particularly has recently encouraged the accountants to take account of inflation in distribution of the profit. It was made clear that if the rate of inflation exceeded, for example, 10%, then the amount required for replacement of the enterprise fixed assets and maintenance of the working capital at the

required level started to increase rapidly. This is not related to the fact that the enterprise is buying more fixed assets or increasing the amount of real investments in its working capital – the prices simply go up.

In other words, ***during periods of inflation the requirement for investments in the enterprise is bigger not for ensuring the production growth, but only for its maintenance at the previous level***.

As soon as the necessity arises to find extra funds for maintenance of the previous level of operating activity, the problems arise, too. For example, it is seldom that any of the potential new shareholders or bankers would will to invest any cash in the enterprise for this purpose.

Due to this reason particularly accountants suggested the use of an accounting method called the ***current cost accounting***. This method allows to identify the problem and to offer a possible solution.

In substance, under this method any profit gained that would otherwise be distributed in dividends, is reduced in the result of making three adjustments. These adjustments are presented in Table 7 and described in detail in Table 8.

These three adjustments are as follows:

(1) *Extra depreciation* – for the purposes of accounting for increased fixed asset replacement costs.

(2) *Cost of goods sold* – to take account of the increase in investments required for the maintenance of the previous stock levels in the situation of increasing prices;

(3) *Cash for working capital needs* – for the purposes of accounting for increased investments in accounts receivable less accounts payable for maintenance of sales and purchases at the previous levels.

Table 7 Calculations for completion of Table 8 (in thous. Ls

	Original cost	Cost compensation
Fixed assets subject to depreciation	50 000	
Annual depreciation according to the reports for 5 years	10 000	
Extra depreciation		

Adjustments to cost of sales

	Original cost	Price index	Average annual cost
Original stock	10 000	100	
Average annual index		110	
Balance	14 000	120	
Difference	4 000	x	
Adjustments for cost of sales			

Adjustments to cash requirement for working capital			
	Original cost	Price index	Average annual cost
Accounts receivable less accounts payable at the beginning of year	13 000	100	
Average annual index		110	
Accounts receivable less accounts payable at the year end	19 000	120	
Difference		x	
Adjustments to cash requirement for working capital	x	x	

Table 8 Company A: Deductions from Profit and Loss Account for the Year Ended 31 December (Thous. CU)

Profit arrived at with the commonly used method	X	40 000
Adjustments to current costs: Extra depreciation		X
Cost of sales		X
Working capital cash requirement		X
Profit by current cost accounting	X	

The total amount of adjustments calculated under Table 7 is 10.05 thous. CU. This would reflect the extra investments necessary for the maintenance of the enterprise operations at the previous level.

As seen from the table, the resulting amount arrived at after making all the necessary adjustments is called ***profit or loss by current cost accounting*** [discount]. The objective of such an accounting is to determine the share from the total profit amount, which in our case is 40 thous. CU, reflecting the real increase – in our case 29.95 thous. CU.

In other words, 10.05 thous. CU will have to be deducted extra to maintain the achieved current level of investment.

Regardless of whether this method is used or not, ***the requirement to maintain the current level of investment remains as well as the question whether the correct balance between the deductions from profit and its distribution is maintained***.

Due to this reason in particular those performing interpretation of financial information must comply with such important requirements as restructuring of the profit or loss account into the statement of value added and the compliance with the current cost accounting principles.

Exercise 1

.

Tables 9-11 represent those statements that need to be restructured before it is possible to interpret the information contained therein.

Rearrange the income statement in such a format that at your opinion would give the possibility to correctly interpret the data contained therein (in thous. CU).

Table 9 Restructuring of information

Amount of sales			8 000
Cost of sales			
Internally in the enterprise: [Production]			
Cost of materials	3 000		
To pay employees	1 000		
Variable costs	640		
Fixed costs	560	5 200	
In sales and distribution:			
Commission fees	800		
Variable costs	400		
Fixed costs	100	1300	
Administration costs:			
Variable costs	160		
Fixed costs	140	300	6 800
Profit			1 200

Table 10 Answer to the Exercise in Table 9			
Restructured statement of profit and loss			
	Thous. CU		%
Amount of sales		8 000	100
Less: direct costs: Internally in the enterprise: Cost of materials	3000		
To pay employees	1 000		
Variable costs	640	4 640	
Gross profit		3 360	42
In sales and distribution:			

Commission fees	800			
Variable costs	400	1 200		
Administration costs: Variable costs		160	1 360	
Net gross profit			2 000	25
Less: Fixed costs: Internally in the enterprise:		560		
Sales and distribution		100		
Administrative		140	800	
Profit			1 200	15

5.5. Stage three – Evaluation of data

After we have understood and restructured the financial data we have to evaluate them. Furthermore, we have two instruments at our disposal – our own common sense and the financial ratios. Common sense is the most important, however, before we use it, let us look at the financial ratios.

Exercise 2

Table 11 Restructuring of information

Restructure the balance sheet to present the flow of resources (in millions of CU).

	Year 1		**Year 2**	
Fixed assets		200		170
Internal investments		100		60
Capital turnover Inventories	60		30	
Accounts receivable	40		25	
Cash	10		10	
	110		65	
Less: Current liabilities – accounts payable	60	50	30	35
		350		**265**
Share capital		150		125
Reserves		100		60
Debt capital		100		80
		350		**265**

Note: As of the end of Year 2 fixed assets have been acquired worth LVL 40,000.

Table 12 Answer to the Exercise in Table 11

Restructured balance sheet (in millions of CU)	
Cash flow statement	x
Sources of funds:	x
Retained earnings	40
Add: Depreciation	10
	50

Share capital	25
Debt capital	20
	95
Use of funds:	x
Purchase of fixed assets	40
Increase in external investments	40

Movement of working capital			
	Sources	Use	
Inventories	-	30	
Accounts receivable	-	15	
Accounts payable	30	-	
	30	45	15
			95
Movement of assets			nav

Exercise 3

Rearrange the income statement in order to show the formation and distribution of the mass of cash funds. Figures presented in thous. LVL.

Table 13 Restructuring of information

Amount of sales		7 500
Less:		
Cost of materials	2 500	
To pay employees	1 500	
Costs of outsourcing	1 000	
Employee wages	500	
Depreciation	200	
Interest payments	300	6 000
Profit before tax		1500
Taxes		750
Profit after tax		750
Dividends		250
Retained earnings		500

Table 14 Answer to the Exercise in Table 13

Restructured income statement
Statement of value added, thous. CU

Amount of sales	7 500	100
Less:		
Materials consumed	2 500	
Services used	1 000	
	3 500	47
Value added	4 000	53
Analysis of value added:		

Salaries and wages	2 000	50
Depreciation	200	5
Interest payments	300	8
Tax	750	19
Dividends	250	16
Retained earnings	500	12
	4 000	100
Funds remaining for re-investment:		
Depreciation	200	
Retained earnings	500	
	700	

5.6. Interpretation of financial information

Correlations behind the balance sheet golden rules

1. Long-term investments must be covered by equity capital.
1. Long-term investments must be covered by equity capital and long-term loans.
2. Current assets must cover the long-term liabilities or over-exceed them.

The balance sheet golden rules are not mandatory – they only reflect the ideal position of the enterprise. Assets for the balance sheet liquidity analysis are grouped by their level of liquidity and the sequence of debt repayment.

Grouping of balance sheet items by liquidity and liability redemption terms, Ls

No	ASSETS Balance sheet items	No	LIABILITIES Balance sheet items
	Group 1 – assets with the highest degree of liquidity		**Group 1 term liabilities**
1	Cash	**1**	Accrued salary amount
2	Settlement account	**2**	Overdue amounts for repayment of loan
3	Other cash funds	**3**	Trade accounts payable
		4	Payments to the state budget
	Total:		**Total:**
	Group 2 – Easily realisable assets		**Group 2 term liabilities**
4	Finished goods	**5**	Advances from customers
5	Advances for purchases	**6**	Creditors (vendors)
6	Accounts receivable		
7	Securities		
	Total:		**Total:**
	Group 3 – slow realisable assets		**Group 3 term liabilities**
8	Raw materials	**7**	Loans from banks
9	Auxiliary materials	**8**	Other loans
10	Prefabricated goods		

	Total:		**Total:**
	Group 4 – hardly realisable assets		**Group 4 term liabilities**
11	Fixed assets	**9**	Equity capital
12	Intangible assets	**10**	Profit
13	Prepaid expenses	**11**	Funds and reserves
14	Long-term financial investments		
	Total:		**Total:**
	Balance		

The balance sheet is considered to be fully liquid in case if the ratio between the respective groups of assets (A) and liabilities (L) is as follows:

A 1 > P 1;
A 2 > P 2;
A 3 > P 3;
A 4 > P 4.

Liquidity of the enterprise shows what amount of working capital is sufficient in theory to cover for its short-term liabilities, even if the terms provided in the contract should be slightly violated.

Correlations behind the balance sheet golden rules

1 Long-term investments must be covered by equity capital	
Long-term investment	
Equity capital	
Difference	
Long-term investments are/are not equity-financed.	
2 Long-term investments must be covered by equity capital and long-term loans	
Long-term investment	
Equity capital	
Long-term liabilities	
Difference	
This condition is/is not met.	
3 Current assets must cover for short-term liabilities or over-exceed them	
Current liabilities	
Current assets	
Difference	
This condition is/is not met.	

Financial performance ratios

Financial performance ratios define specific measures that reflect the financial information in a comparable format, to identify the main trends and to formulate the questions properly.

Financial performance ratios are measures that reflect the financial information in a comparable format, to identify the main trends and to formulate the questions properly. Financial ratios can be subdivided into the following groups:

- Capital structure and financial stability ratios;
- Liquidity ratios;
- Profitability ratios;
- Enterprise asset turnover ratios;
- Investment ratios.

5.6.1. Capital structure ratios

5.6.1.1. Ratio between borrowed and own assets (K_1) This ratio describes to creditors and to investors of cash the level of protection of their interests. This ratio is also called the property or independence or autonomy coefficient.

$$K_1 = \text{equity} / \text{total assets}$$

This is a measure describing the percentage of equity in the total capital structure, therefore, the relationship between the interests of enterprise owners and those of creditors. This coefficient must be sufficiently high for an enterprise to have a stable financial asset structure. Creditors prefer such a structure upon taking their decisions for issuing of a loan to the enterprise. If the percentage of loan assets is not high, there is a leverage provided against losses during the periods of diminished activity as well as for receipt of a loan. The ideal limits for the coefficient: $0.5 < K_1 < 1$. The excess over 0.5 indicates a strengthened financial independence from external resources.

5.6.1.2. Percentage of liabilities in the balance sheet (K_2) shows the percentage of borrowed assets in the total capital. The lower this indicator is, the more willingly the creditors will issue a loan. At the standard level this indicator lies between 0.4–0.8.

$$K_2 = \text{total liabilities} / \text{total assets}$$

$$K_2 = 1 - K1$$

5.6.1.3. The relationship of liabilities to equity or the financial leverage (K_3), describes the dependence of the enterprise on external borrowings. A high value of this indicator suggests that the enterprise uses a lot of external capital. $0.5 < K_3 < 1$

$$K_3 = \text{total debt} / \text{shareholders' equity}$$

5.6.1.4. Financial flexibility ratio (K_4)

$$K_4 = \text{working capital / shareholders' equity}$$

The financial flexibility ratio shows how much of the working capital is due to 1 lat of capital invested. This measure is close to liquidity measures, but it is complementing and considerably increasing the financial leverage ratio.

The cover of working capital by equity capital is a guarantee of a sustainable credit policy. High value of the financial flexibility ratio positively describes the financial position of an enterprise as well as convinces that the management of the enterprise show sufficient flexibility in their use of own resources.

Finance experts believe that the optimum level of this ratio is between 0.2 and 0.5 and the closer the value is to the higher limit (0.5) the greater is the potential of the enterprise for financial flexibility. However, the level of the financial flexibility ratio depends on the type of the enterprise operations. From the financial perspective, the higher the flexibility ratio, the better is the financial position of the enterprise.

5.6.1.5. *The working capital provision ratio* (K_5) shows the proportion of current assets covered by own resources, for which there is no need to raise assets from outside.

$K_5 = \text{working capital / current assets}$

The higher this value is (up to 0.5) the higher the potential for the enterprise to carry out an independent policy.

5.6.2. Liquidity ratios

This type of analysis helps to evaluate the enterprise solvency and provides with the conclusion as to the maintenance of the financial balance and solvency in the future.

5.6.2.1. Current ratio (L_1) is the ratio of current assets to current liabilities. The value of this ratio ranges between 1 and 2.

$$L_1 = \text{current assets / current liabilities}$$

If this ratio is below 1, the enterprise is in a critical financial position, it is operating high risk conditions.

If current assets are above current liabilities the enterprise may be considered as a successfully functioning entity. Current ratio shows the value in excess in relative terms. The value of this ratio may considerably differ by area of activity and type of operations, but its reasonable increase is usually considered as a favourable trend. The rate usually applied in practice is 41.5-2, but it is only an approximate value. If the ratio is too high (>3), this indicates that there is a possible asset management problem in the enterprise and that the working capital is not efficiently used. This ratio has a range of peculiarities, which need to be taken into account when comparing the data across time and entities.

- *Firstly*, the numerator of this ratio includes the estimate of inventories and accounts receivable. As the inventory evaluation methods may differ this

affects the comparability of the values, and the same must be taken into account for
the treatment and accounting of debts;

- *Secondly*, the value of the ratio is in fact closely related to the level of efficiency in the enterprise in respect of stock management: some companies with high level of organisation of the technological process, for example, by implementing such raw materials and consumables supply systems which is known as 'just-in-time' can reduce the level of stock considerably, i.e., by also reducing the current ratio to the minimum than on average in the industry thus keeping the current financial position free from losses;
- *Thirdly*, some enterprises with a high turnover of cash assets can afford to keep the liquidity ratios relatively low, for example, in retail trade. In this situation acceptable liquidity was ensured on account of a more intensive cash flow from current operations.

Therefore, by analysing the current financial position of an enterprise it is necessary as far as possible to consider also other factors which obviously do not affect the value of this and of other ratios.

5.6.2.2. The quick ratio (L_2) is related with the active capital tied up in the operations of an enterprise. It has to be estimated due to the fact that the individual current assets are not equally liquid. If, for example, cash assets are direct resources for redemption of liabilities, inventories may be used for this purpose only after their realisation. The lowest limit of this ratio is 0.8-1.0.

L_2 = *(cash assets + short-term securities + accounts receivable) / current liabilities*

By analysing the dynamics of this ratio one needs to take account of the factors affecting the differences. For example, if the increase in the quick ratio values was mainly due to unsubstantiated debtors' debts, this cannot positively contribute to the position of the enterprise activities.

5.6.2.3. The absolute liquidity ratio (L_3) assesses the enterprise liquidity according to the amount of cash at the disposal of the enterprise. This ratio provides one of the safest liquidity assessments. In normal management conditions this ratio lies between the limits of 0.1-0.7. The higher this liquidity ratio is, the stronger the stability of the enterprise. However, sometimes instead of suggesting the stability of the enterprise, it may also mean that there are a lot more cash assets at the disposal of the enterprise than it may actually use.

L_3 = *cash on hand and in bank accounts / current liabilities*

This measure may not be always referred to, because:

- keeping of a small amount of cash on hand and in bank accounts is a normal phenomenon in each enterprise;
- the amount of cash can differ greatly, but as the liquidity ratios are calculated at a certain date, then they not necessarily represent the true situation.

If this ratio is, however, too high, this may indicate a possible inefficient use of the assets.

5.6.2.4. Identification of **net current assets (working capital) (*L_4*)**. The amount of these assets is calculated as the difference between current assets and current liabilities.

L4 = current assets – current liabilities

Net current assets are required for the maintenance of financial stability of an enterprise, because the excess of current assets over current liabilities evidences that an enterprise is not only in a position of meeting its short-term debts, but it also has the financial resources available for expansion of business in the future.

5.6.3. Profitability ratios

Profitability is the measure of efficiency of the enterprise business performance. Profitability is assessed by dividing the net profit of the enterprise over its net turnover, the total or equity capital or the total amount of assets. These measures reflect the resources used or the realised amount of output. There is no certain set of criteria for assessment of profitability. Profitability is expressed in percent and the higher the level of percentage the more efficient is the performance of the enterprise; a low profitability rate evidences a failure of the enterprise and if not avoided in due time, an enterprise crisis can be anticipated.

In order to have a successful performance the enterprise needs to:

- maintain liquidity;
- increase profitability.

Profitability is usually considered from three points of view:

Commercial profitability – shows what return has been made by the enterprise per one unit of net turnover;

Economic (asset) profitability – shows what return has been made by the enterprise per one unit of assets;

Financial profitability (return on capital employed) - how much profit has been made by the enterprise owners per one unit of capital invested.

5.6.3.1. Commercial profitability

Return on sales (ROS) (*R_1*) is the relation between the financial amount figure and the volume figure, or – how much profit is made on each unit of net turnover.

$R_{1:}$ *(ROS) = (net profit for the reporting period / net turnover)*100*

This indicator is affected by the operating results, the pricing policy of the enterprise and the operating cost efficiency. Therefore, in order to improve the

commercial profitability value, the revenue and cost analysis of the enterprise must be performed:

- is it possible to increase the prices for the goods or services, and subsequently the gross profit margin;
- is it possible to alter the range of goods and services offered;
- is it possible to do business with those suppliers who offer raw materials and pre-fabricated goods at more favourable prices;
- is it possible to reduce a part of the fixed costs by maintaining the current level of revenue from operations etc.

The objective of these measures is to improve the return on sales, as effectively the entire income statement can be re-assessed.

The rate of commercial profitability is not strictly defined. It depends mainly on the area of activity of the enterprise.

Operating profitability ratio (R_2) is a measure only affected by the operating performance results, the pricing policy of the enterprise and the operating cost efficiency.

$$R_2 = (\text{profit before interest and tax / net turnover})*100$$

Profit before tax does not include revenues and costs which are neither associated with the production of output nor sales and the provision of services. This ratio is used to measure the efficiency of production and sales in gaining of income.

The ratio of profit margin (R_3) provides with the possibility to calculate to what extent the differences in net turnover affect the amount of gross profit.

$$R_3 = (\text{gross profit / net turnover}) * 100$$

Gross profit is usually considered to be the most significant subtotal of the income statement.

5.6.3.2. Economic profitability

Return on assets (ROA) (R_4) describes how efficiently the assets are used in profit-making.

$$R_4 = ROA = (\text{profit before \% and tax / weighted average amount of assets}) \times 100\%$$

In order to properly estimate how high the economic profitability value should be the area of activity must be assessed first. In industry sectors the rate of this measure considerably differs: it is higher than the average rate in enterprises using workforce to a large extent, while lower in enterprises which are largely capital consuming. The ratio

depends on the enterprise financing structure and financing costs as well as on the risk of operations pertaining to the enterprise. The higher the risk is, the higher the return.

Return on assets should at least be equal to the average loan interest rate that the enterprise is paying on its loans. If the ratio is lower, the enterprise does not earn enough to be able to repay the total capital with interest used by the enterprise.

5.6.3.3. Financial profitability

Financial profitability shows what is the profit made by the enterprise owners per unit of capital invested.

Return on equity (ROE) (R_5) allows to determine the efficiency of use of the capital invested by the enterprise owners and to compare this value to potential of generating income by investing these assets in other securities. This is the most significant measure from the owner's point of view: it shows, how much profit has been made per each lat invested in the enterprise by the owner.

$$R_5 = (\text{annual profit / weighted average amount of equity}) * 100$$

By assessing the profitability measures it is significant to note the difference between the rates of economic profitability and those of financial profitability. This difference reflects the efficiency of use of capital borrowed.

Return on ordinary shareholders' funds (ROSF):

$$R_{ROSF} = (\text{profit after tax, dividends on ordinary shares / (ordinary share capital + reserves))} * 100$$

Return on capital employed (ROCE):

$$R_{ROCE} = (\text{profit before \% and tax / (share capital + reserves + long-term loans))} * 100$$

'Share capital +reserves+ long-term loans' is ***the long-term capital employed.***

Many economists believe that this rate of return is the main profitability ratio.

ROCE is basically obtained in the result of multiplying two ratios:

$$R_{ROCE} = (\text{profit before \% and tax / (share capital + reserves + long-term loans))} * (\text{turnover / (share capital + reserves + long-term loans))} * 100$$

By analysing profitability this way it can be seen that the total return on assets used depends on both the return on sales and the return on capital employed.

Example

Two enterprises operating in the same industry have the following performance results:

	Enterprise A	Enterprise B
Profit before % and tax	20	15
Long-term capital employed	100	75
Turnover	200	300

ROCE for both enterprises is the same (20%), however, achievable in a different way.

Therefore, a comparatively low rate of return on sales (*profit before % and tax / turnover*) can be compensated with a comparatively high ratio of '*turnover / (share capital + reserves + long-term loans)*'.
In supermarkets, for example, the rate of return on sales is not high, while ROCE can be very high.

5.6.3.4. Enterprise asset turnover ratios

The enterprise asset turnover ratios describe the efficiency of use of the enterprise resources. These measures have a significant role, because the rate of turnover of the assets is the rate of their conversion into cash which directly affects the enterprise solvency.

If the enterprise has invested more assets into some production stock items than reasonably required, there can be a shortage for other resources as well as there can be a lack of resources for financing of other enterprise goals. There are two approaches to the estimation of the activity ratios:

- Evaluate the enterprise operations within a certain period of time;
- Evaluate what is the ratio between the individual types of assets as of a certain date.

5.6.3.4.1. The overall enterprise asset turnover ratio (K_6) describes the efficiency of use of all the assets at the disposal of the enterprise regardless of their sources and shows how many times the assets are turned over within a certain period of time bringing a certain amount of profit or loss to the enterprise. Some economists believe that this ratio should not be below 3.

$$K_6 = \text{net turnover / total assets}$$

5.6.3.4.2. Inventory turnover ratio (K_7) shows, how many times per year the assets (capital) invested in the enterprise production stock have been turned over.

$$K_7 = \text{production cost of sales / weighted average stock balance = times of annual stock turnover}$$

In theory the following stock turnover ratio formula can be also met:

$$K_7 = \text{net turnover / weighted average stock balance = times of annual stock turnover}$$

The production stock turnover ratio considerably affects the enterprise liquidity and solvency results. In order to express this ratio in days **(K_8)**, a 360 of 365 day annual period is divided by the turnover ratio and one can learn from it, how many days are required for the sale or replenishment of the production stock.

$$K_8 = 365 / K_7 = \text{stock turnover days}$$

Given the number of stock turnover days the amount of the stock balance in lats for the purposes of planning can be also calculated.

Stock (Ls) = (Production costs / Number of days in the period) x Stock turnover period

5.6.3.4.3. Own asset turnover ratio describes the activity of asset use (K_9).

$$K_9 = \text{net turnover / equity capital}$$

5.6.3.4.4. Long-term investment turnover ratio (K_{10}) describes the rate of use of the long-term investments, by which the enterprise assets are being financed.

$$\mathbf{K_{10} = \text{net turnover / long-term investments}}$$

5.6.3.4.5. According to **the accounts receivable collection ratio (K_{11})** it can be found, how many times on average during the year the amount of accounts receivable have been converted into cash. The ratio is calculated according to the following formula:

$$K_{11} = \text{net turnover / weighted average amount of accounts receivable} = \text{number of accounts receivable collection periods per year}$$

$$K_{12} = 365 / K_{11} = \text{accounts receivable collection days (collection period)}$$

Given the accounts receivable collection period, the accounts receivable amount in lats can be also estimated for planning purposes.

Debtors (Ls) = (Sales / Number of days in the period) x Collection period

5.6.3.4.6. The accounts payable payment ratio (K_{12}) shows how many accounts payable payment periods will be required for the enterprise to pay its debts.

The amount of accounts payable is determined by the amount of credits assigned by the vendors which is extended for the time period of credit payment. This period is referred to as *the payment settlement period*.

$$K_{13} = \text{cost of sales / weighted average amount of accounts payable} = \text{number of accounts payable payment periods per year}$$

$$K_{14} = 365 / K_{13} = \text{number of accounts payable payment days}$$

Given the accounts payable payment period, the accounts payable amount in lats can be also estimated for planning purposes.

Creditors (Ls) = (Production costs / Number of days in the period) x Payment period

Accounts payable are also included in the scope of turnover ratios, although this item is not viewed as a component part of current assets, but rather a source of financing.

Table 15 provides summarised explanations of some of the above given and other ratios.

Table 15 Financial performance ratios

Initial (primary) ratio	***Return on net assets:*** Profit or income before interest and tax / net assets*
Secondary ratios	***Profit margin:*** - profit or income before interest and tax / amount of sales; *Asset turnover:* - amount of sales / net assets
Third level ratios	*Control over revenues and costs:* - gross profit / amount of sales; - variable costs / amount of sales; - fixed costs / amount of sales; *Use of assets:* - fixed assets / amount of sales; - working capital / amount of sales.
Financial performance measures Liquidity	*Current ratio* - current assets / current liabilities; *Quick ratio* or the '*acid test ratio*': cash plus accounts receivable / current liabilities.

Stock, debtors', creditors' turnover	*Stock turnover:* - amount of sales / stock *Debtors' debts collection period:* - accounts receivable / amount of sales * 365; *Creditors' debts payment period: :* - accounts payable / purchases or cost of sales * 365
Solvency	*Ratio of capital provided or the capital gearing ratio:* - long-term debt / capital employed[8]; *Interest cover:* - profit before interest and tax / interest
Investment ratios. *Return on shareholders' equity*	- profit after tax and interest / total amount of shareholders' equity**
Earnings per share	- profit after interest and tax / number of ordinary shares in issue.
Price / earnings ratio (*P/E*)***	- the price per share which depends on the daily transactions with shares / earnings that are due for one share and remain constant over the entire financial year.
Net profit margin *Dividend margin*	- dividends par one share / market price of one share
Dividend cover	- profit per share / dividend per share

* net assets are fixed assets plus current assets less current liabilities;
** total amount of shareholders' equity is the share capital plus all retained earnings and reserves.
*** P/E is the acronym used in English for 'price/earnings ratio'.

Exercise

'New Star', SIA, has recently prepared its financial statements for the current year.
The directors of the company are concerned that the return (profitability) on the capital employed (ROCE) has fallen from 14% to 12% compared to the preceding year. At their opinion any decrease in ROCE could be due to the following factors:

- increase in gross profit;
- decline in the volume of sales;
- increase in overheads;
- increase in stock;
- repayment of accounts payable at the end of the year;

[8] Capital employed = Shareholders' equity + Reserves + Long-term liabilities

– increase in the average debt collection period.

Please, analyse all six reasons one by one and state if these reasons could lead to a diminishing ROCE.

Solution

It is not always easy to predict the impact of each of these changes on ROCE.

- Increase in the gross profit margin could lead to a diminished ROCE in certain conditions. If the increase in the profit margin is because of increased prices which also led to the reduction in sales volume, this could incur a decrease in ROCE. The reduction in the sales volume can lower the net profit amount (a numerator in the ROCE equation), if the corresponding decrease in the overhead value is not achieved.
- Reduction in the sales volume may result in a decrease of ROCE due to the above stated reasons.
- Any increase in the overhead expenses would reduce the net profit amount, which, on its turn, may result in a diminished value of ROCE.
- The role of stock would raise the amount of capital employed (denominator in the ROCE equation), if any long-term capital is invested in stock. This, on its turn, would lead to a decrease in the value of ROCE.
- Repayment of the loan at the year end would reduce the amount of capital employed, which would increase the value of ROCE on a condition that the loan repayment does not affect the scope of company operations.
- Increase in the debt collection period would result in the increase of the amount of capital employed, if long-term capital is used for the financing of accounts receivable. This increase in the amount of long-term capital would, on its turn, result in a diminished value of ROCE.

Exercise

Two companies are in the retail sales business, but their performance results are different, which is evidenced by the following data:

Financial performance ratio	***Company A***	***Company B***
Return on capital employed (ROCE)	20%	17%
Return on ordinary share financing (ROSF)	30%	18%
Average debt collection period	63 days	21 days
Average debt payment period	50 days	45 days
Gross profit margin	40%	15%
Net profit margin	10%	10%
Average stock turnover period	52 days	25 days

Perform the analysis of these data and describe the differences between these two companies. It is known that in one of them the work with consumers is well organised, while the other one is offering competitive prices. Which of these advantages are attributable to each company?

Solution

These ratios illustrate the following:

- the debt collection period for Company A is 63 days, but 21 days only for Company B. Therefore the speed of debt collection of debts from its customers is considerably higher for Company B;
- however, the time it takes for these two companies to pay their debts is approximately equal. Company A pays its creditors within 50 days on average, but Company B – within a 45 day period;
- it is interesting to compare the difference between the settlement periods for accounts payable and accounts receivable in each of the companies. As Company A offers its customers a credit for 63 days on average, while it pays its creditors within 50 days on average, it has to invest larger amounts in its working capital than Company B, which is offering its customers a credit for 21 days only, while itself pays its creditors within a 45 day period;
- gross profit margin for Company A is considerably higher than for Company B, but they both have equal net profit margins. It means that the proportion of overheads from sales is much higher in Company A than in Company B;
- the stock turnover period for Company A is two times higher than that of Company B. This may be due to the fact that Company A maintains a diverse stock of goods in order to meet the needs of its customers. It is rather Company A which can be proud its well organised work with the customers;
- a longer average settlement period evidences a more relaxed behaviour in terms of debt collection (by allowing to maintain good relationship with the customers), while the high amount of overheads proves that the company is incurring extra costs only to satisfy the needs of its customers;
- the high level of stock in Company A evidences that it is maintaining the stock of a vast range of goods in order to meet the needs of its customers.
- The prices of Company B are more competitive. Its gross profit margin is considerably lower than for Company A which evidences a lower gross profit per 1 lat of sales. However, its overheads are comparatively low therefore the net profit margin is the same as for Company A. The quick stock turnover and the short average accounts receivable settlement period is a proof of minimum investment in current assets by the company, which reduces its costs.

Exercise

Liquidity ratios of Enterprise ‘ABC’ have become unsatisfactory in the recent period.
The most recent balance sheet and income statement are as follows:

P&L statement:

	CU
Turnover	452.000
Production costs:	?
Opening stock balance for the period	145,000
Purchases of stock	331.000
Period closing stock balance	220.000
Gross profit	?

Other expenses	132.000
Profit (loss) for the period reported	?

Balance sheet:

Fixed assets	357.000
Current assets	?
Inventories	220.000
Accounts receivable	123.000
Capital and reserves	?
Equity	127.000
Retained earnings	158.000
Long-term liabilities	
Loans	120.000
Current liabilities	?
Trade accounts payable	155.000
Short-term loans	140.000

The balance of accounts receivable and accounts payable was maintained at the same level during the year.

1. You are required to calculate for ABC:
   - average stock turnover period;
   - average debt collection period;
   - the average period of payment of creditor invoices,

   assuming that there are 360 days in a year.

2. What measures would need to be taken for improvement of the cash cycle?

Solution

1. **Debt collection period (debtors in days)** – how many days on average it takes for the cash from sales of goods to arrive in the enterprise.

$$\frac{\text{accounts receivable x number of days in the period}}{\text{sales turnover}}$$

or

$$\frac{\text{(period opening debtors+period closing debtors) x number of period days}}{\text{2 x turnover}}$$

2. **Stock turnover period (stock in days) –** this measure reflects the number of days on average for which the amount of existing stock is sufficient for the enterprise.

$$\frac{\text{Stock x number of period days}}{}$$

Production costs

$$\frac{\text{(period opening stock balance+period closing stock balance)xnumber of period days}}{\text{2 x production costs}}$$

3. **Debt payment period** (**accounts payable in days)** – this figure reflects the average number of days it takes for the enterprise to pay for the purchases made and other enterprise expenses.

$$\frac{\text{Accounts payable x number of days in period}}{\text{Production costs}}$$

or

$$\frac{\text{(period opening creditors+period closing creditors)x number of period days}}{\text{2 x production costs}}$$

6. Types of Corporate Budgets, their Preparation and Control

6.1. Techniques, assumptions and basic concerns in the preparation of enterprise cash budgets
6.2. Enterprise budget planning process and methodology
6.2.1. Enterprise functional budgets
6.2.2. Preparation of cash budgets (budgeted balance sheet, cash flow forecasts and budgeted profit or loss account)
6.3. Preparation of budgeted profit or loss account and balance sheet
6.3.1. Forecasting of sales and expenses
6.3.2. Forecasting of working capital and the needs for financing
4. Preparation of cash flow forecast (cash budget)
5. Overall enterprise budget

After covering this material you will be able to:
- to draw up the enterprise budgeted balance sheet and profit or loss account and to determine the amount of the required financing;
- prepare the enterprise cash flow forecast;
- prepare the overall enterprise cash budget by applying some useful correlations in budget planning.

6.1. Techniques, assumptions and basic concerns in the preparation of enterprise cash budgets

6.1.1. Techniques:

➔ FROM TOP TO BOTTOM – a system of preparing the budget in which the management of an enterprise prepares the overall enterprise budget and the functional budgets being made known to the subordinated business managers as the next year's operating plans and target objectives.

➔ FROM BOTTOM TO TOP - a system of preparing the budget in which the draft functional budgets are prepared at the subordinated business managers and submitted for approval and authorisation to the enterprise management.

6.1.2. The assumptions: The budget preparation process is based on the long-term objectives set by the Board of Directors or the chief executive staff members of an enterprise as well as on the general notion of the current economic situation and market demand.

For example, the following can be included in preparing a budget plan:
- to increase the sales turnover by 10 % compared to the previous year;
- to increase salaries by 5% starting from the 1st of July;
- to expand business abroad particularly in the European Union member states.

6.1.3. Basic concerns in the preparation of a budget

Except in those rather rare cases when an enterprise has a full list of orders and agreed prices, usually it is quite difficult to make accurate sales forecasts. Therefore in order to develop sales budgets enterprises often set their sales amounts for the forthcoming year by multiplying the amount of sales revenue of the current year by a certain percentage of increase (by assuming that the sales volume and/or the prices would evenly increase).

- Likewise it is difficult to predict the possibilities regarding the use of resources as well as which of the resources will be the limiting factor.

- In expense forecasts the potential inflation needs to be taken into account as the amount of expenses could increase in the result of growing prices. Therefore, when defining the main cost items a reasonably accurate forecast of the expected rate of inflation is required.

- Mistakes made by the managers in preparing a forecast: the expected expense amounts are unreasonably high - unnecessary expenses included in the budget;
- Competition among organisational units for the existing resources and the planned expenses increased due to that.

– The process of current decision taking is often made difficult.
– Inaccuracies in accounting for the actual expenses. This makes the control of the actual results and their comparison to the forecast difficult.
– Minimum level of coordination of activities among the managers.
– Resistance on the part of employees to the adoption of the plans due to lack of information.
– Lack of coordinating the overall enterprise goals with the interests of the individual managers.
– Failure of timely circulation of management information.

6.1.4. Budget performance control measures

When the objectives are set and the budget plan has been prepared it can be used for performance control as a guideline (measure) for the detection and evaluation of any business failure.
Control measures:

- *Coordination* and approval of the units of the entire organisation through a single master plan. Involvement of personnel in making the estimates for the future motivates the achievement of their best results.
- Communicating the goals and policies of an enterprise over to each of the managers (responsible for the specific section of the budget plan).
- *Establishing the monitoring (system of control)* on the basis of comparison between the actual and planned results. Managers must have a clear picture of how the enterprise should be developing in the future and what are the real possibilities of its growth.

6.2. Enterprise budget planning process and methodology

6.2.1. Enterprise functional budgets

These may be as follows (see flowchart *Enterprise budget planning*):

- The goods or services sales budget – primary budget,
- Production budget,
- Selling and distribution budget,
- Raw materials and consumables purchase budget,
- Enterprise research and development budget.

The goods or services sales budget.

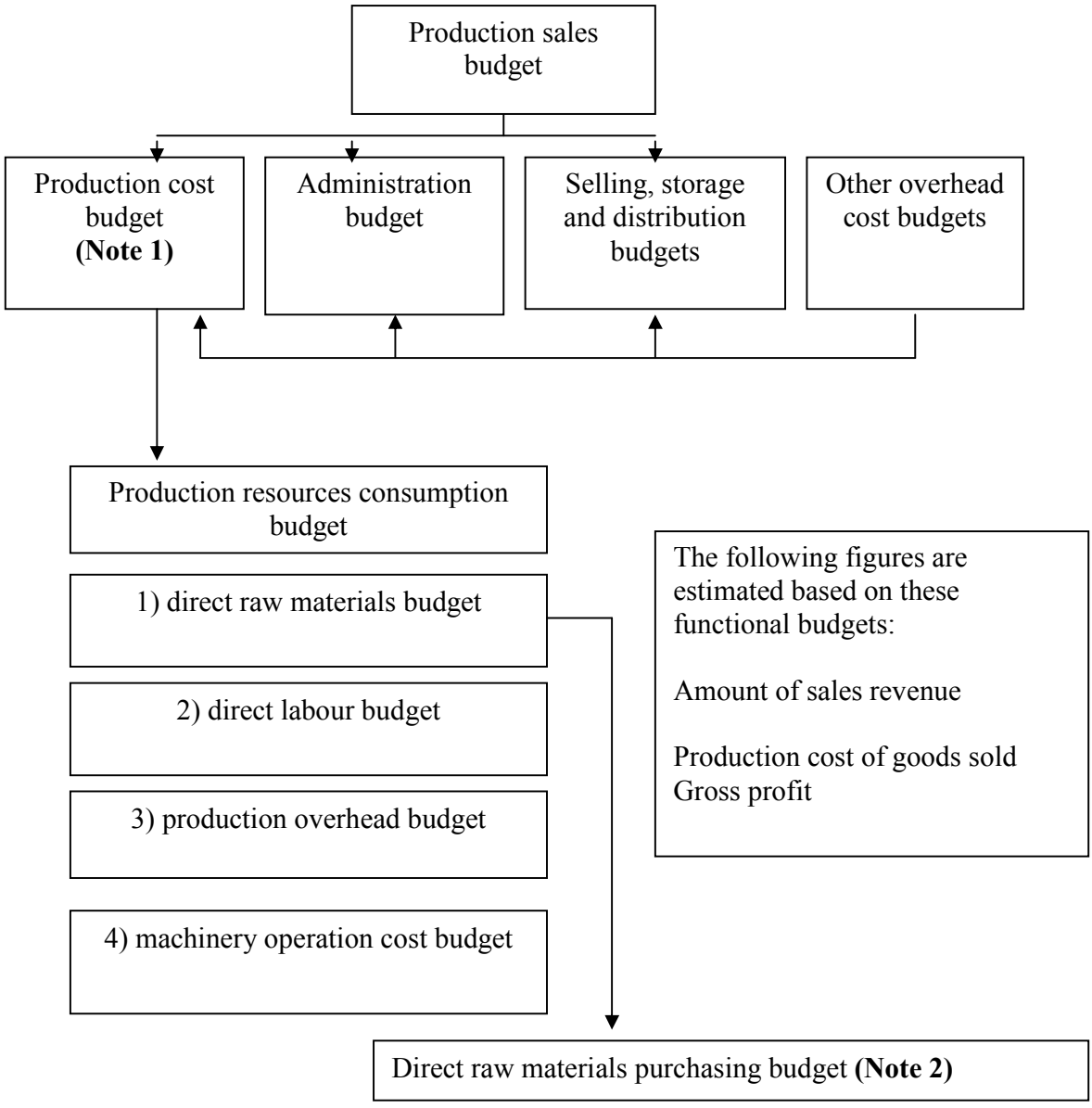
This budget is being prepared for each type of saleable goods or services. If the production is being sold (services provided) in more than one country, this budget has to be prepared subdivided by both each type of products (services) and the countries.

The goods (services) sales budget must comprise the following items:

- Sales volume of products (services) in units applicable to each country;
- Selling price per unit;
- Forecasted amount of sales.

Sales volume in units x selling price per 1 unit = forecasted amount of sales

Enterprise Budget Planning Flowchart



Notes to the Flowchart

Note 1

The production output forecast may differ from the amount of production sales by changes in the forecasted stock of finished goods and the stock of unfinished goods.

	Production sales volume in units
+	budgeted closing stock of finished goods and unfinished products for the year in units
-	budgeted opening stock of finished goods and unfinished products for the year in units

Production cost budget must be taken as the basis for development of the production resources usage budgets (direct materials usage, direct labour usage, overhead costs, machinery operating costs etc.)

Note 2

Planned direct usage of materials, raw materials and basic materials may also differ from the purchase amount of the materials by a budgeted amount of changes in stock levels.

	Usage of raw materials and basic materials
+	budgeted closing stock of raw materials and basic materials for the year
-	budgeted opening stock of raw materials and consumables for the

6.2.2. Preparation of cash budgets (budgeted balance sheet, cash flow forecasts and budgeted profit and loss account)

The objective of preparing a **cash plan** (budget) is to ensure that the enterprise management will have sufficient resources for achievement of the set goals and that the total value or any projects to be implemented will exceed the costs involved in the realisation of the plan. Cash planning must be performed prior to the commencement of any cash transactions.

Therefore one of the largest benefits of the cash plan is not the plan itself, but rather the concerns arising and being addressed during the process of its preparation.

Two important cash planning **tools** exist:

- **preparation of the budgeted balance sheet and profit or loss account 3. (see section 6.3);**
- **preparation of the cash flow forecast** (budgeted cash flow) **(see section 6.4)**.

6.3. Preparation of budgeted profit or loss account and balance sheet

6.3.1. Forecasting of sales and expenses (included in the profit or loss account):

As the information required for preparing a budgeted balance sheet is taken entirely from the sales budget, it is important to prepare the sales budget as accurately as possible.

The sales budget will never be completely accurate as it is dependent on the future events. In fact the only statement that can be made about the sales forecast in respect of the general market situation is that such a forecast will surely be inaccurate! Careful and thorough preparation and study of the sales forecast though will enable the planning of a considerably accurate sales budget.

The leading role of sales budget in the process of defining other enterprise operation aspects indicates how important it is to devote special attention to its preparation. Financial experts must likewise exercise particular care in evaluating the various assumptions that the sales volume forecast is based on in order to obtain a better view on how realistic are the forecasts and the budget plans. Some of the factors to be taken into consideration upon preparing and/or analysing a sales forecast are as follows:

- overall market volume;
- market trends;
- competition;
- economic situation and business environment;
- indicators from previous periods;
- estimated market share;
- internal policies of an enterprise;
- potential production capacity.

3.2. Forecasting of working capital and financing needs (budgeted balance sheet)

The balance sheet reflects the total amount of assets of an enterprise and their proportions as well as the sources of financing of those assets. Therefore, according to the assets reflected on the balance sheet it is possible to identify the amount of cash necessary to finance them.

Information for the preparation of budgeted balance sheet is drawn from the operating and capital expenditure budgets. As already mentioned, the most important of all budget plans is the sales budget.

As soon as the sales volume forecast is made and its respective value in sales prices is established together with the cost of sales, preparing of a budgeted balance sheet is a comparatively easy task.

The basic requirement involved is to identify the relationship of the amount of sales and the prime costs with the associated balance sheet items, i.e., accounts receivable, accounts payable and stock of goods. This relationship, in its turn, will help to define the size of the working capital.

The amount of fixed assets required may be determined from to the information included in the capital expenditure budget. A certain correlation exists between sales and fixed assets which, however, does not present a direct relationship. In other words one

cannot simply invest cash in fixed assets and believe that this would ensure a certain level of sales, and then respectively either increase or decrease these investments in proportion to the volume of output.

Working capital:

Working capital is generally comprised of *accounts receivable*, *accounts payable* and *stock of goods*. Dependent on the type of enterprise also *cash assets* may be included.

Accounts receivable

Debtors (Ls) = (Sales / Number of days in the period) x Collection period
Debtors (in days) = (Accounts receivable (Ls) / Sales) x 365

Accounts payable

The amount of accounts payable is determined by the amounts of credit assigned by the vendors which is extended for the time period of the credit payment. This period is referred to as *the settlement period*. It is usually calculated in terms of *sales days*.

Creditors (Ls) = (Production costs / Number of days in the period) x Settlement period

Creditors (in days) = (Accounts payable (Ls) / Production costs) x 365

Stock

The level of stock required for the provision of the budgeted sales volume is determined by using *the stock turnover period*. It is usually calculated in terms of *sales days*. This is the means to calculate the number of days for which the volume of goods held in stock is sufficient on average.

Stock (Ls) = (Production costs / Number of days in the period) x Stock turnover period

Stock (in days) = (Stock (Ls) / Production costs) x 365

Exercise

Preparing a budget by using the budgeted balance sheet and profit or loss account

Prepare the profit or loss account and the balance sheet forecast for year 20XX by using the data from the balance sheet and the income statement of ABC, SIA for the preceding year based on the assumptions listed below and by showing the amount of additional financing required.

1. Sales would be multiplied three times if the debtors' collection period is increased two and a half times.
2. The percentage of the cost of materials from net sales will increase by 15%.

3. The selling costs, operating and administration costs will double.
4. Depreciation will increase by 20% over the previous year's amount.
5. Potential costs of interest payments will amount to Ls 100,000.
6. The overall tax rate of 50% will be maintained and the taxes will be paid.
7. Dividends for the previous year will be paid.
8. The range of goods will be expanded to such an extent that a stock turnover period of 90 days will be necessary.
9. The payment settlement period will be doubled.
10. Investments into fixed assets will exceed the amount of depreciation two times.
11. Taking of bank overdraft is not planned.
12. The bank loan balance – 150 thous.

Income statement

Thous. Ls	**20...**	**20...**	**Notes**
Net turnover	**1950**	5850	1950 *3= 5850
Cost of materials (Production costs)	**1268**	4372,88	5850*(1268:1950*1,15) = 4372,88 (2. assumption)
Operating costs	**270**	540	270*2= 540
Depreciation	**80**	96	80*1,2= 96
Operating profit	**332**	841,12	5850-4372,88-540-96=841,12
Interest	**75**	100	(see 5. assumption)
Profit before tax	**257**	741,12	841,12- 100= 741,12
Taxes	**128**	370,56	741,12*0,5=370,56
Profit after tax	**129**	370,56	741,56-370,56= 370,56
Dividends	**50**	-	(see 7. assumption)
Retained earnings for the period under review	**79**	370,56	

Balance sheet

Thous. Ls	**20...**	**20...**	**Notes**
Fixed assets	**2028**	2124	2028+ (96*2)-96= 2124
Goods for sale	**347**	1078,24	4372,88:365*90= 1078,24[9]
Accounts receivable	**481**	3606,16	5850:365* 225[10]= 3606,16
Total current assets	**828**	4684,40	1078,24+3606,16= 4684,40
Total assets	**2856**	**6808,40**	4684,4+2124= 6808,40
Equity	**500**	500	**-**
Retained earnings	**611**	981,56	370,56+611= 981,56
Total equity capital	**1111**	1481,56	981,56+500= 1481,56

[9] See the formula for estimating the amount of stock

[10] The debtors' payment period in days has to be found out and then, in accordance with the first assumption, the number of days has to be increased two and a half times. (481:1950)*365*2.5= 225 days

Bank loans	**200**	150	12. assumption
Unpaid taxes	**129**	-	6. assumption
Unpaid dividends	**50**	-	7. assumption
Creditors (vendors)	**703**	4851,12	4372*405[11]:365= 4851,12
Bank overdraft	**663**	-	Assumption 13
Total liabilities	**2856**	**6482,68**	1481,56+150+4851,12=6482,68
Cash resources requirement	**---**	**325,72**	6808,40- 6482,68=325,72

6.4. Preparation of cash flow forecast (cash budget)

In order to carry out its business activities an enterprise needs cash assets. To provide for the necessary cash in a sufficient amount on time cash budgets are being prepared, i.e., cash flow (turnover) forecasts are made.
In the course of forecasting the ability of an enterprise to generate cash and its equivalents (cash balances in bank accounts, short-term deposits, highly liquid securities) may be assessed. The cash flow forecast shows when and in what amounts an enterprise will have any cash receipts, how much and how it will spend it, when any cash deficit can be expected or – any cash surplus.
Therefore, it is possible to early perform any measures in order to raise the additional amount of cash required, for example, receive a short-term bank loan.
If any cash surplus is expected, a timely decision can be made on rational utilisation of the free cash assets.

It is significant to remember that the profit or loss of an enterprise for the budget period usually do not correspond to the difference between cash receipts and cash payments of the same period as many cost items included in the budgeted profit or loss account are unrelated to the budgeted payments within a certain calendar period of time which are planned in the cash flow forecast for the same period, for example:
materials that will be used can be purchased and paid several months before usage and recognition in the budgeted profit or loss account;
upon purchasing any fixed assets the amount of payment associated with their purchase will be reflected in the expense section of the cash flow forecast, while in the budgeted profit or loss account only the fixed asset depreciation amount will be recognised in the respective period.

Upon developing the cash flow forecast higher efficiency may be achieved by using the continuous or rolling budget planning method. By using this method the budgeted cash flow is regularly (on a weekly, monthly, quarterly basis) reviewed and a new future

[11] The creditors' payment period in days has to be found out and then, in accordance with the first assumption, the number of days has to be increased two times. (703:1268)*365*405.5= 225 days

period is added to the forecast. In this way the cash flow forecast is constantly controlled and revised in view of the actual deviations occurring as a result of the impact of various factors.
The following formula lies at the basis of a cash flow forecast:

Opening cash for the year
+ cash receipts (incoming cash flow)
- cash payments (outgoing cash flow)

= Closing cash for the year

Cash flow forecast (budget) for the year 20XX

Ratio	**January**		**February**		**March**		**Q1**		**…**		**Year 20XX**	
	forecast	actual	forecast	actual	forecast	actual						
A. Opening cash balance for the period												
Cash receipts												
Owners' capital Sales revenue External (loan) capital %, dividends Other receipts (to be listed)												
B. Total receipts												
Cash payments												
Purchase of fixed assets Purchases of materials Personnel salary payments Taxes, duties Interest payments Other payments (to be listed)												
C. Total payments												
D. Closing cash balance (A+B-C) for the period												

Estimation of cash availability

Exercise Preparing a cash flow forecast and budgeted profit or loss account

The enterprise has the possibility to increase its sales turnover by Ls 30,000 per week.

The enterprise offers its customers a 3 week sales credit, while it pays its vendors in two weeks time upon delivery.

The materials purchases requirement is Ls 85,000 per month and purchasing is distributed evenly and takes place every week.

In Week 1 a purchase of machinery for Ls 16,000 is planned on credit payable weekly in two months.

Personnel costs will rise by Ls 900 per month. The enterprise pays salaries to its employees twice a month (in Week 1 and Week 3).

Repayment of a bank loan taken earlier requires a monthly principal amount of Ls 1,200 and an interest amount of Ls 90 to be executed in Week 1.

Rent payments – Ls 200 per month (payable in Week 2); also the payment of Ls 400 for an advertisement to be published next year has to be made in Week 2.

Prepare a cash flow forecast for two months and identify the amount of loan (overdraft) requirement as well as state the loan repayment date.

Prepare a budgeted profit or loss account for Month 1.

1. Cash flow forecast for two months

Position item	**1. W1**	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**
Cash receipt from sales of goods								
Cash expenses for purchases of materials								
Cash expenses for purchase of machinery								
Cash expenses for salary payments								
Cash expenses for repayment of the loan								
Cash expenses for payment of loan interest								
Cash expenses for payment of rent								
Advertising cash expenses								
Net cash receipts/expenses								

As we see from above total cash receipts and expenses of an enterprise are presented in the cash flow forecast.

Amount of loan required is Ls:

2. Budgeted profit or loss account for the first month

Sales and expenses are in the meaning of accounting disclosed in the profit/loss account.

Item	Amount
Sales revenue	
Purchases of materials	
Salaries paid	
Loan interest paid	
Rent paid	
Profit	

As it is seen from the profit or loss account, the profit made by the enterprise after implementing the project is Ls …… already in Month 1, while its cash flow statement shows a cash deficit, which means that, as in the first weeks the outgoing cash flow exceeds the incoming cash flow, the enterprise should apply for a short-term loan.
This clearly illustrates the differences between cash receipts and cash payments and sales revenue and expenses in the meaning of accounting.

To offset the adverse impact caused by the cash deficit the following actions may be undertaken:
1. Ensuring of efficient debtor management based on the accounting data. Analysis of the debtors' turnover period and debtor ageing shows when an enterprise actually collects cash from sales on credit (the debtors' cycle is being identified and assessed) – this analysis also provides with a view on customer settlements with the enterprise and allows for the identification of the customer debt amount and its structure by repayment dates.
2. Reducing or delaying investments in long-term assets - fixed and intangible assets.
3. Consider the possibility of offering discounts to customers on sale of goods by advance payments.
4. Reduce the scope of selling on credit as well as to set beneficial terms for selling on credit to be offered to customers.
5. Offering transactions in kind if it is not possible to collect cash payments from customers.
6. Reaching of an agreement with the vendors on more beneficial terms of delivery of the goods, for example, extended payment terms, or on contrary - to use discounts on prices for goods offered by the suppliers of goods.
7. Using of untied cash assets by defining the terms of payment for the financial instruments issued. For each particular instrument of payment the time period between issuance of the document of payment and the actual payment date should be considered. By maximising the time period between the date of issuance of the instrument and its payment the enterprise can artificially increase the average amount of cash balance without the involvement of additional assets.
8. Replacing the purchase of fixed assets by either financial or operating leasing.

Changes in the cash flow structure due to decisions adopted on any increase in the amount of sales, stock level increase and extension of credit terms for the customers

There is one more concern which is associated to the changes made in the regular monthly purchases (and payments) or sales structure. The most probable causes for this concern are as follows:

- increase in the monthly sales amount; this is followed by the increase in the monthly amount of purchases;
- decision on any increase in the stock level; this is followed by an increasing level of purchases, but for one month only;
- decision on provision of stimulus for an early payment which may be carried out by offering discounts for payment on the spot;
- decision on offering customers a longer payment period which may be with the purpose of attracting new customers and increasing the sales amount.

Exercise Increasing the stock levels and the amount of sales

Stock of ESP Ltd is valued at Ls 60,000 as of 31 December 20X5.
The term of credit extended by the suppliers is one month.
The company policy is as follows: the value of stock must equal to the prime cost of the production which must be sold within the next two months.
The prime cost of the production sold monthly by the end of 20X5 is Ls 30,000.
Starting January 20X5, the company is expecting to increase the monthly sales volume by 20%. The policy set for maintaining the stock level will not change, however. Suppliers will continue to extend their credit on the same terms: the credit term will be one month.
Estimate the monthly cash payment to be made to trade credit suppliers in 20X6.

Solution

a) first, the monthly amount of purchases has to be calculated;

The purchase amount in January must be as given below:

	Ls
Required stock level as of 31 January	
Stock issued in January	
Total required level of stock	
Stock level as of 1 January	
Required purchase amount in January	

Thus, starting with February the amount of purchases must be sufficient to compensate for the stock usage, i.e., Ls 36,000 per month.

b) having calculated the amount of purchases we can set the dates for execution of payments in view of the extended credit term of 1 month.

Month of procurement	Value of purchases, Ls	Month of payment
December of 20X5 (period opening balance)		
January of 20X6		
February		
March		

Starting March of 20X6, the regular monthly payment will be: Ls 36,000.

Exercise Changing the debt collection period

As of 31 December 20X6 the outstanding debt amount of Spirit Ltd was Ls 100,000 which corresponds to the sales amount of two months - Ls 50,000 each month. .

Until now the company offered 2 months to all its customers to pay for their purchases and all sales were on credit.

The company adopted a decision from now on to offer a discount to customers of 2% for immediate payment.

As a result it can be expected that:

a) the monthly sales amount will increase to Ls 60,000 starting from January of 20X7;

b) one half of the customers will respond to the offer and take up the immediate settlement option, while the rest will continue to use the two months credit term.

Estimate the monthly amounts of cash receipts for each month of 20X7

Solution

Starting with January of 20X7 the monthly amount of sales will be as stated below.

The structure of cash receipts can be made clear from the table below as follows:

		Cash receipts, Ls					
	Amount of sales	**January**	**February**	**March**	**April**	**May**	**etc.**
Month	**Ls**	**Ls**	**Ls**	**Ls**	**Ls**	**Ls**	
November, 20X6	**50000**	**50000**					
December, 20X6	**50000**		**50000**				
January, 20X7	**60000-600**	**29400**		**30000**			
February, 20X7	**60000-600**		**29400**		**30000**		
March, 20X7	**60000-600**			**29400**		**30000**	
April, 20X7	**60000-600**				**29400**		

Accelerated settlement of accounts receivable will bring the following changes:
a) within a short time the cash receipts for the period will be unusually high.
This is the changeover period from the previous payment scheme to the new one. In our example it will be in Year .....;

b) irrespective of the increase in the sales amount of up to Ls ..... per month a certain share of income will be lost on the discounts taken up; the annual expense associated with this item and included in the income statement will be Ls .....;

c) starting from March the monthly amount of cash receipts will be Ls .....;

Most of the difficulties upon preparing the cash flow forecast will be posed by the following tasks:
A. Assessment of the credit term to be offered to a customer or that was offered by a creditor (see the Exercises).
B. Deciding on the date when the debtors' amount of debt open as of the start of the period will be repaid and when the enterprise will pay to its creditors (see the Exercise).

A. **Exercise** Credit term (working capital turnover period).

Company Phantom Ltd sold its production in 20X7 for Ls 480,000; the prime cost of goods sold (cost of materials) was Ls 360,000. Sales were even all through the year and the year consisted of 12 equal months.
The balance sheet showed an amount of creditors' debts as of 31 December 20X7 of Ls 60,000; debtors' debts were Ls 120,000.

Solution:
1. Credit period offered to customers:

2. Credit period offered by vendors:

3. Cash receipts and cash payments schedule:

If similar credit periods are expected to be effective for 20X7, consumers having purchased the goods in January of 20X7 will not pay for them earlier than in April.

In our example:

Month of sales	Month of cash collection	Month of stock purchase	Month of cash payment
01	04	01	03
02	05	02	04
03	06	03	05

Exercise
Credit terms may change, for example, a company Spectre Ltd expects to sell its production in the following amounts:
January – Ls 100,000, February – Ls 80,000; March – Ls 150,000; April – Ls 120,000.
Half of the customers will pay immediately, one fourth will pay next month and the rest - in two months time after the purchase transaction.

Solution:
Cash receipts can be estimated with the help of the table below.

Month	Amount of sales	Cash receipts, Ls					
		January	February	March	April	May	June
	Thous. Ls	Ls	Ls	Ls	Ls	Ls	Ls
January	100	50	25	25			
February	80		40	20	20		
March	150			75	37,5	37,5	
April	120				60	30	30
*		50	65	120	117,5	67,5	30

* This figure is not a cash receipt amount for the full month and neither the cash receipt amounts for the goods sold in November, December, May and June have been recorded.

B. Debtor payments and creditor payments consistent with the balance sheet as of beginning of the period.

As of the beginning of the period for which the cash flow forecast is being prepared some debtors will exist that owe to our enterprise as well as some creditors to whom it has not been paid yet.

Exercise Company Haunted Ltd announced its operating results for the year 20X....

	Ls
Amount of sales (entirely on credit)	540 000
Prime cost of goods sold (cost of materials)	240 000
Gross profit	300 000

As of 31 December 20X… the amount of outstanding debtors' debts was equal to Ls 90,000, while the amount of accounts payable for purchases of materials – Ls 60,000. Sales are spread evenly across all months of the year.

Solution:
1. The debtors' turnover period is as follows:

2. The term of payment for the goods received on credit is:

Therefore, we can determine that:
a) the amount of accounts receivable as of 31 December of 20X... is:

As there is a payment term of 2 months, it means that next year the cash receipts will be as follows:
Ls …… in January (for the goods sold in November);
Ls …… in February (for the goods sold in December);

b) the amount of accounts payable as of 31 December of 20X... is:

As the settlement term is 3 months, next year the following cash amounts will be paid:
Ls …… in January (for the goods purchased in October);
Ls …… in February (for the goods purchased in November);
Ls …… in March (for the goods purchased in December).

Exercise Preparing a cash flow forecast and budgeted profit or loss account

Santīms, SIA is doing business in retail trade. The selling prices of goods are established according to their purchase cost with the premium of 33.3%

	Budgeted amount of sales, Ls	**Cost of personnel per month, Ls**	**All other expenses per month, Ls**
January	40 000	3 000	4 000
February	60 000	3 000	6 000
March	160 000	5 000	7 000
April	120 000	4 000	7 000

The goods are purchased provided that the stock levels at the end of each month would be sufficient for 1/2 of the budgeted amount of sales demand for the following month.

Suppliers are paid for the goods purchased and the services rendered in the following month. Employee salaries are paid at the end of each month in full amount. In

the profit or loss account the costs of personnel and other costs are recognised in the same period when they have been incurred.

Other expenses include the monthly depreciation amount of fixed assets of Ls 2,000.

75% of the sales revenue are received in cash at the point of sale.

25% of the goods are sold on credit with the payment term of one month.

An item of sales equipment was purchased in February for Ls 18,000 on immediate payment in cash, while in March dividends of Ls 20,000 were paid. The cash balance as of 1 February is Ls 1,000.

1. Prepare the cash flow forecast for February and March.
2. Prepare the budgeted profit or loss account for February and March.

	February, Ls	**March, Ls**
Cash receipts - sales revenue	**55 000**	**135 000**
Cash expenses (payments) To vendors for the goods	**37 500**	**82 500**
To other creditors (for the services)	**2 000**	**4 000**
Salary	**3 000**	**5 000**
For the equipment purchased	**18 000**	**-**
Dividends	**-**	**20 000**
Total amount of expenses (payments)	**60 500**	**111 500**
Net cash receipts/expenses	**(5 500)**	**23 500**
Opening cash balance for the month	**1 000**	**(4 500)**
Closing cash balance for the month	**(4 500)**	**19 000**

	February, Ls	**March, Ls**
Amount of sales revenue	**60 000**	**160 000**
Cost of goods sold (75% of the total amount of sales)	**45 000**	**120 000**
Gross profit	**15 000**	**40 000**
1. costs of personnel	**3 000**	**5 000**
2. all other costs	**6 000**	**7 000**
Profit	**6 000**	**28 000**

6.5. Overall enterprise budget

Exercise A trading enterprise sells *a single* type of goods.

Income Statement for the year 20X4:

	Thous. Ls
Net sales turnover (200,000 units)	432.000
Cost of goods sold:	
Prime cost of goods sold	240.000
Depreciation (10% of the original value of fixed assets)	20.000
Salaries	42.000
Other expenses	90.000
Profit	40.000
Taxes (40%)	16.000
Retained earnings	24.000

Balance sheet for the year ended 31 December 20X4

Assets	**Thous. Ls**	**Liabilities**	**Thous. Ls**
Fixed assets	200.000	Equity capital	100.000
Less depreciation	63.000	Reserves and profit	50.000
Book value of fixed assets	137.000	***Total equity capital***	150.000
Stock of goods	40.000	Bank overdraft	27.000
Accounts receivable	36.000	Suppliers	20.000
Total current assets	76.000	Tax payments	16.000
Total assets:	213.000	**Total accounts payable**	63.000
		Total liabilities:	213.000

Enterprise plans for 20X5

3. Demand for the production depends on the price level. The enterprise plans to increase its sales volume to 300,000 units per year by reducing the price per unit to Ls 2.
4. The goods for sale stock level expected to equal the amount of sales of two months.
5. Credit period given by vendors is 1 month.
6. Salaries and other expenses are equal each month and are paid on the last day of the month in question.
7. The enterprise believes that it is necessary to reject bank overdrafts.
8. Contract on factoring of outstanding debtors' debts is signed with a bank effective from January 1. In view of the quality of debtors the bank will pay the enterprise 98% of the debtors' debts for the month reported on the last day of the respective month.

Required:

1. **Calculate the amount of purchases required in January, 20X5.**
2. **Prepare the cash flow forecast for the year 20X5.**
3. **Prepare the profit or loss forecast for the year 20X5.**
4. **Prepare the balance sheet forecast for the year 20X5.**

Solution:

1. Assessment of the required amount of stock purchases in January of next year.

Prime cost per one unit of goods sold: Ls 240,000 200 000 = Ls 1,20.
The monthly sales volume of next year will reach 25,000 units (300,000:12).
The required stock level at the end of January is 2* 25,000= 50,000 units,
stock value: 1.20* 50,000 = Ls 60,000.
Value of stock used in January amounts to 25,000 units*1.20= 30,000.
Therefore, the amount of purchases required in January:

Item	**Amount**
Opening balance as of January 1	40 000
Value of stock used in January	30 000
Closing stock as of the end of January	60 000
Amount of stock purchases in January (40,000-30,000+X)=	50 000

In other months stock purchases will be 25,000 units; stock value – Ls 30,000.

2. Cash flow forecast (financial resource plan) **for the year 20X5**

	01	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**
Cash receipts (inflow)												
Debtor payments	36	-	-	-	-	-	-	-	-	-	-	-
Receipts from the factoring contract	49	49	49	49	49	49	49	49	49	49	49	49
A. Total receipts	85	49	49	49	49	49	49	49	49	49	49	49
Cash payments (outflow)												
Purchases of stock	20[12]	5	30	30	30	30	30	30	30	30	30	30
Costs of personnel	3	3	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5
Tax payments	7	7,5	7,5	7,5	7,5	7,5	7,5	7,5	7,5	7,5	7,5	7,5
Other expenses and disbursements	16	-	-	-	-	-	-	-	-	-	-	-
B. Total expenses	4	61	41	41	41	41	41	41	41	41	41	41
C. Cash flow= A-B	38	(12)	8	8	8	8	8	8	8	8	8	8
D. Opening cash for the month	(27)[13]	11	(1)	7	15	23	31	39	47	55	63	71
E. Closing cash balance for the	11	-1	7	15	23	31	39	47	55	63	71	79

[12] Algorithm: 60000-40000= 20000;
[13] Bank overdraft of Ls 27,00

month: D+A-B												
Amount of loan requirement, if E<0	-	1	-	-	-	-	-	-	-	-	-	-

3. Profit or loss forecast for the year 20X5:

Item	**Thous. Ls**
Net sales turnover (300,000 units)	600 000
Cost of goods sold	360 000
Depreciation (10% of the original value of fixed assets)	20 000
Salaries	42 000
Bank interest on factoring contract (2% per month)	12 000
Other expenses	90 000
Profit	76 000
Taxes (40%)	30 400
Retained earnings	**45 600**

4. Balance sheet for the year ended 31 December 20X5:

Assets	**Thous. Ls**	**Liabilities**	**Thous. Ls**
Fixed assets	200 000	Equity capital	100 000
Less depreciation	83 000	Reserves and profit	95 600
Book value of fixed assets	117 000	***Total equity capital***	195 600
Stock of goods (for two months)	60 000	Suppliers	30 000
Cash assets	79 000	Tax payments	30 400
Total current assets	139 000	**Total accounts payable**	60 400
Total assets:	**256 000**	**Total liabilities:**	**256 000**

7.Enterprise capital and its structure. Identification of capital requirements

7.1. The meaning of 'capital': capital as a balance sheet asset and liability. Real and fictitious capital
7.2. Capital structure (as a balance sheet liability)
7.3. The enterprise capital turnover process and identification of capital (as a balance sheet asset) requirements. Enterprise fixed assets and current assets
7.4. Conservative, balanced and aggressive policies for management of current assets and short-term liabilities
7.6. Working capital cycle, acceleration of capital turnover
7.6. Stock management
7.7. Accounts receivable management
7.8. Enterprise concerns arising due to inefficient capital structure and lengthy working capital cycle
7.9. Exercises
7.10. Question

After covering this topic you will be able to:

- Identify capital requirements and distinguish between fixed and current assets for their business;
- Distinguish between conservative, balanced and aggressive policies for management of current asset and short-term liabilities.
- Manage stocks and receivables;
- Analyse concerns arising due to inefficient capital structure and length working capital cycle;

7.1. The meaning of 'capital' is as follows: Capital as a balance sheet asset and liability Real and fictitious capital

Capital means assets invested in an enterprise by its founders or creditors with the purpose of generating additional value. According to the length of investment it is subdivided into:

- equity capital;
- debt capital.

Capital is a set of tangible and intangible assets (property) which can be priced and which is used for business activities.

Property means any real tangible values (buildings, stock of materials, semi-finished goods, goods for sale), intangible values (patents, know-how), cash and accounts receivable existing in an enterprise.
According to the length of investment enterprise property is subdivided into:

- fixed assets;
- current assets.

Capital turnover (circulation) is a process that is constantly renewed and continued, it is the movement of capital in the production and sales processes.

Real capital:

- land;
- moveable and real estate property;
- cash.

Fictitious capital (*fiktio* – creation – duplicates the real capital):

- securities;
- property certifying documents.

Land as fictitious capital:

- mortgage bonds;
- property compensation certificates.

Real estate as fictitious capital:

- shares;
- mortgage bonds;
- property compensation certificates;
- debentures;
- bills of exchange.

Money as fictitious capital:

- cheques (deposit);
- placement certificates;
- deposit certificates (bank deposit account).

Goods as fictitious capital:

- warehouse receipt;
- future goods contract.

Capital management includes the assessment of the following:

- the required amount of financial resources;
- the type of financing (either long-term or short-term loan, enterprise revenue);
- the costs of any given type of resources (loan interest, other);
- the risk associated with the given source of financing (equity capital is less risky than a bank loan).

7.2. Capital structure (as a balance sheet liability)

Capital structure – a term used to describe the components of enterprise financing. If the financing consists of the assets of both the equity capital and debt capital it is referred to as the capital structure financed by equity capital and debt capital. (Own capital – statutory capital – profit and loss, too).

Optimal capital structure – depends on the risk profile of each particular enterprise. A distinction should be made between 2 different types of risk inherent in every enterprise.

1. Business risk – the risk arising from the enterprise business itself. It can be observed to what level of business risk an enterprise is influenced by fluctuations in its profit and cash flow (risk affects profit), that cause the appearance of various adverse trends of business risk factors. Enterprises with a high level of business risk is an enterprise which contains either too many such factors that may not happen, i.e., not

happen as expected or there is only one such factor, but there is a high probability, however, that it will fail, and any of such events could leave a material and negative effect on profit.

2. Financial risk – this type of risk reflects the uncertainty associated with a loan; it arises mainly from the direct impact of the loan on the enterprise cash flow independent of the level of profit.

   Loan is a liability of an enterprise presupposing payments of the principal amount and the interest amount on certain dates, and there are sanctions imposed if it does not happen. Even worse – if the cash flow of an enterprise is insufficient the loan contract gives the rights to the lender to appropriate some of the assets (they are pledged) and to instigate dissolution.

   If an enterprise does not have any loans only the business risk is present in the enterprise, but as soon as it takes a loan the financial risk is also present.

3. Additional risk – along with the effect that the interest payments make on the cash flow there is additional risk present associated with any changes in the interest rates.

LIBOR rates (London Interbank Offered Rate) – rate offered at which banks can purchase resources from other banks in the bank market with the purpose of offering them in loans or from the Central Bank although the rates are more beneficial in the banking market.

The basic principle that applies to the capital structure of an enterprise – it should maintain a reasonable relationship between the business and the financial risk.

If the business risk is high then the financial risk must be kept at the lowest level possible.

In case of a low business risk an enterprise can afford taking larger loans by thus increasing the debt/equity ratio.

If both risks are high the chances of survival in general are reduced considerably.

Example

An enterprise is founded and the decision on placement of assets is being taken. The first enterprise is named Regate, SIA. Upon foundation the owners discuss three potential types of capital structure.

- 100% equity capital;
- 70% - equity capital, 30% - debt at the interest rate of 40%;
- 30% - equity capital, 70% - debt at the interest rate of 40%.

	Situation 1	Situation 2	Situation 3
Net assets	1000	1000	1000
Equity capital	1000	700	300
Loan (40%)	0	300	700
Total liabilities	1000	1000	1000
Sales	1200	1200	1200
Operating profit	500	500	500
Interest payments	0	120	280
Profit before tax	500	380	220
Taxes (25%)	125	95	55
Profit after tax	375	285	165
Operating profit %	500/1200=42%	500/1200=42%	500/1200=42%
Return on capital invested %	500/1000=50%	500/1000=50%	500/1000=50%
Return on equity %	375/1000=37.5%	285/700=40.7%	165/300=55%

Conclusion

- As the rate of debt or the financial risk (debt to equity ratio) grows, the return on equity is also increasing. Increased profits is a reward to the shareholders for the higher level of risk undertaken, which is present in the situation of high debt; and therefore the leverages of financial risk if reasonably used may increase the profit of owners.
- The return gained from the appropriate use of the financial risk is beneficial to the owners only if an enterprise yields sufficient operating profit in order to perform loan interest payments; if there would be no sufficient income the interest couldn't be paid.
- The capital structure does not influence the operating profit as this figure reflects profit before interest payments.
- The capital structure either does not influence the rates of return on capital invested and this is also because the profit is estimated before interest and the rate of return on capital invested is the overall enterprise capital less equity and debt. Return on the resources of an enterprise is not affected by the structure of financing.
- Return on capital invested is higher than the financing costs of an enterprise; this is a particularly significant factor that plays a key role in the choice of the respective situation.

Earning capacity of the debt financing structure

Example continued Let us assume that it is possible to increase the operating profit by 5%. How would this fact affect the enterprise?

	Situation 1	Situation 2	Situation 3
Net assets	1000	1000	1000
Equity capital	1000	700	300
Loan (40%)	0	300	700
Total liabilities	1000	1000	1000
Sales	1200	1200	1200
Operating profit	525	525	525
Interest payments	0	120	280
Profit before tax	525	405	245
Taxes (25%)	131	101	61
Profit after tax	394	304	184
Operating profit %	525/1200=44%	525/1200=44%	525/1200=44%
Return on capital invested %	525/1000=53%	525/1000=53%	525/1000=53%
Return on equity %	394/1000=39.4%	304/700=43.4%	184/300=61.3%

Conclusion

From the data above it can be found that if the loan is not taken up then as the operating profit increases shareholders receive a 5% higher income; the growth is by 6.6% in Situation 2 and in Situation 3 – 11.4%.

$\frac{43.4}{40.7} = 6.6\%$ $\frac{39.4}{37.5} = 5\%$

Therefore it can be rather beneficial for the shareholders to use high level of debt financing. While highly evaluating debt rates from the shareholders' point of view, one needs to keep in mind that the enterprise itself as an object of business does not receive any benefits as that the operating profit figure and the return on investment does not change; what changes only is the level of enterprise exposure to risk and the higher the level of debt the higher the risk exposure.

Negative potential of debt financing

Example continued

Let us assume, for example, that instead of turnover of Ls 1,200 only Ls 900 was reached. Accordingly the operating profit will be Ls 400. How is this fact going to affect the enterprise?

	Situation 1	Situation 2	Situation 3
Net assets	1000	1000	1000
Equity capital	1000	700	300
Loan (40%)	0	300	700
Total liabilities	1000	1000	1000
Sales	900	900	900
Operating profit	400	400	400
Interest payments	0	120	280
Profit before tax	400	280	120
Taxes (25%)	100	70	30
Profit after tax	300	210	90
Operating profit %	400/900=44%	400/900=44%	400/900=44%
Return on capital invested %	400/1000=40%	400/1000=40%	400/1000=40%
Return on equity %	300/1000=30%	210/700=30%	90/300=30%

Conclusion

- Operating profit is 44%.
- Return on equity in all 3 optional situations has reduced to 30% compared to the initial figures; if no debt financing is used the reduction is by 20%, in Situation 2 – by 26% and in Situation 3 – by 45%. Therefore, it can be seen that in case of the use of debt of a high interest-bearing loan the enterprise exposure to risk is higher, i.e., as the turnover reduces by 25%, return on equity has been reduced by 45% and the enterprise is insecure in a situation of risk.
- We may also conclude, that if the operating risk of an enterprise is high, the possibilities of the loss of profit by using the debt financing option is much larger than in situations when only the equity financing is used. Consequently, by changes in the operating risk of an enterprise it is also the financial risk that affects the profitability of the enterprise to a considerably higher extent. If the return on capital invested is equal to the financing costs of the debt, here 40%, it does not change depending on whether the loan is taken up or not.

Additional financial risks

Example continued

What would happen if the loan interest rate grows from 40% to 48%. Turnover is Ls 900.

	Situation 1	Situation 2	Situation 3
Net assets	1000	1000	1000
Equity capital	1000	700	300
Loan (48%)	0	300	700
Total liabilities	1000	1000	1000
Sales	900	900	900
Operating profit	400	400	400
Interest payments	0	144	336
Profit before tax	400	256	64
Taxes (25%)	100	64	16
Profit after tax	300	192	48
Operating profit %	400/900=44%	400/900=44%	400/900=44%
Return on capital invested %	400/1000=40%	400/1000=40%	400/1000=40%
Return on equity %	300/1000=30%	192/700=27.4%	48/300=16%

It can be seen from the data that the threat of financial risk is present.

In Situation 1 – the return on equity of 5% is maintained;

In Situation 2, the return on equity is reduced from 30% to 27.4%, the rate of profitability has decreased although there are no changes in the operating risk factors, the reason for these changes is the financial risk.

In Situation 3 the return on equity is reduced from 30% to 16%; also in this situation irrespective of whether any changes have taken place in the operating risk, the shareholders must find out that as a result of an increase in the financial risk permitted by them with the objective of increasing the return on equity it has diminished considerably;

it is clear, therefore, that financial risk may adversely affect all individuals associated with the enterprise, while in the situation of a positive outcome, only the enterprise owners will enjoy some benefits. Loss of equity and the resulting threat to existence are the main factors to be taken into account when assessing the financial risk of an enterprise.

How to structure the capital?

The factors to be taken into account by choosing the capital structure model are as follows:

- turnover;
- profitability;
- interest rate;
- cash flow analysis;
- comparative industry figures;
- attitude of the lender;
- attitude of the enterprise owners (management);
- business environment.

Assessment of weighted average capital value and its role in the choice of the type of financing

Capital is a term used to denominate the resources or sources used by enterprises in their business activities. In order to take the decision on the formation of capital an analysis of several factors must be carried out. One of the key issues to be studied and analysed for the sake of decision-taking on the formation of the capital structure and on raising of potential investment is the *weighted average cost of capital*.

To assess the total value of capital, first, the cost to each capital vendor must be estimated. Such cost of each type of capital is called a capital cost component. The following capital cost components exist:

At Kd – the cost of borrowed capital after tax (remuneration in the form of an interest rate paid by an enterprise to the lender calculated after the payment of enterprise taxes). The cost of borrowed capital after tax is calculated according to the following formula:

$$\text{At Kd} = \text{Kd}(1-\text{T})$$

Kd – loan interest rate;
T – corporate tax rate.

Kp – cost of capital of preference shares (this cost is measured by a negotiable rate requested by investors from the enterprise plus the costs involved in issuance of preference shares). The cost of capital of preference shares is calculated according to the following formula:

$$\text{Kp} = \text{Dp}/(\text{Pn}-\text{F})$$

Dp – dividend on the preference shares;
Pn – current price of the preference shares;
F – discount rate.

Ks – cost of capital of ordinary shares. The cost of capital of ordinary shares is calculated according to the following formula:

$$Ks = D_1/P_0 + g$$

D_1 – dividend on ordinary shares for the next period;
P_0 – fair value of ordinary shares;
g_0 – expected rate of growth in dividends for the ordinary shares.

WACC – weighted average cost of capital weighs the cost of all capital components by assessing the percentage of each component from the total cost of capital. Weighted average cost of capital is calculated according to the following formula:

$$WACC = (WTd * ATKd) + (WTp * Kp) + (WTs * Ks)$$

Wtd – weighted (or proportional) amount of debt in % from total enterprise assets;
AT Kd – cost of debt capital after tax;
WTp – weighted (or proportional) amount of preference shares in % from total enterprise assets;
Kp – the price of preference shares;
WTp – weighted (or proportional) amount of ordinary shares in % from total enterprise assets;
Ks – cost of capital of ordinary shares.

Example.

In order to easier understand the calculation of the weighted average cost of capital an example of calculating the weighted average cost of capital will be analysed. The balance sheet of the enterprise A will be used as the basis.
Total assets: LVL 450,000

Share capital:

- *ordinary shares – 90,000 (20%)*
- *preference shares – 45,000 (10%)*

Loan (bank) – 180,000 (40%)
Debt to suppliers – 72,000 (16%)
Debt to other creditors – 63,000 (14%)
Total liabilities: LVL 450,000 (100%)

Ordinary shares: dividend of LVL 2.00 (price per share – LVL 10.00)
Preference shares: dividend of LVL 5.00 (price per share – LVL 10.00)
Interest rate on the bank loan – 8% per annum.

First step or evaluation of the total cost of capital is the assessment of the capital structure of enterprise A and of the percentage of the capital components.

Total assets: LVL 450,000

Share capital:
- *ordinary shares – 29%*
- *preference shares – 14%*

Loan (bank) – 57%
Total liabilities: LVL 450,000 (100%)

Next step in the assessment of the total cost of capital is the estimation of the cost of capital components.
Cost of capital components:
Ordinary shares: $Ks= D_1/P_0 + g =2/10 = 20\%$
Preference shares: Kp= Dp/ (Pn-F) = 5/10 = 50%
Bank loan: ATKd = Kd(1-T) = 0.08(1-0.4) = 4.8%*

The weighted average cost of capital (WACC) weighs the cost of all capital components by assessing the percentage of each component from the total cost of capital.
*WACC = (WTd * ATKd) + (WTp * Kp) + (WTs * Ks) =*
*= (0.57 * 0.048) + (0.14 * 0.5) + (0.29 * 0.2) = 0.1092 = 15.54%*

Conclusion: the rate of return of the enterprise investment projects must be higher than the average cost of capital (WACC). The weighted average cost of capital changes depending on the financing structure. Financing by equity capital is considered to be more expensive than by debt capital. By involving new enterprise owners more dividends have to be paid. These costs are higher than the cost of use of external financing resources.

Deciding on the optimal capital structure

By reviewing the theoretical materials available on the assessment of the optimal capital structure it may be concluded that two opinions exist in this regard. In one of these opinions it is maintained that the assessment of the optimal capital structure and further elaboration is indeed possible. According to this opinion it is believed that in the given situation the weighted average cost of capital is minimum low, actually its cost is the lowest possible. Alternatively the view of the Miller and Modigliani theory says about the optimal capital structure that under the conditions of free market (free access to information, no taxes) the value of enterprise capital does not depend on the way it is financed. From this a conclusion can be made that the capital structure does not affect the enterprise value.
Establishment of an optimal capital structure is one of the functions of enterprise capital management and planning. In order for an enterprise to operate successfully it is not enough to have the will to raise the necessary assets, several other factors need to be taken into account that would show if the enterprise has chosen the right type of financing and if it is able to operate as a going concern.
As investments are being made of external funding, there is a growing dependence of the enterprise on external financing. One of the most important indicators of the financial position of an enterprise is therefore its *solvency* - the ability to make payments for its

trading transactions, for loans and other cash liabilities on time and in full. An enterprise is considered to be solvent if the amount of its current assets (stock, cash, and accounts receivable etc. assets) is higher or equal to the amount of its total external debts.
Financial stability indicators are subdivided into four categories as follows:

- liquidity ratios describe the ability of an enterprise to pay for its short-term debts;
- debt ratios describe the ability of an enterprise to settle its liabilities;
- measures of business activity or the asset turnover measures describe, how efficiently an enterprise is using its assets;
- profitability measures.

The cost of capital may be considered as the critical (or minimum low) rate of return set by the enterprise in % that is applied to any of its investment projects. The cost of capital depends on the relationship between equity and debt and its cost.

In order to finance its activities any enterprise needs financing from other entrepreneurial entities. In practice the involvement of any source of financing is directly associated with certain expenses, for example, the share companies must regularly pay dividends to its shareholders as well as interest to the banks on any loans taken. This total amount or expenses shows the cost which is expressed in percent. In the Republic of Latvia it is currently about 6 – 7% per annum, however, if an enterprise has any sources of financing available from abroad the interest rate will be even lower.

Cost of equity capital is the most difficult value to assess. It is usually defined as the rate of government debentures + premium for a high risk. The risk increases if an enterprise undertakes many liabilities, which also makes the premium to increase. As the liabilities must be settled prior to any disbursements to shareholders are made, the higher these liabilities are the higher the risk that the shareholders receive nothing or receive too little. This means that the risk premium can be increased if the degree of risk is high. This, on its turn, means that the rate on debentures aggregated with the premium in LR may amount even to 25% being the cost of capital.

$$KC = (A/(A+P))*Ca + (P/(A+P))*Cp$$

A – value of a loan;
P – value of equity capital (balance sheet);
Ca – cost of loan (loan interest in %);
Cp – cost of equity capital (in %)

Let us assume the following:
P = Ls7000; A = Ls3000; Ca = 12% and Cp = 20%; then

$$KC = (3000/10000)*0.12 + (7000/10000)*0.20 = 3.6\% + 14\% = 17.6\%$$

This means that an entrepreneurial company can afford to raise a long-term loan at an annual interest rate of 17.6% which is the cost of capital for this particular company.

In order to estimate the overall cost of capital the cost of each capital component must be evaluated first. Further in this paper the appraisal methods for the cost of capital are illustrated.

Cost of capital appraisal methods

1. Method of appraisal of the cost of borrowed capital
2. Method of appraisal of the cost of preference share capital
3. Method of appraisal of the cost of ordinary share capital
4. Model of appraisal of the cost of a new issue of ordinary share capital

1. Method of appraisal of the cost of borrowed capital

If an enterprise pays interest to banks or interest to debenture holders these payments are called the cost of borrowed capital. After the payment of corporate tax this indicator is called the 'cost of borrowed capital after tax' (or ATKd). It is calculated by using the following formula:

ATKd = Kd (1 – T)
ATKd – marginal cost of borrowed capital after tax
Kd – cost of borrowed capital (before tax);
T – enterprise rate of return (i.e., a marginal % rate);

2. Model of appraisal of the cost of preference share capital

This model is comparatively simple as the amount of dividends on preference shares is fixed and does not depend on the amount of profit an enterprise is making. It can be calculated according by the following formula:

Kp = Dp / (Pp – F)
Kp – the price of preference shares
Dp – expected amount of dividends on the preference shares;
Pn – current price of the preference shares
F – discount rate

3. *Two models of appraisal of the cost of ordinary share capital*
The cost of capital of ordinary shares is the level of income required by the holders of ordinary shares.
The first model refers to the rate of predictable growth of the amount of dividends. It is calculated by using the following formula:
$Ks = D_1/P_0+G$,

Ks – cost of ordinary share capital (or rate of dividend)
P_0 – current price of ordinary shares
D_1 – amount of dividends on ordinary shares which is the maximum high amount for the preceding period
G – expected rate of growth of the amount of dividends on ordinary shares

If the fair market value of shares is Ls 10.00, for example, and if the expected annual amount of dividend per share is Ls 2.50, and if it is predicted that the annual dividend growth will be 2%, then the capital cost of ordinary share capital can be estimated.

Ks = 2.50/10 + 0.02 = 27%

This means that a share company could receive the consent from the shareholders that the dividends are not disbursed to them only in case if the expected income does not fall below 27% per year.

The second model is called the Capital Asset Pricing Model or CAPM. This model is used for the assessment of the negotiable rate which is required by investors for holding of ordinary shares. The negotiable rate is evaluated by the CAPM in view of the degree of indiverse market risk (the so called ß coefficient). The formula under the CAPM model is as follows:

Ks = Krf + (Km – Krf) * ß , where

Krf – turnover rate of risk-free securities;
Km – expected turnover rate;
ß – coefficient for measurement of aggregate indiverse risk.

For example, if ß = 1.39, the annual % rate on debentures is 3%, the expected rate of turnover increase is 12%, then according to the formula Ks can be calculated as follows: 0.03 + (0.12 – 0.03) * 1.39; which makes 15.51%.

4. Model of appraisal of the cost of a new issue of ordinary share capital

Capital raised by new shareholders is often used to finance of a specific project. This cost of external capital includes not only the expected rate of turnover, but also the so called expected rate of growth of the enterprise ordinary share prices when new securities are issued that comprise also the cost of use of these funds supplied by new shareholders and is higher than the income that is offered by the existing shareholders.

Kn = (D1/(Po-F)) +G, where

Kn – the price of ordinary shares of a new share issue
F – discount rate;
D1 – amount of dividends being paid on ordinary shares
G – the expected rate of price increase for ordinary shares

Weighted average cost of capital weighs the cost of all capital components by assessing the percentage of each component from the total cost of capital.
It can be calculated according by the following formula:
Ka = WTd * ATKd + WTp *Kp + WTs * Ks

Ka – weighted average cost of capital;

WTd – weighted (or proportional) amount of debt in % from the enterprise assets;
ATKd – cost of debt after tax;
WTp – weighted (or proportional) amount of preference shares in % from the enterprise assets;
Kp – the price of preference shares
WTs – weighted (or proportional) amount of ordinary shares in % from the enterprise assets;
Ks – cost of capital of ordinary shares.

For example:
The market price of total ordinary shares of enterprise X is Ls 450,000, while the value of its preference shares is Ls 120,000, the total amount of borrowed capital is Ls 200,000. Cost of equity capital is 14%, cost of preference share capital – 10%, ATKd – 7%. What will the weighted average cost of capital be?
First the cost of capital for each capital component must be calculated.

a) The total value of capital is 450000 + 120000 + 200000 = Ls770000, therefore
   WTd = 200000/700000 = 25.97%
   WTp = 120000/770000 = 15.58%
   WTs = 450000/770000 = 58.45%

The weighted average cost of capital (Ka) can be easily found out by using the table below.

Component	**Cost of capital**		**WT**		**Weighted cost of capital**
Debt capital	7%	×	0,2597	=	1,818
Preference shares	10%	×	0,1558	=	1,558
Ordinary shares	14%	×	0,5845	=	8,183
Weighted average cost of capital (Ka)					11.559%

This would mean that the weighted average cost of capital (Ka) for enterprise X is 11.56%.

7.3. The enterprise capital turnover process and identification of capital (as a balance sheet asset) requirements Enterprise fixed assets and current assets

Stages of the enterprise capital turnover process:

1. Raising of capital (stage of funding).
2. Investing of capital into fixed assets, materials, labour (stage of capital usage, investment).
3. Production stage (stage of generating new value).
4. Sales (opening capital + profit).

Capital in enterprises is invested into ***means of production*** existing in two forms:

- fixed assets;
- current assets.

Means of production is a set of instruments and subjects of labour used in the process of operation to create a product or provide a service and expressed in monetary terms. Means of production include the following categories:

1) fixed assets; and
2) current assets.

The following depends on their quality:

- labour efficiency;
- quality of products and services;
- cost of manufacturing the products and provision of services as well as the prime cost of these products;
- production capacity.

The need for the means of production depends on the following:

1) specifics of the production of goods or provision of services;
2) degree of technological development in the respective industry;
3) length of the production cycle;
4) the degree of complexity of manufacturing the product or providing the service etc. conditions.

The main difference between the two above mentioned forms (fixed assets and current assets) lies in the following:

- rate of turnover;
- compensation for the capital value.

<u>According to the rate of turnover:</u>

Fixed assets possessing such qualities:

- participate in the production process on a continuing basis over many turnover cycles (long-term investments);
- are worn-out gradually (morally and physically);
- are included in the production costs of goods in the extent of their depreciation;
- the value of the component parts of fixed assets is gradually compensated for together with the sales of products.

Wearing down of fixed assets in monetary terms is called depreciation and it constitutes a significant part of production costs (buildings, constructions, long-term plantings – the rate of depreciation is 20 years,
5% p.a.); plant and machinery – fleet, railway and road vehicles; power stations – 10 years (10% p.a.); office equipment – computers, printers, copying machines etc. – about 3 years (35% p.a.); any other fixed assets – 5 years (20% p.a.).

The rate of turnover of current assets is much higher than that of the fixed assets. Specifics:

- participate only in a single cycle of production or service provision;
- included in full in the production costs of products manufactured or services provided;

- are being compensated for in full upon sales of the production.

Identification of capital requirements

The need for the equity capital and the working capital arises due to differences in the timing of the resources investment and gaining of revenue.
Equity capital requirement must be assessed both upon foundation of an enterprise and upon expansion in the future. These requirements are as follows:

- construction and installation works;
- machinery;
- tools;
- research works;
- remuneration for labour.

Working capital requirement is defined by the length of the production and sales cycle.

Fixed assets, their composition and evaluation

Fixed assets are enterprise's asset share of the long-term investments or its long-term investments into assets that it plans to use for a period of over one year.
Fixed assets constitute one of the balance sheet items. The following assets are included therein:

1) *land properties;*
2) *buildings;*
3) *constructions [water mains, sewage installations, roads, bridges etc.];*
4) *long-term plantings;*
5) *workbenches and plant and machinery;*
6) *transport vehicles;*
7) *assets invested in construction of fixed assets and unfinished construction objects;*
8) *other types of fixed assets, for example, enterprise management equipment, technical appliances, furnishing etc.*

In theory and practice the distinction is made between the following values of fixed assets:

- opening value or initial value;
- replacement value;
- remaining or book value; and
- fair market value.

Opening value or fixed assets is their value at the moment of acquisition. This value comprises the following:

- purchase cost or cost of construction;
- customs duties;
- transportation costs;
- installation and other costs if the above three cost items have not been included in the price.

The opening value of fixed assets is also used for estimation of the write-off amounts or depreciation deductions.

Replacement value of fixed assets is the value the fixed asset items would have if created or acquired anew [in case of used fixed assets after depreciation deductions]. It is necessary to know this value for planning of the cash resources required to replace the existing fixed assets.

Remaining value of fixed assets is their value which is calculated by deducting the write-off amounts made from the opening value. This is estimated in order to know what is the share of fixed assets to be still written off against the prime cost of the products manufactured as well as in order to prepare the balance sheet of an enterprise. Fixed assets are recognised in the balance sheet at their book value.

Fair value of fixed assets is the amount which a knowledgeable, willing, and unpressured buyer would pay to a knowledgeable, willing, and unpressured seller in the real estate market.

Cadastral value is being estimated for a part of the fixed assets as required by the Land Survey Department and its licensed property valuation offices. This value is assigned to those fixed assets that fall in the category of the so called real estate property. This comprises:

- land;
- buildings;
- constructions.

Cadastral value is the value of real estate property [immovable fixed assets] at which they are registered with the State Property Cadastre ['cadastre' is the French language word meaning 'the list']. Estimation of this value is based on the information on any purchases made, the use of this property, for land the location is taken into account, any encumbrances restricting the use of the land plot etc. The cadastral value of real estate properties is not fixed. The property may get re-valued upon any of the conditions being changed. The cadastral value of real estate properties is used upon imposing the property tax as well as for other needs.

Depreciation of fixed assets and their write-off or amortisation

Depreciation of fixed assets is the reduction in scope of their functional usefulness across their limited period of service. The distinction can be made between:

1) the physical wear and tear of fixed assets; and
2) obsolescence of fixed assets.

Physical wear and tear of fixed assets is the reduction in their value as a result of their use and impact made by physical factors. The degree of the physical wear and tear of fixed assets depends on the following factors:

- the intensity with which they are used;
- how extensively the fixed assets are used;
- the quality of fixed asset items etc.

The physical wear and tear of fixed assets is due to exposure of such physical factors as precipitation, changes in temperature, wearout of metal and plastic materials etc. Because of these factors fixed assets are worn out even if not used. Physical wear and

tear of fixed assets may be partial or full. Partial wear and tear can be prevented for a certain period of time and to some extent by carrying out repairs of fixed assets. In case of a full wear and tear fixed assets are scrapped or sold for recycling. There is a growing requirement for recycling of fixed assets after use.

Obsolescence of fixed assets is the impairment of fixed assets due to economical circumstances, mainly as a result of technological advances (new types of highly efficient production equipment, transport vehicles are invented and the use of earlier types becomes economically ineffective) regardless of their physical wear and tear. Obsolescence of fixed assets depends on the following factors:

- the pace of scientific and technological development of any specific industry;
- the subsidies channelled to each particular industry;
- the society level of education etc.

Fixed assets may be used on a continuous basis and over several cycles of production. Gradual offsetting of the value of fixed assets against the prime cost of the newly generated product is referred to as the depreciation or amortisation of fixed assets, while the amounts written off are referred to as write-offs. Writing off fixed assets against the prime cost of the products must be carried out during their useful life the length of which is defined by the LR Cabinet of Ministers regulations. The write-off amounts of these assets may not exceed the value of acquisition and installation. The annual depreciation amounts are estimated in practice by using several methods:

- straight line balance;
- reducing balance or regressive;
- in consideration of the intensity of use of fixed assets.

The straight line fixed asset depreciation method is based on the assumption that wear and tear of fixed assets takes place at a steady rate, and consequently the write-off amounts of fixed assets may be calculated by dividing their initial value with the standard period of use.

Reducing balance or regressive method of fixed asset depreciation is based on the assumption that the proportion of fixed asset write-offs must be greater at the earlier stage of use of fixed assets than at a later stage, as their productivity is higher at the beginning [less time must be spent on repairs, maintenance and servicing]. If this method of writing off is used the amounts of depreciation are greatest during the first year of fixed asset operation, while during the last year the amounts are the lowest. There are two types of this method: geometrical and arithmetical reducing balance depreciation model.

Fixed asset depreciation method in consideration of the intensity of their use is based on the fact that any write-offs are made based on the rate of use of fixed assets. If in any of the periods of use fixed assets are used at a higher rate, the depreciation deductions made are greater. During those periods when the rate of use of fixed assets is lower, the estimated depreciation deductions are smaller.

Production capacities and the factors affecting them, and their identification

Production capacity is the maximum volume of certain range and quality products that an enterprise as its production facility is capable of producing within a specific unit of time. The distinction can be made between:

1. *Efficiency of working,* which is the maximum volume of certain range and quality products that can be produced within a specific unit of time in the conditions of a scheduled production plan.
2. *Budgeted output*, which is the maximum volume of certain range and quality products that can be produced within a specific unit of time in the ideal conditions.
3. *Real or actual production capacity,* which is the maximum volume of certain range and quality products that can be produced within a specific unit of time given the problems that existed at an enterprise, production facility, machinery during a certain period of time.

Depending on the capacity requirements the distinction is made between:

- short-term capacity;
- long-term capacity; and
- seasonal capacity.

Capacity is influenced by the following conditions or factors:

1. range and quality of goods produced or services provided;
2. plant and equipment used in the process of production of the goods or provision of services;
3. production and labour organisation;
4. motivation of people for work;
5. work experience;
6. miscellaneous external factors [standards, environmental regulations, occupational safety requirements etc.].

In order to determine the capacity of an enterprise or a production facility it is sufficient in many cases to estimate the capacity of the output equipment, for example, of the spinning machine – in the spinning industry, looms – in the weaving industry, production lines – in the machine building industry. This estimation of capacity is not sufficient in order to find out whether the capacities are sufficient for the performance of all stages of the technological process, whether there are enough machinery or whether there are the so called 'bottlenecks'. 'Bottlenecks' are those stages of the technological process where there are shortages of capacity and these hinder the expansion of the enterprise production and sales process. Such shortages most often occur upon changing the range of products when additional processing by specific machinery is required for some or all of the products. In order to assess the capacity of an enterprise or a production facility in such cases this must be done in regard of all items of the production equipment. Most frequently the following formula is used for capacity [J] appraisal:

$$J = \Sigma\, ri \times mi \times Tli$$

r – efficiency of a single item of equipment or workplace;

m – number of the items of equipment, number of workplaces;

Tl – relevant time of work performed over a certain period of time in the conditions of a planned production schedule [in determining the efficiency of working], in ideal conditions [in determining the budgeted capacity], actual work hours [in determining the real or actual production capacity].

In the assembly units of display stands capacity is calculated according to the formula:

$$J = (L - Lp):Ldv \times (Tl : Trc)$$

L – size of the main production facility in m2;

L – size of the production facility auxiliary areas in m2;

Ldv – area of the display stand m2.

In order to identify the capacity usage rate [e.g., in those cases when it is still possible for the enterprise to get more orders], the efficiency ratio [Kj] must be estimated. It is estimated by using the following formula:

$$Kj = Q : J$$

Q – quantity of products that the enterprise is planning to sell [by calculating the efficiency ratio], the actual quantity of products manufactured [when calculating the real or actual production capacity usage ratio]. In those cases when an enterprise is producing different types of products the capacity usage ratios are estimated by apportioning the number of machine [man] hours required for the fulfilment of the orders to the number of total number of machine [man] hours that the enterprise can actually work with its machinery or human resources.

Often upon receiving the orders the number of equipment required for its fulfilment must be estimated. It can be estimated by the following formula:

$$m = Q : r \times Tl$$

In those cases when an enterprise is manufacturing several types of products, the number of equipment for the fulfilment of the orders can be calculated by the following formula:

$$m = \Sigma (Qi \times ti) : Tl$$

t – number of machine hours required for manufacturing of one I type of product.

Current assets, their composition and the factors influencing the needs for current assets

Current assets is an item of balance sheet assets under which the following assets are disclosed: 1) short-term capital investments for the formation of such stock of material resources as raw materials, consumables, auxiliary materials, semi-finished products, production component products for the provision of ongoing production work. This group of short-term capital investments includes the stock of goods for sale as long as they are not sold and no payment is collected for them, investment in productive cattle, advances for goods and unfinished orders;

2) short-term cash placements: accounts receivable (trade accounts receivable, accounts receivable from related companies, accounts receivable from associated companies, shares unpaid into the company share capital, short-term loans to co-owners and management; deferred income); securities and interest in share capital (interest in related share companies, equity interest and shares, other securities and share interest) and cash.

Current assets can be both equity financed and debt financed. The latter can be purchased by short-term loans if there are no sufficient funds available in the enterprise.
In some production enterprises these assets may constitute up to a half of the total assets. The level of current assets is one of the most important criteria defining the liquidity of an enterprise. Unprofitable enterprises can exist for quite a long period of time if the amount of its liquid assets is sufficient, while, on the other hand, even the best enterprises

can go bankrupt should the amount of liquid assets available to them are not sufficient to settle debts with the creditors.

Current assets fall into the following categories:

- quantified;
- non-quantified (cash).

Material resources must be quantified in order to determine, how many resources should be used for the execution of a regular production process with the purpose of selling the finished product.

Shortage of resources does not presuppose that the enterprise would not be capable of procuring the required quantity of inventories, to pay to its suppliers and employees. Excessive accumulation of current assets leads to these assets being tied up and lower profits.

Successful financial operation of an enterprise will largely depend on how correct the proportion of fixed assets and current assets of an enterprise will be. This proportion depends on both the type of business and the type of enterprise.

The volume of current assets required depends on the following factors:

- the production cycle of the goods (the production cycle is the period of time required to produce one unit of product, a batch of products or to carry out an order);
- the method of labour organisation;
- the type of business that the enterprise is in and the specifics of product manufacturing;
- the accuracy of suppliers in meeting the terms of delivery;
- compliance with the terms of payment of the customer invoices etc.

Many businesses in Japan cut back their enterprise needs for current assets by introducing decentralised planning and the 'just-in-time' system of materials delivery.

Unlike fixed assets that are gradually written-off against the products to be manufactured, the raw materials, consumables etc. material resources used in the manufacturing of products are written off entirely against the respective product for sale.

Current assets undergo continuous turnover which is an uninterrupted cyclical transformation from one type of assets into another, for example, raw materials and consumables are bought for cash and converted in the production process into a new product, which, on its turn, is being sold for cash. The quicker the turnover of these assets is, the less (given that other production conditions are equal) current assets would be required by the enterprise. Circulation or turnover of current assets is defined by two measures:

- rate of turnover; and
- turnover period.

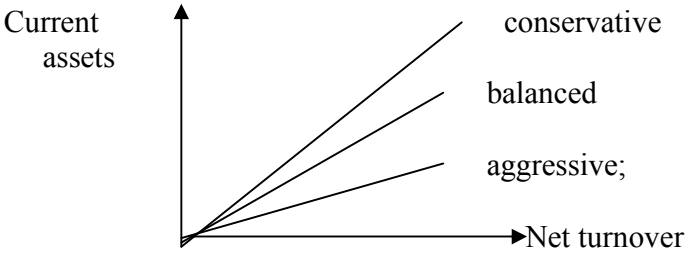
Rate of turnover shows, how many times the resources have been turned over within a certain period of time. It is estimated by dividing the sales turnover for the period with the average balances of the resources of the same time period. Turnover is the cash equivalent of the amount of products sold within a certain period of time (year, quarter or month).

Turnover period is the number of days required for the assets to perform one cycle.

7.4. Conservative, balanced and aggressive policies for management of current assets and short-term liabilities

There are the following types of current asset management policies:
1) aggressive;
2) conservative;
3) balanced.

Drawing The current asset requirement depends on their management strategy.



The main factors governing the choice of the relevant policy:
1) risk;
2) profitability rate.

Aggressive policy – a small amount of current assets is used to achieve a certain amount of net turnover. An enterprise keeps a low level of current assets, low stock, low accounts receivable and small amounts of cash.

Aggressive policy leads to the following situation:
1) increasing the rate of turnover of current assets;
2) growing insolvency risk;
3) return on assets is increasing;
4) profit is increasing.

Conservative policy – a large amount of current assets is used to achieve a certain amount of net turnover. An enterprise keeps a high level of stock, high level of accounts receivable as well as large cash balances.

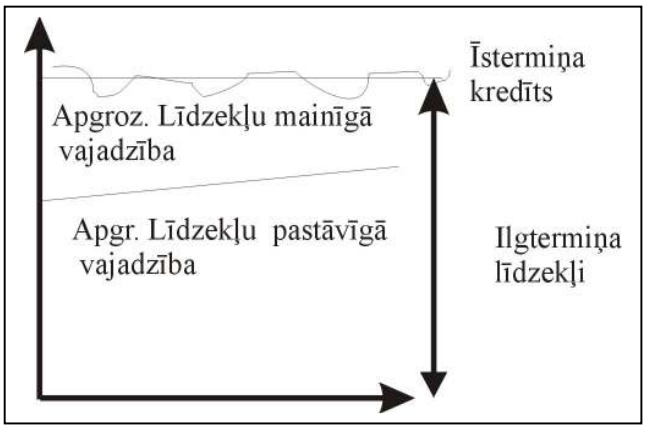
The economic consequences of a conservative policy are as follows:
1) slow turnover of current assets;
2) comparatively low risk;
3) return on assets is decreasing;
4) increasing stock levels.

Balanced policy – a medium amount of current assets is used to achieve a certain amount of net turnover. This is the most efficient policy for an enterprise as the turnover rate is lower than that of an aggressive policy, and higher, however, than that of a conservative policy.

The features of a balanced policy are as follows:
1) medium level of current assets;
2) medium high return on assets;

The same policies apply to the management of short-term liabilities, too.

Conservative policy in the management of short-term liabilities:



In enterprises with a seasonal type of production the requirement for current assets is fluctuating.

The economic consequences of a conservative policy:

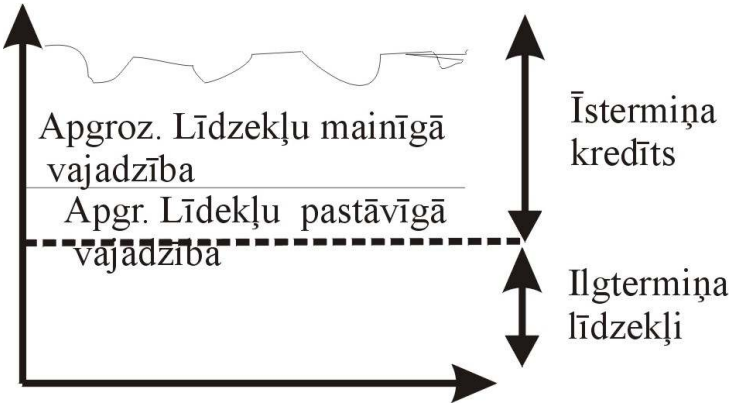
1) Low risk, as there are periods in enterprise when it has free cash assets. Enterprise has sufficient long-term resources for the financing of its long-term investments and current assets.

Translation of the text shown on the chart:

'Apgroz. līdzekļu mainīgā vajadzība' – Variable need for current asset';
'Apgr. līdzekļu pastāvīgā vajadzība' – Permanent need for current assets;
'Īstermiņa kredīts' – Short-term loan;
'Ilgtermiņa līdzekļi' - Long-term assets.

2) Return on capital is decreasing as financial gearing is rather low. Usually short-term financing is more costly than long-term financing. It may be the other way round, too. As a result, an enterprise under conservative policy pays a higher cost of capital.

Drawing Aggressive policy in the management of short-term liabilities:



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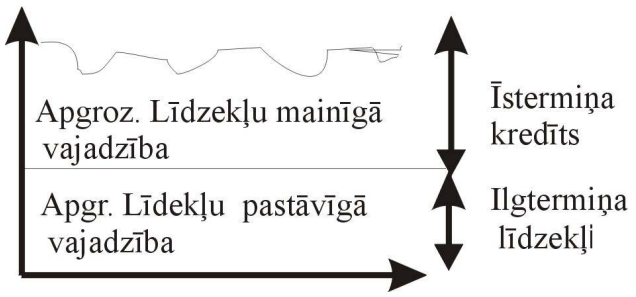
'Īstermiņa kredīts' – Short-term loan;
'Ilgtermiņa līdzekļi' - Long-term assets.

Long-term resources cover the funding of long-term investments and only a portion of the permanent need for current assets. Short-term loans cover for both the variable need for current assets and a portion of the permanent need for current assets.

The economic consequences of an aggressive policy:

1) high risk, as short-term loans are more risky (shorter repayment dates);
2) if the policy undertaken is particularly aggressive, the golden rule of the balance sheet may not been complied with that a portion of long-term investments should cover also the funding of short-term debt.

Drawing Balanced policy in the management of short-term liabilities:



Translation of the text shown on the chart:

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'Īstermiņa kredīts' – Short-term loan;
'Ilgtermiņa līdzekļi' - Long-term assets.

Long-term resources cover for both the funding of long-term investments and the permanent need for current assets. Short-term loan covers only for the funding of the variable need for current assets. It is very difficult to implement this situation in practice as some irregularities are always present; the enterprises, however, are inclined to it.

In general the management strategies and policies of both the assets and liabilities can be described as **having the following in common in the situation of a conservative policy**:

1) large amounts of cash and net short-term securities balances;
2) excessive investment in inventories;
3) assigning of liberal terms of trade credit and a high level of liabilities towards the suppliers;
4) lower short-term liabilities and higher long-term liabilities.

Moreover, **the following is common in the situation of an aggressive policy**:

1) small amounts of cash and net short-term securities balances;
2) low investment in inventories;
3) low level of accounts receivable and liabilities towards suppliers;
4) higher short-term liabilities and lower long-term liabilities.

7. 5. Working capital cycle, acceleration of capital turnover

Working capital cycle (enterprise operating cycle)

The working capital cycle is the time period that elapses from the moment when an enterprise pays for the raw materials till the receipt of payment for sales of goods.

The longer the working capital cycle, the larger the amount required in the enterprise for the working capital. In order to identify the working capital cycle the three following measures have to be estimated:

4. Debt collection period – how many days on average it takes for the cash from sales of goods to arrive in the enterprise.

$$\frac{\text{accounts receivable x number of days in the period}}{\text{sales turnover}}$$

or

$$\frac{\text{(period opening accounts receivable+period closing accounts receivable)x number of p.days}}{\text{2 x turnover}}$$

5. Stock turnover period – this measure reflects the number of days on average for which the amount of existing stock is sufficient for the enterprise.

$$\frac{\text{Stock x number of period days}}{\text{Production costs}}$$

or

$$\frac{\text{(period opening stock balance+period closing stock balance)x number of days per period}}{\text{2 x production costs}}$$

6. Debt payment period – this figure reflects the average number of days it takes for the enterprise to pay for the purchases made and other enterprise expenses.

$$\frac{\text{Accounts payable x number of days per period}}{\text{Production costs}}$$

or

$$\frac{\text{(period opening accounts payable+period closing accounts payable)x number of p.days}}{\text{2 x production costs}}$$

Example.

Enterprise Candy which has a business partner named Cookie.

Estimate the working capital cycle. Sales – LVL 1,200,000 (from the P&L account); production costs – LVL 900,000 (from P&L), stock – LVL 148,000 (from the balance sheet); accounts receivable – LVL 270,000 (balance sheet assets); accounts payable – LVL 74,000 (balance sheet liabilities).

Debt collection period (period – one year)

$\frac{270 \times 365}{1200} = \sim 82$ days

Stock turnover period

$\frac{148 \times 365}{900} = 60$ days

Payment execution period

$\frac{74 \times 365}{900} = 30$ days

Working capital cycle = 82 + 60 – 30 = 112

In other words – 60 days have to pass since the receipt of raw materials till their processing into goods for sale and dispatching to the customers within 30 days. During this period of 60 days the vendor invoices have to be paid, therefore the enterprise faces liquidity problems in the final 30 days (day 30 – day 60); the same situation is repeated also in 82 days since dispatching of the goods till the date of collection – 112 days in total.

Therefore, if the number of days within the working capital cycle has increased the required amount of investment in working capital will also increase. This evidences an enhanced control over working capital (more assets are tied up requiring additional funding).

7.6. Stock management

Stock accumulation

Stocks include all types of the following:

- materials purchased that have been purchased for consumption in production;
- purchased goods that are intended for further resale;
- materials and semi-finished goods produced in-house that are intended for consumption in the production process;
- finished goods intended for sale.

To successfully organise the activities of an enterprise and to ensure the planned sales amount, the enterprise must have sufficient amount of stocks at its disposal.
However, there is always a dilemma present in the identification and maintaining of the correct stock level as it is necessary to control whether excessive stock is not built up which is not involved in the sales cycle. Excessive or non-liquid stocks tie up financial assets in the amount of the prime cost as well as incur costs associated with their storage.
Insufficient stock level, on its turn, may cause losses or additional expenses associated with the higher cost of express delivery or loss of orders.

The EOQ model
The moment of ordering and the optimal amount of order is determined according to the Economic Order Quantity (hereinafter in the text – EOQ) model where stocks are ordered at the moment when the respective amount reaches a certain quantity or at the Reordering Point (hereinafter in the text – ROP).

$$E2 = 2*P*D/U,$$

where E – the economic order quantity in physical units
P – stock delivery costs, Ls
D – average level of demand in physical units
U – holding costs of stock, Ls

For example, if stock delivery costs are Ls 96.00 per month, the average level of demand is 20 units per month and the holding cost of stock is Ls 125.00 per month, then E = 5.54 units.
This means that it is more beneficial to order the required amount of stock in parts instead of ordering all at once as the storage costs of stock are higher than the delivery costs.

EOQ is calculated according to the formula by identifying the balance between delivery costs and storage costs. If a large quantity is ordered, the delivery costs are low, while the storage costs are high. If a small quantity is ordered it has to be done more often which makes the delivery costs higher; the storage costs, however, are being reduced.
ROP has to be set sufficiently high in order for the amount of stock to meet any demand that may arise in the period of time until a new delivery is made.

The advantage of this system is that no concerns arise due to delays in delivery as there are goods in stock, however, as it is difficult to predict the demand, also in this case an enterprise may fall short of stock or, on the contrary, the stock level may be too high which leads again to a cost increase when the goods become obsolete or deteriorate as a result of standing still for too long and have to be written off to losses of an enterprise at cost due to inability to sell them.
Upon performing the estimate of the amount of stock required the main task is the optimisation of costs, i.e., to achieve the minimum level of stock related costs.
Unfortunately in practice it is difficult to apply this model of estimate to trading enterprises. The EOQ model is intended for estimates with even stock demands. As we

can see from the specifics of the trading business in Latvia, the market conditions often force businesses to change the composition of stock. This is required 2 – 4 times per year on average. The level of market demand is uneven either. The largest portion of seasonal goods that are not sold till the end of each particular season are becoming non-liquid remaining stock of goods for a period of 9 months.
Therefore, upon planning the procurement of stock the sales forecast should be as accurate as it is possible in each particular period.
In order to have a maximally accurate procurement plan it is recommended to establish it expressed not only in the total amount of cash, but also to split it into specific items of stock in physical units. The greatest part of enterprises has several regular suppliers with the range of products changing from year to year.
In order to prepare the estimated quantities required per each item of goods it is necessary to get introduced with the new range of products of suppliers.
Not always it is possible to do that by the moment of preparing the sales forecast for the next period. Therefore, it is common upon development of the budgeted stock purchase and sales plan to establish it in monetary terms only without the breakdown by individual components of the stock composition.
Later when the catalogues are made available by the suppliers there is a specific amount of order of each item of stock identified within the scope of the overall procurement plan.
In this situation it is utmost important to have a good, long-established database of sales and stock movement analysis.
Minimum and maximum level of stock system
The minimum and maximum level of stock system (hereinafter in the text – Min-max) is one of the most common systems of stock replenishment. This system is often used in manual accounting systems and sometimes there are cases when such a system is introduced in accounts with the computerised stock control.

The Min-max system represents a periodic stock evaluation activity and the ordering of those stocks with the balance equal to or lower than the minimum level in such amounts that the stock is at the maximum level. This system is aimed at the situation when the ordering and delivery costs compensate for the losses incurred by stock deficit.
$A = M-K+D,$

where A – the volume of stock ordering in physical units
M – the maximum level of stock in physical units
K – the current level of stock in physical units
D – expected demand till the moment of delivery in physical units.

For example, if the maximum level of stock is 30 units and there are currently 10 units in the warehouse, while the expected amount at the moment of delivery is 5 units, then the amount of order is 25 units. Therefore, the ordering must be made in such an amount that the level of stock in the warehouse reaches the maximum level.
This formula is used to calculate the ordering quantity of stock, the time interval between each moment of ordering should be defined individually for each enterprise.
The expected demand until the moment of delivery is also the minimum stock level.

The minimum level of stock under this system be such that there is no shortage of stock even in the situation when the deliveries are slightly delayed, but the maximum level - such that there is an optimal use of the warehouse area and that there is no excessive stock accumulated.

In application of the min-max system there is a great probability that the maximum level of stock could be too high and the minimum – too low, as it is difficult to state this amount accurately and there isn't either an established system of how to do it, only approximate estimates can be made.

Exercise
An enterprise sells footwear and its annual sales amount to 30,000 pairs of shoes for the price of Ls 20 per pair. The volume of sales is evenly spread throughout the year. Additional products are offered if the level of stock falls to the above stated limit and the delivery lead time is short.

Presently the enterprise is ordering all of its goods from AAA, SIA, and usually the batch ordered consists of 6,000 pairs.

In the final pro-forma invoice of AAA, SIA includes the following information:

6,000 pairs of shoes for Ls 12 per pair.
Delivery costs are Ls 0.75 per pair.

The employee responsible for the procurement calculates that each re-order costs Ls 600 including administrative expenses and control. These expenses do not change even if the re-ordering amount changes.

The enterprise is renting storage areas in a warehouse where the footwear is kept for Ls 90 per year. Each pair of shoes requires 0.25 m2 and it has been estimated that other annual expenses for the storage of 1 pair are Ls 1.

The enterprise has recently started negotiating with another supplier ready to offer a discount in case of ordering larger amounts of goods.

Supplier BBB, SIA

Ordering quantity	Price per pair Ls
1 – 3999	11.75
4000 – 5999	11.50
6000 and above	11.25

Calculate the annual economic ordering quantity if BBB, SIA is selected as a supplier and the gross annual profit if the enterprise continues to purchase its goods from AAA, SIA.

If the enterprise decided to buy from BBB, SIA, prepare an estimate showing deductions from annual sales towards ordering and storage expenses if the ordering quantities are as follows:

the above estimated economic ordering quantity;
4,000 pairs;
6000 pairs.

Decide in favour of the correct option given that the supplier is BBB, SIA is selected.

Describe the limitations of the above mentioned method of analysis.

7.7. Accounts receivable management

Requirement for the management of debtors

Operations of enterprises (involved both in the trade of goods and provision of services and in the production) cannot be visualised in contemporary times without the accounts receivable item as an asset component.

As a result of competition between firms they are forced to offer attractive sales terms to customers including also transactions on the terms of post-payment. As a result of the above enterprises face the need to track the operations with accounts receivable and to control the repayment of the credited funds.

Creation of debtors is related with extra costs – the assets excluded from the sales turnover of a firm must be replaced with profits or borrowed funds (for which interest accrues). Besides, the profit could otherwise be contributed to development or invested by thus receiving additional income. Administration costs are also increasing, because of the need to pay salaries to extra staff for performance of control over outstanding invoices; there are also extra communication costs involved.

It should be also reminded of the losses from writing-down of bad debts due to insolvency or bankruptcy of business partners. The simplest tool in fighting the debtors is to refuse selling the goods to them and to deny the provision of services on credit, but as it was already mentioned an entity is not capable of making customers interested if competitors, on their turn, offer an option like post-payment.

It is therefore important to find the middle road between these two extremes. Because of this important need the activities of debtor management become significant that, if designed and carried out successfully, could bring the maximum economic benefit and a competitive edge to a firm.

The business concept of debtors

Debtors are legal and physical entities that are owing to an enterprise. Accounts receivable, however, are asset items related to the legal rights of an enterprise to receive economic benefits from physical and legal entities.

Classification of debtors is regulated by the Law on Annual Accounts and the distinction is made between the following items:

- trade accounts receivable;

- accounts receivable from related enterprises;
- accounts receivable from associated enterprises;
- other accounts receivable (credit to other enterprises; overpaid tax amounts; advances and loans to employees; unused fuel card balances);
- unpaid shares into the company capital;
- short-term loans to enterprise co-owners and board members;
- prepaid expenses;
- accrued revenue.

The most important item is trade accounts receivable. Sales of goods on credit is mainly used in the wholesale trading and in manufacturing enterprises. In accordance with the accruals principle the transaction results are recognised at the moment of occurring instead of when the cash is collected, i.e., the moment of sales is the moment of the rights of possession and use of the products are transferred to customers irrespective of whether they have been paid for.

Possibilities for the management of debtors

By selling goods or providing services on the terms of post-payment there is a risk that the debts may not be recovered. Therefore enterprises must take care of both the risk of occurrence of doubtful debts as well as of the reduction of the associated effects. Due to the above it is necessary to analyse the methods of assessing the amount of provisions required for doubtful debts as well as the debt management methods (how to recover bad debts, how to prevent such debts from occurring etc.)

Methods of assessing the amount of provisions for doubtful debts

Assessment of the amounts to be written off in provisions for doubtful debts should be based on the information about the probability of trade customer insolvency or analysis of the actual payment of debts in previous periods. For this purpose reports are made in which the data under analysis are summarised, sorted and the necessary estimates are made in accordance with the methods of evaluating the doubtful debts accepted in enterprises. Upon making this analysis the main effort is devoted to the number of delayed payments and their amount in the lat currency. Comparing the results of several analysis and evaluating the possibilities of collection, the required amount of provision is established. However, in some specific cases (if there are any economic turbulences) it would not be acceptable to substantiate the amount of provision by the analysis of the data from previous years, while the possibility of increasing the amount of provision or changing the method of evaluation of doubtful debts in practice should be considered.

The following methods are used for the assessment of doubtful debts:

- The probable insolvency evaluation of each individual debtor.
- Sorting of accounts receivable according to their ‘age’.

- Identifying the percentage of doubtful debts from the total trade accounts receivable balance.
- Identifying the percentage of doubtful debts from the total amount of sales revenue.

The probable insolvency evaluation of each individual debtor

This technique should be applied in enterprises where the number of customers to whom there have been goods sold on credit is low.

Sorting of accounts receivable according to their 'age'

This technique of assessment of the amount of provisions is based on sorting of the outstanding trade debtor invoices according to the term of delay (in days) in payment, by applying the percentages substantiated by the actual results from previous periods to the 'age' groups of the outstanding invoices.

For example, enterprise X has trade accounts receivable in the amount of Ls 55,000. Accordingly a table must be set up outlining the amounts split by the date of debt repayment and the respective percentages based either on the experience from previous periods or similar enterprises must be applied to them.

Estimation of provisions for doubtful customer debts for X, SIA for the year 2004

	Total amount of outstanding invoices	Specified rate of percentage	Provision for doubtful debts
Amounts that are not yet due	31000	0	0
Delay (in days)			
1 – 30	5000	5	250
31 – 60	3500	10	350
61 – 90	4500	20	900
91 – 180	5000	35	1750
181 – 365	3500	60	2100
Due for more than 1 year	2500	90	2250
Total	55000	-	7600

Thus given the above percentage rates and amounts of debt the enterprise must provide for its doubtful debts in the amount of Ls 7,600.

Identifying the percentage of doubtful debts from the total trade accounts receivable balance

Not as time-consuming as the first two methods and therefore also not as accurate. By applying this technique the relationship in percent is estimated between the total bad debt amounts written off over the recent years and the total amount of outstanding

invoices of trade debtors at the end of the same years. The estimated percentage is applied to the balance of trade debtors as of the end of the reporting period.

Identifying the percentage of doubtful debts from the total amount of sales revenue

This is the easiest technique for assessment of doubtful debts. By this technique the direct adjustment amount is assessed for posting as a debit to the account 'Writing off the value of current assets (accrued doubtful debt amounts)' and as a credit to the account 'Provisions for doubtful debts' at the end of the reporting year.

Methods of debtor management, recovery of doubtful debts

The main threat associated with the debts is the outflow of current assets from the enterprise which, on its turn, leads to reduced liquidity. Part of the assets are suspended due to overdue debtors' debts. At the same time the entity has to pay for interest and repay the loan principal. It is important therefore to be aware of the instruments available to the enterprise fro control of doubtful accounts receivable (prevent them from occurring or, if they have occurred, to be able to collect the funds).

In order to avoid a critical financial situation from occurring the financial analysts recommend to draw up regular (monthly, for example) cash flow forecasts and to analyse their fulfilment. For the management of debtors it is necessary to exercises control and analysis after they are overdue.

In business practice several debtor management methods have been established.

ABC method

This method presupposes the segregation of the most significant group of debtors A from the rest. This group includes both the large and the regular customers. For example, there are 10 basic debtors included in Group A constituting 85% of all debts. The largest effort therefore for control, analysis and debt recovery is devoted to these debtors. As soon as the management of the firm are capable of managing Group A, they can pass over to the next, i.e., Group B and then to Group C – the remaining debtors.

Later the register of debtors age is established showing, what amounts are overdue and for what period of time. Also the dynamic analysis is performed. This allows the identification of those periods when any mistakes in the management of debtors have been made.

After that the status as of a specific date is evaluated and the doubtful debts assessed. These are divided by the date of incurring and their percentage from the total amount is identified. Provisions are made for this amount, bad debts are written off into expenses. This allows for the identification of the amount the recovery of which is feasible. If it is find out that the debtor payment terms exceed the period assigned by the creditors an attempt should be made to sign the agreements on more favourable terms.

Classification of debtors

This method provides with the classification of the potential debtors into groups according to certain criteria.

Classification of debtors

Risk group	Customer description	Crediting policy
1.	Large firms with the creditworthiness and credit history posing no treat, regular customers	Without prior approvals credit can be assigned within the specified limit
2.	Financially stable enterprises without credit history with the lenders	Without prior approvals credit can be assigned within the general limits; if requested above the limit the approval of business director required
3.	Financially stable firm with a few problems in its credit history	Limited credit facility with a frequent payment schedule
4.	Unstable firm	Limited amount not exceeding general limits. Careful control required
5.	Weak firms with high risk	None

Based on this table finance managers can individually and quite safely adopt decisions on the assignment of trade credit. Business director takes the decisions on any changes in the credit limits or the terms of their assignment.

However, regardless of how efficient and considerate the measures can be there are no cases in the practice when an enterprise could've fully prevented doubtful debts from occurring. These may occur due to unfortunate matching of circumstances – as a result of fraud by the business partners or due to some activities or the failure to act by the employees. The most wide-spread mistakes on behalf of the organisation are associated with incorrectly processed documents, for example:

- the subject of contract is not precisely stipulated (there are no terms for goods delivery laid down, i.e., at what moment of time the responsibility is transferred to the other party; how would be the quality of goods delivered checked etc.);
- the transportation documents are not processed with due care and therefore it is not clear whether the debtors have received the goods or not;
- the payment date is not specified in the contracts or on the pro-forma invoices which, on its turn, allows debtors to delay their payment of invoices;
- thus if an enterprise is in a difficult situation occurring due to doubtful or bad debts one of the following options should be undertaken:
- recovery of debtors' debts should be arranged for by using the bank factoring or the services of the debt collection firms;
- expenses should be optimised in order to minimise the effect of the debts written off.

As another highly effective means of fighting against bad debts the debtor credit insurance should be mentioned. Since the year 2001 a service called *the debtor credit portfolio insurance* is available in Latvia, which means that any enterprise where debtors play a considerable role has the possibility of insuring either all or a part of the debtors

against insolvency or failure of their contractual liability fulfilment on due date. In fact, by insuring the debtor credit portfolio, the enterprise management at the beginning of each year does not have to worry or to calculate, how much money the firm would lose in the current year on the account of bad debts as the insurance company is undertaking the entire risk on the failure of debtor liability fulfilment, and therefore every enterprise may securely prepare its budget plans and profit forecasts.

On the example of experience of Baltikums, SIA it is possible to see what is the specifics in the case of debtor credit portfolio insurance – the customer submits a request on debtor insurance to insurers together with a list of debtors that it wishes to insure for and other necessary documents. The insurance company defines the credit limit for which it undertakes the risk and pays the insurance remuneration in case of an insurance event. After the disbursement of the insurance remuneration the insurance company takes over the rights for collection of debts from the respective debtor from its creditor and the total amount of insurance is reduced by the amount of remuneration paid.

Baltikums, AAS defines an individual insurance fee for each customer which depends on the level of risk, the degree of credit management efficiency and other factors influencing the possible risk of the insurance event occurrence. The fee for insurance of debtors credit portfolio is 0.4 – 0.8% from the reported sales turnover.

In order to answer the question on what an enterprise gains by insuring the credit portfolio of its debtors the following reasons can be given:

1. There is a possibility to secure the business against bad debt losses.
2. The experts of the insurance firm will provide the necessary advice to the enterprise and improve their debtor management to the level of insurance company standards.
3. The enterprise will have the possibility to plan and to assess its budget and profit.

Currently this type of service is not very popular among enterprises in Latvia.

7.8. Enterprise concerns arising due to inefficient capital structure and lengthy working capital cycle

What problems can happen in an enterprise if the risks are high, the cycle is too long and the enterprise is operating by using an inappropriate capital structure?

They can be as follows:

1- A considerable amount of the enterprise management time is devoted to resolving the liquidity problems (to pay its current debts, fulfil the liabilities) and therefore the management may not effectively devote itself to addressing of other issues (bad liquidity – insufficient cash flows for the fulfilment of liabilities).

2- The loan interest rate increases as the lenders are notified about the increasing operating risk of the enterprise. Crediting institutions that the enterprise has been cooperating with so far may reduce the level of financing of close the credit facilities, due to which the enterprise may have the need to look for new sources of financing in which case the financial risk is even more increasing.

3- The enterprise loses its discounts that it could receive for an earlier payment of invoices, because in the given circumstances the enterprise must use all of its credit terms and it is not possible to receive discounts on a timely payment for the orders.
4- The enterprise is not able to procure its stock in optimal quantities as it has insufficient resources available; and therefore the cost of purchases per unit and the production costs are increasing (goods will be more expensive if ordered in smaller batches). If the enterprise does not have the possibility to purchase sufficient volumes of raw materials this may lead to interruptions in the production process or even to situations when the enterprise is forced to reject the fulfilment of unexpected orders as there are no stocks available to meet them.
5- The enterprise can no longer choose its suppliers who could offer the most favourable prices and a better quality of goods, because the main criteria are associated with the credit terms; suppliers offering the most favourable credit terms may often sell goods at the highest price, while the quality of these goods is quite low. These circumstances may adversely affect both the profit figures of the enterprise and the sales turnover, and the production of bad quality may irreversibly corrupt its reputation.

6- Shortage of liquidity may lead to obsolescence of plant and machinery, as the enterprise may not have sufficient funds for at timely replacement. This concern has 2 aspects:
   - the production costs will increase as the costs of maintenance and repairs of machinery, the useful life of which has expired, will rapidly increase; the increase in the costs of the machinery idle time has to be taken into consideration as the worn-out machinery may unexpectedly fail;
   - the production manufactured by the enterprise may lose its competitiveness, because of inability of the enterprise to replace its machinery, instead of which a more upgraded equipment is already used in this area of industry.
7- Selling at a loss in cases when the products manufactured are sold in a hurry in order to acquire the funds as soon as possible without taking account of profitability; and, besides, it has to be taken into account that as the enterprise by-passes the traditional channels of distribution it risks to lose the already existing distribution network.

All of the above stated problems may occur in the event of the enterprise operating on an inappropriate capital structure; however, only one of these factors, i.e., the increased % payments contribute to the financial risk of the enterprise, the rest contributing to the business risk and adversely affecting the operating profit of the enterprise.

Inappropriate capital structure diminishes the overall competitiveness of the enterprise and alienates it from a potentially successful operation in the market, but this factor, however, is seldom given due significance.

One more important concern is the following: ***excessive sales turnover***.
Excessive sales turnover is a level of turnover when the profit does not increase or even decreases given that the sales are growing.

Consequences of excessive turnover:

1) Enterprise becomes non-liquid. Enterprises have problems with the fulfilment of its daily financial liabilities, for example, the payment of salaries to its employees, repayment of loans, payment of taxes.
2) There is a reduction in profitability and efficiency, and therefore:
    a) the enterprise management must devote a considerable amount of time to resolving the liquidity issues and it cannot address other issues effectively;
    b) the loan % rate is increasing as the lender is notified about the financial position of the enterprise and therefore also about the increasing risk of operation;
    c) enterprise is losing on discounts that could be obtained on earlier payment of invoices;
    d) enterprise cannot afford buying its stocks at an optimal level;
    e) enterprise may no longer choose the supplier as credit terms become the main issue instead of the price or quality of goods;
    f) the situation may lead to obsolescence of plant and machinery, as the enterprise may not have sufficient funds for at timely replacement;
    g) losses are inevitable as the enterprise tries to sell its products faster at a lower price.

There are the following solutions to the problem:

- increasing the capital;

increasing the % rate of profit;

- reduction of investments into fixed assets;
- improvement of control over working capital;
- reducing the scope of operation.

7.9. Exercises

Exercise 1 **Optimal capital structure**

Upon foundation of an enterprise the owners discuss three potential types of capital structure:

- 100% equity capital;
- 80% equity capital, 20% debt capital;
- 60% equity capital, 40 % of loan capital.

The bank interest rate is 15%.
The total amount of funding required is LVL 1.5 million.
Expected sales turnover – LVL 0.8 million.
The tax rate of 0.25% applies.
Compare the return on equity for all three options; and let us assume that the loan financing % rate will increase from 15 to 25%. How would this affect the return on equity and the profit?

Exercise 2 **Identification of capital requirement**

An enterprise plans to produce 1,000 units of products daily; the manufacturing and sales cycle is 45 days.
The cost of materials and labour for 1,000 units of production is Ls 2,000.
The required amount of stock is Ls 5,000 (for 45 days).

The value of equipment – Ls 30,000 (depreciation rate is 10% per annum).
The rent and electricity payments constitute Ls 1,500 per month.
Other costs – Ls 1,500 per month.
What is the amount of initial capital required for the enterprise?
How is it possible to reduce this amount? What is the amount of assets that would be released if the production cycle is shortened by 1 day.

Exercise 3 **Working capital cycle (operating cycle)**
Liquidity ratios of Enterprise 'ABC' have become unsatisfactory in the recent period.
The most recent balance sheet and income statement are as follows:

P&L statement*:*

		Ls
Turnover		452,000
Production costs:		?
Opening stock balance for the period	125,000	
Purchases	341.000	
Closing stock balance	323.000	
Gross profit	?	
Other expenses		132.000
Profit (loss) for the period reported		?

Balance sheet:

Fixed assets	***357.000***	
Current assets		**?**
Stock	143,000	
Accounts receivable	163.000	
Capital and reserves	?	
Equity	100,000	
Retained earnings	158.000	
Long-term liabilities		
Loans	120,000	
Current liabilities	?	
Trade accounts payable	145.000	
Short-term loans	140,000	

The balance of accounts receivable and accounts payable was maintained equal over the entire year.

3. Calculate **the cash cycle** of ABC:
   - the average stock turnover period;
   - the average debt collection period;
   - the average period of payment of creditor invoices,

   assuming that there are 360 days in a year.

4. What measures would need to be taken for improvement of the cash cycle?

7. 10. Questions

1. What is the capital of an enterprise?
2. What is real and fictitious capital?
3. Describe the stages of the enterprise capital turnover process.
4. How is the enterprise capital requirement identified?
5. What are fixed assets?
6. What are current assets?
7. Describe the conservative, balanced and aggressive strategy for management of current assets and short-term liabilities?
8. Describe the working capital cycle and the measures that need to be undertaken for increasing the rate of capital turnover.
9. Describe the concerns of an enterprise arising due to inefficient capital structure and a lengthy working capital cycle.

8. Methods of Capital Investment Project Appraisal

After covering this topic you will be able to evaluate the economical benefits of an investment project through application of quantitative techniques for adoption of decisions on different investment projects by determining the effective project rate of return. These estimates will help to select the most beneficial among several proposals.

8.1. Introduction to investment by an enterprise

As soon as the required amount of capital has been made available in an enterprise investing of capital in the assets required for the enterprise takes place. Capital is invested in means of production, real estate properties, and scientific research projects by enterprises. Adoption of investment decisions is affected by the following factors:

- Type of investment,
- Worth of the investment project,
- Diversity of the investment project,
- Restricted availability of financial resources,
- Investment risks.

The need for investment is be determined by several reasons and are basically as follows:

- Renovation of the enterprise inventory,
- Increase of the production volume,
- Development of new areas of activity.

The degree of responsibility for the choice of an investment project can be different. There is less responsibility if an existing production base needs to be replaced, as the management has a clear idea of how many and what new fixed assets are required. Greater responsibility, however, is involved when a decision regarding the expansion of core activities has to be taken, as several new factors need to be considered:

- Changes in the market position of an enterprise, opportunities for entering into new markets,
- Additional opportunities for involvement of new materials, financial and labour resources.

The issue of the scope of investment is important. Investment activities may give rise to both positive and adverse results that may not always be expressed in numerical value.

Depending on the object of investment several types of capital investment can be distinguished:

- Investment in tangible assets (real),
- Financial investment (nominal),
- Investment in intangible assets.

Investment in tangible assets – land, buildings and constructions; vehicles and machinery; measuring equipment, technical inventory; asset collateral; stock,
Investment expressed in financial terms – targeted investments; current assets; debentures; enterprise equity shares; securities (shares, bonds, drafts, mortgage bonds etc.), credit facilities, loans; proprietary rights (know-how, licences).
Investment in intangible assets – training of staff, scientific research projects, advertising.
Investment can be classified by areas of application as follows:

Type of investment	Purpose (area) of investment
Single investment	Start up of entrepreneurial activity (in tangible assets, in funds)
Replacement investment	Production process, replacement of worn-out production assets
Maintenance investment	Capital repairs, cardinal improvement of fixed assets
Extended investment	Extension of the volume of production means due to sales market considerations
Upgrade investment	To keep the means of production up to the level of technological progress
Rationalisation investment	Relationship between the amount of assets invested in a certain item of equipment and their efficiency
Re-organisation investment	Modification of equipment or its use due to changing production objectives
Other investment	Other production objectives - research laboratories, social objectives, increase of quality

Through its investment policy an enterprise realises its ability to forecast and quickly adapt to the economical development trends.
Risks are sub-divided into:

- Business risks,
- Risks associated with the personality of an individual,
- Risks caused by natural factors.
- Risk is always related to the state of the information provided before adoption of investment decisions. Enterprises may face critical risks, when they do not receive the expected benefits and the costs have to be covered on the account of the entrepreneur himself, as well as catastrophic risks resulting in bankruptcy and loss of investment of an enterprise. The basis for adoption of investment decisions is the comparison of the expected amount of investment and future cash revenue. In order to assess the amount of revenues from investment an estimate of the following indicators should be made:
-
- Amount of investment,
- Capital liquidation value,
- Period of operation of the object of investment,
- Effect of investment on the level of costs in the period following investment,

- Amount of investment is the amount of payment involved in purchase of the object of investment.
- One of the factors ensuring investment efficiency is the positive effect of investment on the amount of operating expenses. This effect can be expressed as an increase in the expense cover due to growing sales volume or reduced costs as a result of streamlining of the production processes.
- Public investment is investment by government into infrastructure development projects for purchase, management of tangible and intangible assets with the purpose of production of other tangible values, provision of services or gaining other social or economic benefits on a continuing basis.
- Public investment scheme is a set of investment projects organised into a government adopted list of projects by allocating the project financing from the state financial resources.
- Objectives and purposes for development of public investment scheme are as follows:
- Coordinate and approve the needs for investment in infrastructure by using the available domestic and foreign resources,
    - Ensure compliance of the projects to be funded with the governmental and industry strategies,
    - Channel the funds to projects bringing the highest benefit to state economy.

Allocate maintenance expenses after implementation of the investment project.
Projects to be included in the public investment scheme should be as follows:

- Investment projects by the government ministries,
- Investment projects by state enterprises,
- Investment projects by local governments,
- National programmes,
- Technical assistance programs directly related to public investment projects,
- Funding for government investment projects shall be procured from:
- State budget,
- Overseas loans at the disposal of government,
- Government guaranteed foreign loans,
- Funds at the disposal of the implemented project,
- Raised government and foreign investment,
- Aid and sponsorship funds, and non-repayable foreign aid assets.

8.2. Adoption of financial decisions on viability of investment projects

In the course of operation an enterprises are continuously in need of additional assets to:

- Replace worn-out equipment,
- Improve quality of services (products),
- Expand business,
- Generate extra capacities.

In the course of the above mentioned processes decisions are to be taken on choice of an investment project or financial decisions on whether the investment projects are worthwhile (viable).

During this process a choice must be made whether the potential investment project should be accepted or rejected, or in a situation where there are several projects – which one of them should be excluded and which should be accepted.

Investment is related to spending either current financial or other assets. This is done with the purpose of gaining larger cash receipts, and therefore – of gaining profits in the following years.

In accounting capital expenditure for purchase of fixed assets are written off gradually over the period of useful life of fixed assets by posting the annual depreciation amounts of fixed assets in the estimates and the respective cost and financial accounts. Within the period of useful life of fixed assets profit or loss estimate from capital investment is being made in the accounts (accounting profit or loss estimate).

At the same time the cash flows from investment differs in terms of timing from the accounting profit estimate due to accounting for fixed asset depreciation. Generally investments require initial outlay of financial resources for purchase of fixed assets. This is over a period of several years followed by cash receipts, including:

a) annual cash receipts from capital investment (net cash income);
b) cash received from disposal of fixed assets (provided they have a disposal value) in the final year of operation.

In order to evaluate investment projects several appraisal methods can be used:

1. The accounting rate of return method (ARR);
2. The payback period appraisal method,
3. The discounted cash flow technique:
   a) the net present value (NPV) method;
   b) the internal rate of return (IRR) method.

In the process of evaluation either any of the foregoing methods, or all together can be applied; it should be taken into account, however, that a situation may arise when the various methods return different conflicting results:

- when taking decision on accepting or rejecting a proposed project one evaluation method could show that the proposal should be accepted while the other method - that the project is not worthwhile enough to be accepted;
- if there are several mutually exclusive investment projects the results obtained under different evaluation methods show the advantages of each project.

8.3. The accounting rate of return method *(ARR method)*

Appraisal of an investment project can be made by comparing the expected accounting rate of return with a pre-determined target (standard) rate. Books on economics provide with several definitions of the term ACCOUNTING RATE OF RETURN (ARR).

The most common is as follows:

Return on investment is assessed by using the following formula:

$$R = P_v / K \cdot 100\%$$

Where:

P_v – average annual profits,

K – average investment

R- accounting rate of return (ARR)

AVERAGE PROFIT is the total amount of profit expected from implementation of an investment project divided by the expected life of the project (in years). Profit is estimated as revenue less cost (including depreciation amounts).

AVERAGE INVESTMENT:

- for fixed assets: ½ of the amount made up by the sum of fixed asset purchase costs and estimated receipts from their disposal in the final year of operation.
- for current assets: average annual amount of current assets required on average in each year of the estimated life of the project.

By using the accounting rate of return method in evaluation of investment projects total returns and profitability are taken into consideration. The principles of key cost estimation for decision-taking purposes are not applied.

Example 1

The following project is evaluated by an enterprise with an approved target accounting rate of return of 20%.

Fixed asset purchase costs	Ls 85,000
Estimated life	4 years
Expected profits (before depreciation deductions):	
Year 1	20,000
Year 2	35,000
Year 3	30,000
Year 4	35,000

The estimated disposal value of fixed assets at the end of operation period will be Ls 17,000, depreciable value – Ls 68,000, annual depreciation amount – Ls 17,000.

By using the accounting rate of return method you are required to assess the following for the investment project planned:

1. Average annual profits:
2. Average investment:
3. ARR:

Conclusion

The expected accounting rate of return from implementation of the investment project is ~ ….. % per year which exceeds the target rate of return approved by the enterprise of ……. % per year. Therefore the results obtained from the accounting rate of return method prove that the proposed investment project should be accepted.

The above mentioned ~…… % is the average accounting rate of return estimated from the average profit and investment values. According to the calculations the estimated rate of return for each year varies depending on:

a) profit of the year in question;
b) book value of investment of the year in question.

Year	Profit (after depreciation) in thousands of Ls	Average value of investment in thousands of Ls	Annual accounting rate of return in %
1			
2			
3			
4			

The accounting rate of return method may be also used for comparison of two or more mutually exclusive investment projects and for selection of the best one based on the evaluation results. In this situation the project with the highest accounting rate of

return is recognised as the best one provided that the expected accounting rate of return as a result of project implementation is higher than the enterprise's pre-defined target rate of return.

Drawbacks to the accounting rate of return method of appraisal:

1. assessment is based on accounting profits and not cash flows;
2. the time value of money is ignored.

Example 2

Two capital investment projects A and B have the same accounting rate of return.

Year	Project A, Profits, Ls	Project B, Profits, Ls
1	0	90,000
2	0	10,000
3	0	10,000
4	120,000	10,000
Average annual profits	30,000	30,000
Original outlay of capital	100,000	100,000
Accounting rate of return	30%	30%

According to the accounting rate of return method both projects are equally acceptable. However, taking into consideration the time value of money it has to be concluded that preference should be given to project B because profits are made earlier in this project. The profit gained in Year 1, 2 and 3 from implementation of Project B could be invested in other projects and more money could be made within a period of time when no profit at all is generated under Project A.

3. The third drawback of the accounting rate of return method is that the other criteria specific to the capital investment projects, for example, the amount of expenditure or profits, are not taken into consideration.

For example, should preference be given to an investment of Ls 100 with a rate of return of 100% or with 50%? Larger investments with lower accounting rate of return can be much more valuable than small investments with higher rate of return.

8.4. The payback period appraisal method

In evaluation of investment projects by the capital (money or other means of payment) payback period appraisal method the time in years it takes the total amount of cash inflow from implementation of a project to recoup in full the original outflow of cash. The payback period thus defined is then compared to:

a) a pre-defined target (maximum) payback period which the investment project cannot exceed; or
b) the payback periods of other mutually exclusive projects where the preference is given to the project with the shortest payback;

The payback period is often being used as the first selection criterion.

For example, if the firm's pre-defined target capital expenditure payback period is 5 years, firstly, the investment projects would be rejected unless their payback periods were compliant to this criterion. Evaluation of the remaining projects would be continued by using other appraisal techniques in order to specify their profitability.

The advantages to the payback period appraisal method are as follows:

a) assessment of cash flow (by taking the opportunity cost into consideration) is made instead of accounting profits;
b) it is simple to use;
c) although in a simplified way, the time value of money is considered as preference is given to the project with shortest payback.

Example 3

Two mutually exclusive investment projects X and Y are evaluated. Cash inflow and outflow under each of these projects would be as follows:

Year	Project X, Ls	Project Y, Ls
0 (Original cash outflow)	-60,000	-150,000
1 (cash receipts)	10,000	40,000
2 (cash receipts)	30,000	60,000
3 (cash receipts)	25,000	40,000
4 (cash receipts)	20,000	30,000
5 (cash receipts)	10,000	30,000
5 Disposal value	5,000	15,000

The enterprise's policy does not accept investment projects with the payback period exceeding 4 years.

You are required to assess the above mentioned projects by using the payback criterion to determine whether they comply with the said criterion, and if they do, which project should be given preference to?

Year	**Project X**		**Project Y**	
	Annual cash flows, Ls	Net cash inflow/ outflow, Ls	Annual cash flows, Ls	Net cash inflow/ outflow, Ls
0				
1				
2				
3				
4				

Project X	**Project Y**
Original cash outflow is recouped in Year …… . Payback period:	Original cash outflow is recouped in Year …… Payback period:

Project ….. should be given preference as it has the …….. payback period.

The payback period appraisal method should not be used on its own in evaluation of investment projects.

Example 4

Fixed asset purchase cost (original cash outflow)	Project P, Ls	Project Q, Ls
	60,000	60,000
Profits (before depreciation)		

Year 1	20,000	50,000
Year 2	30,000	20,000
Year 3	40,000	5,000
Year 4	50,000	5,000
Year 5	60,000	5,000

Original cash outflow under Project P is recouped in Year …… .
Project Q is already recouped in Year ..... . If the payback appraisal technique alone is used to evaluate the investments, Project Q should be recognised as the best option. However, the profits derived from Project P are much higher than profits derived from Project Q.

a) investing Ls 60,000 in Project P will return Ls …… in profits in 5 years;
b) investing Ls 60,000 in Project Q will return Ls …… in profits in 5 years.

The payback period, however, is an important criterion. Long investment payback period means that capital is tied up (continuously engaged) and investment risk is high. In investment evaluation by using the payback appraisal technique also the total amount of profits expected from the project should be taken into account.

8.5. The discounted cash flow technique

8.5.1. Introduction to the discounted cash flow technique

In evaluation of investment projects by using the accounting rate of return method both the time value of money and the opportunity cost of the investment project is ignored.
By using the payback period appraisal method for this purpose the time it takes to recoup the original cash outflow is considered, while the profits that could potentially be gained during the life of the project are ignored.
The discounted cash flow technique is a discounting arithmetic that can be used to evaluate investment projects. ***By using this method both the time value of money and also total profitability and profits are taken into account.*** Therefore, the results obtained in evaluation of investment projects according to the discounted cash flow technique are more accurate than those evaluation results obtained by using the accounting rate of return method or the payback period method.
Discounted cash flow evaluation method has two main features:

a) it looks at the cash flows from implementation of a project and costs that are key in decision-taking, not the accounting profits;
b) the time value of money is taken into account by discounting of all future cash inflows and outflows (estimation of the present value).

It becomes clear as a result of discounting that there is a bigger value per every Ls 1 for those cash flows that occur earlier. For example, Ls 1 earned after one year will be worth more than Ls 1 earned after five years, and so on.
There are two investment evaluation methods using the discounted cash flow technique. These are as follows:

a) the net present value (NPV) method;
b) the internal rate of return method IRR).

8.5.2. The net present value (NPV) method

Net present value is the value obtained by discounting all estimated cash inflows and outflows from implementation of an investment project to its present value. Discounting uses a chosen and approved (target) rate for comparison of all cash inflows or outflows (for example, the cost of capital rate).

In this method all discounted cash inflows and outflows related to a particular project are compared on a common basis.

Net present value is the discounted cash inflows minus discounted cash outflows.

If the net present value is a *positive figure*, it means that cash inflows from investment will yield a return in excess of the opportunity cost of capital, and so the project should be undertaken.

If the net present value is a negative figure, it means that cash inflows from investment will yield a return below the opportunity cost of capital, and so the project should not be undertaken.

If the net present value is exactly zero, it means that the cash inflows from a capital investment will yield a return which is exactly the same as the opportunity cost of capital, and so the project will neither return profit nor make a loss.

Net present value (discounted net profit) This is the cash equivalent now of a sum of receipts generated by a project over its estimated life. This is calculated by deducting the present value of cash outflows (P_{vcost}) from the present value of cash inflows (P_{vrec}). This may include two different groups of present value calculations:

$NPV=P_{vrec} - P_{vcost}$

Example 5

Below is given the information about a project. You are required to calculate NPV at a discount rate of 8%.

Year	Cost of capital	Production costs	Receipts
0	10,000		
1		4,000	8,000
2		4,000	8,000
3		4,000	8,000

Method 1 – independent discounting of cash inflows and cash outflows.

Year	Total costs (Ls)	Discount factor	Present value (Ls)	Total receipts (Ls)	Discount factor	Present value (Ls)
0	10,000					
1	4,000			8,000		
2	4,000			8,000		
3	4,000			8,000		
PV of costs =				PV of receipts =		

NPV of the project =

Discount factor is established from the discount rate and the investment payback period. It is much easier to find the difference between costs and receipts for each year separately. After that the net cash flow in each year individually is discounted to arrive at the NPV. As in this way the amount of discounting calculations is reduced, the other method is more often used. By applying the second method the net present value of cash flow can be negative at the first phase of project implementation (negative values are discounted in the same way as positive values). There are no problems as long as full numbers of negative or positive values are entered. Thus the NPV of a project is established from the total amount of the year of discounting.

NPV=PV(Receipts – Costs)

Method 2 – discounting of net cash flow

Year	Receipts (Ls)	Cost of capital (Ls)	Production costs (Ls)	Net returns (Ls)	Discount factor 8%	Present value (Ls), PV
0		10,000		10,000		
1	8,000		4,000	4,000		
2	8,000		4,000	4,000		
3	8,000		4,000	4,000		
			Net present value (NPV) =			

The net present value calculation method takes account of both the cost of capital and its production costs and generally does not differ from other discounted cash flow methods.

Project NPV varies depending on the discount rate. Usually the higher the rate is the smaller NPV. Project must be accepted at the given discount rate if NPV is positive, i.e.,

NPV>0 - Accept

NPV<0 - Reject

NPV=0 – Break Even Situation

Example 5a

There is an investment project under evaluation after implementation of which the following cash flows are expected:

Year	Ls
0 (Original cash outflow)	-100,000
1	60,000
2	80,000
3	40,000
4	30,000

The cost of capital rate of the enterprise is 15 percent.

You are required to assess the net present value of the project and to determine whether the project is acceptable.

Year	Cash flows, Ls	Discount factor 15%	Discounted value, Ls
0.	-100,000		
1.	60,000		
2.	80,000		
3.	40,000		
4.	30,000		
Net present value			

Note The discount factor to be applied to present amounts of cash payable or cash receivable is always 1.0. The present is defined as Year 0.
Discounted cash inflows exceed cash outflows by Ls …….. It means that returns from the project implementation will be by ..... percent higher. Therefore the project should be ……..

Example 6

An enterprise manufactures product X that is sold at a price of Ls 5 per unit. Variable production costs are currently Ls 3 per unit, fixed costs – Ls 0.50 per unit. There is an option to purchase a new machine for Ls 90,000 for manufacturing of product X. In that case the variable cost would only be Ls 2.50 per unit, while the fixed cost would increase by Ls 75,000 per year (annual cash outflow). It is anticipated that the useful life of the machine would be 4 years and that at the end of its operating period it could be sold for Ls 10,000. It has been estimated that 75,000 units of product X would be sold annually.
If the enterprise wants to make a return on its investment of at least 15%, would it be necessary to purchase the machine? /Please, do not take any tax into consideration/

1. *First*, the costs that are key to decision taking should be sorted out. Any changes related to future cash flows that could directly arise from this decision, should be taken into account.
The following economy would be achieved:
The following additional costs would be required:
Thus, the net amount of economy would be ……(depreciation of fixed assets is not a cash expense item and therefore should not be taken into account).
It is expected that at the end of Year 4 the machine would be sold for Ls 10,000.

Second, the net present value needs to be calculated.

Year	Cash flows, Ls	Discount factor 15%	Discounted value, Ls
0	-90,000		
1			
2			
3			
4			

Net present value is a …….. figure. It is expected that the enterprise by implementing this particular investment project would earn more by ……% per year. Therefore the project should be ……...

Conventions used in the discounted cash flow appraisal technique
The following guidelines are applied as a general rule:

a) a cash outlay occurring at the beginning of an investment project is considered to be a cost in Year 0; the present (discounted) value of any Ls 1 that is spent (or received) now, i.e., in Year 0 , is Ls 1;

b) a cash inflow, outlay or saving occurring during the course of one year is assumed to occur at the end of the year. For example, the cash receipt during Year 1 of Ls 10,000 is considered to occur at the end of Year 1;
c) a cash outlay or receipt occurring at the beginning of the year are considered to occur at the end of the previous year. Therefore a cash outlay of Ls 5,000 at the beginning of Year 2 is considered to occur at the end of Year 1.

Regular (annual) payments

The calculation (the net present value calculation) in Example 6 could be streamlined in respect of the period of Years 1–3 by calculating the net present value as follows:

30,000 x 0.870
\+ 30,000 x 0.756
\+ 30,000 x 0.658
= 30,000 x 2.284

Where there is a constant cash flow form year to year occurring (in this case there is a constant payment of Ls 30,000 per annum in Years 1–3) it is quicker to calculate the present value by using the discount factors for the individual years added together. The sum of the discount factors of Ls 1 at the end of Year 3 is 2.284 at the discount rate of 15%.

8.5.3. The internal rate of return (IRR) method

Using the net present value method of discounted cash flow the cash inflows and outflows expected from implementation of a project are discounted to their present value with the help of a self-adopted (target) rate for comparing the receipts and outlays on a common basis (for example, the cost of capital rate) and afterwards the difference between the discounted cash flows – the net present value, is calculated.

In contrast, by using the internal rate of return method in evaluation of investment projects the attempt is to calculate the rate of return at which the net present value equals the value of the original capital outlay and the net present value is zero.

If this calculated rate of return (internal rate of return) exceeds an adopted target rate of return, the project should be accepted.

Without the help of computers or appropriate calculator programs, the estimation of the internal rate of return is made using a hit-and-miss technique known ***as the interpolation method***.

Under the interpolation method two different net present values are calculated, both as close as possible to zero, using rates for the cost of capital expressed in whole numbers. Ideally, one NPV should be positive and the other negative.

In order to be able to calculate the required net present values, several attempts may be needed to select satisfactory rates for the cost of capital (that is, rates for the cost of capital which are close to the adopted internal rate of return).

Internal rate of return (IRR) This method presupposes that the investors have a preliminary knowledge of an acceptable project rate of return. Based on several different rates of return by way of elimination the rate that is indeed acceptable to the investment project in question is identified. The rate of return found this way (internal rate of return)

is compared to investor's target rate of return and conclusions about profitability on the investment project are made.

- ✓ if the internal rate of return exceeds the target rate of the investor, the investment is beneficial;
- ✓ if the internal rate of return is below the target rate of the investor, the investment is not beneficial.

Internal rate of return of an investment project is calculated as an interest rate at which the net present value (NPV) is zero, which means that at a certain discount rate the project would pay back to the extent of the capital used but will not give extra return.

Therefore, ***the internal rate of return is defined as a discount rate which makes the net present values of cash outflows and inflows equal***.

Discount rate can be adjusted until the NPV reaches zero without splitting up the discount rate into units below 1 percent. In this case the rate is obtained by using the hit-and-miss exercise or interpolation.

Arithmetic calculation for interpolation, using 2 discount rates – one resulting in a positive NPV and the other - in negative NPV, is as follows:

$$IRR = r1 + \frac{(r2-r1)*NPV_1}{(NPV_1 - NPV_2)},$$

where r1 – the lowest discount rate,
r2 – the highest discount rate,
NPV1-NPV2 at the lowest and the highest discount rate

Two different net present values are calculated, both as close as possible to zero, using various rates for the cost of capital expressed in whole numbers. Preferably, one of the net present value (NPV) figures should be positive and the other – negative.

In order for the project to be acceptable, the internal rate of return ratio should be higher than the interest rate of borrowed capital or the cost of capital defined by the investor. Usually the minimum required IRR is allowed to be higher than the cost of capital due to project risk considerations.

One of the advantages of this figure is that it can be used as a reference as it takes into account the future cash inflows and outflows, the factor of impairment of the value.

One of its drawbacks is that the IRR figure is not dependent on the size of the financing. It has to be also admitted that the calculation of the exact IRR figure is only possible with the help of a computer where there is a module incorporated in MS Excel for calculation of IRR. Approximate IRR figures may be calculated with the use of a graph.

Example 7

Decision is being taken on whether an enterprise should purchase a machine costing Ls 80,000 which would reduce the costs in 5 consecutive years by Ls 20,000 per year and which would be sold at the end of Year 5 for Ls 10,000.

What is the internal rate of return of the investment project?

First of all the rate of the cost of capital should be determined at which the net present value would be zero.

Option 1 If the rate of the cost of capital is 10%.

Year	Cash flows, Ls	Discount factor 10%	Discounted value, Ls
0	-80,000		

1-5	20,000		
At the end of Year 5	10,000		
Net present value:			

This is already quite close to zero. As the net present value arrived at is a positive figure, it means that the actual internal rate of return is higher by 10 percent.

Option 2 If the rate of the cost of capital is 15%.

Year	Cash flows, Ls	Discount factor 15%	Discounted value, Ls
0	-80,000		
1-5	20,000		
At the end of Year 5	10,000		
Net present value:			

This figure is negative. Therefore the actual internal rate of return is above …….%. (NPV = ……..), but below ……..% (NPV = ……).

Which method should be chosen – NPV or IRR?

Essentially each evaluation method provides additional information about the investment project.

The accounting rate of return and the payback period method is used to:

1. exclude those projects that are obviously inappropriate;
2. evaluate small in size or short-term projects;
3. determine the risk and liquidity levels as well as to select out of two projects with the same NPV the one with the shortest payback period.

The NPV method shows the generated project value and describes return on capital investment. NPV is basically used to evaluate long-term investment projects.

If contribution of capital is planned in parts over a longer period of time the NPV method is more appropriate.

Both the IRR method and the NPV method provide information about 'the risk free margin reserve' as they both calculate what yield there is from each lat invested in the project.

When mutually exclusive projects are evaluated all risks and their impact on the project results should be considered, also called the sensitivity analysis.

8.6. Advantages and disadvantages of the project appraisal methods

The accounting rate of return method	
Advantages	Disadvantages
• Simplicity	• Based on accounting profits and value of assets, and not cash flows; • The costs key in the process of decision-taking are not taken into account (opportunity cost) as well as the value of the assets in the enterprise; • The time value of money is ignored.
The payback period method	

Advantages	Disadvantages
• Simplicity; • Although in a simplified way, but still the time value of money is taken into consideration.	• The amount of overall profits (receipts) that the investment project may yield is not taken into consideration
The discounted cash flow technique: the net present value method and the internal rate of return method	
Advantages	Disadvantages
• The costs key in the decision-taking process are taken into account; • The time value of money is taken into account; • The overall profitability and profits of the capital investment project are taken into account.	• Difficulties may arise in understanding of the basic concepts of the discounted cash flow technique, for example, the net (present) value; • Easy to mix up the accounting profits with the net present value; • In the course of defining the internal rate of return without the help of a computer, but using the interpolation method instead, the results arrived at may not be completely accurate.

Exercises and examples

Exercise 1

A firm is considering an option to market a new product. The total amount of original investment for the manufacturing of the new product is Ls 200,000. A project life cycle of 5 years is estimated, and at the end of the project life cycle the book value of the product manufacturing equipment would be Ls 0. A market survey shows that there is a 70% probability that the demand for the new product will be high and a 30% probability that the demand for the product will be low.

The estimated cash flow is as follows:

	High demand, thousands of Ls	**Low demand, thousands of Ls**
Year 1	60	50
Year 2	62	50
Year 3	65	50
Year 4	70	50
Year 5	70	50

The minimum required rate of return on investment required by the enterprise is 10% p.a.

Solution to the exercise

Originally the calculations will be done based on the high demand estimate. Original investment is usually defined as cost in Year 0 and are discounted at the discount factor 1 (or not discounted at all).

By using the NPV method and a 10% rate of return the net present value of the cash flow is as follows:

	Cash flow, thousands of Ls	**Discount factor at 10%**	**Present value, thousands of Ls**

Year 0			
Year 1			
Year 2			
Year 3			
Year 4			
Year 5			

As the ……, it must be concluded that the project would be beneficial if the demand for the product is high.

	Cash flow, thousands of Ls	**Discount factor at 18% !!!!**	**Present value, thousands of Ls**
Year 0	-200,000		
Year 1	60,000		
Year 2	62,000		
Year 3	65,000		
Year 4	70,000		
Year 5	70,000		
			NPV
	Cash flow, thousands of Ls	**Discount factor at 19%**	**Present value, thousands of Ls**
Year 0	-200,000		
Year 1	60,000		
Year 2	62,000		
Year 3	65,000		
Year 4	70,000		
Year 5	70,000		
			NPV

As the NPV at 19% is …… , then the IRR of the cash flow lies between ….. % and ……..%, but closer to ……%.

Therefore, the closest whole number to IRR is ……..%. This accuracy in most cases is sufficient by taking into account that cash flows are only estimates and can never be, therefore, fully accurate.

IRR confirms the resulting figure of NPV: as the IRR…..% > minimum rate of return required by the enterprise (10%), then in the case of a high demand the project should be ……...

Exercise 2

Description of projects

The management of a food production firm considered two mutually exclusive investment projects A and B for an upgrade of fixed assets.

Project conditions:

- *the amount of financial investment in each of the projects is Ls 30,000;*
- *the expected payback period – 4 years;*

- *any calculations are made at the end of year;*
- *accounting rate of return - 30%;*
- *cost of capital is 6% per year;*
- *IRR must exceed the cost of capital.*

Project A

Year	***Year 0***	***Year 1***	***Year 2***	***Year 3***	***Year 4***	***Total***
Profit after tax	*0*	*-2,500*	*500*	*11,500*	*21,000*	***30,500***
Net cash flow	*-30 ,000*	*- 1,500*	*100*	*11,000*	*20 ,900*	***500***

Project B

Year	***Year 0***	***Year 1***	***Year 2***	***Year 3***	***Year 4***	***Total***
Profit after tax	*0*	*-400*	*7,400*	*12,500*	*16,500*	***36,000***
Net cash flow	*-30,000*	*-500*	*9,500*	*12,000*	*16,000*	***7,000***

Algorithm for calculation of NPV:

1. Each item of the cash flow is being discounted by taking into account the cost of capital of the respective project ;
2. Discounted cash flow items are added up and therefore we can calculate the NPV (NPV should be > 0).

We compare the NPV with the other project.

Project A

Year	**Net cash flow**	**Discount factor (6%)**	**NPV**
0			
1			
2			
3			
4			
Total			

Project B

Year	**Net cash flow**	**Discount factor (6%)**	**NPV**
0			
1			
2			
3			
4			
Total			

It is seen from the calculation that the NPV is positive only in the case of Project ... , while Project ... should be excluded from considering further.

you have to find r_1 at which the $NPV_1 >= 0$ and r_2 at which the $NPV_2 <= 0$

Example
Project B

Year	Net cash flow	Discount factor (6%)	NPV_1	Discount factor (7%)	NPV_2
0					
1					
2					
3					
4					
Total					

IRR =
it satisfies the requirements of the exercise – the IRR exceeds the cost of capital:
calculation of IRR is difficult if during the project several investments are made.

Example 1 ***Choice of the timelines for project evaluation***

Let us assume that there is a long-term investment project under consideration with the estimated operating period of 20 years and a steady production period of 15 years. The project is partially financed from the private funds of the owner and partially by using a bank loan. The estimated loan repayment period is 5 years starting from the beginning of the project implementation.
By evaluating this project from the commercial point of view several project evaluation timelines can be chosen. And thus, the overall project efficiency in the whole operating period is of interest. In order to resolve the task the project efficiency over a period of 20 years should be analysed.
It is planned to invest the private assets of the owner and therefore the interests of this party must be properly assessed. Investors would probably be interested in the estimated return on capital invested for the period which is equal to the operating cycle. However, investors would probably be even more interested to see the effect gained from the assets invested already in a much shorter period. The timing of any returns on asset investment expected by the investors should be clarified with the 'primary sources', i.e., from the investors themselves. While working with the owners of different enterprises the following statement can often be heard: 'I would be interested in investing in the reconstruction of this factory if the cash invested could be recouped in 4 years time'. This means that mainly the owners are clearly aware of the results they expect from the capital invested.
It is also planned to invest assets from a financial loan into the project. The lending party is interested in the outcome of the project only to the extent of the loan contract period. Therefore, the lending party is interested in the analysis of the project indicators referring to 5 years – the loan agreement period.
As it can be seen from the case analysis there can be at least three project evaluation timelines for this particular project and for each of them the efficiency indicators (NPV, IRR) need to be determined.

Example 2 ***Real evaluation of the options for reconstruction of a production unit***

In this case an enterprise offers investors to assess two options for reconstruction of a production unit. Which reconstruction option would be more beneficial?
Under the first option the required amount of investment is USD 100,000 when the volume of output could increase from 20 to 40 thousand units of production per month.
Under the second option the amount of the investment required would be USD 200,000, and in this case the output of the same production could increase from 35 to 75 thousand units per month. From the figures given above it can be concluded that the enterprise can increase the output of production to 35 thousand units per month without raising additional investment.

Therefore, the actual increase of production under the first option would only be 5 thousand units of output per month by investing USD 100,000, while under the second option the output is increased by 35 thousand units per month by investing USD 200,000.
An airline requested a consultancy firm to determine whether it would be worthwhile to invest assets in reconstruction of an airport. In order to answer this question the consultancy firm must clarify a few issues.

- For what purposes is the upgrade planned and what would take place in the airport after reconstruction?
- What is the objective of such reconstruction?

If the purpose of the upgrade is the construction of an additional terminal that would allow for an increase in the number of passengers and the turnover of cargo, i.e., the number of flights, then additional return from the project would be the amount of passenger taxes as well as the increase in the amount of taxes from the flights served (taking off, landing, slots, technical inspection).

If as a result of the upgrade it is planned to lease out a part of the airport then the lease fees would constitute additional return.
The project is going to have also extra costs - additional operating costs for maintenance of the new terminal, salaries of the extra staff, costs of maintenance and repairs of the new inventory, additional administrative costs; all of these costs must be recorded as the current project costs.
If the purpose for upgrading the airport is due to the risk of losing a share of the passenger throughput due to poor technical conditions it would be more beneficial to maintain the existing turnover of passengers and cargo. In this case in particular the return from the project is the retained capacity of passenger and cargo carriage. Costs would be made up by any outlay of assets related to retaining of the existing carriage capacity.

Example 3 ***Wrong evaluation of the project profitability due to inaccurate information on the timing of the project***

The summary of the preliminary project evaluation is provided in Table 1.
A loan has been requested in the project. Both the project developers and the bank specialists agree that the efficiency level of the project is sufficient. This conclusion is based on the generally known rule - if the value of the IRR exceeds the cost of the credit resources the project has a sufficient potential to provide for the repayment of the loan

resources. The IRR achieved in the project of 30% exceeds the cost of the credit resources of the defined target 5% per annum.

Table 1 Summary of the preliminary project evaluation

Position item	Preliminary evaluation
Payback period	2.5 years
NPV	110,000 CU
IRR	15%

Upon further exploration of the project it turned out that the business plan developed by the enterprise specialist is for a period of four years, while the term of the loan contract negotiated with the bank is 2.5 years. Therefore, the data on IRR and NPV given in Table 1 describe the four year project. In order to evaluate the potential of the project to repay the loan it is necessary to develop a business plan for 2.5 years.
After its review it turned out that the IRR of the project is only 4% (see Table 2) which means that the possible repayment of the loan in 2.5 years causes certain doubt.

Table 2 Summary of the finalised project evaluation

Position item	Preliminary evaluation	Finalised evaluation
Length of the project according to the business plan	4 years	2.5 years
Repayment period (Term)	2.5 years	2.5 years
NPV	110 mln CU	40 mln CU
IRR	15%	4%

A similar situation – wrong evaluation of the project profitability can be faced with the NPV figure

By following the rule 'if NPV > 0, the implementation of project is worthwhile, if NPV< 0, the implementation of project is not worthwhile', the importance of the project can be forgotten. For example, is a project with the NPV of 1 mln currency units attractive? If such an outcome is achieved over a period of 3 years, the implementation of the project would be justified. If such an outcome is achieved over a period of 30 years, the project would not be sufficiently attractive.

Table 1: Present value table

Present value of £1 i.e., $\frac{1}{(1+r)^n}$

where: r = discount rate
n = number of periods until payment

Discount rates (r)

Periods (n)	**1%**	**2%**	**3%**	**4%**	**5%**	**6%**	**7%**	**8%**	**9%**	**10%**	
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	1
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	2
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	3
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	4
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	5
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	6
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	7
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	8
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	9
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	10
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	11
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	12
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	13
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	14
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	15
	11%	**12%**	**13%**	**14%**	**15%**	**16%**	**17%**	**18%**	**19%**	**20%**	
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833	1
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694	2
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579	3
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482	4
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402	5
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335	6
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279	7
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233	8
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194	9
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162	10
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135	11
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112	12
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093	13
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078	14
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065	15

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