

MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION

Nizhny Novgorod State University named after N.I. Lobachevsky

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**FINANCIAL MANAGEMENT  
IN OIL AND GAS COMPANIES**

Manual

Recommended by Methodological Commission Faculty of Finance  
for students of ERANET MUNDUS programme

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This manual contains requirements to mastering level of Financial Management in Oil and Gas companies course contents, as well as training materials, practical examples and materials for students self-guided work

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## Course Requirements and Policies

**The goal of course** Financial Management in Oil and Gas Companies is to familiarize students with the techniques used in financial decision making in Oil and Gas Industry in Russia and other petroleum countries. We'll be investigate the key financial choices of a corporation and their impact on the overall strategy of the company, including financial analysis, capital structure choice, payout policy, value creation, budgeting, international financial management. As well we'll be explore the following issues as questions that need to be reviewed for financial management of the company: quantitative methods of finance, research methodology, global financial markets, global strategic management.

**Educational and professional requirements for discipline.** According to State Educational Standards requirements to basic educational program mandatory minimum content for professional economists, specializing in "Finance and Credit", after successfully completing "Financial management in Oil and Gas Industry" course a graduate must:

- have a notion** of investments economic content as well as an enterprise investment activity, enterprise investment resources buildup management process content, company activity financing instruments, company capital structure main theories.
- **know** principles and formation order of in-house enterprise investment resources, enterprise payout policy, principles and formation order of borrowed enterprise investment sources, management, formation and restructuring of company investment portfolio.
- **be able to** evaluate, analyze, plan and forecast enterprise financial policy to reach the purpose in view.

**The objectives of the discipline.** Study of this discipline aims at the formation of students ' professional knowledge in the field of financial and investment activities of the companies in Oil and Gas Industry. The objectives of the discipline are:

- comprehensively master the knowledge of the financial management of the enterprise;
- study of enterprise financing instruments, principles of formation of optimum capital structure of companies, the principles of the formation of the company's payout policy;
- apply the knowledge gained in the practice of financial work.

According to the results of the course study, students should understand the financial policy enterprise in modern economic conditions, its relationship with external (market) environment, the investment market and arrangements for its functioning, tools and investment goals, investment process, internal and external sources of financing company, principles of formation of optimum capital structure of the company.

**Attendance** is mandatory. **You can have a maximum of two unexcused absences. Each subsequent absence will result in a one point deduction from the final grade.** A doctor's note or a documented family emergency are the only valid excuses for missing class.

You are expected to come to class ready to discuss the assigned materials. Do not fall behind with the reading.

**Participation** In-class discussion is an essential component of this course. I encourage you to voice your opinion, question (or defend) the established truths, propose alternative interpretations. Participation will constitute 20% of your final grade.

**Academic Honesty** All work that you submit must be your own. Plagiarism and cheating will not be tolerated in any form. Note that, given the current technologies, plagiarism is easily detectable! I reserve the right to request: (1) an electronic version of your paper to be checked by anti-plagiarism software; (2) a detailed (and verifiable!) list of the sources that you have used for it. To avoid complications, (1) always acknowledge the source of the borrowed information and ideas and (2) provide detailed references in your bibliography. If you are not sure how to quote and correctly incorporate someone else's ideas in your work, do not hesitate to consult with me.

**Record Keeping** I suggest that you keep the graded assignments and retain copies of the materials that you turn in. This will be the evidence of your work and grade should there be a discrepancy in our records. "Lost papers" are your responsibility.

**Make-up Examinations** Make-up tests will be given **only** in the case of illness (accompanied by a formal medical excuse).

**Assignments and Grading** There will be three written exams in this class (15% of your final grade each), a 20-30 page research paper (30% of your grade), a 2-3 page paper proposal (5%). The exams will be non-cumulative; they will cover the material from the lectures, discussions, and assigned readings.

The research paper must investigate the topic. **Your analysis should consist of three parts.** First, you have to describe the current situation in the field of study in the companies in your country. Secondly, thoroughly discuss the factors that may facilitate situation. Finally, based on the above analysis, recommend *specific* and *realistic* reforms that companies need to implement to advance the situation. More specific instructions will be provided in class.

The paper is **due on ...** Late submissions will be penalized by half of a letter grade per day. *Start researching your topics immediately!* A detailed paper proposal, constituting 5% of your grade, is **due on ...** *To be successful, most of your research must be completed by that date.* The proposal must (1) clearly elaborate your research question; (2) summarize the thesis of the paper; (3) thoroughly outline the tentative structure of your argument (i.e., the main points); and (4) provide a detailed list of preliminary bibliography.

### **Grading summary:**

Exams .....	3*15 points	90-100% → 5 (excellent)
Research paper.....	30 points	80-89% → 4 (good)
Paper proposal .....	5 points	70-79% → 3
Attendance.....	-1point per unexcused absence after 2 absences	>70% → fail
Participation.....	.....20 points	

### **Data sources and key literature**

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3. Johnston D. Oil Company Financial Analysis in Nontechnical Language (Pennwell Nontechnical Series), 1992.- 300 p. ISBN-10: 0878143742
4. Inkpen A., Moffett M.H. The Global Oil & Gas Industry: Management, Strategy and Finance, PennWell Corp., 2011 – 455 p. ISBN-10: 1593702396
5. Ketchen D. Research Methodology in Strategy and Management, Volume 2 (Research Methodology in Strategy and Management) / Emerald Group Publishing Limited, 2005. – 300 p. - ISBN-10: 0762312084
6. Silvia J. Dynamic Economic Decision Making: Strategies for Financial Risk, Capital Markets, and Monetary Policy / Wiley Finance, 2000. – 381p. ISBN-10: 0470920513
7. Stegmann J.P. Strategic Value Management: Stock Value Creation and the Management of the Firm / Wiley Finance, 2009. – 298 p. ISBN-10: 047046710X
8. Teall J., Hasan I. Quantitative Methods for Finance and Investments / Wiley-Blackwell, 2002. – 296 p. ISBN-10: 0631223398
9. Wahlen M., Baginski S.P., Bradshaw M. Financial Reporting, Financial Statement Analysis and Valuation: A Strategic Perspective / South-Western College Pub, 2010. - 1296 p. ISBN-10: 0324789416

# **1. Financial management: discipline logic, structure, main ideas**

## **1.1 Essence of financial management under the contemporary economic conditions**

Financial Management means planning, organizing, directing and controlling the financial activities such as procurement and utilization of funds of the enterprise. It means applying general management principles to financial resources of the enterprise.

### **Scope/Elements:**

1. Investment decisions includes investment in fixed assets (called as capital budgeting). Investment in current assets are also a part of investment decisions called as working capital decisions.
2. Financial decisions - They relate to the raising of finance from various resources which will depend upon decision on type of source, period of financing, cost of financing and the returns thereby.
  - a. Dividend decision - The finance manager has to take decision with regards to the net profit distribution. Net profits are generally divided into two: Dividend for shareholders - Dividend and the rate of it has to be decided.
  - b. Retained profits - Amount of retained profits has to be finalized which will depend upon expansion and diversification plans of the enterprise.

## **1.2 Objectives and function of financial management**

### **Objectives of Financial Management**

The financial management is generally concerned with procurement, allocation and control of financial resources of a concern. The objectives can be -

1. To ensure regular and adequate supply of funds to the concern.
2. To ensure adequate returns to the shareholders which will depend upon the earning capacity, market price of the share, expectations of the shareholders.
3. To ensure optimum funds utilization. Once the funds are procured, they should be utilized in maximum possible way at least cost.
4. To ensure safety on investment, i.e, funds should be invested in safe ventures so that adequate rate of return can be achieved.
5. To plan a sound capital structure-There should be sound and fair composition of capital so that a balance is maintained between debt and equity capital.

### **Functions of Financial Management**

1. **Estimation of capital requirements:** A finance manager has to make estimation with regards to capital requirements of the company. This will depend upon expected costs and profits and future programmes and policies of a concern. Estimations have to be made in an adequate manner which increases earning capacity of enterprise.



2. **Determination of capital composition:** Once the estimation have been made, the capital structure have to be decided. This involves short- term and long- term debt equity analysis. This will depend upon the proportion of equity capital a company is possessing and additional funds which have to be raised from outside parties.
3. **Choice of sources of funds:** For additional funds to be procured, a company has many choices like-
  - a. Issue of shares and debentures
  - b. Loans to be taken from banks and financial institutions
  - c. Public deposits to be drawn like in form of bonds.
 Choice of factor will depend on relative merits and demerits of each source and period of financing.
4. **Investment of funds:** The finance manager has to decide to allocate funds into profitable ventures so that there is safety on investment and regular returns is possible.
5. **Disposal of surplus:** The net profits decisions have to be made by the finance manager. This can be done in two ways:
  - a. Dividend declaration - It includes identifying the rate of dividends and other benefits like bonus.
  - b. Retained profits - The volume has to be decided which will depend upon expansional, innovational, diversification plans of the company.
6. **Cash Management:** Finance manager has to make decisions with regards to cash management. Cash is required for many purposes like payment of wages and salaries, payment of electricity and water bills, payment to creditors, meeting current liabilities, maintainance of enough stock, purchase of raw materials, etc.
7. **Financial controls:** The finance manager has not only to plan, procure and utilize the funds but he also has to exercise control over finances. This can be done through many techniques like ratio analysis, financial forecasting, cost and profit control, etc.

### ***1.3 Categories of forecasting methods, utilized in the financial management***

Forecasting is the process of making statements about events whose actual outcomes (typically) have not yet been observed. A commonplace example might be estimation of some variable of interest at some specified future date. Prediction is a similar, but more general term. Both might refer to formal statistical methods employing time series, cross-sectional or longitudinal data, or alternatively to less formal judgemental methods. In any case, the data must be up to date in order for the forecast to be as accurate as possible.

#### **Categories of forecasting methods:**

##### **1. Qualitative vs. quantitative methods**

Qualitative forecasting techniques are subjective, based on the opinion and judgment of consumers, experts; appropriate when past data is not available. It is usually applied to intermediate-long range decisions. Examples of qualitative forecasting methods are:

- informed opinion and judgment,

- the Delphi method,
- market research,
- historical life-cycle analogy.

**Quantitative forecasting models** are used to estimate future demands as a function of past data; appropriate when past data are available. The method is usually applied to short-intermediate range decisions. Examples of quantitative forecasting methods are:

- last period demand,
- simple and weighted moving averages (N-Period),
- simple exponential smoothing,
- multiplicative seasonal indexes.

## **2. Naïve approach**

Naïve forecasts are the most cost-effective and efficient objective forecasting model, and provide a benchmark against those methods, where more sophisticated models can be compared. For stable time series data, this approach says that the forecast for any period equals the previous period's actual value.

## **3. Reference class forecasting**

Reference class forecasting was developed by Oxford professor Bent Flyvbjerg to eliminate or reduce bias in forecasting by focusing on distributional information about past, similar outcomes to that being forecasted. Daniel Kahneman, Nobel Prize winner in economics, calls Flyvbjerg's counsel to use reference class forecasting to de-bias forecasts, "the single most important piece of advice regarding how to increase accuracy in forecasting."

## **4. Time series methods**

Time series methods use historical data as the basis of estimating future outcomes:

- moving average;
- weighted moving average;
- exponential smoothing;
- autoregressive moving average (ARMA);
- autoregressive integrated moving average (ARIMA) e.g. Box-Jenkins;
- extrapolation;
- linear prediction;
- trend estimation;
- growth curve.

## **5. Causal / econometric forecasting methods**

Some forecasting methods use the assumption that it is possible to identify the underlying factors that might influence the variable, being forecasted. For example, including information about weather conditions might improve the ability of a model to predict umbrella sales. This is a model of seasonality which shows a regular pattern of up and down fluctuations. In addition to weather, seasonality can also be due to holidays and customs such as predicting that sales in college football apparel will be higher during football season as opposed to the off season.

Casual forecasting methods are also subject to the discretion of the forecaster. There are several informal methods which do not have strict algorithms, but rather modest and unstructured guidance. One can forecast based on, for example, linear relationships. If one variable is linearly related to the other for a long enough period of time, it may be beneficial to predict such a relationship in the future. This is quite different from the aforementioned model of seasonality whose graph would more closely resemble a sine or cosine wave. The most important factor when performing this operation is using concrete and substantiated data. Forecasting off of another forecast produces inconclusive and possibly erroneous results.

Such methods include: regression analysis includes a large group of methods that can be used to predict future values of a variable using information about other variables. These methods include both parametric (linear or non-linear) and non-parametric techniques;  
-autoregressive moving average with exogenous inputs (ARMAX).

#### **6. Judgmental methods**

Judgmental forecasting methods incorporate intuitive judgements, opinions and subjective probability estimates:

- composite forecasts;
- statistical surveys;
- Delphi method;
- scenario building;
- technology forecasting;
- forecast by analogy.

#### **7. Artificial intelligence methods:**

- artificial neural networks;
- group method of data handling;
- support vector machines.

#### **8. Other methods:**

- simulation;
- prediction market;
- probabilistic forecasting and Ensemble forecasting.

**Activity 1.** Give examples of the goals and objectives of financial management in the oil and gas companies in your country; in other countries.

**Activity 2.** What are the problems and solutions you see in your examples of the goals and objectives of financial management in the oil and gas companies in your country; in other countries?

**Activity 3.** Having studied the methods of forecasting and planning, applied in financial management, give specific examples of their use in the oil and gas companies in your country.

## **2. Analysis of the enterprise financial-economic activity in financial management**

### **2.1 Basic principles and logic of financial-economic activity analysis**

**Analysis** of the financial-economic activity refers to an assessment of the viability, stability and profitability of a business, sub-business or project. It is performed by professionals who prepare reports using ratios that make use of information taken from financial statements and other reports. These reports are usually presented to top management as one of their bases in making business decisions:

- continue or discontinue its main operation or part of its business;
- make or purchase certain materials in the manufacture of its product;
- acquire or rent/lease certain machineries and equipment in the production of its goods;
- issue stocks or negotiate for a bank loan to increase its working capital;
- make decisions regarding investing or lending capital;
- other decisions that allow management to make an informed selection on various alternatives in the conduct of its business.

Financial analysts often assess the following elements of a company:

1. **Profitability** - its ability to earn income and sustain growth in both the short- and long-term. A company's degree of profitability is usually based on the income statement, which reports on the company's results of operations;
2. **Solvency** - its ability to pay its obligation to creditors and other third parties in the long-term;
3. **Liquidity** - its ability to maintain positive cash flow, while satisfying immediate obligations;  
*Both 2 and 3 are based on the company's balance sheet, which indicates the financial condition of a business as of a given point in time.*
4. **Stability** - the company's ability to remain in business in the long run, without having to sustain significant losses in the conduct of its business. Assessing a company's stability requires the use of both the income statement and the balance sheet, as well as other financial and non-financial indicators. etc.

### **2.2 Financial-economic activity analysis procedures**

Financial analysts often compare financial ratios (of solvency, profitability, growth, etc.):

- **Past Performance** - across historical time periods for the same firm (the last 3 years for example);
- **Future Performance** - using historical figures and certain mathematical and statistical techniques, including present and future values. This extrapolation method is the main source of errors in financial analysis as past statistics can be poor predictors of future prospects;
- **Comparative Performance** - comparison between similar companies.

Comparing financial ratios is merely one way of conducting financial analysis. Financial Ratios face several theoretical challenges:

1. They say little about the firm's prospects in an absolute sense. Their insights about relative performance require a reference point from other time periods or similar firms.
2. One ratio holds little meaning. As indicators, ratios can be logically interpreted in at least two ways. One can partially overcome this problem by combining several related ratios to paint a more comprehensive picture of the firm's performance.
3. Seasonal factors may prevent year-end values from being representative. A ratio's values may be distorted as account balances change from the beginning to the end of an accounting period. Use average values for such accounts whenever possible.
4. Financial ratios are no more objective than the accounting methods employed. Changes in accounting policies or choices can yield drastically different ratio values.

Financial analysts can also use percentage analysis which involves reducing a series of figures as a percentage of some base amount. For example, a group of items can be expressed as a percentage of net income. When proportionate changes in the same figure over a given time period expressed as a percentage is known as horizontal analysis. Vertical or common-size analysis, reduces all items on a statement to a "common size" as a percentage of some base value which assists in comparability with other companies of different sizes. As a result, all Income Statement items are divided by Sales, and all Balance Sheet items are divided by Total Assets.

Another method is comparative analysis. This provides a better way to determine trends. Comparative analysis presents the same information for two or more time periods and is presented side-by-side to allow for easy analysis.

### ***2.3 Ratio system of the company financial situation***

A financial ratio (or accounting ratio) is a relative magnitude of two selected numerical values taken from an enterprise's financial statements. Often used in accounting, there are many standard ratios used to try to evaluate the overall financial condition of a corporation or other organization. Financial ratios may be used by managers within a firm, by current and potential shareholders (owners) of a firm, and by a firm's creditors. Financial managers use financial ratios to compare the strengths and weaknesses in various companies.

Ratios can be expressed as a decimal value, such as 0.10, or given as an equivalent percent value, such as 10%. Some ratios are usually quoted as percentages, especially ratios that are usually or always less than 1, such as earnings yield, while others are usually quoted as decimal numbers, especially ratios that are usually more than 1, such as P/E ratio; these latter are also called multiples.

Sources of data for financial ratios

Values used in calculating financial ratios are taken from the balance sheet, income statement, statement of cash flows/ These comprise the firm's "accounting statements" or financial

statements. The statements' data is based on the accounting method and accounting standards used by the organization.

Financial ratios quantify many aspects of a business and are an integral part of the financial statement analysis. Financial ratios are categorized according to the financial aspect of the business which the ratio measures.

**Liquidity ratios** measure the availability of cash to pay debt.

**Activity ratios** measure how quickly a company converts non-cash assets to cash assets.

**Debt ratios** measure the firm's ability to repay long-term debt.

**Profitability ratios** measure the firm's use of its assets and control of its expenses to generate an acceptable rate of return.

**Market ratios** measure investor response to owning a company's stock and also the cost of issuing stock.

### **Ratios**

**Profitability ratios.** Profitability ratios measure the company's use of its assets and control of its expenses to generate an acceptable rate of return.

**Gross margin, Gross profit margin or Gross Profit Rate** (1)

Gross Profit

Net Sales

OR

Net Sales – COGS

Net Sales

**Operating margin, Operating Income Margin, Operating profit margin or Return on sales (ROS)** (2)

Operating Income

Net Sales

Note: Operating income is the difference between operating revenues and operating expenses, but it is also sometimes used as a synonym for EBIT (Earnings before interest and taxes) and operating profit. This is true if the firm has no non-operating income.

**Profit margin, net margin or net profit margin** (3)

Net Profit

Net Sales

**Return on equity (ROE)** (4)

$$\frac{\text{Net Income}}{\text{Average Shareholders Equity}}$$

**Return on Assets (ROA ratio) (5)**

$$\frac{\text{Net Income}}{\text{Average Total Assets}}$$

**Return on assets Du Pont (ROA Du Pont) (6)**

$$\left( \frac{\text{Net Income}}{\text{Net Sales}} \right) \left( \frac{\text{Net Sales}}{\text{Total Assets}} \right)$$

**Return on Equity Du Pont (ROE Du Pont) (7)**

$$\left( \frac{\text{Net Income}}{\text{Net Sales}} \right) \left( \frac{\text{Net Sales}}{\text{Average Assets}} \right) \left( \frac{\text{Average Assets}}{\text{Average Equity}} \right)$$

**Return on net assets (RONA) (8)**

$$\frac{\text{Net Income}}{\text{Fixed Assets} + \text{Working Capital}}$$

**Return on Capital (ROC) (9)**

$$\frac{\text{EBIT}(1 - \text{Tax Rate})}{\text{Invested Capital}}$$

**Risk adjusted return on capital (RAROC) (10)**

$$\frac{\text{Expected Return}}{\text{Economic Capital}}$$

OR

$$\frac{\text{Expected Return}}{\text{Value at Risk}}$$

**Return on Capital employed (ROCE) (11)**

$$\frac{\text{EBIT}}{\text{Capital Employed}}$$

Note: this is somewhat similar to (ROI), which calculates Net Income per Owner's Equity

**Cash Flow Return on Investment (CFROI) (12)**

$$\frac{\text{Cash Flow}}{\text{Market Recapitalisation}}$$

**Efficiency Ratio (13)**

Non-Interest expense

Revenue

**Net gearing** (14)

Net debt

Equity

**Basic Earnings Power Ratio** (15)

EBIT

Total Assets

**Liquidity ratios.** Liquidity ratios measure the availability of cash to pay debt.

**Current Ratio (Working Capital Ratio)** (16)

Current Assets

Current Liabilities

**Acid-test Ratio (Quick ratio)** (17)

Current Assets – (Inventories + Prepayments)

Current Liabilities

**Cash Ratio** (18)

Cash and Marketable Securities

Current Liabilities

**Operating cash flow ratio** (19)

Operating Cash Flow

Total Debts

**Activity ratios (Efficiency Ratios).** Activity ratios measure the effectiveness of the firms use of resources.

**Average collection period** (20)

Accounts Receivable

Annual Credit Sales ÷ 365 Days

**Degree of Operating Leverage (DOL)** (21)

Percent Change in Net Operating Income

Percent Change in Sales

**DSO Ratio** (22)



$$\frac{\text{Accounts Receivable}}{\text{Total Annual Sales} \div 365 \text{ Days}}$$

**Average payment period** (23)

$$\frac{\text{Accounts Payable}}{\text{Annual Credit Purchases} \div 365 \text{ Days}}$$

**Asset turnover** (24)

$$\frac{\text{Net Sales}}{\text{Total Assets}}$$

**Stock turnover ratio** (25)

$$\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

**Receivables turnover Ratio** (26)

$$\frac{\text{Net Credit Sales}}{\text{Average Net Receivables}}$$

**Inventory conversion ratio** (27)

$$\frac{365 \text{ Days}}{\text{Inventory Turnover}}$$

**Inventory conversion period (essentially same thing as above)** (28)

$$\left( \frac{\text{Inventory}}{\text{Cost of Goods Sold}} \right) 365 \text{ Days}$$

**Receivables conversion period** (29)

$$\left( \frac{\text{Receivables}}{\text{Net Sales}} \right) 365 \text{ Days}$$

**Payables conversion period** (30)

$$\left( \frac{\text{Accounts Payables}}{\text{Purchases}} \right) 365 \text{ Days}$$

**Cash Conversion Cycle (31)**

$$\text{Inventory Conversion Period} + \text{Receivables Conversion Period} - \text{Payables Conversion Period}$$

**Debt ratios (leveraging ratios).** Debt ratios quantify the firm's ability to repay long-term debt. Debt ratios measure financial leverage.

$$\text{Debt ratio} \quad (31)$$
$$\frac{\text{Total Liabilities}}{\text{Total Assets}}$$

$$\text{Debt to equity ratio} \quad (32)$$
$$\frac{\text{Long-term Debt} + \text{Value of Leases}}{\text{Average Shareholders Equity}}$$

$$\text{Long-term Debt to equity} \quad (33)$$
$$\frac{\text{Long-term Debt}}{\text{Total Assets}}$$

$$\text{Times interest earned ratio (Interest Coverage Ratio)} \quad (34)$$
$$\frac{\text{EBIT}}{\text{Annual Interest Expense}}$$

OR

$$\frac{\text{Net Income}}{\text{Annual Interest Expense}}$$

$$\text{Debt service coverage ratio} \quad (35)$$
$$\frac{\text{Net Operating Income}}{\text{Total Debt Service}}$$

**Market ratios.** Market ratios measure investor response to owning a company's stock and also the cost of issuing stock. These are concerned with the return on investment for shareholders, and with the relationship between return and the value of an investment in company's shares.

$$\text{Earnings per share} \quad (36)$$
$$\frac{\text{Net Earnings}}{\text{Number of Shares}}$$

$$\text{Payout ratio} \quad (37)$$
$$\frac{\text{Dividends}}{\text{Earnings}}$$

OR

$$\frac{\text{Dividends}}{\text{EPS}}$$

<b>Dividend cover</b> (the inverse of Payout Ratio)	<b>(38)</b>
$\frac{\text{Earnings per Share}}{\text{Dividend per Share}}$	
<b>P/E ratio</b>	<b>(39)</b>
$\frac{\text{Market Price per Share}}{\text{Diluted EPS}}$	
<b>Dividend yield</b>	<b>(40)</b>
$\frac{\text{Dividend}}{\text{Current Market Price}}$	
<b>Cash flow ratio or Price/cash flow ratio</b>	<b>(41)</b>
$\frac{\text{Market Price per Share}}{\text{Present Value of Cash Flow per Share}}$	
<b>Price to book value ratio (P/B or PBV)</b>	<b>(42)</b>
$\frac{\text{Market Price per Share}}{\text{Balance Sheet Price per Share}}$	
<b>Price/sales ratio</b>	<b>(43)</b>
$\frac{\text{Market Price per Share}}{\text{Gross Sales}}$	
<b>PEG Ratio</b>	<b>(44)</b>
$\frac{\text{Price per Earnings}}{\text{Annual EPS Growth}}$	
<b>Other Market Ratios</b>	
<b>EV/EBITDA</b>	<b>(45)</b>
$\frac{\text{Enterprise Value}}{\text{EBITDA}}$	
<b>EV/Sales</b>	<b>(46)</b>
$\frac{\text{Enterprise Value}}{\text{Net Sales}}$	

For comparison, here are examples of assessment of the stock market of Russian and foreign oil companies (see table 2.1).

Table 2.1 Indicators of investment attractiveness of enterprises of oil and gas sector

Company	Capitalization, \$ millions	Proven reserves, million barrels	Extraction, millions barr./day	Sales, mln. \$	Net income, \$ millions.	Capitalization/s tock, \$/barrels	Capitalization/ extraction, \$ millions	Capitalisation /sales	Capitalization /net profit
1	2	3	4	5	6	7	8	9	10
BP/Amoco	160560	9300	2,1	101180	1124	17,26	76,5	1,6	142
Chevron	61950	4700	1,1	35448	2070	13,2	56,3	1,7	30
Shell	137235	10100	2,4	149706	7090	13,6	57,2	0,9	19,4
Petrobras	28311	8920	0,5	10100	670	3,2	57	2,8	42,2
YPF	12567	3241	0,3	6598	481	3,9	42	1,9	26
Average						10,2	57,8	1,8	52
LUKOIL	11075	15900	1,5	10900	1251	0,69	23,3	1,02	8,9
Surgutneftegas	6667	8500	0,8	3285	1257	0,64	24,2	2,03	5,3
Sibneft	1328	4600	0,3	1440	200	0,34	11,1	0,92	6,6
TNK	2372	12200	0,4	1872	235	0,19	16,1	1,27	10
Average						0,41	16,4	1,19	6,68

## 2.4 Balanced Scorecard

The balanced scorecard (BSC) is a strategic planning and management system that is used extensively in business and industry, government, and nonprofit organizations worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals. It was originated by Drs. Robert Kaplan (Harvard Business School) and David Norton as a performance measurement framework that added strategic non-financial performance measures to traditional financial metrics to give managers and executives a more 'balanced' view of organizational performance. While the phrase balanced scorecard was coined in the early 1990s, the roots of the this type of approach are deep, and include the pioneering work of General Electric on performance measurement reporting in the 1950's and the work of French process engineers (who created the *Tableau de Bord* – literally, a "dashboard" of performance measures) in the early part of the 20th century.

The balanced scorecard has evolved from its early use as a simple performance measurement framework to a full strategic planning and management system. The “new” balanced scorecard transforms an organization’s strategic plan from an attractive but passive document into the "marching orders" for the organization on a daily basis. It provides a framework that not only provides performance measurements, but helps planners identify what should be done and measured. It enables executives to truly execute their strategies.

Kaplan and Norton describe the innovation of the balanced scorecard as follows:

"The balanced scorecard retains traditional financial measures. But financial measures tell the story of past events, an adequate story for industrial age companies for which investments in long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology, and innovation."

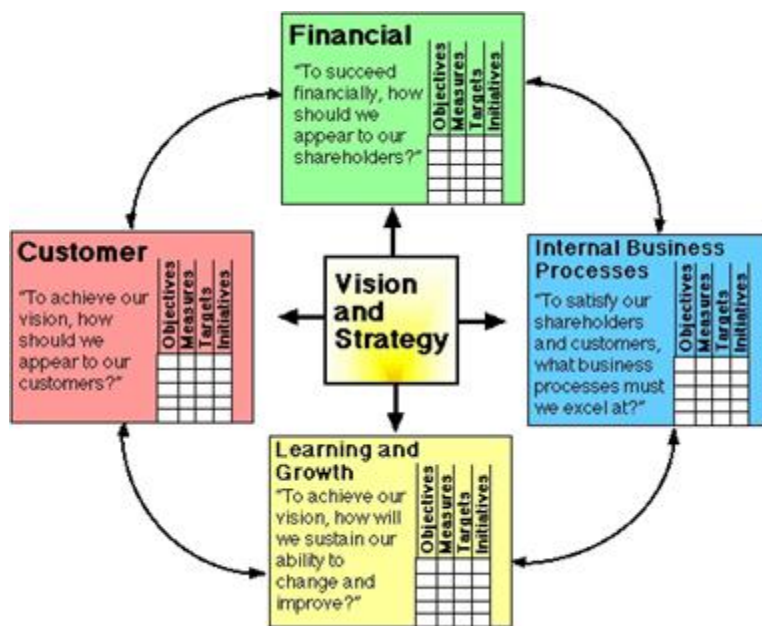


Fig. 2.1 The innovation of the balanced scorecard

Adapted from Robert S. Kaplan and David P. Norton, "Using the Balanced Scorecard as a Strategic Management System," Harvard Business Review (January-February 1996)

**Perspectives.** The balanced scorecard suggests that we view the organization from four perspectives, and to develop metrics, collect data and analyze it relative to each of these perspectives:

**The Learning & Growth Perspective.** This perspective includes employee training and corporate cultural attitudes related to both individual and corporate self-improvement. In a knowledge-worker organization, people -- the only repository of knowledge -- are the main resource. In the current climate of rapid technological change, it is becoming necessary for knowledge workers to be in a continuous learning mode. Metrics can be put into place to guide managers in focusing training funds where they can help the most. In any case, learning and growth constitute the essential foundation for success of any knowledge-worker organization.

Kaplan and Norton emphasize that 'learning' is more than 'training'; it also includes things like mentors and tutors within the organization, as well as that ease of communication among workers that allows them to readily get help on a problem when it is needed. It also includes technological tools; what the Baldrige criteria call "high performance work systems."

**The Business Process Perspective.** This perspective refers to internal business processes. Metrics based on this perspective allow the managers to know how well their business is

running, and whether its products and services conform to customer requirements (the mission). These metrics have to be carefully designed by those who know these processes most intimately; with our unique missions these are not something that can be developed by outside consultants.

**The Customer Perspective.** Recent management philosophy has shown an increasing realization of the importance of customer focus and customer satisfaction in any business. These are leading indicators: if customers are not satisfied, they will eventually find other suppliers that will meet their needs. Poor performance from this perspective is thus a leading indicator of future decline, even though the current financial picture may look good.

In developing metrics for satisfaction, customers should be analyzed in terms of kinds of customers and the kinds of processes for which we are providing a product or service to those customer groups.

**The Financial Perspective.** Kaplan and Norton do not disregard the traditional need for financial data. Timely and accurate funding data will always be a priority, and managers will do whatever necessary to provide it. In fact, often there is more than enough handling and processing of financial data. With the implementation of a corporate database, it is hoped that more of the processing can be centralized and automated. But the point is that the current emphasis on financials leads to the "unbalanced" situation with regard to other perspectives. There is perhaps a need to include additional financial-related data, such as risk assessment and cost-benefit data, in this category.

**Strategy Mapping.** Strategy maps are communication tools used to tell a story of how value is created for the organization. They show a logical, step-by-step connection between strategic objectives (shown as ovals on the map) in the form of a cause-and-effect chain. Generally speaking, improving performance in the objectives found in the Learning & Growth perspective (the bottom row) enables the organization to improve its Internal Process perspective Objectives (the next row up), which in turn enables the organization to create desirable results in the Customer and Financial perspectives (the top two rows).

**Activity 1.** Describe the logic of financial analysis of a particular oil or gas company in your country.

**Activity 2.** Calculate the selected oil and gas company's financial ratios for the last 3 years. Make conclusions.

**Activity 3.** Describe an example of BSC usage in oil and gas companies.

## 3. Financial planning

### ***3.1 Purposes, tasks and functions of financial planning, implemented in companies***

Financial planning is the process of estimating the capital required and determining its competition. It is the process of framing financial policies in relation to procurement, investment and administration of funds of an enterprise.

#### **Objectives of Financial Planning**

Financial planning has got many objectives to look forward to:

- **determining capital requirements** - this will depend upon factors like cost of current and fixed assets, promotional expenses and long- range planning. Capital requirements have to be looked with both aspects: short- term and long- term requirements;
- **determining capital structure** - the capital structure is the composition of capital, i.e., the relative kind and proportion of capital required in the business. This includes decisions of debt- equity ratio- both short-term and long- term;
- **framing financial policies** with regards to cash control, lending, borrowings, etc.
- **a finance manager ensures** that the scarce financial resources are maximally utilized in the best possible manner at least cost in order to get maximum returns on investment.

**Importance of Financial planning.** Financial planning is process of framing objectives, policies, procedures, programmes and budgets regarding the financial activities of a concern. This ensures effective and adequate financial and investment policies. The importance can be outlined as:

- adequate funds have to be ensured;
- Financial Planning helps in ensuring a reasonable balance between outflow and inflow of funds so that stability is maintained;
- Financial Planning ensures that the suppliers of funds are easily investing in companies which exercise financial planning;
- Financial Planning helps in making growth and expansion programmes which helps in long-run survival of the company;
- Financial Planning reduces uncertainties with regards to changing market trends which can be faced easily through enough funds;
- Financial Planning helps in reducing the uncertainties which can be a hindrance to growth of the company. This helps in ensuring stability and profitability in concern.

### **3.2 Budgeting**

**Budgeting** in a business sense is the planned allocation of available funds to each department within a company. Budgeting allows executives to control overspending in less productive areas and put more company assets into areas which generate significant income or good public relations. Budgeting is usually handled during meetings with accountants, financial experts and representatives from each department affected by the budgeting.

A **budget** is a written financial plan of a business for a specific period of time, expressed in dollars. Each area of a business's operations typically has a separate budget. For example, a business might have an advertising budget, a purchasing budget, a sales budget, a manufacturing budget, a research and development budget, and a cash budget. New and ongoing projects would each have a detailed budget. Each budget would then be compiled into a master budget for the operations of the entire company.

A business that does not have a budget or a plan will make decisions that do not contribute to the profitability of the business because managers lack a clear idea of goals of the business. A budget serves five main purposes—communication, coordination, planning, control, and evaluation.

In budgetary planning, it needs the following:

**Communication.** In the budgeting process, managers in every department justify the resources they need to achieve their goals. They explain to their superiors the scope and volume of their activities as well as how their tasks will be performed. The communication between superiors and subordinates helps affirm their mutual commitment to company goals. In addition, different departments and units must communicate with each other during the budget process to coordinate their plans and efforts. For example, the MIS department and the marketing department have to agree on how to coordinate their efforts about the need for services and the resources required.

**Coordination.** Different units in the company must also coordinate the many different tasks they perform. For example, the number and types of products to be marketed must be coordinated with the purchasing and manufacturing departments to ensure goods are available. Equipment may have to be purchased and installed. Advertising promotions may need to be planned and implemented. And all tasks have to be performed at the appropriate times.

**Planning.** A budget is ultimately the plan for the operations of an organization for a period of time. Many decisions are involved, and many questions must be answered. Old plans and processes are questioned as well as new plans and processes. Managers decide the most effective ways to perform each task. They ask whether a particular activity should still be performed and, if so, how. Managers ask what resources are available and what additional resources will be needed.

**Control.** Once a budget is finalized, it is the plan for the operations of the organization. Managers have authority to spend within the budget and responsibility to achieve revenues specified within the budget. Budgets and actual revenues and expenditures are monitored constantly for variations and to determine whether the organization is on target. If performance



does not meet the budget, action can be taken immediately to adjust activities. Without constant monitoring, a company does not realize it is not on target until it is too late to make adjustments. **Evaluation.** One way to evaluate a manager is to compare the budget with actual performance. Did the manager reach the target revenue within the constraints of the targeted expenditures? Of course, other factors, such as market and general economic conditions, affect a manager's performance. Whether a manager achieves targeted goals is an important part of managerial responsibility

**They differentiate the following stages of budgeting:**

- step 1: message details budgetary policy and guidelines for their preparation;
- step 2: defining the factors limiting production programme;
- step 3: preparation of marketing programs;
- step 4: initial training budgets;
- step 5: discussing budgets with superiors;
- step 6: coordination and analysis of budgets;
- step 7: final adoption of the budget;
- step 8: further analysis of budgets.

Budgeting Features in the companies of oil and gas industry. Budgeting in oil and gas company addresses the following tasks:

- maximum growth of financial and economic performance;
- the smooth financing of ongoing activities;
- financing of investment projects related to the implementation of the strategy for growth;
- the necessary funding for investment in existing production with favourable prospects for development;
- best value, timeliness and regularity of tax payments to the budgets of all levels;
- operational management of income and expenditure and deficit control their own means of payment in close conjunction with the liabilities;
- maintenance of share prices, as well as the effective dividend policy of the company to assure its investment attractiveness.

Depending on the planning horizon plans and budgets are developed:

- for a period of three years or more (perspective plans and budgets);
- for the coming year (annual plans and budgets);
- for the coming quarter and month (operational plans and budgets).

Below, let see the budgeting process peculiarities at the oil and gas companies in Russia.

**The main planning instruments of the parent company include:**

- Sales plan of petroleum and petroleum products;

- Income and expenses plan;
- The projected balance sheet.

**The main budgetary instruments of the parent company include:**

- Cash flow budget;
- Investment budget;
- Credits budget;
- Tax budget.

**The main planning instruments subsidiaries include:**

- Production and delivery of oil Plan;
- Production and petroleum products delivery Plan;
- Sales Plan of petroleum and petroleum products;
- Income and expenses plan;
- The projected balance sheet.

**The main budget documents subsidiaries include:**

- Cash flow budget;
- Financing investment budget;
- Credits budget;
- Tax budget.

**The main consolidated planning documents include:**

- Production and delivery of oil Plan;
- Production and petroleum products delivery Plan;
- Investment program;
- Borrowing programme;
- Tax plan.

**Consolidated budget documents include:**

- Cash flow budget;
- Investment budget;
- Credits budget;
- Tax budget.

**Cash flow budget** of the parent company consists of the following main items:

- balance at the beginning of the period;
- cash flow: oil exports;
  - oil sales on the domestic market;
  - exports of oil products;

sales of oil products in the domestic market;  
other sales income;  
refund loans to subsidiaries;  
from investing activities;

-expenses:

payment for oil;  
payment processing;  
payment for transportation of oil;  
payment for transport of petroleum products;  
administrative and commercial costs;  
taxes;  
export expenses;  
other expenses;  
the investment activity (active enterprises, new projects, portfolio investment);  
on financial activities (repayment of loans, credits and loans to subsidiaries, repayment of interest on loans, clearing the Bills in circulation, other costs);

-deficit/surplus of funds:

deficiency, including the issuance of promissory notes in circulation;  
receipt of credits and loans;  
emission income.

**The investment budget of the parent company** includes the following main items:

-investment:

ongoing company: oil and gas extraction, subsidiaries: oil refining; petroleum products supply;

new projects: total oil and gas production, oil refining

portfolio investment: shares and stocks, bonds, other;

-sources of financing: own funds investments; credits and loans; emission income;  
miscellaneous income.

**Credits budget of parent company** consists of the following main items:

-borrowing:

current liabilities: loans, promissory notes;

long-term liabilities: loans, bonds;

other borrowed funds;

-refund loans:

short-term liabilities: loans, promissory notes;

long-term liabilities: loans, bonds; other borrowed funds;

interest expense;

repayment guarantees to obligations.

**Tax budget of the parent company** includes the following main items:

- income tax,
- tax on mining,
- property tax,
- land tax,
- vehicle tax,
- regular payments for exploration,
- pollution charges,
- Unified social tax,
- land rent,
- export tax,
- income tax on dividends,
- VAT,
- water tax.

In application 4 you can see the taxes budget of JSC "Tatoilgaz" for the year 2010.

**Activity 1.** List the financial planning goals of an oil and gas company in your country. Describe them.

**Activity 2.** Describe the budgeting process at the oil and gas company in your country. Give examples of budget documents, compiled by the oil companies in your country.

## 4. Current assets policy

### 4.1 Main ideas and terms

In accounting, a **current asset** is an asset on the balance sheet which can either be converted to cash or used to pay current liabilities within 12 months. Typical current assets include cash, cash equivalents, short-term investments, accounts receivable, inventory and the portion of prepaid liabilities which will be paid within a year.

**Current assets** are important to businesses because they are the assets that are used to fund day-to-day operations and pay ongoing expenses. Depending on the nature of the business, current assets can range from barrels of crude oil, to baked goods, to foreign currency. After establishing the level of current assets, the firm must determine how these should be financed. What mix of term capital and short term debt should the firm employ to support its current assets?

For the sake of simplicity assets are divided into two classes, viz. **fixed assets** and **current assets**. Fixed assets are assumed to grow at a constant rate which reflects the secular rate of growth in sales. Current assets, too, are expected to display the same long term rate of growth; however, they exhibit substantial variation around the trend line, thanks to seasonal (or even cyclical) patterns in sales and/or purchases.

**The investment in current assets** may be broken into two parts: permanent current assets and temporary current assets. The former represents what the firm requires even at the bottom of its sales cycle.

The latter reflects a variable component that moves in line with seasonal fluctuations.

Several strategies are available to a firm for **financing its capital requirements**. Three strategies are illustrated by lines A, B, and C below.

**Strategy A:** Long term financing is used to meet fixed asset requirement as well as peak working capital requirement. When the working capital requirement is less than its peak level, the surplus is invested in liquid assets (cash and marketable securities).

**Strategy B:** Long term financing is used to meet fixed assets requirement, permanent working capital requirement, and a portion of fluctuating working capital requirement. During seasonal swings, short-term financing is used during seasonal down swing surplus is invested in liquid assets.

**Strategy C:** Long term financing is used to meet fixed asset requirement and permanent working capital requirement. Short term financing is used to meet fluctuating working capital requirement.

#### **The Matching Principle:**

According to this principle, the maturity of the sources of financing should match the maturity of the assets being financed. This means that fixed assets and permanent current assets should be supported by long term sources of finance whereas fluctuating current assets must be supported by short term sources of finance.

The rationale for the matching principle is fairly straightforward. If a firm finances a long term asset (say, machinery) with a short term debt (say, commercial paper), it will have to periodically refinance the asset. Whenever the short term debt falls due, the firm has to re-finance the assets. This is risky as well as inconvenient. Hence, it makes sense to ensure that the maturity of the assets and the sources of financing are properly matched.

### **Operating cycle and cash cycle:**

The investment in working capital is influenced by four key events in the production and sales cycle of the firm:

1. Purchase of raw materials
2. Payment of raw materials
3. Sale of finished goods
4. Collection of cash for sales

The firm begins with the purchase of raw materials which are paid for after a delay which represents the cost payable period. The firm converts the raw material to finished goods and then sells the same. The time lag between the purchase of raw materials and the sale of finished goods is the inventory period. Customers pay their bills sometimes after the sales. The period that elapses between the date of sales and the date of collection of receivables is the accounts payable period (debtors period).

The time that elapses between the purchase of raw materials and the collection of cash for sales is referred to as the operating cycle, whereas the time between the payment for raw materials purchases and the collection of cash for sales is referred to as the cash cycle. The operating cycle is the sum of the inventory period and the accounts receivable period, whereas the cash cycle is equal to the operating cycle less, the accounts payable period.

From the financial statements of the firm, we can estimate the inventory period, the accounts receivable period, and the accounts payable period.

## **4.2 Current Assets Financing**

Net working capital is the excess of current assets over and above the current liabilities. From the above definition the reader can conclude that a part of the current assets are financed by a source other than the current liabilities. This source is long term finance. The sources of long term finance are discussed in article. Now we will discuss various short term sources of finance that may be employed to finance current assets. These sources are:

1. Spontaneous liabilities
2. Trade credit
3. Short term bank finance
4. Public deposits
5. Inter-corporate deposits
6. Short term financial assistance from financial institutions
7. Commercial paper

### **Spontaneous Liabilities:**

This includes (1) **Accruals** and (2) **Provisions**. **Accruals** are liabilities covering expenses incurred on and prior to a specified date, payable at some future date. For example, if a company is following a policy of paying wages for every wage once per month. With the change in policy the firm is deferring the payment of wages for three weeks. Thus, amount of accrued wages increases because of deferring the wage payments.

Provisions are changes for an estimated expense. These provisions do not involve immediate cash outflow. Cash outflow occurs when the actual amount of liability is known and paid for. Examples for provisions are provisions for dividends, provision for taxes etc.

These spontaneous liabilities constitute a very small fraction of the current liabilities, thus usefulness of this source to finance current assets is very limited.

**Trade Credit.** Trade credit is the credit extended by the supplier of goods and services. Trade credit is an important source for financing current assets. On an average, trade credit accounts for nearly 40 percent of current liabilities. The suppliers generally extend credit based on the financial soundness of the buyer and the relations between them.

**Bank Finance.** The major source for financing current assets is bank finance. The various ways in which the banks finance current assets are:

- (1) Loan arrangement
- (2) Overdraft arrangement
- (3) Cash credit arrangement
- (4) Bills purchased and bills discounted
- (5) Letter of credit
- (6) Note lending system

**Loan arrangement.** Under this arrangement banks credit the entire loan amount to the borrowers account. In case the loan is repaid in installments, interest is payable on actual balance outstanding.

**Overdraft arrangement.** Under this arrangement the borrower is allowed to overdraw on his current account with the bank up to a stipulated amount. Within this limit the borrower is allowed to make any number of drawings. The borrower can make repayments whenever desired during the period. The interest liability of the borrower is determined on the basis of the actual amount utilized.

**Cash credit arrangement.** Cash credit arrangement is similar to the overdraft arrangement. In this arrangement borrower can draw up to a stipulated limit based on the security margin. This type of arrangement holds good only when the working capital (fund based) requirements of the borrower is very large to the tune of a minimum of Rs 1 crore and the cash credit is usually allowed against pledge or hypothecation of goods. Unlike the overdraft arrangement, in cash credit arrangement the borrower has to pay 1 % as commitment charges on the unutilized balance during the period.

**Bills purchased and bills discounted.** Under this arrangement a banker purchases or discounts the bills generated during the credit sales of goods. When a bill is purchased or discounted by a

banker, the amount provided is usually covered by the cash credit and overdraft limit. Before discounting the bill the bank satisfies itself about the credit worthiness of the drawer (i.e. seller of the goods) and genuineness of the bill.

**Letter of credit.** Under this arrangement banks help its customers to obtain credit from his suppliers. According to this, a bank opens a letter of credit in favor of the supplier i.e one who sends material to the customer of the bank. Because of this arrangement if the customer of the bank fails to meet the payment obligations, then the bank is liable to pay the amount on the due date.

**Public Deposits.** The deposits mobilized from public by non-financial manufacturing companies are known as public deposits or fixed deposits.

**Inter-corporate Deposits.** Under this arrangement one company makes a deposit with another company, normally for a period above six months. For example, Firm 'A' deposited an amount of 5 000 USD for a period of 6 months in Firm 'B'. This is referred as inter-corporate deposit.

### ***4.3 Cash flow management***

Cash flow is the movement of money into or out of a business, project, or financial product. It is usually measured during a specified, finite period of time. Measurement of cash flow can be used for calculating other parameters that give information on a company's value and situation. Cash flow can be used, for example, for calculating parameters:

- to determine a project's rate of return or value. The time of cash flows into and out of projects are used as inputs in financial models such as internal rate of return and net present value;
- to determine problems with a business's liquidity. Being profitable does not necessarily mean being liquid. A company can fail because of a shortage of cash even while profitable;
- as an alternative measure of a business's profits when it is believed that accrual accounting concepts do not represent economic realities. For example, a company may be notionally profitable but generating little operational cash (as may be the case for a company that barter its products rather than selling for cash). In such a case, the company may be deriving additional operating cash by issuing shares or raising additional debt finance;
- cash flow can be used to evaluate the 'quality' of income generated by accrual accounting. When net income is composed of large non-cash items it is considered low quality;
- to evaluate the risks within a financial product, e.g. matching cash requirements, evaluating default risk, re-investment requirements, etc.

Cash flow is a generic term used differently depending on the context. It may be defined by users for their own purposes. It can refer to actual past flows or projected future flows. It can refer to the total of all flows involved or a subset of those flows. Subset terms include net cash flow, operating cash flow and free cash flow.



## **Ways Companies Can Increase Reported Cash Flow**

Common methods include:

Sales - Sell the receivables to a factor for instant cash. (leading)

Inventory - Don't pay your suppliers for an additional few weeks at period end. (lagging)

Sales Commissions - Management can form a separate (but unrelated) company and act as its agent. The book of business can then be purchased quarterly as an investment.

Wages - Remunerate with stock options.

Maintenance - Contract with the predecessor company that you prepay five years worth for them to continue doing the work

Equipment Leases - Buy it

Rent - Buy the property (sale and lease back, for example).

Oil Exploration costs - Replace reserves by buying another company's.

Research & Development - Wait for the product to be proven by a start-up lab; then buy the lab.

Consulting Fees - Pay in shares from treasury since usually to related parties

Interest - Issue convertible debt where the conversion rate changes with the unpaid interest.

Taxes - Buy shelf companies with TaxLossCarryForward's. Or gussy up the purchase by buying a lab or O&G explore co. with the same TLCF.

## **4.4 Accounts receivable management**

A customer's credit soundness may be evaluated through quantitative techniques such as regression analysis. Such techniques are most useful when a large number of small customers are involved. Bad debt losses can be estimated reliably when a company sells to many customers and when its credit policies have not changed for a long period of time. The collection period for accounts receivable partly depends on the firm's credit policy and economic conditions, such as a recessionary environment, a period of limited or tight credit, or both.

In managing accounts receivable, the following procedures are recommended:

**step 1: establish a credit policy.** A detailed review of a potential customer's soundness should be made prior to extending credit. Procedures such as a careful review of the customer's financial statements and credit rating, as well as a review of financial service reports.

As customer financial health changes, credit limits should be revised. Marketing factors must be noted since an excessively restricted credit policy will lead to lost sales.

If seasonal datings are used, the firm may offer more liberal payments than usual during slow periods in order to stimulate business by selling to customers who are unable to pay until later in the season. This policy is financially appropriate when the return on the additional sales plus the lowering in inventory costs is greater than the incremental cost associated with the additional investment in accounts receivable.

**step 2: establish billing Policy.** Customer statements should be sent within 1 day subsequent to the close of the period. Large sales should be billed immediately. Customers should be invoiced for goods when the order is processed rather than when it is shipped.

Billing for services should be done on an interim basis or immediately prior to the actual services. The billing process will be more uniform if cycle billing is employed. The use of seasonal datings should be considered. (See item 4, concerning credit policy.)

**step 3: collection Policy**

Accounts receivable should be aged in order to identify delinquent and high-risk customers. The aging should be compared to industry norms. Collection efforts should be undertaken at the very first sign of customer financial unsoundness.

## **4.5 Stocks management**

Stock management is the function of understanding the stock mix of a company and the different demands on that stock. The demands are influenced by both external and internal factors and are balanced by the creation of purchase order requests to keep supplies at a reasonable or prescribed level.

The management of the inventory in the supply chain involves managing the physical quantities as well as the costing of the goods as it flows through the supply chain.

In managing the cost prices of the goods throughout the supply chain, several costing methods are employed:

- Retail method,
- Weighted Average Price method,
- FIFO (First In First Out) method,
- LIFO (Last In First Out) method,
- LPP (Last Purchase Price) method
- BNM (Bottle neck method),
- Weighted Average Price Method.

The calculation can be done for different periods. If the calculation is done on a monthly basis, then it is referred to the periodic method. In this method, the available stock is calculated by:

- ADD Stock at beginning of period,
- ADD Stock purchased during the period,
- AVERAGE total cost by total qty to arrive at the Average Cost of Goods for the period.

This Average Cost Price is applied to all movements and adjustments in that period. Ending stock in qty is arrived at by Applying all the changes in qty to the Available balance. Multiplying the stock balance in qty by the Average cost gives the Stock cost at the end of the period.

Using the perpetual method, the calculation is done upon every purchase transaction.

Thus, the calculation is the same based on the periodic calculation whether by period (periodic) or by transaction (perpetual).

The only difference is the 'periodicity' or scope of the calculation. - Periodic is done monthly - Perpetual is done for the duration of the purchase until the next purchase

In practice, the daily averaging has been used to closely approximate the perpetual method. 6. Bottle neck method (depends on proper planning support).

**Models used:**

- **Just-in-time Inventory (JIT),**
- **Vendor Managed Inventory (VMI),**
- **Customer Managed Inventory (CMI)**

are a few of the popular models being employed by organizations looking to have greater stock management control. JIT is a model which attempts to replenish inventory for organizations when the inventory is required. The model attempts to avoid excess inventory and its associated costs. As a result, companies receive inventory only when the need for more stock is approaching.

VMI and CMI are two business models that adhere to the JIT inventory principles. VMI gives the vendor in a vendor/customer relationship the ability to monitor, plan and control inventory for their customers. Customers relinquish the order making responsibilities in exchange for timely inventory replenishment that increases organizational efficiency.

CMI allows the customer to order and control their inventory from their vendors/suppliers. Both VMI and CMI benefit the vendor as well as the customer. Vendors see a significant increase in sales due to increased inventory turns and cost savings realized by their customers, while customers realize similar benefits.

**Activity 1.** What strategies for current assets financing do the world's largest oil and gas companies use? Please, give examples and describe.

**Activity 2.** What kind of models of cash flow management is used in oil and gas companies in your country? What about other countries? Please, give examples.

**Activity 3.** What kind of models of stock management is used in oil and gas companies in your country? What about other countries? Please, give examples.

## 5. Capital Structure Management

### 5.1 Capital structure

In finance, capital structure refers to the way a corporation finances its assets through some combination of equity, debt or hybrid securities. A firm's capital structure is then the composition or 'structure' of its liabilities. For example, a firm that sells \$20 billion in equity and \$80 billion in debt is said to be 20% equity-financed and 80% debt-financed. The firm's ratio of debt to total financing, 80% in this example, is referred to as the firm's leverage. In reality, capital structure may be highly complex and include dozens of sources. Gearing Ratio is the proportion of the capital employed of the firm which come from outside of the business finance, e.g. by taking a short term loan etc.

The Modigliani-Miller theorem, proposed by F. Modigliani and M. Miller, forms the basis for modern thinking on capital structure, though it is generally viewed as a purely theoretical result since it disregards many important factors in the capital structure decision. The theorem states that, in a perfect market, how a firm is financed is irrelevant to its value. This result provides the base with which to examine real world reasons why capital structure is relevant, that is, a company's value is affected by the capital structure it employs. Some other reasons include bankruptcy costs, agency costs, taxes and information asymmetry. This analysis can then be extended to look at whether there is in fact an optimal capital structure: the one which maximizes the value of the firm.

Consider a perfect capital market (no transaction or bankruptcy costs, perfect information); firms and individuals can borrow at the same interest rate; no taxes; and investment decisions aren't affected by financing decisions. Modigliani and Miller made two findings under these conditions. Their first 'proposition' was that the value of a company is independent of its capital structure. Their second 'proposition' stated that the cost of equity for a leveraged firm is equal to the cost of equity for an unleveraged firm, plus an added premium for financial risk. That is, as leverage increases, while the burden of individual risks is shifted between different investor classes, total risk is conserved and hence no extra value created.

Their analysis was extended to include the effect of taxes and risky debt. Under a classical tax system, the tax deductibility of interest makes debt financing valuable; that is, the cost of capital decreases as the proportion of debt in the capital structure increases. The optimal structure, then would be to have virtually no equity at all. If capital structure is irrelevant in a perfect market, then imperfections which exist in the real world must be the cause of its relevance. The theories below try to address some of these imperfections, by relaxing assumptions made in the M&M model.

The following tables contain data on capital company "Tatneft" for the 2010-2011 years.

Table 5.1 Dynamics structure of sources of capital JSC Tatneft, thousand rubles.

Sources of capital	The availability of funds, thousand rubles			Structure of assets, %		
	2010	2011	change	2010	2011	change
Shareholders ' equity	203 584 620	224 155 265	20 570 645	88,7	92,5	3,8
Borrowed capital	2601 339	18 130 518	7 880 821	11,3	7,5	-3,8
Total	229 595 959	242 285 783	-12 689 824	100	100	-

Table 5.2 Shareholders ' equity structure dynamics JSC Tatneft, thousand rubles.

Sources of capital	The availability of funds, thousand rubles			Structure of assets, %		
	2010	2011	change	2010	2011	change
Share capital	2 326 199	2 326 199	-	1,14	1,04	-0,10
Added capital	2 0915 237	19 216 908	-1 698 329	10,27	8,57	-1,70
Reserve fund	1 382 912	1 352 759	-30 153	0,68	0,60	-0,08
Retained earnings	178 960 272	201 259 399	22 299 127	87,90	89,79	1,88
Total	203 584 620	224 155 265	20 570 645	100	100	-

Table 5.3 Dynamics of borrowed capital JSC Tatneft, thousand rubles.

Sources	The availability of funds, thousand rubles			Structure of assets, %		
	2010	2011	change	2010	2011	change
Long-term liabilities						
Loans and credits	826 021	417 095	-408 926	2,73	2,30	-0,43
Deferred tax liabilities	3 923 099	4 986 480	1 063 381	12,96	27,50	14,55
Other long-term liabilities	-	41 005	41 005	-	0,23	0,23
Total long-term liabilities	4 749 120	5 444 580	695 460	-	-	-
Current liabilities						
Loans and credits	762 477	-	-762 477	2,52	-	-2,52
Payables	23 798 680	11 947 316	-11 851 364	78,59	65,90	-12,70
Liabilities to shareholders to pay income	60 610	88 985	28 375	0,20	0,49	0,29
Deferred income	20 681	16 586	-4 095	0,07	0,09	0,02
Upcoming expenses reserves	889 771	633 051	-256 720	2,94	3,49	0,55
Other current liabilities	-	-	-	-	-	-
Total current liabilities	25 532 219	12 685 938	-12846281	-	-	-
Total	30 281 339	18 130 518	-12150821	100	100	-

## 5.2 Weight Average Cost of Capital

In general, the WACC can be calculated with the following formula:

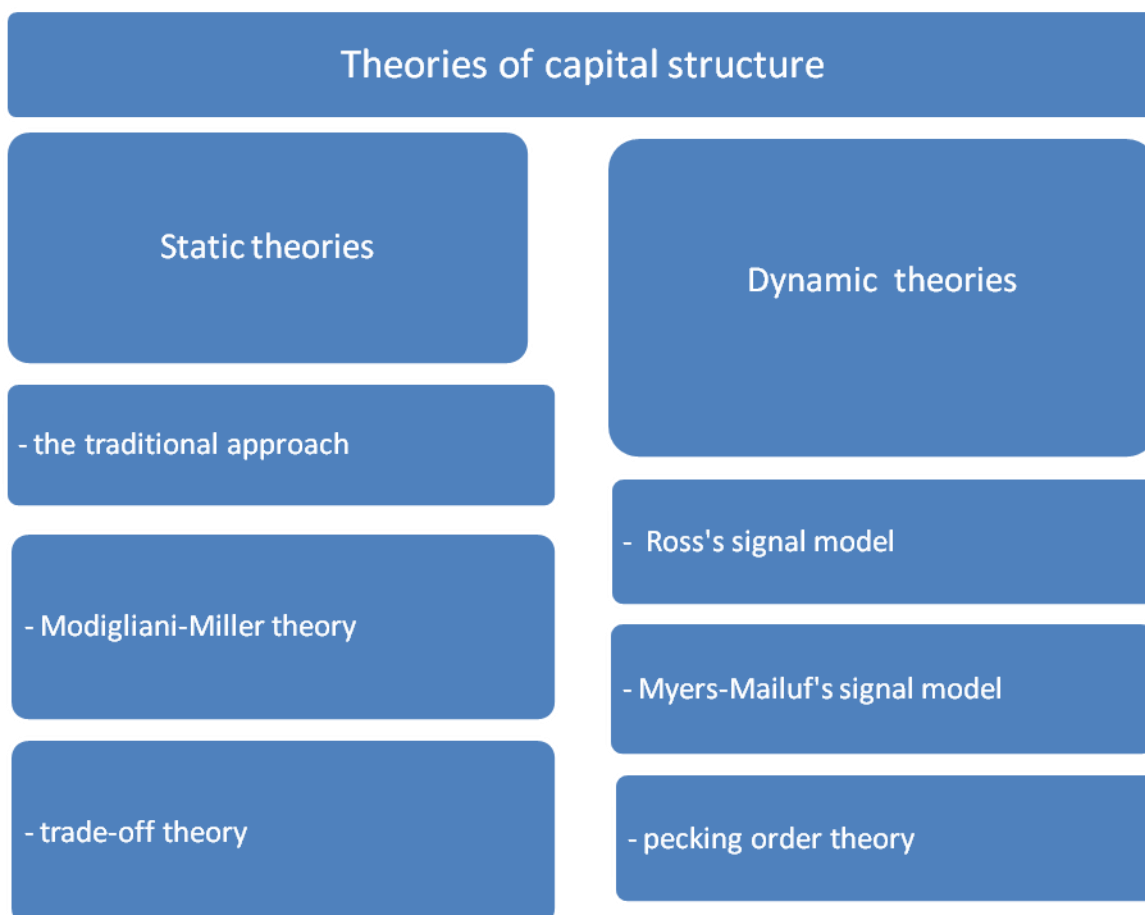
$$\text{WACC} = \frac{\sum_{i=1}^N r_i \cdot MV_i}{\sum_{i=1}^N MV_i}$$

where  $N$  is the number of sources of capital (securities, types of liabilities);  $r_i$  is the required rate of return for security  $i$ ;  $MV_i$  is the market value of all outstanding securities  $i$ .

Tax effects can be incorporated into this formula. For example, the WACC for a company financed by one type of shares with the total market value of  $MV_e$  and cost of equity  $R_e$  and one type of bonds with the total market value of  $MV_d$  and cost of debt  $R_d$ , in a country with corporate tax rate  $t$  is calculated as:

$$\text{WACC} = \frac{MV_e}{MV_d + MV_e} \cdot R_e + \frac{MV_d}{MV_d + MV_e} \cdot R_d \cdot (1 - t)$$

## 5.3 Basic Theories of capital structure



I thought it would be useful to look at some of theories of capital structure and what their purpose is, how they apply to companies and whether we really need to know about them as investors. Evidently, the later part of this statement is true – all parts of finance are indeed useful – and capital structure is no less important. There are three main theories of capital structure –

Trade-off Theory, Pecking Order Theory and Free Cash Flow – and today I am only going to focus on the first two. Please keep in mind that entire material have been written on these two theories and I intend on only covering the basics. A brief introduction to each are outlined below:

**Trade-off Theory** – The Trade-off Theory is a theory which suggests that companies have an optimal capital structure based on a trade-off between the benefits and the costs of using debt.

**Pecking Order Theory** – The Pecking Order Theory – suggests that companies always follow a hierarchical pattern in financing sources such that internal funds are always preferred to external ones and borrowing is preferred to issuing risky securities. This theory is based on information asymmetry whereby all relevant information is not known by all parties interested in knowing it. Information asymmetry is the battle ground for most fundamental investors as it involves the discrepancy between what insiders of a company know (managers) versus what those external to the company do (such as shareholders and lenders).

**Trade-off Theory.** The trade-off theory really emphasis the effects of taxes and the costs of financial distress in engaging in high leverage finance. This theory suggests that companies should borrow until the marginal tax advantage of additional debt is offset by the increase in present value of the expect costs of financial distress. Many opponents to the trade-off theory question how the theory actually explains capital structure decisions because there are many cases where corporate leveraging is much lower than what the trade-off theory suggests. Such opponents argue that many multi-national companies with high profit margins have operated for an extended period of time with low debt ratios and achieved solid credit ratings. Trade-off theory would suggest that these same companies could achieve significant interest tax savings by increasing their debt ratios without any remote possibility of financial distress becoming an issue.

Evidently, there are large bodies of evidence to suggest the opposite is also true and that trade-off theory is entirely useful. Trade-off theory can explain most of the differences in capital structure that exist between competing industries in stances where leveraging is low when business risk is high and when most of companies assets are intangible in nature. However, while trade-off theory does really take a common sense approach to capital structure there are many things it cannot explain. Some of these include:

- the conservative nature of companies when utilising debt finance,
- why leverage is negatively related to profitability,
- why leverage is so consistent across most countries despite huge variances in their taxation systems.

**Pecking Order Theory.** The Pecking Order Theory is a popular capital structure theory which usually explains why internal finance is much more popular than external finance and why debt is classified as the most attractive external finance option. The theory basically suggests that companies with high profitability may use less debt than other companies because they have less need to raise funds externally and because debt is the ‘cheapest’ and most ‘attractive’ external option when compared to other methods of capital raising.

Pecking order theory is really based on information asymmetry and when such information differences exist between managers and investors – issuing high risk securities involves large information costs. These costs are typically seen in the dilution of existing shareholders interests in a company if new shares are issued when they are undervalued. The pecking order theory infers that because of the high information cost correlated to the new high risk securities, companies will generally only issue equity as an absolute last resort.

Both of these methods have their advantages and their disadvantages when examining the structures of capital financing. There are an abundant number of issues which must be explored and there are numerous texts available on this branch of finance. The most important aspect is to understand the different structures of capital financing so that it is possible to estimate the future profitability of a company and also the managements strategies in raising differing forms of finance. Information asymmetry does imply that ‘insiders’ will always have a greater knowledge bucket in comparison to external investors of a company, and therefore examining the different methods of capital structure does help to strike a balance in the vicinity of par towards those external to a company.

**Activity 1.** What kind of capital structure theories is used in the oil and gas companies in your country? What about other countries? Please, give examples.

**Activity 2.** Calculate WACC for oil and gas companies in your country; companies from other countries. Make at least 3 calculations, analyze.



## 6. Risks and Leverages in Financial Management

**Leverage** is a general term for any technique to multiply gains and losses. Common ways to attain leverage are borrowing money, buying fixed assets and using derivatives.

Degree of Operating Leverage (DOL)= (EBIT + Fixed costs) / EBIT

Degree of Financial Leverage (DFL)= EBIT / ( EBIT - Total Interest expense )

Degree of Combined Leverage (DCL)= DOL \* DFL

Accounting leverage has the same definition as in investments. There are several ways to define operating leverage, the most common is:

$$\text{Operating leverage} = \frac{\text{Revenue} - \text{Variable Cost}}{\text{Revenue} - \text{Variable Cost} - \text{Fixed Cost}} = \frac{\text{Revenue} - \text{Variable Cost}}{\text{Operating Income}}$$

Financial leverage is usually defined as:

$$\text{Financial leverage} = \frac{\text{Operating Income}}{\text{Net Income}}$$

Operating leverage is an attempt to estimate the percentage change in operating income (EBIT) for a one percent change in revenue.

Financial leverage tries to estimate the percentage change in net income for a one percent change in operating income.

The product of the two is called Total leverage, and estimates the percentage change in net income for a one percent change in revenue.

There are several variants of each of these definitions, and the financial statements are usually adjusted before the values are computed. Moreover, there are industry-specific conventions that differ somewhat from the treatment above.

### 6.1 Operating leverage of the company

This illustration shows the break-even charts for two oil and gas companies implementing similar petroleum products for the same price. The difference is in the cost of their production: the higher of one enterprise variables, but lower fixed costs, another-on the contrary. Operating Leverages for Leninogorskneft and Yamashneft companies are in the picture below.

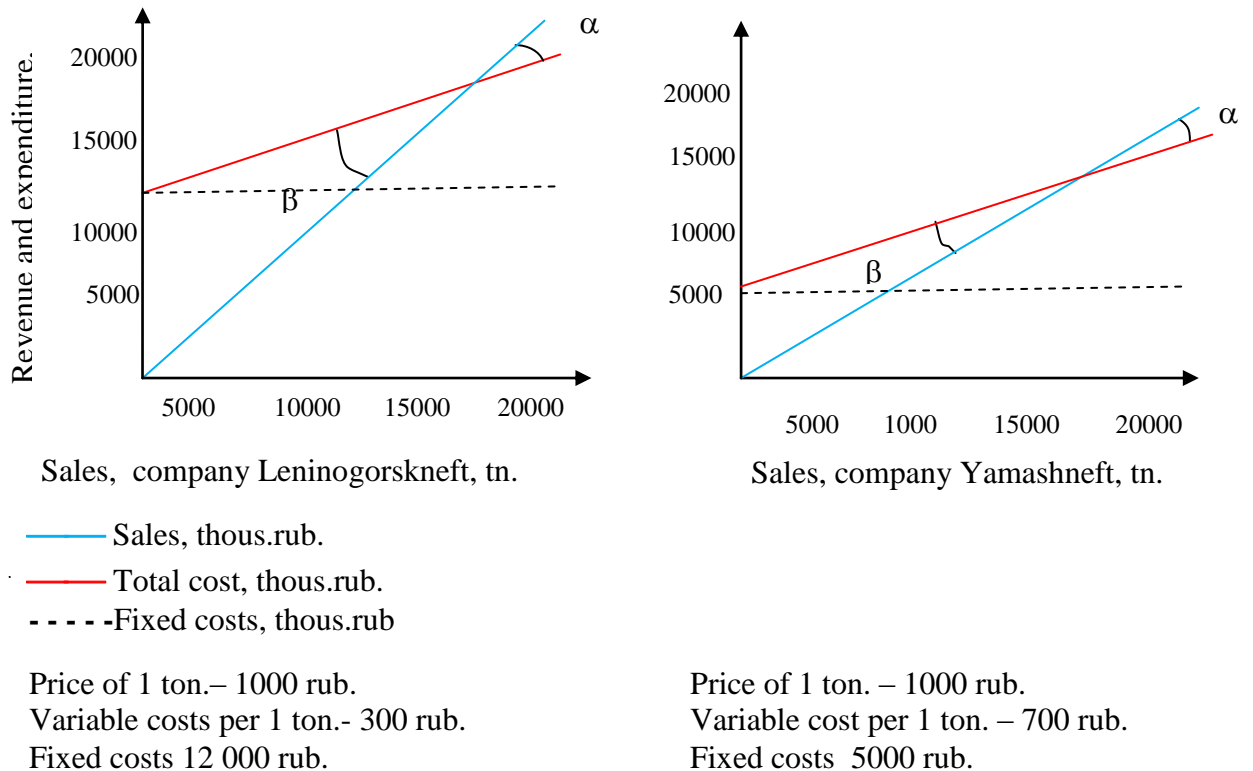


Fig. 6.1 Operating Leverages for Leninogorskneft and Yamashneft companies

## 6.2 Financial leverage of the company

The use of borrowed money to increase production volume, and thus sales and earnings. It is measured as the ratio of total debt to total assets. The greater the amount of debt, the greater the financial leverage.

Since interest is a fixed cost (which can be written off against revenue) a loan allows an organization to generate more earnings without a corresponding increase in the equity requiring increased dividend payments (which cannot be written off against the earnings). However, while high leverage may be beneficial in boom period, it may cause serious cash flow problems in recessionary periods because there might not be enough sales revenue to cover the interest payments. Called gearing in UK.

## 6.3 Risks in financial management

**Leverage and ROE.** If we have to check real effect of leverage on ROE, we have to study financial leverage. Financial leverage refers to the use of debt to acquire additional assets. Financial leverage may decrease or increase return on equity in different conditions. Financial over-leveraging means incurring a huge debt by borrowing funds at a lower rate of interest and using the excess funds in high risk investments in order to maximize returns.

**Leverage and risk.** The most obvious risk of leverage is that it multiplies losses. A corporation that borrows too much money might face bankruptcy during a business downturn, while a less-

levered corporation might survive. An investor who buys a stock on 50% margin will lose 40% of his money if the stock declines 20%.

There is an important implicit assumption in that account, however, which is that the underlying levered asset is the same as the unlevered one. If a company borrows money to modernize, or add to its product line, or expand internationally, the additional diversification might more than offset the additional risk from leverage. Or if an investor uses a fraction of his or her portfolio to margin stock index futures and puts the rest in a money market fund, he or she might have the same volatility and expected return as an investor in an unlevered equity index fund, with a limited downside. So while adding leverage to a given asset always adds risk, it is not the case that a levered company or investment is always riskier than an unlevered one. In fact, many highly-levered hedge funds have less return volatility than unlevered bond funds, and public utilities with lots of debt are usually less risky stocks than unlevered technology companies.

**Popular risks.** There is a popular prejudice against leverage rooted in the observation that people who borrow a lot of money often end up badly. But the issue here is those people are not leveraging anything, they're borrowing money for consumption.

In finance, the general practice is to borrow money to buy an asset with a higher return than the interest on the debt. That at least might work out. People who consistently spend more than they make have a problem, but it's overspending (or underearning), not leverage. The same point is more controversial for governments.

People sometimes borrow money out of desperation rather than calculation. That also is not leverage. But it is true that leverage sometimes increases involuntarily. When long-term capital management collapsed with over 100 to 1 leverage, it wasn't that the principals tried to run the firm at 100 to 1 leverage, it was that as equity eroded and they were unable to liquidate positions, the leverage level was beyond their control. One hundred to one leverage was a symptom of their problems, not the cause (although, of course, part of the cause was the 27 to 1 leverage the firm was running before it got into trouble, and the 55 to 1 leverage it had been forced up to by mid-August 1998 before the real troubles started). But the point is the fact that collapsing entities often have a lot of leverage does not mean that leverage causes collapses.

Involuntary leverage is a risk. It means that as things get bad, leverage goes up, multiplying losses as things continue to go down. This can lead to rapid ruin, even if the underlying asset value decline is mild or temporary. The risk can be mitigated by negotiating the terms of leverage, and by leveraging only liquid assets.

**Activity 1.** Calculate operating leverage degree and operating leverage for oil company from your country.

**Activity 2.** If it's possible, calculate financial leverage degree and financial leverage for oil company from your country.

**Activity 3.** Describe the types of risks taken into account in financial management in oil and gas companies in your country.

## **7. Payout policy of the company**

### **7.1 Payout policy and the possibility of its selection**

**Dividend policy** is concerned with taking a decision regarding paying cash dividend in the present or paying an increased dividend at a later stage. The firm could also pay in the form of stock dividends which unlike cash dividends do not provide liquidity to the investors, however, it ensures capital gains to the stockholders. The expectations of dividends by shareholders helps them determine the share value, therefore, dividend policy is a significant decision taken by the financial managers of any company.

**Dividends** paid by the firms are viewed positively both by the investors and the firms. The firms which do not pay dividends are rated in oppositely by investors thus affecting the share price. The people who support relevance of dividends clearly state that regular dividends reduce uncertainty of the shareholders i.e. the earnings of the firm is discounted at a lower rate, thereby increasing the market value. However, its exactly opposite in the case of increased uncertainty due to non-payment of dividends.

The firm paying out dividends is obviously generating incomes for an investor, however even if the firm takes some investment opportunity then the incomes of the investors rise at a later stage due to this profitable investment.

### **7.2 Payout policies types**

**Dividends** are payments made by a corporation to its shareholder members. It is the portion of corporate profits paid out to stockholders. When a corporation earns a profit or surplus, that money can be put to two uses: it can either be re-invested in the business (called retained earnings), or it can be distributed to shareholders. There are two ways to distribute cash to shareholders: share repurchases or dividends. Many corporations retain a portion of their earnings and pay the remainder as a dividend.

A dividend is allocated as a fixed amount per share. Therefore, a shareholder receives a dividend in proportion to their shareholding. For the joint stock company, paying dividends is not an expense; rather, it is the division of after tax profits among shareholders. Retained earnings (profits that have not been distributed as dividends) are shown in the shareholder equity section in the company's balance sheet - the same as its issued share capital. Public companies usually pay dividends on a fixed schedule, but may declare a dividend at any time, sometimes called a special dividend to distinguish it from the fixed schedule dividends.

Cooperatives, on the other hand, allocate dividends according to members' activity, so their dividends are often considered to be a pre-tax expense.

Dividends are usually paid in the form of cash, store credits (common among retail consumers' cooperatives) and shares in the company (either newly created shares or existing shares bought in the market.) Further, many public companies offer dividend reinvestment plans, which automatically use the cash dividend to purchase additional shares for the shareholder.

**Forms of payment. Cash dividends** (most common) are those paid out in currency, usually via electronic funds transfer or a printed paper check. Such dividends are a form of investment

income and are usually taxable to the recipient in the year they are paid. This is the most common method of sharing corporate profits with the shareholders of the company. For each share owned, a declared amount of money is distributed. Thus, if a person owns 100 shares and the cash dividend is USD \$0.50 per share, the holder of the stock will be paid USD \$50.

**Stock or scrip dividends** are those paid out in the form of additional stock shares of the issuing corporation, or another corporation (such as its subsidiary corporation). They are usually issued in proportion to shares owned (for example, for every 100 shares of stock owned, a 5% stock dividend will yield 5 extra shares). If the payment involves the issue of new shares, it is similar to a stock split in that it increases the total number of shares while lowering the price of each share without changing the market capitalization, or total value, of the shares held.

**Property dividends or dividends in specie (Latin for "in kind")** are those paid out in the form of assets from the issuing corporation or another corporation, such as a subsidiary corporation. They are relatively rare and most frequently are securities of other companies owned by the issuer, however they can take other forms, such as products and services.

**Interim dividends** are dividend payments made before a company's annual general meeting (AGM) and final financial statements. This declared dividend usually accompanies the company's interim financial statements.

Other dividends can be used in structured finance. Financial assets with a known market value can be distributed as dividends; warrants are sometimes distributed in this way. For large companies with subsidiaries, dividends can take the form of shares in a subsidiary company. A common technique for "spinning off" a company from its parent is to distribute shares in the new company to the old company's shareholders. The new shares can then be traded independently.

**Reliability of dividends.** There are two metrics which are commonly used to gauge the sustainability of a firm's dividend policy.

**Payout ratio** is calculated by dividing the company's dividend by the earnings per share. A payout ratio greater than 1 means the company is paying out more in dividends for the year than it earned.

**Dividend cover** is calculated by dividing the company's cash flow from operations by the dividend. This ratio is apparently popular with analysts of income trusts in Canada.

**Dividend Dates.** Any dividend that is declared must be approved by a company's Board of Directors before it is paid. For public companies, there are four important dates to remember regarding dividends. These are discussed in detail with examples at the Securities and Exchange Commission site.

**Declaration date** is the day the Board of Directors announces its intention to pay a dividend. On this day, a liability is created and the company records that liability on its books; it now owes the money to the stockholders. On the declaration date, the Board will also announce a date of record and a payment date.

**In-dividend date** is the last day, which is one trading day before the ex-dividend date, where the stock is said to be cum dividend ('with [including] dividend'). In other words, existing holders of the stock and anyone who buys it on this day will receive the dividend, whereas any holders selling the stock lose their right to the dividend. After this date the stock becomes ex dividend.

**Ex-dividend date** (typically 2 trading days before the record date for U.S. securities) is the day on which all shares bought and sold no longer come attached with the right to be paid the most recently declared dividend. This is an important date for any company that has many stockholders, including those that trade on exchanges, as it makes reconciliation of who is to be paid the dividend easier. Existing holders of the stock will receive the dividend even if they now sell the stock, whereas anyone who now buys the stock will not receive the dividend. It is relatively common for a stock's price to decrease on the ex-dividend date by an amount roughly equal to the dividend paid. This reflects the decrease in the company's assets resulting from the declaration of the dividend. The company does not take any explicit action to adjust its stock price; in an efficient market, buyers and sellers will automatically price this in.

**Book closure Date Whenever** a company announces a dividend pay-out, it also announces a date on which the company will ideally temporarily close its books for fresh transfers of stock.

**Record date Shareholders** registered in the stockholders of record on or before the date of record will receive the dividend. Shareholders who are not registered as of this date will not receive the dividend. Registration in most countries is essentially automatic for shares purchased before the ex-dividend date.

**Payment date** is the day when the dividend checks will actually be mailed to the shareholders of a company or credited to brokerage accounts.

**Dividend-reinvestment.** Some companies have dividend reinvestment plans, or DRIPs, not to be confused with scrips. DRIPs allow shareholders to use dividends to systematically buy small amounts of stock, usually with no commission and sometimes at a slight discount. In some cases, the shareholder might not need to pay taxes on these re-invested dividends, but in most cases they do.

### ***7.3 Payout policy Determining Factors***

Factors Affecting Dividend Policy:

1. External Factors
2. Internal Factors

**External Payout policy Determining Factors:**

**1. General State of Economy:**

- in case of uncertain economic and business conditions, the management may like to retain whole or large part of earnings to build up reserves to absorb future shocks;
- in the period of depression the management may also retain a large part of its earnings to preserve the firm's liquidity position;
- in periods of prosperity the management may not be liberal in dividend payments because of availability of larger profitable investment opportunities;

- in periods of inflation, the management may retain large portion of earnings to finance replacement of obsolete machines.

## **2. State of Capital Market:**

Favourable Market: liberal dividend policy.

Unfavourable market: Conservative dividend policy.

## **3. Legal Restrictions:**

Companies Act has laid down various restrictions regarding the declaration of dividend:

Dividends can only be paid out of:

\*\* Current or past profits of the company.

Money provided by the State/ Central Government in pursuance of the guarantee given by the Government.

Payment of dividend out of capital is illegal.

A company cannot declare dividends unless:

\*\* It has provided for present as well as all arrears of depreciation.

Certain percentage of net profits has been transferred to the reserve of the company.

Past accumulated profits can be used for declaration of dividends only as per the rules framed by the Central Government

## **4. Contractual Restrictions:**

Lenders sometimes may put restrictions on the dividend payments to protect their interests (especially when the firm is experiencing liquidity problems).

Example:

A loan agreement that the firm shall not declare any dividend so long as the liquidity ratio is less than 1:1. The firm will not pay dividend more than 20% so long as it does not clear the loan.

## **Internal Payout policy Determining Factors:**

- 1. Desire of the Shareholders:** though the directors decide the rate of dividend, it is always at the interest of the shareholders. Shareholders expect two types of returns:
  - Capital Gains: i.e., an increase in the market value of shares;
  - Dividends: regular return on their investment. Cautious investors look for dividends because, it reduces uncertainty (capital gains are uncertain). Indication of financial strength of the company. Need for income: Some invest in shares so as to get regular income to meet their living expenses.
- 2. Financial Needs of the Company:** if the company has profitable projects and it is costly to raise funds, it may decide to retain the earnings.
- 3. Nature of earnings:** a company which has stable earnings can afford to have an higher divided payout ratio.
- 4. Desire to retain the control of management:** additional public issue of share will dilute the control of management.
- 5. Liquidity position:** payment of dividend results in cash outflow. A company may have adequate earning but it may not have sufficient funds to pay dividends.



**6. Stability of Dividends.** The term stability of dividends means consistency in the payment of dividends. It refers to regular payment of a certain minimum amount as dividend year after year. Even if the company's earnings fluctuate from year to year, its dividend should not. This is because the shareholders generally value stable dividends more than fluctuating ones.

Stable dividend can be in the form of:

1. Constant dividend per share
2. Constant percentage
3. Stable rupee dividend plus extra dividend

Significance of Stability of Dividend:

1. Desire for current income
2. Sign of financial stability of the company
3. Requirement of institutional investors
4. Investors confidence in the company

**Danger of Stable Dividend Policy:** Stable dividend policy may sometimes prove dangerous. Once a stable dividend policy is adopted by a company, any adverse change in it may result in serious damage regarding the financial standing of the company in the mind of the investors.

## ***7.4 Forms and the order of the payout payments***

### **Forms of Dividend**

1. **Cash Dividend:** the normal practice is to pay dividends in cash. The payment of dividends in cash results in cash outflow from the firm. Therefore the firm should have adequate cash resources at its disposal before declaring cash dividend.
2. **Stock Dividend:** the company issues additional shares to the existing shareholders in proportion to their holdings of equity share capital of the company. Stock dividend is popularly termed as 'issue of bonus shares.' This is next to cash dividend in respect of its popularity.
3. **Bond Dividend:** in case the company does not have sufficient funds to pay dividends in cash it may issue bonds for the amount due to shareholders. The main purpose of bond dividend is postponement of payment of immediate dividend in cash. The bond holders get regular interest on their bonds besides payment of the bond money on the due date.
4. **Property Dividend:** this is a case when the company pays dividend in the form of assets other than cash. This may be in the form of certain assets which are not required by the company or in the form of company's products.
5. **Bonus Shares:** when the additional shares are allotted to the existing shareholders without receiving any additional payment from them, is known as issue of bonus shares. Bonus shares are allotted by capitalizing the reserves and surplus. Issue of bonus shares results in the conversion of the company's profits into share capital.

Therefore it is termed as capitalization of company's profits. Since such shares are issued to the equity shareholders in proportion to their holdings of equity share capital of the company, a shareholder continues to retain his/ her proportionate ownership of the company. Issue of bonus shares does not affect the total capital structure of the company. It is simply a capitalization of that portion of shareholders' equity which is represented by reserves and surpluses. It also does not affect the total earnings of the shareholders

## **7.5 Tendencies of the payout policy of Russian oil and gas companies**

Table 7.1 Dividends of Russian companies of oil and gas industry for 2008.

	Name of company	Dividends for 2008, mln. rub.	Change of payment compared to 2007.	Share of profit in 2008, in dividends	Dividends for 2008. per share, rub	
					ordinary	privilege
1	TNK-BP Holding	82 462	+66%	51,9%	5,06	5,06
2	Gazprom	62 278	+18%	17,5%	2,66	-
3	LUKOIL	42 528	+19%	58,3%	50	-
4	Surgutneftegaz	31 648	+14%	22%	0,6	1,33
5	Gazpromneft	25 603	no	22,1%	5,4	-
6	Rosneft	20 349	+20%	7,4%	1,92	-
7	Tatneft	10 282	-22%	122,2%	4,42	4,42
8	Bashneft	9 998	increase 3 times	92,2%	48,8	48,8
9	Udmurtneft	7 589	-36%	67,4%	2131	-
10	Slavneft	5 848	increase 4,4 times	94,6%	1,23	-
11	Transneft	368	-68%	10%	0	237

Table 7.2 Dividends of Russian companies of oil and gas industry for 2010-2011.

Name of company	Dividends for 2010, per share, \$		Dividend yield, 2010, %		Dividends for 2011, per share, \$		Dividend yield, 2011, %	
	ordinary	privilege	ordinary	privilege	ordinary	privilege	ordinary	privilege
Gazprom	0,12	-	1,8	-	0,15	-	2,2	-
Rosneft	0,15	-	1,8	-	0,15	-	1,8	-
LUKOIL	1,66	-	2,6	-	1,9	-	3	-
Surgutneftegaz	0,03	0,03	2,1	6,1	0,03	0,03	2,1	6,1
TNK-BP Holding	0,35	0,35	2,7	3	0,17	0,17	5,7	6,3
Gazpromneft	0,1	-	2,4	-	0,1	-	2,3	-
NOVATEK	0,12	-	1	-	0,1	-	0,9	-
Tatneft	0,19	0,19	3,4	6,3	0,29	0,29	5,2	9,4
Bashneft	4	4	1,1	1,4	3,02	3,02	6,8	8,4

[Source: VTB Capital]

**Activity 1.** What kinds of payout policy theories are used in different countries in oil and gas industry? Why?

What kinds of factors now limit the payment of dividends in the oil and gas companies in different countries? Describe and analyze them.

**Activity 2.** Describe the tendency of dividend payment in oil companies from different countries. Rank them and make research within each group.

## 8. Company Investment Policy

### 8.1 Company investment resources and policy of their control

**Company investment policy** is a statement, which provides general investment goals and objectives of a client and describes the strategies that the manager should employ to meet these objectives. Specific information on matters such as asset allocation, risk tolerance, and liquidity requirements would also be included in an investment policy.

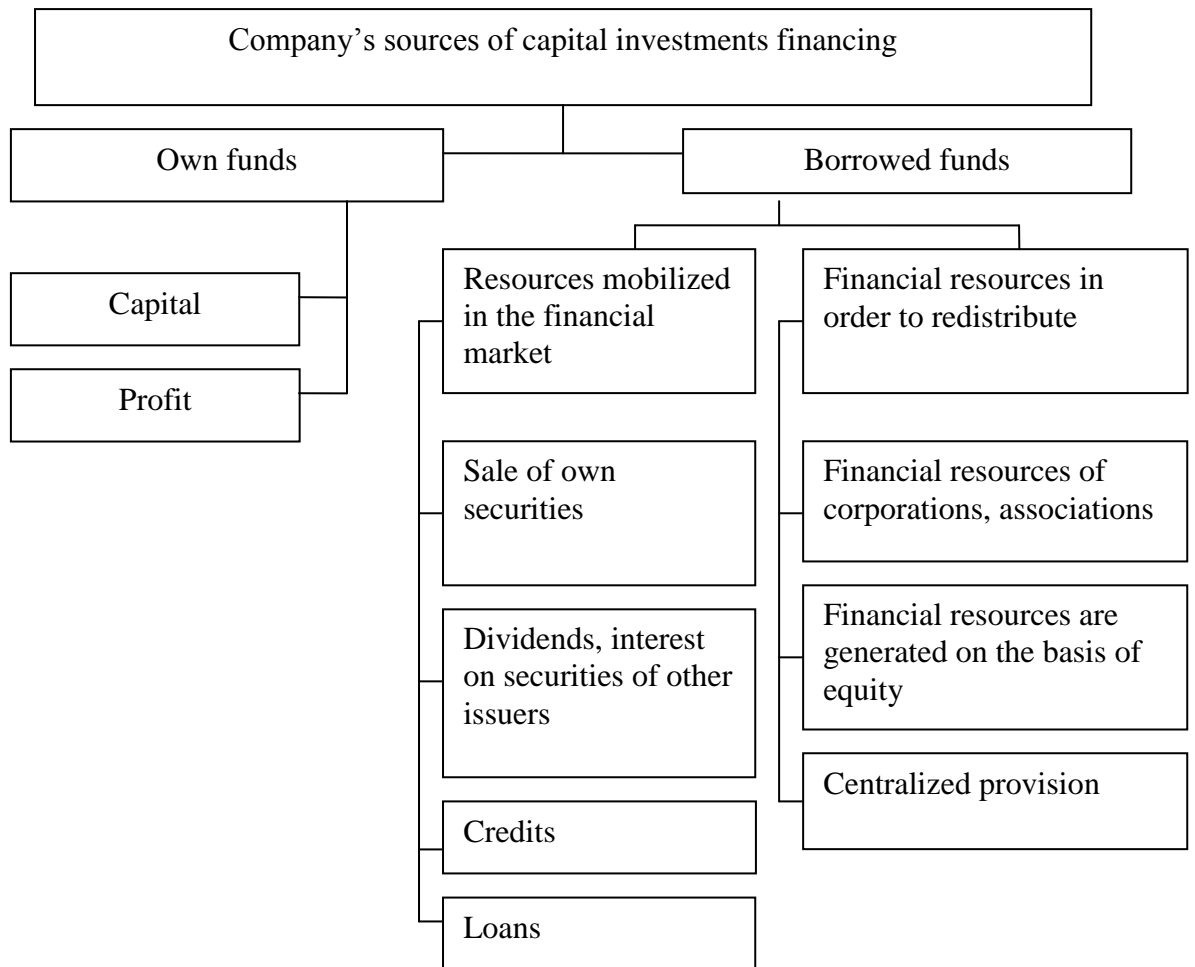


Fig.8.1 Financial investment sources of a company

## 8.2 *Companie's investment resources formation in oil and gas industry*

The procedure for the formation of the investment program in JSC Tatneft is presented in Fig. 8.2.

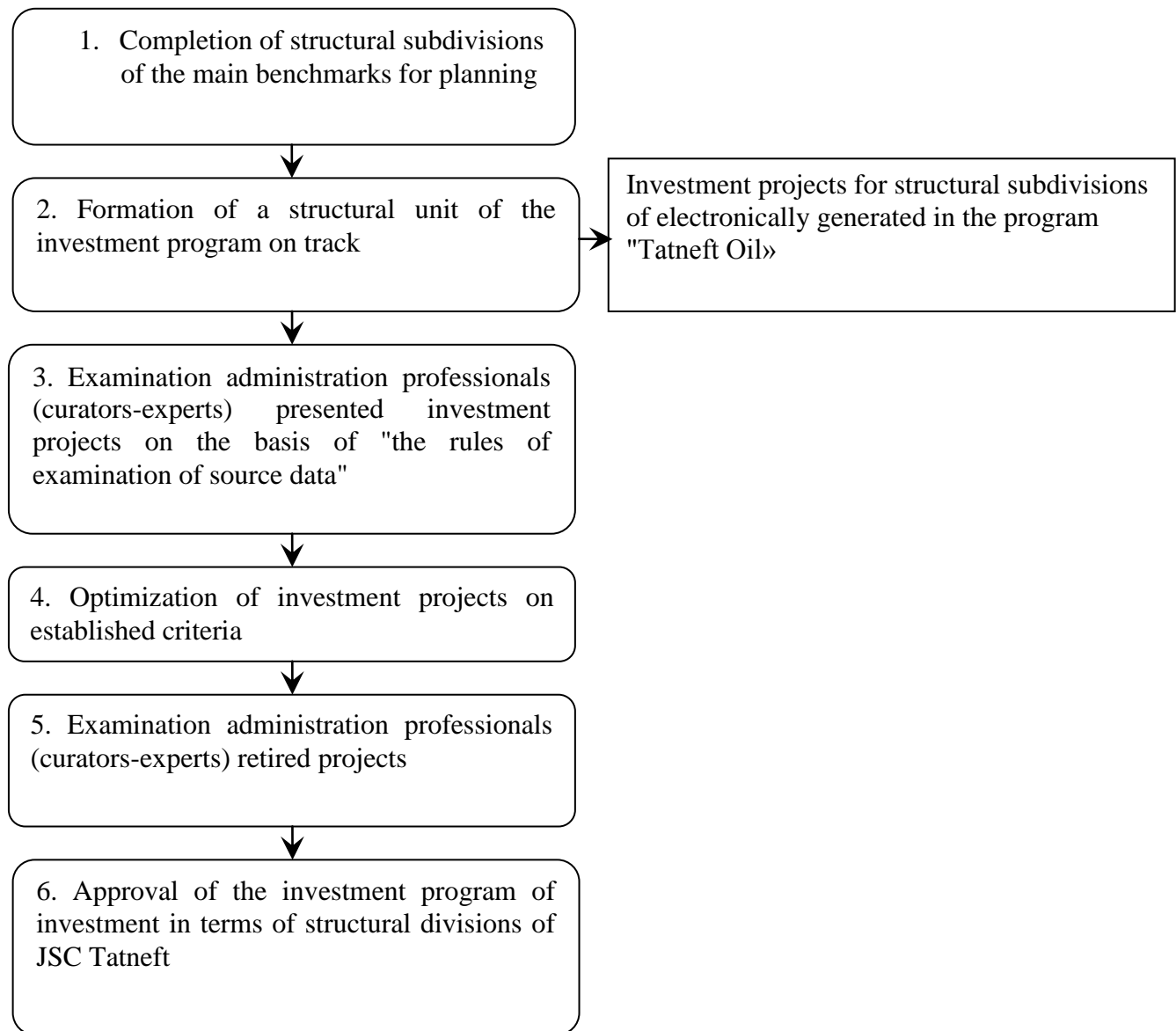


Fig.8.2 The procedure for the investment program formation in JSC Tatneft

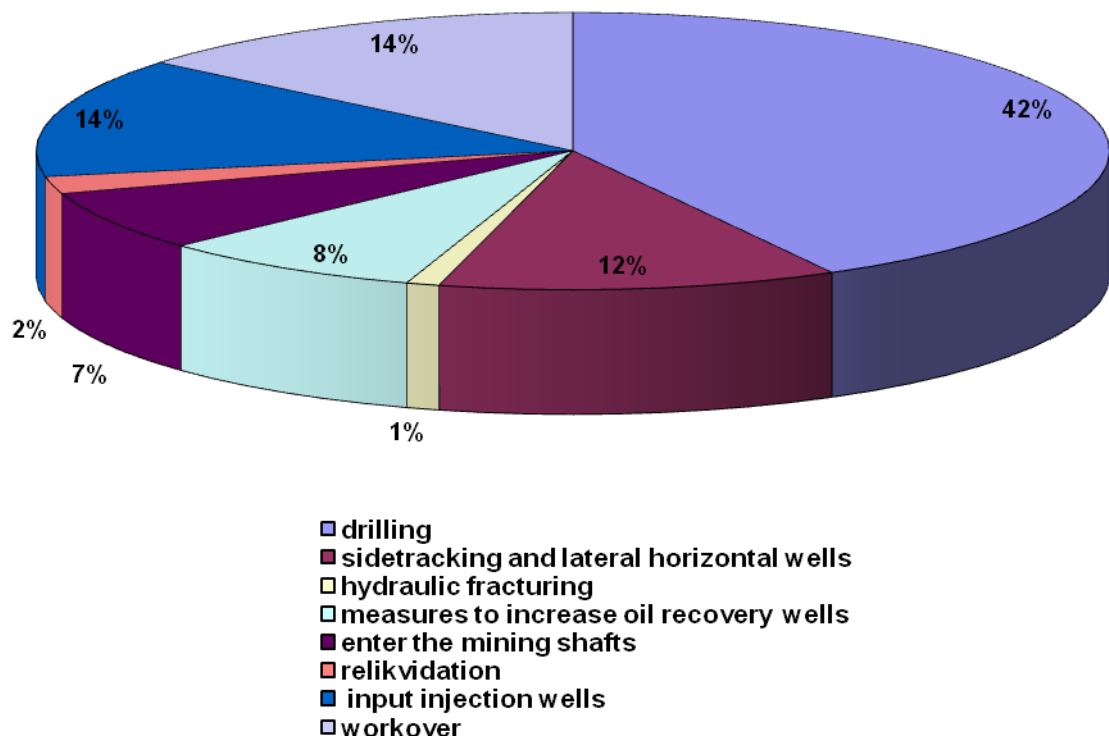


Fig. 8.3 Investments structure of JSC Tatneft activities for 2011.

### **8.3 Company project financing on the basis of Production Sharing Agreement (PSA)**

**Production sharing agreements (PSAs)** are a common type of contract signed between a government and a resource extraction company (or group of companies) concerning how much of the resource (usually oil) extracted from the country each will receive.

Production sharing agreements were first used in Bolivia in the early 1950s, although their first implementation similar to today's was in Indonesia in the 1960s. Today they are often used in the Middle East and Central Asia. In production sharing agreements the country's government awards the execution of exploration and production activities to an oil company. The oil company bears the mineral and financial risk of the initiative and explores, develops and ultimately produces the field as required. When successful, the company is permitted to use the money from produced oil to recover capital and operational expenditures, known as "cost oil". The remaining money is known as "profit oil", and is split between the government and the company, typically at a rate of about 80% for the government, 20% for the company. In some production sharing agreements, changes in international oil prices or production rate can affect the company's share of production.

Production sharing agreements can be beneficial to governments of countries that lack the expertise and/or capital to develop their resources and wish to attract foreign companies to do so. They can be very profitable agreements for the oil companies involved, but often involve considerable risk.

First implemented in Malaysia, the risk sharing contracts (RSC) departs from the production sharing contracts (PSC) first introduced in 1976 and most recently revised last year as the enhanced oil recovery (EOR) PSC which ramps up recovery rate from 26% to 40%. As a performance-based agreement, it is developed in Malaysia for the Malaysian people and private partners to both benefit from successfully and viably monetizing these marginal fields. At the Center for Energy Sustainability and Economics' Production Optimisation Week Asia Forum in Malaysia on 27 July 2011, Finance Deputy Minister YB. Sen. Dato' Ir. Donald Lim Siang Chai expounded that the trail-blazing RSC calls for optimal delivery of production targets and allows for knowledge transfer from joint ventures between foreign and local players in the development of Malaysia's 106 marginal fields, which cumulatively contain 580 million barrels of oil equivalent (BOE) in today's high-demand, low-resource energy market.

#### **8.4 Project financing**

Project finance is the long term financing of infrastructure and industrial projects based upon the projected cash flows of the project rather than the balance sheets of the project sponsors. Usually, a project financing structure involves a number of equity investors, known as sponsors, as well as a syndicate of banks or other lending institutions that provide loans to the operation. The loans are most commonly non-recourse loans, which are secured by the project assets and paid entirely from project cash flow, rather than from the general assets or creditworthiness of the project sponsors, a decision in part supported by financial modeling. The financing is typically secured by all of the project assets, including the revenue-producing contracts. Project lenders are given a lien on all of these assets, and are able to assume control of a project if the project company has difficulties complying with the loan terms.

Generally, a special purpose entity is created for each project, thereby shielding other assets owned by a project sponsor from the detrimental effects of a project failure. As a special purpose entity, the project company has no assets other than the project. Capital contribution commitments by the owners of the project company are sometimes necessary to ensure that the project is financially sound, or to assure the lenders of the sponsors' commitment. Project finance is often more complicated than alternative financing methods. Traditionally, project financing has been most commonly used in the extractive (mining), transportation, telecommunication and energy industries. More recently, particularly in Europe, project financing principles have been applied to other types of public infrastructure under public-private partnership (PPP) or, in the UK, Private Finance Initiative (PFI) transactions (e.g., school facilities) as well as sports and entertainment venues.

Risk identification and allocation is a key component of project finance. A project may be subject to a number of technical, environmental, economic and political risks, particularly in developing countries and emerging markets. Financial institutions and project sponsors may conclude that the risks inherent in project development and operation are unacceptable (unfinanceable). To cope with these risks, project sponsors in these industries (such as power plants or railway lines) are generally completed by a number of specialist companies operating in

a contractual network with each other that allocates risk in a way that allows financing to take place. Several long-term contracts such as construction, supply, off-take and concession agreements, along with a variety of joint-ownership structures, are used to align incentives and deter opportunistic behaviour by any party involved in the project. The various patterns of implementation are sometimes referred to as “project delivery methods”. The financing of these projects must also be distributed among multiple parties, so as to distribute the risk associated with the project while simultaneously ensuring profits for each party involved.

A riskier or more expensive project may require limited recourse financing secured by a surety from sponsors. A complex project finance structure may incorporate corporate finance, securitization, options (derivatives), insurance provisions or other types of collateral enhancement to mitigate unallocated risk.

Project finance shares many characteristics with maritime finance and aircraft finance; however, the latter two are more specialized fields within the area of assets finance.

## **8.5 Venture capital financing**

**Venture capital financing** is a type of financing by venture capital: the type of private equity capital is provided as seed funding to early-stage, high-potential, growth companies and more often after the seed funding round as growth funding round (also referred as series A round) in the interest of generating a return through an eventual realization event such as an IPO or trade sale of the company.

To start a new startup company or to bring a new product to the market, the venture may need to attract financial funding. There are several categories of financing possibilities. Smaller ventures sometimes rely on family funding, loans from friends, personal bank loans or crowd funding.

More ambitious projects that need more substantial funding may turn to angel investors - private investors who use their own capital to finance a ventures' need, or venture capital (VC) companies that specialize in financing new ventures. VC firms may also provide expertise the venture is lacking, such as legal or marketing knowledge.

### **Venture capital financing process**

There are five common stages of venture capital financing:

- The Seed stage,
- The Start-up stage,
- The Second stage,
- The Third stage,
- The Bridge/Pre-public stage.

The number and type of stages may be extended by the VC firm if it deems necessary; this is common. This may happen if the venture does not perform as expected due to bad management or market conditions.

**The Seed Stage.** This is where the seed funding takes place. It is considered as the setup stage where a person or a venture approaches an angel investor or an investor in a VC firm for funding for their idea/product. During this stage, the person or venture has to convince the investor why



the idea/product is worthwhile. The investor will investigate into the technical and the economical feasibility of the idea. In some cases, there is some sort of prototype of the idea/product that is not fully developed or tested.

If the idea is not feasible at this stage, and the investor does not see any potential in the idea/product, the investor will not consider financing the idea. However if the idea/product is not directly feasible, but part of the idea is worth for more investigation, the investor may invest some time and money in it for further investigation.

**Risk.** At this stage, the risk of losing the investment is tremendously high, because there are so many uncertain factors. Research by J.C. Ruhnka and J.E. Young shows that the risk of losing the investment for the VC firm is around 66.2% and the causation of major risk by stage of development is 72%. The Harvard report by William R. Kerr, Josh Lerner, and Antoinette Schoar, however, shows evidence that angel-funded startup companies are less likely to fail than companies that rely on other forms of initial financing.

**The Start-up Stage.** If the idea/product/process is qualified for further investigation and/or investment, the process will go to the second stage; this is also called the start-up stage. At this point many exciting things happen. A business plan is presented by the attendant of the venture to the VC firm. A management team is being formed to run the venture. If the company has a board of directors, a person from the VC firms will take seats at the board of directors.

While the organisation is being set up, the idea/product gets its form. The prototype is being developed and fully tested. In some cases, clients are being attracted for initial sales. The management-team establishes a feasible production line to produce the product. The VC firm monitors the feasibility of the product and the capability of the management-team from the board of directors.

To prove that the assumptions of the investors are correct about the investment, the VC firm wants to see result of market research to see whether the market size is big enough, if there are enough consumers to buy their product. They also want to create a realistic forecast of the investment needed to push the venture into the next stage. If at this stage, the VC firm is not satisfied about the progress or result from market research, the VC firm may stop their funding and the venture will have to search for another investor(s). When the cause relies on handling of the management in charge, they will recommend replacing (parts of) the management team.

**Risk.** At this stage, the risk of losing the investment is shrinking, because the uncertainty is becoming clearer. The risk of losing the investment for the VC firm is dropped to 53.0%, but the causation of major risk by stage of development becomes higher, which is 75.8%. This can be explained by the fact because the prototype was not fully developed and tested at the seed stage. And the VC firm has underestimated the risk involved. Or it could be that the product and the purpose of the product have been changed during the development.

**The Second Stage.** At this stage, we presume that the idea has been transformed into a product and is being produced and sold. This is the first encounter with the rest of the market, the competitors. The venture is trying to squeeze between the rest and it tries to get some market

share from the competitors. This is one of the main goals at this stage. Another important point is the cost. The venture is trying to minimize their losses in order to reach the break-even..

The management team has to handle very decisively. The VC firm monitors the management capability of the team. This consists of how the management team manages the development process of the product and how they react to competition.

If at this stage the management team is proven their capability of standing hold against the competition, the VC firm will probably give a go for the next stage. However, if the management team lacks in managing the company or does not succeed in competing with the competitors, the VC firm may suggest for restructuring of the management team and extend the stage by redoing the stage again. In case the venture is doing tremendously bad whether it is caused by the management team or from competition, the venture will cut the funding.

**Risk.** At this stage, the risk of losing the investment still drops, because the venture is capable to estimate the risk. The risk of losing the investment for the VC firm drops from 53.0% to 33.7%, and the causation of major risk by stage of development also drops at this stage, from 75.8% to 53.0%. This can be explained by the fact that there is not much developing going on at this stage. The venture is concentrated in promoting and selling the product. That is why the risk decreases.

**The Third Stage.** This stage is seen as the expansion/maturity phase of the previous stage. The venture tries to expand the market share they gained in the previous stage. This can be done by selling more amount of the product and having a good marketing campaign. Also, the venture will have to see whether it is possible to cut down their production cost or restructure the internal process. This can become more visible by doing a SWOT analysis. It is used to figure out the strength, weakness, opportunity and the threat the venture is facing and how to deal with it.

Except that the venture is expanding, the venture also starts to investigate follow-up products and services. In some cases, the venture also investigates how to expand the life-cycle of the existing product/service.

At this stage the VC firm monitors the objectives already mentioned in the second stage and also the new objective mentioned at this stage. The VC firm will evaluate if the management team has made the expected reduction cost. They also want to know how the venture competes against the competitors. The new developed follow-up product will be evaluated to see if there is any potential.

**Risk.** At this stage, the risk of losing the investment for the VC firm drops with 13.6% to 20.1%, and the causation of major risk by stage of development drops almost by half from 53.0% to 37.0%. However at this stage it happens often that new follow-up products are being developed. The risk of losing the investment is still decreasing. This may because the venture rely its income on the existing product. That is why the percentage continuous drop.

**The Bridge/Pre-public Stage.** In general this stage is the last stage of the venture capital financing process. The main goal of this stage is to achieve an exit vehicle for the investors and for the venture to go public. At this stage the venture achieves a certain amount of the market share. This gives the venture some opportunities; for example: hostile take over, merger with

other companies, keeping away new competitors from approaching the market, eliminate competitors.

Internally, the venture has to reposition the product and see where the product is positioned and if it is possible to attract new Market segmentation. This is also the phase to introduce the follow-up product/services to attract new clients and markets.

As we already mentioned, this is the final stage of the process. But most of the time, there will be an additional continuation stage involved between the third stage and the Bridge/pre-public stage. However there are limited circumstances known where investors made a very successful initial market impact might be able to move from the third stage directly to the exit stage. Most of the time the venture fails to achieves some of the important benchmarks the VC firms aimed.

**Risk.** At this final stage, the risk of losing the investment still exists. However, compared with the numbers mentioned at the seed-stage it is far lower. The risk of losing the investment the final stage is a little higher at 20.9%. This is caused by the number of times the VC firms may want to expand the financing cycle, not to mention that the VC firm is faced with the dilemma of whether to continuously invest or not. The causation of major risk by this stage of development is 33%. This is caused by the follow-up product that is introduced.

As mentioned in the first paragraph, a VC firm is not only about funding and lucrative returns, but it offers also the non-funding issues like knowledge as well as for internal as for external issues. Also what we see here the further the process goes, the less risk of losing investment the VC firm is risking.

Table 8.1 Risk of losing investment the VC firm

Stage at which investment made	Risk of loss	Causation of major risk by stage of development
The Seed-stage	66.2%	72.0%
The Start-up Stage	53.0%	75.8%
The Second Stage	33.7%	53.0%
The Third Stage	20.1%	37.0%
The Bridge/Pre-public Stage	20.9%	33.0%

## 8.6 Initial Public Offering

An initial public offering (IPO) or stock market launch is a type of public offering where shares of stock in a company are sold to the general public, on a securities exchange, for the first time. Through this process, a private company transforms into a public company. Initial public offerings are used by companies to raise expansion capital, to possibly monetize the investments of early private investors, and to become publicly traded enterprises. A company selling shares is never required to repay the capital to its public investors. After the IPO, when shares trade freely in the open market, money passes between public investors. Although an IPO offers many advantages, there are also significant disadvantages. Chief among these are the costs associated

with the process, and the requirement to disclose certain information that could prove helpful to competitors, or create difficulties with vendors. Details of the proposed offering are disclosed to potential purchasers in the form of a lengthy document known as a prospectus. Most companies undertaking an IPO do so with the assistance of an investment banking firm acting in the capacity of an underwriter. Underwriters provide a valuable service, which includes help with correctly assessing the value of shares (share price), and establishing a public market for shares (initial sale). Alternative methods, such as the dutch auction have also been explored. The most notable recent example of this method is the Google IPO. China has recently emerged as a major IPO market, with several of the largest IPO offerings taking place in that country.

When a company lists its securities on a public exchange, the money paid by the investing public for the newly issued shares goes directly to the company (primary offering) as well as to any early private investors who opt to sell all or a portion of their holdings (secondary offering) as part of the larger IPO. An IPO, therefore, allows a company to tap into a wide pool of potential investors to provide itself with capital for future growth, repayment of debt, or working capital. A company selling common shares is never required to repay the capital to its public investors. Those investors must endure the unpredictable nature of the open market to price and trade their shares. After the IPO, when shares trade freely in the open market, money passes between public investors. For early private investors who choose to sell shares as part of the IPO process, the IPO represents an opportunity to monetize their investment. After the IPO, once shares trade in the open market, investors holding large blocks of shares can either sell those shares piecemeal in the open market, or sell a large block of shares directly to the public, at a fixed price, through a secondary market offering. This type of offering is not dilutive, since no new shares are being created.

Once a company is listed, it is able to issue additional common shares in a number of different ways, one of which is the follow-on offering. This method provides capital for various corporate purposes through the issuance of equity without incurring any debt. This ability to quickly raise potentially large amounts of capital from the marketplace is a key reason many companies seek to go public.

**An IPO accords several benefits** to the previously private company:

- Enlarging and diversifying equity base,
- Enabling cheaper access to capital,
- Increasing exposure, prestige, and public image,
- Attracting and retaining better management and employees through liquid equity participation,
- Facilitating acquisitions (potentially in return for shares of stock),
- Creating multiple financing opportunities: equity, convertible debt, cheaper bank loans, etc.

#### Advance Planning

Careful advance planning is crucial to a successful IPO. One book suggests the following 7 advance planning steps:

- (1) develop an impressive management and professional team;
- (2) grow the company's business with an eye to the public marketplace;
- (3) obtain audited or auditable financial statements using IPO-accepted accounting principles;
- (4) clean up the company's act;
- (5) establish antitakeover defenses;
- (6) develop good corporate governance;
- (7) create insider bail-out opportunities and take advantage of IPO windows.

**Disadvantages of an IPO.**

- Significant legal, accounting and marketing costs, many of which are ongoing,
- Requirement to disclose financial and business information,
- Meaningful time, effort and attention required of senior management,
- Risk that required funding will not be raised,
- Public dissemination of information which may be useful to competitors, suppliers and customers.

**Procedure.** IPOs generally involve one or more investment banks known as "underwriters". The company offering its shares, called the "issuer", enters into a contract with a lead underwriter to sell its shares to the public. The underwriter then approaches investors with offers to sell those shares.

The sale (allocation and pricing) of shares in an IPO may take several forms. Common methods include:

- best efforts contract,
- firm commitment contract,
- all-or-none contract,
- bought deal.

A large IPO is usually underwritten by a "syndicate" of investment banks, the largest of which take the position of "lead underwriter". Upon selling the shares, the underwriters retain a portion of the proceeds as their fee. This fee is called an underwriter spread. The spread is calculated as a discount from the price of the shares sold (called the gross spread). Components of an underwriting spread in an initial public offering (IPO) typically include the following (on a per share basis): Manager's fee, Underwriting fee—earned by members of the syndicate, and the Concession—earned by the broker-dealer selling the shares. The Manager would be entitled to the entire underwriting spread. A member of the syndicate is entitled to the underwriting fee and the concession. A broker dealer who is not a member of the syndicate but sells shares would receive only the concession, while the member of the syndicate who provided the shares to that broker dealer would retain the underwriting fee. Usually, the managing/lead underwriter, also known as the bookrunner, typically the underwriter selling the largest proportions of the IPO, takes the highest portion of the gross spread, up to 8% in some cases.

Multinational IPOs may have many syndicates to deal with differing legal requirements in both the issuer's domestic market and other regions. For example, an issuer based in the E.U. may be represented by the main selling syndicate in its domestic market, Europe, in addition to separate

syndicates or selling groups for US/Canada and for Asia. Usually, the lead underwriter in the main selling group is also the lead bank in the other selling groups.

Because of the wide array of legal requirements and because it is an expensive process, IPOs typically involve one or more law firms with major practices in securities law.

Public offerings are sold to both institutional investors and retail clients of the underwriters. A licensed securities salesperson selling shares of a public offering to his clients is paid a portion of the selling concession (the fee paid by the issuer to the underwriter) rather than by his client. In some situations, when the IPO is not a "hot" issue (undersubscribed), and where the salesperson is the client's advisor, it is possible that the financial incentives of the advisor and client may not be aligned.

The issuer usually allows the underwriters an option to increase the size of the offering by up to 15% under certain circumstance known as the greenshoe or overallotment option. This option is always exercised when the offering is considered a "hot" issue, by virtue of being oversubscribed.

In the USA, clients are given a preliminary prospectus, known as a red herring prospectus, during the initial quiet period. The red herring prospectus is so named because of a bold red warning statement printed on its front cover. The warning states that the offering information is incomplete, and may be changed. During the quiet period, the shares cannot be offered for sale. Brokers can, however, take indications of interest from their clients. At the time of the stock launch, after the Registration Statement has become effective, indications of interest can be converted to buy orders, at the discretion of the buyer. Sales can only be made through a final prospectus cleared by the Securities and Exchange Commission.

Before legal actions initiated by New York Attorney General Eliot Spitzer, which later became known as the Global Settlement enforcement agreement, some large investment firm had initiated favorable research coverage of companies in an effort to aid Corporate Finance departments and retail divisions engaged in the marketing of new issues. The central issue in that enforcement agreement had been judged in court previously. It involved the conflict of interest between the investment banking and analysis departments of ten of the largest investment firms in the United States. The investment firms involved in the settlement had all engaged in actions and practices that had allowed the inappropriate influence of their research analysts by their investment bankers seeking lucrative fees. A typical violation addressed by the settlement was the case of CSFB and Salomon Smith Barney, which were alleged to have engaged in inappropriate spinning of "hot" IPOs and issued fraudulent research reports in violation of various sections within the Securities Exchange Act of 1934.

**Dutch Auction.** A Dutch Auction allows shares of an initial public offering to be allocated in an impartial way, with all successful bidders paying the same price per share. One version of the Dutch auction is Open IPO, which is based on an auction system designed by Nobel Prize-winning economist William Vickrey. This auction method uses a mathematical model to treat all qualifying bids in an impartial way. It is similar to the model used to auction Treasury bills, notes, and bonds. Like a typical auction, the highest bidders win in this type of auction, but there

are important differences. In the OpenIPO auction, the entire auction is private, and winning bidders all pay the same price per share—the public offering price.

A variation of the Dutch Auction has been used to take a number of companies public including Ravenswood Winery, Clean Energy Fuels, and Boston Beer Company. In 2004, Google used the Dutch Auction system for its Initial Public Offering. Traditional investment banks have shown resistance to the idea of using an auction process to engage in public securities offerings. The auction method allows for equal access to the allocation of shares and eliminates the favorable treatment accorded important clients by the underwriters in conventional IPOs. In the face of this resistance, the Dutch Auction is still a little used method in public offerings.

In determining the success or failure of a Dutch Auction, one must consider competing points of view. If the objective is to raise as much money as possible for the issuer, a traditional IPO offering, priced near the top end of the underwriter's range, would likely achieve that objective. From the viewpoint of the investor, however, the Dutch Auction would be more effective at price discovery, and potentially result in a lower offering price.

**Direct Public Offering.** Financial historians Richard Sylla and Robert E. Wright have shown that before 1860 most early U.S. corporations sold shares in themselves directly to the public without the aid of intermediaries like investment banks. The direct public offering or DPO, as they term it, was not done by auction but rather at a share price set by the issuing corporation. The DPO eliminated the agency problem associated with offerings intermediated by investment banks but was not as effective at price discovery as the Dutch Auction.

**Pricing of IPO.** A company planning an IPO typically appoints a lead manager, known as a bookrunner, to help it arrive at an appropriate price at which the shares should be issued. There are two primary ways in which the price of an IPO can be determined. Either the company, with the help of its lead managers, fixes a price (fixed price method) or the price can be determined through analysis of confidential investor demand data, compiled by the bookrunner. That process is known as *book building*.

Historically, some IPOs both globally and in the United States have been underpriced. The effect of "initial underpricing" an IPO is to generate additional interest in the stock when it first becomes publicly traded. Flipping, or quickly selling shares for a profit, can lead to significant gains for investors who have been allocated shares of the IPO at the offering price. However, underpricing an IPO results in lost potential capital for the issuer. One extreme example is the *theglobe.com* IPO which helped fuel the IPO "mania" of the late 90's internet era. Underwritten by Bear Stearns on November 13, 1998, the IPO was priced at \$9 per share. The share price quickly increased 1000% after the opening of trading, to a high of \$97. Selling pressure from institutional flipping eventually drove the stock back down, and it closed the day at \$63. Although the company did raise about \$30 million from the offering it is estimated that with the level of demand for the offering and the volume of trading that took place the company might have left upwards of \$200 million on the table.

The danger of overpricing is also an important consideration. If a stock is offered to the public at a higher price than the market will pay, the underwriters may have trouble meeting their

commitments to sell shares. Even if they sell all of the issued shares, the stock may fall in value on the first day of trading. If so, the stock may lose its marketability and hence even more of its value. This could result in losses for investors, many of whom being the most favored clients of the underwriters.

Underwriters, therefore, take many factors into consideration when pricing an IPO, and attempt to reach an offering price that is low enough to stimulate interest in the stock, but high enough to raise an adequate amount of capital for the company. The process of determining an optimal price usually involves the underwriters ("syndicate") arranging share purchase commitments from leading institutional investors.

Some researchers (e.g. Geoffrey C., and C. Swift, 2009) believe that the underpricing of IPOs is less a deliberate act on the part of issuers and/or underwriters, than the result of an over-reaction on the part of investors (Friesen & Swift, 2009). One potential method for determining underpricing is through the use of IPO Underpricing Algorithms.

**Quiet period.** There are two time windows commonly referred to as "quiet periods" during an IPO's history. The first and the one linked above is the period of time following the filing of the company's S-1 but before SEC staff declare the registration statement effective. During this time, issuers, company insiders, analysts, and other parties are legally restricted in their ability to discuss or promote the upcoming IPO (U.S. Securities and Exchange Commission, 2005).

The other "quiet period" refers to a period of 40 calendar days following an IPO's first day of public trading. During this time, insiders and any underwriters involved in the IPO are restricted from issuing any earnings forecasts or research reports for the company. Regulatory changes enacted by the SEC as part of the Global Settlement enlarged the "quiet period" from 25 days to 40 days on July 9, 2002. When the quiet period is over, generally the underwriters will initiate research coverage on the firm. Additionally, the NASDAQ and NYSE have approved a rule mandating a 10-day quiet period after a Secondary Offering and a 15-day quiet period both before and after expiration of a "lock-up agreement" for a securities offering.

**Stag profit.** Stag profit is a stock market term used to describe a situation before and immediately after a company's Initial public offering (or any new issue of shares). A stag is a party or individual who subscribes to the new issue expecting the price of the stock to rise immediately upon the start of trading. Thus, stag profit is the financial gain accumulated by the party or individual resulting from the value of the shares rising.

**Share Delivery.** Not all IPOs are eligible for delivery settlement through the Depository Trust & Clearing Corporation system, which would then either require the physical delivery of the stock certificates to the clearing agent bank's custodian, or a delivery versus payment (DVP) arrangement with the selling group brokerage firm.

Largest IPOs:

1. Agricultural Bank of China US\$22.1 billion (2010)
2. Industrial and Commercial Bank of China US\$21.9 billion (2006)
3. American International Assurance US\$20.5 billion (2010)
4. Visa INC. US\$19.7 billion (2008)



5. General Motors US\$18.15 billion (2010)
6. Facebook Inc. US\$16 billion (2012)

**Value of IPOs.** Prior to 2009, the United States was the leading issuer of IPOs in terms of total value. Since that time, however, China (Shanghai, Shenzhen and Hong Kong) has been the leading issuer, raising \$73 billion (almost double the amount of money raised on the New York Stock Exchange and NASDAQ combined) up to the end of November 2011. The Hong Kong Stock Exchange raised 30.9 billion in 2011 as the top course for the third year in a row, while New York raised 30.7 billion.

Table 8.2 Russian oil companies, carried out an IPO

Date	Company	The amount of debt capital, mln.	Stock Exchange
14.07.2006	Rosneft	10800	LSE, RTS, MMVB
27.04.2006	Baltic Oil Terminal	55,8	AIM
21.07.2005	NOVATEK	880	LSE
10.11.2006	Raspadskaya Mine	316,7	RTS, MMVB
04.08.2005	Urals Energy	131,7	AIM

## ***8.7 Investment projects decision making in companies of oil and gas industry***

### **8.7.1 Estimation procedure of the economic effectiveness of investment projects, received from implementation of new techniques and technologies in oil and gas companies**

Decision making in oil and gas companies investment projects is on the figure 8.4.

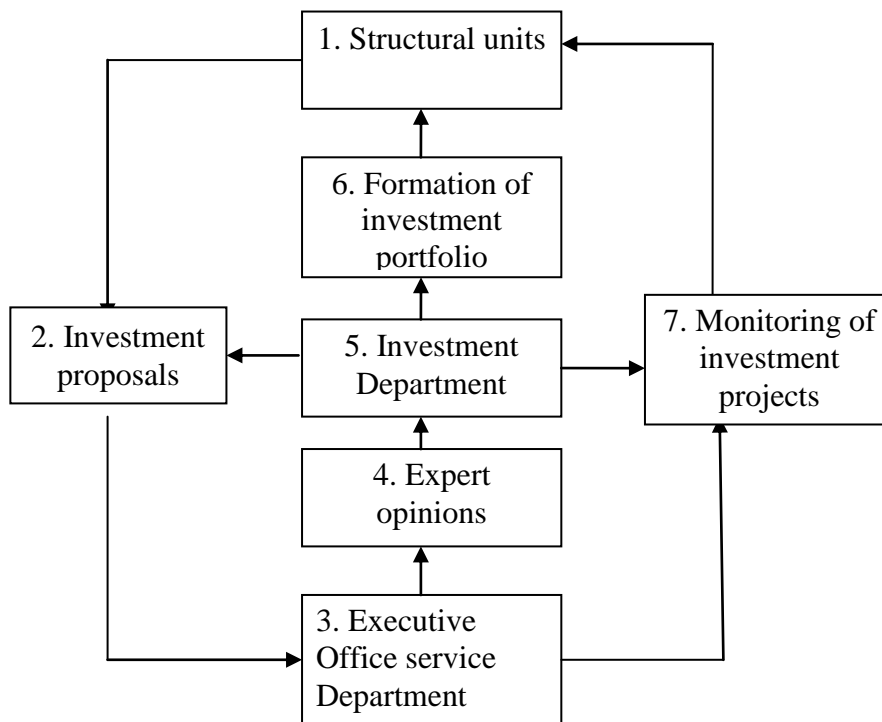


Figure 8.4. Investment Management Scheme (oil production).

Comparison of different options of investment projects and selection of the best ones. We recommend using different indicators, which include:

- NPV or the integrated effect;
- PI -profitability index;
- IRR - internal rate of return;
- PP - payback;
- other indicators that reflect the interests of the participants

$$NPV = CF(0) + CF(t_1)\alpha(t_1) + \dots + CF(T)\alpha(T), \quad (8.1)$$

$CF(t_k)$  - project cash flow a whole or from its separate parts ;

$t=0$  - project start;

$T$  - the end of the project;

$\alpha(t_k)$  - discount rate in the planning period, TK.

If the project is not a one-time investment, and sustained by investing financial resources for  $t$  years, then the formula to calculate NPV is modified as follows (8.2):

$$NPV = \sum_{t=1}^T \frac{CF_t}{(1+i)^t} - \sum_{j=1}^T \frac{I_j}{(1+k)^j}, \quad (8.2)$$

$k$  - estimated average inflation rate

$CF_t$  - annual cash flows generated by initial investment for  $t$  years;

$r$  – discount rate;

$I_0$  - investments;

$J$  - step number of investments.

NPV is an absolute indicator and has the property of additivity i.e. equality only when the following is true:

$$NPV_{A+B} = NPV_A + NPV_B. \quad (8.3)$$

This property enables you to summarize values for various projects and use the combined NPV for optimization of investment portfolio.

If  $NPV > 0$ , can be taken to implement the project since the project during the lifetime will reimburse initial costs and income.

If 0, the project  $NPV < 0$  unprofitable and it rejects.

When  $NPV = 0$  only the project pays for incurred costs, but brings no income.

From several alternative projects, we should take the project with greater NPV value.

### 8.7.2 Economic effectiveness estimation procedure in projects, directed toward enhanced oil recovery

The economic effect is calculated according to the following formula:

$$\mathcal{E}t = Pt - 3t - Hnp, \quad (8.4)$$

$\mathcal{E}t$  - the economic effect of the implementation of activities, thousand rubles.

$Pt$  - valuation results in the implementation of activities, thousand rubles.

$3t$  - valuation of the cost of activities, thousand rubles.

$Hnp$  - profit tax.

Additional sales revenue of oil shall be calculated by the formula:

$$Pt = P \times \Delta Q_H, \quad (8.5)$$

$P$  - price per 1 ton of oil, rub.

$\Delta Q_H$  - additional oil production at the expense of measures to increase oil production, a thousand tons.

Valuation of the cost of activities is calculated using the following formula:

$$3t = \Delta Q_H \times 3y.nep. + 3myH, \quad (8.6)$$

$3y.nep.$  - conditional variable costs in the production of 1 ton oil, rub.

$3myH$  - the cost for increase oil production, thousand rubles.

Then, formula (8.6) will have the following view:

$$\mathcal{E}t = P \times \Delta Q_H - (\Delta Q_H \times 3y.nep. + 3myH) - Hnp, \quad (8.7)$$

Additional oil production is calculated by the formula:

$$\Delta Q_H = \Sigma \Delta q_i \times D_K \times K_C \times K_{\text{Э}}, \quad (8.8)$$

$\Delta q_i$  - the average growth rate for each well,

$D_K$  - the number of days in the period from the date of processing before the end of the year,

$K_C$  - yield reduction rate (0.95)

$K_{\text{Э}}$  - operating rate (0.914).

### **Evaluation of economic efficiency of interventions to optimize pumping park reservoir pressure maintenance system by reducing the pressure characteristics of pumps.**

The annual electricity consumption of the pump can be expressed by the following formula:

$$\text{Э} = N * K_3 * K_H * 24 \text{ч} * 365 \text{дн.} * K_{\text{ЭК}}, \quad (8.9)$$

$N$  – pump motor power (kW);

$K_3$  – motor load factor, the percentage of units;

$K_H$  – the maximum load factor, the percentage of units;

$K_{\text{ЭК}}$  – rate of operation of the pump.

Power savings when replacing pumps more power at a lower total (kWh):

$$\text{Э}' = \text{Э}_1 - \text{Э}_2, \quad (8.10)$$

$\text{Э}_1$  – the annual electricity consumption of the pump more power (kWh);

$\text{Э}_2$  – the annual electricity consumption of the pump lower power (kWh).

**Activity 1.** Describe oil and gas companies investment policy in your country; in other countries.

**Activity 2.** Describe the procedure for evaluation of economic efficiency of investment projects in oil and gas companies, associated with the introduction of new techniques and technologies.

## 9. Estimation of securities of the company

A security is generally a fungible, negotiable financial instrument representing financial value. Securities are broadly categorized into:

- debt securities (such as banknotes, bonds and debentures),
- equity securities, e.g., common stocks; and,
- derivative contracts, such as forwards, futures, options and swaps.

The company or other entity issuing the security is called the issuer. A country's regulatory structure determines what qualifies as a security. For example, private investment pools may have some features of securities, but they may not be registered or regulated as such if they meet various restrictions.

Securities may be represented by a certificate or, more typically, "non-certificated", that is in electronic or "book entry" only form. Certificates may be bearer, meaning they entitle the holder to rights under the security merely by holding the security, or registered, meaning they entitle the holder to rights only if he appears on a security register maintained by the issuer or an intermediary. They include shares of corporate stock or mutual funds, bonds issued by corporations or governmental agencies, stock options or other options, limited partnership units, and various other formal investment instruments that are negotiable and fungible.

Securities may be classified according to many categories or classification systems:

- Currency of denomination,
- Ownership rights,
- Term to maturity,
- Degree of liquidity,
- Income payments,
- Tax treatment,
- Credit rating,
- Industrial sector or "industry". ("Sector" often refers to a higher level or broader category, such as Consumer Discretionary, whereas "industry" often refers to a lower level classification, such as Consumer Appliances. See Industry for a discussion of some classification systems.),
- Region or country (such as country of incorporation, country of principal sales/market of its products or services, or country in which the principal securities exchange where it trades is located),
- Market capitalization,
- State (typically for municipal or "tax-free" bonds in the U.S.).

## **9.1 Debt securities**

**Debt securities** may be called debentures, bonds, deposits, notes or commercial paper depending on their maturity and certain other characteristics. The holder of a debt security is typically entitled to the payment of principal and interest, together with other contractual rights under the terms of the issue, such as the right to receive certain information. Debt securities are generally issued for a fixed term and redeemable by the issuer at the end of that term. Debt securities may be protected by collateral or may be unsecured, and, if they are unsecured, may be contractually "senior" to other unsecured debt meaning their holders would have a priority in a bankruptcy of the issuer. Debt that is not senior is "subordinated".

**Corporate bonds** represent the debt of commercial or industrial entities. Debentures have a long maturity, typically at least ten years, whereas notes have a shorter maturity. Commercial paper is a simple form of debt security that essentially represents a post-dated check with a maturity of not more than 270 days.

**Money market instruments** are short term debt instruments that may have characteristics of deposit accounts, such as certificates of deposit, and certain bills of exchange. They are highly liquid and are sometimes referred to as "near cash". Commercial paper is also often highly liquid.

**Euro debt securities** are securities issued internationally outside their domestic market in a denomination different from that of the issuer's domicile. They include eurobonds and euronotes.

**Eurobonds** are characteristically underwritten, and not secured, and interest is paid gross. A **euronote** may take the form of euro-commercial paper (ECP) or euro-certificates of deposit.

**Government bonds** are medium or long term debt securities issued by sovereign governments or their agencies. Typically they carry a lower rate of interest than corporate bonds, and serve as a source of finance for governments. U.S. federal government bonds are called treasuries. Because of their liquidity and perceived low risk, treasuries are used to manage the money supply in the open market operations of non-US central banks.

**Sub-sovereign government bonds**, known in the U.S. as municipal bonds, represent the debt of state, provincial, territorial, municipal or other governmental units other than sovereign governments.

**Supranational bonds** represent the debt of international organizations such as the World Bank, the International Monetary Fund, regional multilateral development banks and others.

## **9.2 Equity securities**

**An equity security** is a share of equity interest in an entity such as the capital stock of a company, trust or partnership. The most common form of equity interest is **common stock**, although preferred equity is also a form of capital stock. The holder of an equity is a shareholder, owning a share, or fractional part of the issuer. Unlike debt securities, which typically require regular payments (interest) to the holder, equity securities are not entitled to any payment. In bankruptcy, they share only in the residual interest of the issuer after all obligations have been paid out to creditors. However, equity generally entitles the holder to a pro rata portion of control of the company, meaning that a holder of a majority of the equity is usually entitled to control

the issuer. Equity also enjoys the right to profits and capital gain, whereas holders of debt securities receive only interest and repayment of principal regardless of how well the issuer performs financially. Furthermore, debt securities do not have voting rights outside of bankruptcy. In other words, equity holders are entitled to the "upside" of the business and to control the business.

Table 9.1 The rights, granted to the investor (the investors), owns a certain number of shares, according to Russian Legislation

Number of shares (share,%)	Investor's rights
1 share	1. Participation in the general meeting of shareholders with the right to vote on all matters within its competence. 2. Dividends 3. A portion of property in case of its liquidation
1% shares	1. Introduction to the information contained in the register of shareholders 2. Reference to the Court with the claim of a member of the Board of Directors of JSC
2% shares	1. Two proposals in the agenda of the general meeting of shareholders. 2. Nomination of candidates to the Board and the auditing Commission of JSC
10% shares	1. Requirement for convening an extraordinary meeting of shareholders 2. Familiarize with the list of participants in the general meeting of shareholders 3. Request verification of financial and economic activity of the JSC.
25% +1 shares (blocking stake)	Blocking of the shareholders' decision on changing the Charter, reorganization and liquidation of the JSC, the conclusion of large transactions
30%+1 share	A new general meeting of shareholders convened to replace failed
50%+1 share (controlling stake)	1. The holding of the general meeting of shareholders of 2. The adoption of the necessary decisions at the general meeting of shareholders (except for decisions related to changes in the Charter of the JSC, its reorganization or liquidation)
75%+1 share	Establishment of full control over the JSC, i.e. the ability to make decisions about changing the Statute, reorganization and liquidation of the JSC, concluding major deals

**Hybrid.** Hybrid securities combine some of the characteristics of both debt and equity securities. Preference shares form an intermediate class of security between equities and debt. If the issuer is liquidated, they carry the right to receive interest and/or a return of capital in priority to ordinary shareholders. However, from a legal perspective, they are capital stock and therefore may entitle holders to some degree of control depending on whether they contain voting rights.

**Convertibles** are bonds or preferred stock that can be converted, at the election of the holder of the convertibles, into the common stock of the issuing company. The convertibility, however, may be forced if the convertible is a callable bond, and the issuer calls the bond. The bondholder has about 1 month to convert it, or the company will call the bond by giving the holder the call price, which may be less than the value of the converted stock. This is referred to as a forced conversion.

**Equity warrants** are options issued by the company that allow the holder of the warrant to purchase a specific number of shares at a specified price within a specified time. They are often issued together with bonds or existing equities, and are, sometimes, detachable from them and separately tradeable. When the holder of the warrant exercises it, he pays the money directly to the company, and the company issues new shares to the holder.

**Warrants**, like other convertible securities, increases the number of shares outstanding, and are always accounted for in financial reports as fully diluted earnings per share, which assumes that all warrants and convertibles will be exercised.

### **9.3 Valuation of shares**

**Fundamental criteria.** The most theoretically sound stock valuation method, called income valuation or the discounted cash flow (DCF) method, involves discounting of the profits (dividends, earnings, or cash flows) the stock will bring to the stockholder in the foreseeable future, and a final value on disposal. The discounted rate normally includes a risk premium which is commonly based on the capital asset pricing model (CAPM).

**Stock Valuation Methods.** Stocks have two types of valuations. One is a value created using some type of cash flow, sales or fundamental earnings analysis. The other value is dictated by how much an investor is willing to pay for a particular share of stock and by how much other investors are willing to sell a stock for (in other words, by supply and demand). Both of these values change over time as investors change the way they analyze stocks and as they become more or less confident in the future of stocks.

The fundamental valuation is the valuation that people use to justify stock prices. The most common example of this type of valuation methodology is P/E ratio, which stands for Price to Earnings Ratio. This form of valuation is based on historic ratios and statistics and aims to assign value to a stock based on measurable attributes. This form of valuation is typically what drives long-term stock prices.

The other way stocks are valued is based on supply and demand. The more people that want to buy the stock, the higher its price will be. And conversely, the more people that want to sell the stock, the lower the price will be. This form of valuation is very hard to understand or predict, and it often drives the short-term stock market trends.

There are many different ways to value stocks. The key is to take each approach into account while formulating an overall opinion of the stock. If the valuation of a company is lower or higher than other similar stocks, then the next step would be to determine the reasons.

**Earnings Per Share (EPS).** EPS is the total net income of the company divided by the number of shares outstanding. They usually have a GAAP EPS number (which means that it is computed using all of mutually agreed upon accounting rules) and a Pro Forma EPS figure (which means that they have adjusted the income to exclude any one time items as well as some non-cash items like amortization of goodwill or stock option expenses). The most important thing to look for in the EPS figure is the overall quality of earnings. Make sure the company is not trying to manipulate their EPS numbers to make it look like they are more profitable. Also, look at the growth in EPS over the past several quarters / years to understand how volatile their EPS is, and to see if they are an underachiever or an overachiever. In other words, have they consistently beaten expectations or are they constantly restating and lowering their forecasts?

The EPS number that most analysts use is the pro forma EPS. To compute this number, use the net income that excludes any one-time gains or losses and excludes any non-cash expenses like



stock options or amortization of goodwill. Then divide this number by the number of fully diluted shares outstanding. Historical EPS figures and forecasts for the next 1–2 years can be found by visiting free financial sites such as Yahoo Finance (enter the ticker and then click on "estimates").

Through fundamental investment research, one can determine their own EPS forecasts and apply other valuation techniques below.

**Price to Earnings (P/E).** Now that you have several EPS figures (historical and forecasts), you'll be able to look at the most common valuation technique used by analysts, the price to earnings ratio, or P/E. To compute this figure, take the stock price and divide it by the annual EPS figure. For example, if the stock is trading at \$10 and the EPS is \$0.50, the P/E is 20 times. To get a good feeling of what P/E multiple a stock trades at, be sure to look at the historical and forward ratios.

Historical P/Es are computed by taking the current price divided by the sum of the EPS for the last four quarters, or for the previous year. You should also look at the historical trends of the P/E by viewing a chart of its historical P/E over the last several years (you can find on most finance sites like Yahoo Finance). Specifically you want to find out what range the P/E has traded in so that you can determine if the current P/E is high or low versus its historical average.

Forward P/Es reflect the future growth of the company into the figure. Forward P/Es are computed by taking the current stock price divided by the sum of the EPS estimates for the next four quarters, or for the EPS estimate for next calendar of fiscal year or two.

P/Es change constantly. If there is a large price change in a stock you are watching, or if the earnings (EPS) estimates change, the ratio is recomputed.

**Growth Rate.** Valuations rely very heavily on the expected growth rate of a company. One must look at the historical growth rate of both sales and income to get a feeling for the type of future growth expected. However, companies are constantly changing, as well as the economy, so solely using historical growth rates to predict the future is not an acceptable form of valuation. Instead, they are used as guidelines for what future growth could look like if similar circumstances are encountered by the company. Calculating the future growth rate requires personal investment research. This may take form in listening to the company's quarterly conference call or reading press release or other company article that discusses the company's growth guidance. However, although companies are in the best position to forecast their own growth, they are far from accurate, and unforeseen events could cause rapid changes in the economy and in the company's industry.

And for any valuation technique, it's important to look at a range of forecast values. For example, if the company being valued has been growing earnings between 5 and 10% each year for the last 5 years, but believes that it will grow 15 - 20% this year, a more conservative growth rate of 10 - 15% would be appropriate in valuations. Another example would be for a company that has been going through restructuring. They may have been growing earnings at 10 - 15% over the past several quarters / years because of cost cutting, but their sales growth could be only 0 - 5%. This would signal that their earnings growth will probably slow when the cost cutting has fully

taken effect. Therefore, forecasting an earnings growth closer to the 0 - 5% rate would be more appropriate rather than the 15 - 20%. Nonetheless, the growth rate method of valuations relies heavily on gut feel to make a forecast. This is why analysts often make inaccurate forecasts, and also why familiarity with a company is essential before making a forecast.

**Price Earnings to Growth (PEG) Ratio.** This valuation technique has really become popular over the past decade or so. It is better than just looking at a P/E because it takes three factors into account; the price, earnings, and earnings growth rates. To compute the PEG ratio, divide the Forward P/E by the expected earnings growth rate (you can also use historical P/E and historical growth rate to see where it's traded in the past). This will yield a ratio that is usually expressed as a percentage. The theory goes that as the percentage rises over 100% the stock becomes more and more overvalued, and as the PEG ratio falls below 100% the stock becomes more and more undervalued. The theory is based on a belief that P/E ratios should approximate the long-term growth rate of a company's earnings. Whether or not this is true will never be proven and the theory is therefore just a rule of thumb to use in the overall valuation process.

Here's an example of how to use the PEG ratio. Say you are comparing two stocks that you are thinking about buying. Stock A is trading at a forward P/E of 15 and expected to grow at 20%. Stock B is trading at a forward P/E of 30 and expected to grow at 25%. The PEG ratio for Stock A is 75% (15/20) and for Stock B is 120% (30/25). According to the PEG ratio, Stock A is a better purchase because it has a lower PEG ratio, or in other words, you can purchase its future earnings growth for a lower relative price than that of Stock B.

**Nerbrand Z.** Given that investments are subject to revisions of future expectations the Nerbrand Z utilises uncertainty of consensus estimates to assess how much earnings forecasts can be revised in standard deviation terms before P/E ratios return to normalised levels. This calculation is best done with I/B/E/S consensus estimates. The market tend to focus on the 12 month forward P/E level but this ratio is dependent on earnings estimates which are never homogenous. Hence there is a standard deviation of 12 month forward earnings estimates.

The Nerbrand Z is therefore expressed as

$$Z = \frac{\frac{P}{H[P/E]} - E12}{stdev(E12)}$$

where H[P/E] = normalised P/E, e.g. a 5 year historical average of 12 month forward P/E ratios.

E12 = mean 12 month forward earnings estimates

stdev(E12) = standard deviation of 12 month forward earnings estimates.

A negative number indicates that earnings can be downgraded before valuations normalise. As such, a negative number indicate a valuation adjusted earnings buffer. For example, if the 12 month forward mean EPS forecast is \$10, the price of the equity is \$100, the historical average P/E ratio is 15, the standard deviation of EPS forecast is 2 then the Nerbrand Z is -1.67. That is, 12 month forward consensus earnings estimates could be downgraded by 1.67 standard deviation before P/E ratio would go back to 15.

**Return on Invested Capital (ROIC).** This valuation technique measures how much money the company makes each year per dollar of invested capital. Invested Capital is the amount of money

invested in the company by both stockholders and debtors. The ratio is expressed as a percent and you should look for a percent that approximates the level of growth that you expect. In its simplest definition, this ratio measures the investment return that management is able to get for its capital. The higher the number, the better the return.

To compute the ratio, take the pro forma net income (same one used in the EPS figure mentioned above) and divide it by the invested capital. Invested capital can be estimated by adding together the stockholders equity, the total long and short term debt and accounts payable, and then subtracting accounts receivable and cash (all of these numbers can be found on the company's latest quarterly balance sheet). This ratio is much more useful when you compare it to other companies that you are valuing.

**Return on Assets (ROA).** Similar to ROIC, ROA, expressed as a percent, measures the company's ability to make money from its assets. To measure the ROA, take the pro forma net income divided by the total assets. However, because of very common irregularities in balance sheets (due to things like Goodwill, write-offs, discontinuations, etc.) this ratio is not always a good indicator of the company's potential. If the ratio is higher or lower than you expected, be sure to look closely at the assets to see what could be over or understating the figure.

**Price to Sales (P/S).** This figure is useful because it compares the current stock price to the annual sales. In other words, it tells you how much the stock costs per dollar of sales earned. To compute it, take the current stock price divided by the annual sales per share. The annual sales per share should be calculated by taking the net sales for the last four quarters divided by the fully diluted shares outstanding (both of these figures can be found by looking at the press releases or quarterly reports). The price to sales ratio is useful, but it does not take into account any debt the company has. For example, if a company is heavily financed by debt instead of equity, then the sales per share will seem high (the P/S will be lower). All things equal, a lower P/S ratio is better. However, this ratio is best looked at when comparing more than one company.

**Market Cap.** Market Cap, which is short for Market Capitalization, is the value of all of the company's stock. To measure it, multiply the current stock price by the fully diluted shares outstanding. Remember, the market cap is only the value of the stock. To get a more complete picture, you'll want to look at the Enterprise Value.

**Enterprise Value (EV).** Enterprise Value is equal to the total value of the company, as it is trading for on the stock market. To compute it, add the market cap (see above) and the total net debt of the company. The total net debt is equal to total long and short term debt plus accounts payable, minus accounts receivable, minus cash. The Enterprise Value is the best approximation of what a company is worth at any point in time because it takes into account the actual stock price instead of balance sheet prices. When analysts say that a company is a "billion dollar" company, they are often referring to its total enterprise value. Enterprise Value fluctuates rapidly based on stock price changes.

**EV to Sales.** This ratio measures the total company value as compared to its annual sales. A high ratio means that the company's value is much more than its sales. To compute it, divide the EV by the net sales for the last four quarters. This ratio is especially useful when valuing companies

that do not have earnings, or that are going through unusually rough times. For example, if a company is facing restructuring and it is currently losing money, then the P/E ratio would be irrelevant. However, by applying a EV to Sales ratio, you could compute what that company could trade for when its restructuring is over and its earnings are back to normal.

**EBITDA.** EBITDA stands for earnings before interest, taxes, depreciation and amortization. It is one of the best measures of a company's cash flow and is used for valuing both public and private companies. To compute EBITDA, use a company's income statement, take the net income and then add back interest, taxes, depreciation, amortization and any other non-cash or one-time charges. This leaves you with a number that approximates how much cash the company is producing. EBITDA is a very popular figure because it can easily be compared across companies, even if all of the companies are not profitable.

**EV to EBITDA.** This is perhaps one of the best measurements of whether or not a company is cheap or expensive. To compute, divide the EV by EBITDA (see above for calculations). The higher the number, the more expensive the company is. However, remember that more expensive companies are often valued higher because they are growing faster or because they are a higher quality company. With that said, the best way to use EV/EBITDA is to compare it to that of other similar companies.

**Approximate valuation approaches.** Average growth approximation: Assuming that two stocks have the same earning growth, the one with a lower P/E is a better value. The P/E method is perhaps the most commonly used valuation method in the stock brokerage industry. By using comparison firms, a target price/earnings (or P/E) ratio is selected for the company, and then the future earnings of the company are estimated. The valuation's fair price is simply estimated earnings times target P/E. This model is essentially the same model as Gordon's model, if  $k-g$  is estimated as the dividend payout ratio ( $D/E$ ) divided by the target P/E ratio.

**Constant growth approximation:** The Gordon model or Gordon's growth model is the best known of a class of discounted dividend models. It assumes that dividends will increase at a constant growth rate (less than the discount rate) forever. The valuation is given by the formula:

$$P = D \cdot \sum_{i=1}^{\infty} \left( \frac{1+g}{1+k} \right)^i = D \cdot \frac{1+g}{k-g} .$$

and the following table defines each symbol:

P – estimated stock price, \$

D – last dividend paid, \$

k – discount rate, %

g – the growth rate of the dividends, %.

**Limited high-growth period approximation:** When a stock has a significantly higher growth rate than its peers, it is sometimes assumed that the earning growth rate will be sustained for a

short time (say, 5 years), and then the growth rate will revert to the mean. This is probably the most rigorous approximation that is practical.

While these DCF models are commonly used, the uncertainty in these values is hardly ever discussed. Note that the models diverge for  $k = g$  and hence are extremely sensitive to the difference of dividend growth to discount factor. One might argue that an analyst can justify any value (and that would usually be one close to the current price supporting his call) by fine-tuning the growth/discount assumptions.

**Implied Growth Models.** One can use the Gordon model or the limited high-growth period approximation model to impute an implied growth estimate. To do this, one takes the average P/E and average growth for a comparison index, uses the current (or forward) P/E of the stock in question, and calculates what growth rate would be needed for the two valuation equations to be equal. This gives you an estimate of the "break-even" growth rate for the stock's current P/E ratio. (Note : we are using earnings not dividends here because dividend policies vary and may be influenced by many factors including tax treatment).

**Imputed growth acceleration ratio.** Subsequently, one can divide this imputed growth estimate by recent historical growth rates. If the resulting ratio is greater than one, it implies that the stock would need to experience accelerated growth relative to its prior recent historical growth to justify its current P/E (higher values suggest potential overvaluation). If the resulting ratio is less than one, it implies that either the market expects growth to slow for this stock or that the stock could sustain its current P/E with lower than historical growth (lower values suggest potential undervaluation). Comparison of the IGAR across stocks in the same industry may give estimates of relative value. IGAR averages across an industry may give estimates of relative expected changes in industry growth (e.g. the market's imputed expectation that an industry is about to "take-off" or stagnate). Naturally, any differences in IGAR between stocks in the same industry may be due to differences in fundamentals, and would require further specific analysis.

**Market criteria (potential price).** Some feel that if the stock is listed in a well organized stock market, with a large volume of transactions, the listed price will be close to the estimated fair value. This is called the efficient market hypothesis.

On the other hand, studies made in the field of behavioral finance tend to show that deviations from the fair price are rather common, and sometimes quite large.

Thus, in addition to fundamental economic criteria, market criteria also have to be taken into account market-based valuation. Valuing a stock is not only to estimate its fair value, but also to determine its potential price range, taking into account market behavior aspects. One of the behavioral valuation tools is the stock image, a coefficient that bridges the theoretical fair value and the market price.

**Activity 1.** Evaluate securities three selected oil or gas companies from different countries. Make conclusions.

**Activity 2.** Describe the rights of shareholders, who have different numbers of shares, based on the legislation of your country.

## Applications

## Application 1.

### Financial Ratios for JSC Tatneft, 2008-2009

№	Ratios	Method of calculation	2009 year	2008 year	2009	2008
1	2	3	4	5	6	7
1	Sales (excl. export taxes and federal duties), mln.rub	Sales – export taxes – federal duties	444 332-136 541-328	356 276- 85 327-300	307 463	270 649
2	ROA on EBITDA, %	<u>IBITDA</u> Total Average Assets	34 203/392 980	56 728/370 219	8,7	15,3
3	ROA, %	<u>Net Income</u> Total Average Assets	8 413/392 980	43 279/370 219	2,1	11,7
4	Gross Margin, %	<u>Gross Profit</u> Sales – export taxes – federal duties	8 413/307 463	43 279/270 649	2,7	16
5	ROS, %	<u>Net Income</u> Expenses	34 203/410 129	56 728/299 548	8,3	18,9
6	ROC, %	<u>EBIT(1-T)</u> Own capital	8 413/260 276	43 279/264 059	3,3	16,4
7	Net working capital	Current Assets – Current Liabilities	116 620-32 043	126 595 – 38 428	84 577	88 167
8	Cash Ratio	<u>Cash and Marketable Securities</u> Current Liabilities	30 865/32 043	29 983/38 428	0,96	0,78
9	Cash Ratio (2)	<u>Cash and Marketable Securities</u> Credits	30 865/25 007	29 983/32 134	1,23	0,93
10	Quick Ratio	<u>Cash+Marketable Securities + Acc.Receivable</u> Current Liabilities	54 491/32 043	75 227/38428	1,7	1,9



To be continued

1	2	3	4	5	6	7
11	Current Ratio	<u>Current Assets</u> Current Liabilities	116 620/32 043	126 595/38 428	3,6	3,3
12	TIE	<u>EBIT</u> Annual Interest Expense	34 203/580	56 728/60	58	945
13	Total Debt	<u>Total Liabilities</u> Total Assets	128 121/392 980	101 661/370 219	0,3	0,27
14	Assets to Liabilities	<u>Total Assets</u> Total Liabilities	<u>260 276* 100</u> 392 980	<u>264 059* 100</u> 370 219	2/1	5/2
15	Assets turnover	<u>Net Sales</u> Total Assets	307 463/392 980	270 649/370 219	0,78	0,73
16	Current Assets turnover	<u>Net Sales</u> Current Assets	307 463/116 620	270 649/126 595	2,6	2,1
17	Stocks turnover ratio	<u>Net Sales</u> Average Inventory	307 463/14 121	270 649/10 923	21,7	24,7
18	Receivables turnover ratio	<u>Net Sales</u> Accounts receivable	307 463/23 626	270 649/45 244	13	6
19	Credits turnover ratio	<u>Net Sales</u> Credits	307 463/25 007	270 649/32 134	12,3	8,4
20	Average collection period	<u>Accounts receivable</u> Net sales/360	23 626/854	45 244/753	27,6	60,1
21	CA/TA	<u>Current Assets</u> Total Assets	116 620/392 980	126 595/370 219	0,29	0,34

To be continued

1	2	3	4	5	6	7
22	Equity to total assets ratio	<u>Equity</u> Total Assets	260 276/392 980	264 059/370 219	0,66	0,71
23	Current assets to equity ratio	<u>Current assets</u> Equity	84 577/260 276	88 167/264 059	0,32	0,33

## Application 2.

### Taxes payable for 2009-2015 (planning) years for JSC TATOILGAS

Taxes	2009	2010	2011	2012 plan	2013 plan	2014 plan	2015 plan
1	2	3	4	5	6	7	8
Company Income tax:	72263	86454	98089	105006	126152	138443	155812
- to Russian Federation Budget	19571	23415	26566	28439	34166	37495	42199
- to Republic of Tatarstan Budget*	52692	63040	71523	76567	91986	100948	113613
Oil and gas production Tax (NDPI)	764538	817095	884026	942197	989363	1034732	1075609
- to Russian Federation Budget	726311	776240	839824	895087	939895	982995	1021829
- to Republic of Tatarstan Budget*	38227	40855	44201	47110	49468	51737	53780
Property tax	18395	20240	19622	18576	17822	17040	15385
- to Republic of Tatarstan Budget*	18395	20240	19622	18576	17822	17040	15385
- to local budget							
Land tax	700	700	700	700	700	700	700
- to Republic of Tatarstan Budget*							
- to local budget	700	700	700	700	700	700	700
Transport tax	500	500	500	500	500	500	500
- to Republic of Tatarstan Budget*	500	500	500	500	500	500	500
Prospecting payments	56	56	56	56	56	56	56
- to Russian Federation Budget	33	33	33	33	33	33	33
- to Republic of Tatarstan Budget*	23	23	23	23	23	23	23

	To be continued						
Pollution Charge	704	704	704	704	704	704	704
- to Republic of Tatarstan Budget*	704	704	704	704	704	704	704
Income tax	9560	9560	9560	9560	9560	9560	9560
- to Republic of Tatarstan Budget*	6692	6692	6692	6692	6692	6692	6692
- to local budget	2868	2868	2868	2868	2868	2868	2868
Unified Social Tax	17728	17728	17728	17728	17728	17728	17728
-to Russian Federation Budget	16364	16364	16364	16364	16364	16364	16364
- to Republic of Tatarstan Budget*	1364	1364	1364	1364	1364	1364	1364
Lend rent	16953	16953	16953	16953	16953	16953	16953
- to Republic of Tatarstan Budget*	16953	16953	16953	16953	16953	16953	16953
Export tax	710914	759871	822118	876240	920088	962267	1000303
- to Russian Federation Budget	710914	759871	822118	876240	920088	962267	1000303
Dividend tax	2700	2700	2700	2700	2700	2700	2700
- to Russian Federation Budget	2700	2700	2700	2700	2700	2700	2700
VAT	193135	206172	223933	238848	251495	263471	276065
- to Russian Federation Budget	193135	206172	223933	238848	251495	263471	276065
Water tax	61	61	61	61	61	61	61
- to Russian Federation Budget	61	61	61	61	61	61	61
<b>TOTAL</b>	<b>1808207</b>	<b>1938794</b>	<b>2096749</b>	<b>2229829</b>	<b>2353883</b>	<b>2464914</b>	<b>2572136</b>
- to Russian Federation Budget	1669090	1784856	1931600	2057772	2164803	2205386	2359554
- to Republic of Tatarstan Budget*	135549	150370	161582	168488	185512	195960	209014
- to local budget	3568	3568	3568	3568	3568	3568	3568

\*Republic of Tatarstan is a republic in the Russian Federation