

BUDGETING AND CONTROLLING

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BUDGETING AND CONTROLLING (PART 14)



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The Process of Budget Compilation, Step 3: Planning of Sales and Contribution Margin

The last two articles of the series Budgeting and Controlling covered the recommended sequencing of the planning steps and described the first two steps, forecasting (BTV – Aktuell 2/2002) and planning of fixed costs (BTV – Aktuell 3/2002).

The recommended sequencing for the application of planning activities is divided into the following steps:

- Step 1: Forecasting/budgetary predicting
- Step 2: Planning of fixed costs
- Step 3: Planning of sales and contribution margin
- Step 4: Planning of liquidity

The current article deals with the third step, planning of sales and contribution margin, building on forecasting and planning of fixed costs. This process has led to the following results which form the basis for planning sales and contribution margin:

In forecasting all figures from the year previous to the planned year are transferred as a first step. In forecasting, all structures and figures on which the budget is based, are set up first and then they are revised in the next planning steps.

The result of forecasting is purely mathematical extrapolations for the planned year but no active planning considerations have been incorporated. Forecasting determines result, liquidity and balance sheet of the planned year, under the precondition that no changes in the framework of the basic data such as sales, costs, production and time allowed for payment occur.

In the second step, planning of fixed costs, a planned value based on values still carried forward from the previous business year, per item of the fixed costs, is determined for the currently planned business year.

The result of planning of fixed costs is a revised profit plan, in which the items sales, variable costs and contribution margin still equal the values of forecasting. All items of fixed costs, however, are planned values.

Based on the revised figures of planning of fixed costs the next step, planning of sales and contribution margin, follows.

From forecasting over planning of fixed costs, a financial target for the break-even point was determined which now has to be reached or exceeded in the planning of sales and contribution margin.

Based on the structure of the fixed costs in the budget when planning sales and contribution margin, sales and related variable costs are planned. This consequently leads to the contribution margin. The contribution margin which was compiled in this planning step must cover the planned fixed costs to achieve the planned result before or after tax.

Depending on the size of planned fixed costs and the height of the expected result step 3, planning of sales and contribution margin and step 2, planning of fixed costs, if need be, must be revised and matched several times in the application to reach a structure and a figure compilation that is realistically achievable.

Sales and their related variable costs must be planned in detail in some cases to achieve a realistic statement on the result and to be able to meet the target of planned fixed costs.

Matching planned fixed costs, the detailed sales and contribution margin planning step by step leads to a revised profit plan. In this way it provides a basis for planning of finance and liquidity, which will be dealt with in the next article of the series Budgeting and Controlling.

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BUDGETING AND CONTROLLING (PART 15)



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The Process of Budget Compilation

Step 4: Planning of Liquidity

In the application the process of budget compilation is marked by the following steps:

Step 1: Forecasting/budgetary predicting

Step 2: Planning of fixed costs

Step 3: Planning of sales and contribution margin

Step 4: Planning of liquidity

The steps: forecasting (BTV-Aktuell 2/2002), planning of fixed costs (BTV-Aktuell 3/2002), and planning of sales and contribution margin (unternehmen 1/2003) have been dealt with in the previous articles of the series Budgeting and Controlling. The final article referring to budget compilation covers liquidity planning.

The goal of a comprehensive budget compilation is the determination of a complete budget of an enterprise consisting of profit plan, finance plan and budgeted balance sheet. Based on these three elements, the overall relationship of a profit-relevant and financial development of an enterprise is to be demonstrated.

The process of budget compilation, from the determination of forecasting over planning of fixed costs to planning of sales and contribution margin, so far, has led to a complete profit plan showing the basis for finance or liquidity planning resp.

In the framework of finance or liquidity planning resp, finance plan and budgeted balance sheet are compiled for the planned year based on an opening balance sheet or a preliminary opening balance sheet resp.

The finance plan in the presentation chosen here, consists of the components cash flow, working capital, long-term sector and shareholder sector.

The area cash flow can be compiled relatively easy as it only presents a transfer of the result from profit plan into cash flows. Expense and income items are corrected that have been taken into consideration in the profit plan but do not lead to any payments, they mainly consist of depreciations and provisions.

Far more comprehensive is the compilation of the second part of the finance plan, the planning of working capital. Above all in this area the changes in receivables, liabilities, stock and project inventories are planned. Furthermore, all changes affecting the short-term sector such as changes in the area of advance payments received and paid, must be accounted for.

The area Working Capital is mainly influenced by elements that have been taken into consideration in the profit plan, such as sales and variable costs. Sales and variable costs together with time allowed for payment or payment terms resp, affect the development of receivables and liabilities.

Investments as well as changes in the long-term loan-sector are taken into account in the long-term sector.

The shareholder sector however, accounts for deposits into the enterprise and withdrawals out of the enterprise, with stock corporations these are increases in capital or dividend payments.

Result of the finance plan is the planned liquidity deficit which must be financed or the planned liquidity surplus which can be assessed and which affects the profit plan through interest paid or income from interest.

When the finance plan has been completely compiled, based on an opening balance sheet or a preliminary opening balance sheet resp, it results automatically in the budgeted balance sheet for the planned business year. In a complete finance plan all data and figures are available that directly lead from an opening balance sheet to a budgeted balance sheet.

As an alternative to sequencing as described above, namely first compiling the finance plan and consequently developing the budgeted balance sheet in the framework of liquidity planning, in the application, finance plan and budgeted balance sheet are frequently compiled simultaneously.

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BUDGETING AND CONTROLLING (PART 16): THE PLANNING CYCLE



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The series Budgeting and Controlling has dealt with the components of a complete budget, economic relationships between these components and the procedure in the framework of budget compilation.

In this and the following articles the planning cycle of an enterprise shall be covered.

The planning cycle of an enterprise starts with budget compilation at the beginning of a planned year and is completed by the following steps in the course of it:

- by comparing actual data that became real to originally planned data,
- by extrapolations for the whole planned year based on comparison of planned/actual data and
- by a revised forecast for the remaining period of the planned year.

The individual elements which make up the planning cycle in a planned year, are budget compilation, comparison of planned and actual data, extrapolations and revised forecasts.

The planning cycle begins with budget compilation, which proceeds in several stages and consists of the elements profit plan, finance plan and budgeted balance sheet. Budget compilation either precedes the planned year or is dealt with at the beginning of the planned business year resp.

Comparisons of planned and actual values are dealt with in the business year – either quarterly or monthly.

In the framework of comparing planned and actual data the planned figures and results are compared to real actual data.

Information gained from the comparison covers only the period which actual data are already available for. A prediction cannot be made, yet on the future development of the enterprise in the planned year. This is only possible in the steps Extrapolation and Revised Forecast after planned and actual data have been compared. Whereas comparison of planned/actual data is oriented towards the past, a future aspect is allowed for. In the framework of extrapolation and revised forecast the future development of the enterprise in the planned year is also examined.

In extrapolation, the actual data that have become real data are linked with originally planned data for the remaining period of the business year. Extrapolation provides a static review of the business year, the same as in comparison of planned/actual data, because no new information or considerations about the future development of the enterprise during the planned year have been incorporated.

A special planning aspect results again from a revised forecast only after the extrapolation. When planned data have been supplemented by available actual data in the extrapolation they are incorporated into the revised forecast for the remaining part of the currently planned year. This step results in a revised forecast with all items carried forward, based on the original budget, supplemented by all available actual figures, revised according to the latest information and expectations on the future development of the enterprise in the planned year.

The described planning cycle with budget compilation, comparison of planned/actual data, extrapolation and revised forecast is repeated quarterly or monthly in a planned year or in case of an unusual event which makes a revision of the original budget necessary.

The detailed process of the individual stages of this planning cycle will be described in the next articles of the series Budgeting and Controlling.

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BUDGETING AND CONTROLLING (PART 17): THE PLANNING CYCLE, STEP 1: BUDGET COMPILATION



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In the last article of the series Budgeting and Controlling an overview of the planning cycle of an enterprise was given. This planning cycle is divided into the following parts:

- Step 1: Budget compilation
- Step 2: Comparison of planned and actual data
- Step 3: Extrapolation
- Step 4: Revised forecast

The current article deals with step 1, budget compilation.

The contents of a complete budget of an enterprise and the process of compiling it has already been covered in the series Budgeting and Controlling.

After dealing with some technical components and their application this article covers some aspects of budget compilation that refer to its set-up and structure such as the date of compilation, the structure and details as well as sources and information to prepare it.

Concerning the date there are two different aspects for budget compilation, both have advantages and disadvantages. The date for the compilation is either preceding the planned business year or it takes place during it.

The main advantage of budget compilation at a preceding date is that a complete plan is already available at the beginning of the respective business year.

The main advantage of budget compilation during the planned business year, actually at its beginning, is, in an ideal case, availability of all figures, data and facts of the directly preceding business year, which forms a basis and orientation for the planning.

The structure of the budget is oriented towards the conclusions which are to be gained from the budget on the one hand, and from the details and structures of the sources available for the preparation of the budget on the other hand. It can, however, be decisive for structuring it, in what form the structure of the actual data will be available for the comparison of planned and actual data. The source of actual data should already be considered when structuring the budget.

The available sources for preparing the budget compilation are of considerable influence for the structure and set-up of the budget but furthermore on its figures, if the sources are taken as a reference and orientation for concrete planning.

Sources that are used as a basis for budget compilation can be eg balance sheets, profit and loss accounts, lists of account balances, payroll information, statistics on sales, use of goods and contribution margin, production statistics and calculations, loan contracts, redemption plans and investment schedules.

The main basis should be the figures of the lists of account balances, the balance sheet and the profit and loss account. Deviations will occur when certain information on the enterprise will be of greater significance when they are provided in more detail, or in a different structure, or if the source of actual data is different or structured in a different format than from the lists of account balances.

If the data are from different sources (lists of account balances, sales statistics, payroll etc) a cross reference must be carried out to avoid any deviation because of differing sources.

A deviating structure from the lists of account balances and/or profit and loss account is crucial for the profit plan mainly, and less so for the finance plan and the budgeted balance sheet, as the structure of the balance sheet is fixed and normally the structure for the finance plan will be selected from an available range of standardised finance plans.

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BUDGETING AND CONTROLLING (PART 18): THE PLANNING CYCLE: SOURCES FOR BUDGET COMPILATION



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In the two previous articles of the series Budgeting and Controlling at first only an overview of the planning cycle of an enterprise was presented (unternehmen 3-2003), then the first step of a typical planning cycle, budget compilation, was regarded in more detail (unternehmen 1-2004)

In this article the sources that are used in budget compilation or its preparation shall be regarded more closely.

As determination of the profit plan is the first step of budget compilation, it is crucial to receive the information that forms the structure of the budget and refers to the profit part of the enterprise which means the current profit and loss account as well as current lists of account balances.

Structuring the profit plan begins with sequencing it according to individual expense and income types. In this step the structure of the profit and loss account or the lists of account balances resp have been adhered to regularly. Deviations of this structure of the profit plan according to expense and income types in the profit and loss account or lists of account balances occur when planning sales, use of goods or expenses for personnel.

In the framework of planning sales, variable cost and contribution margins deviations from the structure of profit and loss account or the lists of account balances occur above all when detailed planning based on products or profit centres shall be carried out. In this case the structure normally adheres to information from statistics of sales and contribution margins, purchasing and production. Planning of use of goods is normally undertaken together with planning of sales.

In planning expenses for staff, a deviation often occurs from the structure of profit and loss account or the lists of account balances. For this area the planning according to expense per employee is often undertaken. Wages or salaries resp, inclusive of all non-wage labour costs are frequently planned per each employee. The data basis for planning per employee represents the sources for the payroll.

As described above, the profit plan is often adapted according to the entrepreneurial needs. These adaptations require additional updating of sources such as special statistics of sales and contribution margin in order to present the required information on the enterprise.

All information from various sources must be compared permanently to the figures of profit and loss account or the lists of account balances resp, while compiling the budget as well as during comparison of planned and actual data in the business year.

After the profit plan, finance and liquidity are planned, structured and determined in the next step.

As in determination of profit plan, various structures and methods of calculation are used in the finance plan. They are mainly differentiated by the sequence of their different planning items in the finance plan, less so by the differing demands on the basic data or the source of information.

The possibility for own design is limited in the framework of compiling a balance sheet or a budgeted balance sheet resp. In the process of compiling finance plan and budgeted balance sheet, normally no great effects result from the design of the information to be used.

In the short - term sector of finance and liquidity planning, for the planning of receivables and liabilities, all information should be as detailed as possible; this refers to time allowed for payment of customers and own habits of paying suppliers.

For planning stock, information from statistics of purchasing, sales and production are taken into account. Planning in the long-term sector is based on loan contracts, redemption plans and investment schedules eg.

A compiled plan based on the above mentioned data, ideally on a monthly basis, allows the presentation of the planned economic development of the enterprise in the planned year. In addition, monthly structured planning, facilitates comparison of planned/actual data, extrapolations and revised forecasts. They will be described in the following articles of the series Budgeting and Controlling.

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BUDGETING AND CONTROLLING (PART 19): THE PLANNING CYCLE, STEP 2: COMPARISON OF PLANNED AND ACTUAL DATA



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The planning cycle of an enterprise which starts with budget compilation at the beginning of a business year is supplemented by the steps: comparison of planned and actual data, extrapolation and revised forecast within a business year.

The complete planning cycle of an enterprise is structured like this:

- Step 1: Budget compilation
- Step 2: Comparison of planned and actual data
- Step 3: Extrapolation
- Step 4: Revised forecast

The description of the first step, budget compilation, was covered in the last two articles of the series Budgeting and Controlling (unternehmen 1-2004 and 2-2004). This article deals with step 2, comparison of planned/actual data.

When comparing planned and actual data the figures and results that were planned at the beginning of the business year are compared with actually collected data.

The statement of the comparison of planned/actual data only covers the period for which actual data are available. Statements on future development of the enterprise cannot be made yet in the pure comparison of planned/actual data, but in the following steps in the framework of extrapolation and revised forecast. Like that, comparison of planned/actual data is merely a static review of originally planned figures compared to real actual data.

In the framework of the comparison of planned/actual data, in an ideal case, a deviation analysis is carried out to find the reason for the deviation of actual data from planned data. This analysis provides a preparation for revising the budget in the revised forecast.

Comparison of planned/actual data should be carried out regularly, monthly or quarterly in the course of a planned year.

The graph below shows the structure of a quarterly comparison of planned/actual data and a deviation analysis.

This structure will be supplemented by extrapolation and revised forecast in the next stages.

Actual data that are compared to the planned values in the course of the business year mainly come from sources which were mentioned in the last article of the series Budgeting and Controlling, such as lists of account balances, data of the payroll, statistics of sales, contribution margin and production.

The main source of information to prepare the comparison of planned/actual data is the lists of account balances. With the information from these lists the major part of the comparison of planned/actual data can be carried out.

Further information from other sources in addition to the lists of account balances is always required when the planning was structured according to other criteria and/or when specific information, planned or actual data can only be supplied from other sources.

A cross reference of data from various sources with information from the lists of account balances is crucial because apart from other differences, time differences can occur depending on the desired statement of the information source.

Based on comparison of planned/actual values the next steps in the planning cycle of an enterprise are carried out: extrapolation and revised forecast. The description of the two final steps of the planning cycle will be dealt with in the following articles of the series Budgeting and Controlling.

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QUARTERLY COMPARISON OF PLANNED/ACTUAL DATA AND DEVIATION ANALYSIS

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Budget compilation	Plan	Plan	Plan	Plan
Actual values	Actual			
Comparison of planned/actual data	Comparison			
Deviation analysis	Analysis			

BUDGETING AND CONTROLLING (PART 20): THE PLANNING CYCLE, STEP 3: EXTRAPOLATION



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The typical planning cycle of an enterprise shows the following steps:

- Step 1: Budget compilation
- Step 2: Comparison of planned and actual data
- Step 3: Extrapolation
- Step 4: Revised forecast

Budget compilation and comparison of planned/actual data were covered in the previous articles of the series Budgeting and Controlling. This article deals with step 3, extrapolation.

Extrapolation builds on the figures of budget compilation and supplements them by the values that were taken into account in the framework of comparison of planned/actual data.

Whereas the comparison of planned/actual data is merely a comparison to the actual data that have become real and no future aspects have been considered, extrapolation also regards the future part of the planned year.

In extrapolation, based on the original budget, planned values are replaced by available actual data at the date of comparison of planned/actual data. All other figures for the rest of the planned year remain as they were planned in the original budget.

In this way, supplementing the pure comparison of planned/actual data, the effect of the real, actual values on the results of the whole planned year can be estimated under the assumption that the remaining business year develops as planned in the original budget.

Expected developments and current information for the further part of the planned year remain completely unconsidered in extrapolation. The budget is not revised in extrapolation. In so far, extrapolation is a pure static element in the planning cycle, similar to comparison of planned/actual data.

So it is merely a mathematical extrapolation without considering new aspects of planning where originally planned figures have been corrected by available actual data.

The last article of the series Budgeting and Controlling (unternehmen 3-2004) has already covered the structure of budget compilation, comparison of planned/actual data, and deviation analysis. In extrapolation this structure is expanded by the future aspect. The period for which no actual data are available, originally planned data are filled into extrapolation.

In the following step, in the revised forecast, the extrapolation is expanded by an active revision of the figures of the remaining business year.

Like that, extrapolation only presents a sub-step in the planning cycle in order to be able to carry out the revised forecast; similar to the budget all planned items are revised.

Whereas comparison of planned/actual data is often determined monthly, extrapolation as well as revised forecast are mostly carried out quarterly.

The final fourth step in the framework of the planning cycle, determination of a revised forecast will be dealt with in the following article of the series Budgeting and Controlling.

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BUDGET COMPILATION, COMPARISON OF PLANNED/ACTUAL DATA AND EXTRAPOLATION.

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Budget compilation	Plan	Plan	Plan	Plan
Actual values	Actual			
Comparison of planned/actual data	Comparison			
Deviation analysis	Analysis			
Extrapolation	Actual	Plan	Plan	Plan

BUDGETING AND CONTROLLING (PART 21): THE PLANNING CYCLE, STEP 4: REVISED FORECAST



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For some time, the issues of the series Budgeting and Controlling have dealt with the planning cycle of enterprises. The planning cycle begins with budget compilation at the beginning of a planned year. This is supplemented by comparison of planned/actual data, extrapolations, and revised forecasts for a business year. This leads to the following structure:

- Step 1: Budget compilation
- Step 2: Comparison of planned and actual data
- Step 3: Extrapolation
- Step 4: Revised forecast

Following the three first steps, budget compilation, comparison of planned/actual data and extrapolation, the revised forecast forms the final step in the planning cycle.

The completion of step 2 (comparison of planned/actual data) and step 3 (extrapolation) provide the preparation for the determination of an updated revised forecast.

As with budget compilation, the active planning element emerges in the determination of the revised forecast again. In determining the revised forecast the original budget which was supplemented by actual data from the extrapolation is revised.

All planning items which were originally incorporated into the budget, which have been set against each other in comparison of planned/actual data, which were analysed according to their deviation from the planned values to the actual values, and which finally result in an extrapolation, are reviewed exactly and if need be, revised for the remaining period of the planned year.

All trends that can be derived from the actual data of the business year, new conclusions about the future of the enterprise and considerations about plans and expectations are incorporated into this revised forecast.

A completely new set of figures based on the original budget results from this and is incorporated into profit plan, finance plan and budgeted balance sheet. It is supplemented by actual data and revised by taking into account all considerations of the future development of the enterprise in the planned year.

The last two articles of the series Budgeting and Controlling dealt with the comparison of planned/actual data and extrapolation (unternehmen 3-2004 and 4-2004). The planning cycle that was already described step by step, with its structure, set-up and expansion will be supplemented by the revision of the originally planned values in the framework of the revised forecast.

The described planning cycle with comparison of planned/actual data, deviation analysis, extrapolation and revised forecast is repeated regularly in the planned year, either quarterly or monthly or in case of unexpected events that would ask for a revision from the original budget.

In the practical application, comparison of planned/actual data is often carried out monthly, the revision of the originally planned values in the framework of a revised forecast, however, mostly quarterly.

Instead of the original budget, the revised forecast now forms the basis for the process of the next monthly or quarterly comparisons of planned/actual data, extrapolations, and revised forecasts.

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BUDGET COMPILATION, COMPARISON OF PLANNED/ACTUAL DATA, EXTRAPOLATION AND REVISED FORECAST.

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Budget compilation	Plan	Plan	Plan	Plan
Actual values	Actual			
Comparison of planned/actual data	Comparison			
Deviation analysis	Analysis			
Extrapolation	Actual	Plan	Plan	Plan
Revised forecast	Actual	Forecast	Forecast	Forecast

BUDGETING AND CONTROLLING (PART 22):

ROX-RATIOS (1)



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With the support of ROX-ratios the return or profitability resp of an enterprise can be presented.

ROX-ratios, all represent the result (Return = R) in relation to (on = O) a certain impacting factor X. This factor X can be for example the total capital (investment) employed in an enterprise (ROI = Return on Investment), the total equity employed in an enterprise (ROE = Return on Equity), the factor X can, however, also refer to the sales of an enterprise (ROS = Return on Sales)

The three ratios mentioned ROI, ROE and ROS are the best known ratios of a multitude of ROX-ratios. Recently, a number of further ratios were developed which are all based on this ROX system: ROA, ROFA, ROTA, ROCE, ROACE, etc.

All these ratios have one thing in common: to present the profitability of the enterprise, displayed as result (profit or loss) in comparison to the most varying impacting factors.

Differentiated according to the desired information, very often enterprise-specific ways of calculating the individual ratio can be encountered in the application.

Like that, already for calculating the basic value which is incorporated into the calculation of the ratios, namely for the result (profit and loss), varying values from the profit and loss account, such as eg operating result (EBIT), profit from ordinary activities (EBT), profit for the year or also profit for the year plus interest paid, can be used.

A calculation of ratios based on operating result which means profit from operating business activities, leads to a review of the profitability solely with regard to the operational part of the enterprise (without taking the financial result and taxes into consideration) compared to the presentation of the profitability of the whole enterprise if the profit from ordinary activities (EBT) or profit for the year resp is used as a basic value.

The consideration of a profit either before or after deducting interest paid, results from the reflection whether a review of the profitability of the enterprise should be carried out with taking the effects of financing from own or outside resources into account or if the aspect of the own or outside capital structure of the enterprise should be disregarded.

If the profit after deducting interest paid is used for calculating the ratios, the calculation is based on the assumption that the

capital structure of the enterprise or the effect of the capital structure of the enterprise on interest paid and thus on the profit, should be taken into account when considering the profitability of the enterprise. Depending on the dimension of outside capital in the enterprise, a certain amount of interest paid results from it, which reduces the profit and thus reduces the basis for calculating the ratio.

If, however, a profit before deducting interest paid is used for calculating the ratios, the point of view changes in so far as the capital structure of the enterprise and so the composition of the whole capital, own and outside capital, is of no relevance for the determination of or for the information on the ratio.

The consideration of a profit before or after tax can, eg depend on the question whether a neutral review – neutral concerning the legal form of the commercial entity - should be carried out or if an international review or comparison should be enabled.

A neutral consideration of the pure profitability of the business activity of the enterprise – neutral concerning the legal form of the commercial entity - is made possible by using profit before tax. Using profit after tax would take advantages and disadvantages of the legal form of the entity, due to different fiscal regulations, into account.

A similar situation occurs in the framework of an international consideration or comparison resp. A consideration of the pure profitability of the business activity of the enterprise itself, independent of the fiscal situation of the location of the enterprise is made possible when using profit before tax. Incorporating profit after tax would, however, take advantages or disadvantages of the location, due to different fiscal regulations, into account.

The following article of the series Budgeting and Controlling will deal with the question which of the different values of the balance sheet the described profit of the enterprise is compared to in the framework of calculating the ROX-ratios and how this affects the calculation and basic message of the ratios.

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BUDGETING AND CONTROLLING (PART 23):

ROX-RATIOS (2)



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As described in the last article of the series Budgeting and Controlling (BTV Unternehmen 2-2005) the operating return or profitability resp of enterprises shall be presented with the support of ROX-ratios. Each ROX-ratio represents return (R) or profit from the profit and loss account resp, in relation to (on = O) a certain impacting factor X.

Apart from the question that was dealt with in the last article, which profit is used for determining ratios (profit from the operative business of the enterprise, profit from the total business activity including financial result, profit before or after considering interest, profit before or after tax), the question arises which impacting factor X shall be incorporated into the calculation of the respective ROX-ratio.

Apart from the ratio ROS which sets the profit from the profit and loss account in relation to the turnover from the profit and loss account, certain values from the balance sheet are compared to the profit from the profit and loss account in the framework of the calculation of ROX-ratios.

The values from the balance sheet which are used for the calculation of the ratios can either be taken from the assets or the liabilities side of the balance sheet. Depending on the side that was used as a source of the respective balance sheet values, the respective ratios must be interpreted either assets-oriented or capital-oriented.

The ratio ROI (Return on Investment, return on total capital) and ROE (Return on Equity) are the best known ROX-ratios that are determined based on values from the balance sheet and refer to the total or own capital resp employed in the enterprise.

Further ratios which have been used more and more frequently recently, are followed by an "A" or a "C" after the "RO". The "A" stands for "Assets" the asset values in this term, the "C" for "Capital", the capital values of the enterprise.

Like that the ratios ROA, ROFA and ROTA are determined based on the assets side of the balance sheet, the ratios ROCE and ROACE, however, are calculated based on the capital side of the balance sheet.

According to the characteristic feature of the respective ratio either the total assets or capital values of the balance sheet are incorporated into the calculation of the ratio (usually used for

ROTA and ROI), or only certain parts of the asset or capital side of the balance sheet are used for determining the respective ratio.

Apart from the source or derivation of the respective ratio from the asset or capital side of the balance sheet, it must be taken into consideration whether only the respective amount of assets or capital values are used as a basis or if the development of the amounts in the course of time is also incorporated into the calculation of the ratio.

These themes result from using flow values (the profit from the profit and loss account) in the formulas for the ROX-ratios (except the ratio ROS) on the one hand and stock values (the respective stock of assets or capital values from the balance sheet) on the other hand.

Whenever flow and stock values are set against each other, a decision must be made whether solely the opening stock of the respective stock value is to be taken into account or if the development of this stock in the course of time shall be incorporated into the review. If the development of the stock in the course of time is incorporated this can be done by determining average values of the respective stock and so the average assets or capital employed in the course of a year is considered.

In the framework of compiling average values the question arises which stock is to be incorporated into the calculation of these average values at what time. If there is a continuous or linear development of stock in the course of a business year it might mostly be sufficient to compile the average value of the opening stock from the opening balance sheet and the final stock from the final balance sheet. Should the respective stock, however, fluctuate during the year it will be valuable for exact calculations to compile the average of several stock values (eg from quarterly stock or even monthly stock) to achieve a reliable information on the average assets and capital employed.

In the following articles of the series Budgeting and Controlling, the background and the different ways of compiling and interpreting the various ROX-ratios will be dealt with in more detail.

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BUDGETING AND CONTROLLING (PART 24):

ROX-RATIOS: ROI



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The ratio ROI (Return on Investment) together with the ratio ROE (Return on Equity) is the best known ratio of a multitude of ROX-ratios.

As described in the previous articles of the series Budgeting and Controlling (BTV Unternehmen 2-2005 und 3-2005) the return or profitability resp of enterprises shall be presented with the support of ROX-ratios. The so-called ROX-ratios each present the return (R) or the profit from the profit and loss account resp in relation to (on = O) a certain impacting factor X.

In the case of the ratio ROI, typically, the profit of the enterprise plus interest paid is presented in relation to the total capital employed in the enterprise.

In addition to the profit from the profit and loss account, the interest paid that was already deducted in the framework of the determination of profit or loss resp, is therefore usually added on again in the compilation of the ratio ROI.

The consideration behind adding interest paid on again, can be derived from the fact that with the ratio ROI the profitability of the enterprise or the profitability of the total capital employed in the enterprise shall be presented. No matter how the capital structure of the enterprise is, it bears no relation to the effects of the use of own or outside capital on interest paid and therefore on the result situation of the enterprise.

So, the profit (plus interest) used for compiling the ratio ROI represents a profit before deducting interest paid.

It depends mainly on the information that is to be gained from the ratio, whether the basis for calculating the ratio ROI is the result of the ordinary business activity (EBT) – which means profit before tax – or the profit for the year – which means profit after tax.

If the profitability of the business activity itself is to be reviewed, no matter what the fiscal situation of the enterprise is like, normally the profit from ordinary business activities (EBT) is used as the basis for calculating the ratio.

In this case, the effect of the legal form of the commercial entity or of the location of the enterprise with respect to the fiscal situation is not taken into account.

If, however, an international review or an international comparison resp is to be carried out, or should the fiscal effects of differing legal forms be incorporated into the considerations,

then normally the profit for the year which means profit after tax is used for calculating the ratio ROI, instead of the profit from ordinary business activities (EBT).

The ratio ROI (Return on Investment) sets the profit of the enterprise in comparison to the total capital employed in the enterprise.

When incorporating the total capital employed it must be taken into account if the ratio is calculated based on the total capital employed from the opening balance sheet only, or if the development of the total capital in the course of the business year is to be incorporated into the calculation of the ratio.

If the development of the total capital in the course of time is taken into account, then in the simplest case, the average of the opening balance sheet and the closing balance sheet is determined to compile the average amount of total capital employed in the company. In case of greater fluctuations during the year quarterly or monthly values might be incorporated into the calculation of the average.

The following formula is used for calculating the ratio ROI, expressed in a percentage value.

$$\text{ROI} = \frac{\text{Profit} + \text{Interest}}{(\text{Average}) \text{ Total capital}} \times 100$$

The crucial information the ratio ROI provides is the profitability of the total capital employed in the company which means how much profit can be achieved with the total capital employed in the company, no matter what the capital structure of the enterprise is like.

Therefore, the ratio ROI presents the return of the total capital employed in the company. Profitability of the enterprise rises if profit rises with constant capital employed. Profitability also rises if the profit situation of the enterprise remains constant and, in the course of time, less capital must be employed to attain this profit.

In the following articles of the series Budgeting and Controlling the backgrounds and the methods of calculating and interpreting further ROX-ratios will be dealt with in more detail.

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BUDGETING AND CONTROLLING (PART 25):

ROX-RATIOS: ROE



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The last article of the series Budgeting and Controlling dealt with the ratio ROI (BTV Unternehmen 1-2006).

The ratio ROE (Return on Equity, profitability of own capital) apart from the ratio ROI (Return on Investment) is the best known ratio of all the ROX-ratios which are compiled from values from the balance sheet.

With the support of ROX-ratios, generally, the operating return or profitability resp of enterprises is presented. The ROX-ratios all present the result (Return = R) or the profit from the profit and loss account resp in relation to (on = O) a certain impacting factor X.

In contrast to the ratio ROI, the ratio ROE sets the profit of the enterprise, after deducting interest arisen in the enterprise, in relation to the equity capital employed in the enterprise.

Contrasting the ratio ROI, interest paid is not added to the profit from the profit and loss account, normally the profit from ordinary business activities (EBT) or the profit for the year.

In the framework of calculating the ratio ROE, the profit that results after deducting interest paid, is used in order to incorporate the effect of the capital structure of the enterprise on interest paid and thus on the profit, when regarding the profitability of the enterprise.

The amount of interest payment depends on the dimension of outside capital employed in the company for which interest expenses arise. The less equity capital is employed in the company, the more demand of outside capital arises (resulting in interest expenses), to finance the assets used in the company, the higher is the amount of interest paid and the lower is the profit remaining which presents the basis for calculating the ratios.

To consider a profit before or after tax can depend on what the compiled ratio will be used for – if it is used for a neutral review – neutral concerning the legal form of the commercial entity – or if an international review or an international comparison resp shall be enabled, or whether the profitability of own capital employed in the company to the profitability of an alternative investment might be compared.

The ratio ROE (Return on Equity) refers to the total equity employed in the company. In the simplest cases of calculating the ratio ROE, merely the opening stock of equity is used.

As an alternative, the average stock of equity is compiled in case the development of equity in the course of time is to be incorporated into calculating the ratio.

The following formula is used for calculating the ratio ROE, expressed in a percentage value:

$$\text{ROE} = \frac{\text{Profit}}{\text{(Average) Equity capital}} \times 100$$

The ratio ROE is often used for presenting the comparison of the profitability of investing own capital in the enterprise to a free of risk investment of own capital (eg in a savings account or bank account). Typically for that case, such a comparison is not carried out with the formula based on average values but – the same as with an investment in a savings account – merely based on the stock of equity that is available at the beginning of the year.

The information the ratio ROE provides, refers to the profitability and thus to the calculated interest, calculated based on the total equity capital employed in the company. This profitability increases when the profit increases with constant equity capital employed. Profitability also increases if profit remains constant but if less equity is required to attain this profit.

The information provided by the ratio ROE, must be questioned particularly when the basic values that were incorporated into the formula for calculating the ratio are very low (little profit with little equity capital), as in a purely mathematical way, the ratio ROE can lead to high values in these cases. Their information can be neglected under certain circumstances if exactly these basic values are exceptionally low. With negative basic values the information of the ratio is often also non existent or cannot be interpreted meaningfully.

The following article of the series Budgeting and Controlling will regard the background and the ways of calculating and interpreting the ratio ROS in more detail.

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BUDGETING AND CONTROLLING (PART 26):

ROX-RATIOS: ROS



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The final article of the series Budgeting and Controlling deals with the ratio ROS (Return on Sales).

Whereas the ratios ROI (Return on Investment) and ROE (Return on Equity) which were described in the two previous articles, demonstrated the return or profitability of enterprises by comparing the profit of the profit and loss account to values of the balance sheet (total capital or own capital resp), for the determination of the ratio ROS merely values of the profit and loss account are considered.

In the ratio ROS the result (profit or loss resp) from the profit and loss account is set against the turnover from the profit and loss account. The main information of the ratio thus is the relation of the profit of the enterprise compared to the turnover or how much of the turnover remains as profit resp.

The ratio ROS is often presented together with further ratios which means either together with the ratios ROI or ROE or, if the ratio ROS is interpreted as price margin, together with the ratios minimum turnover and volume range.

Depending on the respective exact statement that is desired, or depending on the framework of presenting the ratio ROS (together with further ROX-ratios or alternatively, under the aspect of price margin in relation to volume range and minimum turnover), the profit is either determined before or after tax or before or after deducting interest to calculate the ratio ROS.

If the ratio ROS is presented together or in relation resp to the ratios ROI and ROE the formulas for the individual calculation of the ratios should always take the same profit items as a basis for determining the ratios (either profit before or after tax) as otherwise the direct relation between the ratios ROI, ROE and ROS is not ensured and thus a common interpretation is not warranted right from the start.

If through the ratio ROS, however, the price margin of an enterprise is to be presented, the profit before tax should be used as a basis for the calculation of the ratio, as the taxes on income when used with profit after tax become effective in the computational formula like fixed costs and thus, adulterate the meaning of the ratio.

Apart from using profit before or after tax, incorporating profit before or after deducting interest depends on the desired information of the ratio – as an individual ratio or in relation to the other ratios that are presented together.

If several ratios are presented together it must be taken into consideration that the ratio ROI is compiled based on profit before deducting interest, the ratio ROE, however, based on profit after deduction of interest. If, in this relation the ratio ROS is used for calculating, together with a further ratio – the ratio for the rate of turnover – the ratio ROI, the ratio ROS must be calculated with profit before interest to be able to compile the ratio ROI correctly in future.

Should the ratio ROS, however, be used for presenting the price margin of the enterprise, the profit after deduction of interest must be used as a basis for the calculation of the ratio, as, if only profit before deducting interest would be used, the meaning of the price margin would not be available (the potentially possible reduction of the sales price with a parallel covering of the total costs of the enterprise, meaning inclusive of interest).

The basic formula for the calculation of the ratio ROS expressed in a percentage value is the following:

$$\text{ROS} = \frac{\text{Profit (+ interest)}}{\text{Sales (Turnover)}} \times 100$$

Depending on the desired information of the ratio ROS, this basic formula, as described above, must incorporate profit before or after considering tax or interest in order to enable a correct information of the ratio.

Based on the various ways of calculating the ratio ROS that were presented, in the application the way of its calculation has to be questioned in the individual case, in order to interpret the results correctly.

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