

## Improving the Methodology for Determining the Value of Capitalized Borrowing Costs

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**Abstract:** The study suggests a refined method for determining the value of capitalized borrowing costs obtained for general purpose but partly used to finance the cost of qualifying asset. The method complies with the general concept of IAS 23 “Borrowing Costs”. The given methodology was developed with due account of various factors influencing the procedure for capitalized borrowing costs calculation. To implement computation algorithm suggested in the study it is recommended to use off-balance sheet account “Cost of Qualifying Asset” comprising the information based on the cash principle.

**Key words:** Accounting, borrowing costs, IAS 23, capitalization of costs, qualifying asset, recommended

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### INTRODUCTION

The transactions of raising debt funds take place in almost any company. Most often, the funds from received credits and loans are used to purchase or form assets requiring a long time to prepare them for intended use or sale (qualifying assets). In this case, the company faces the problem of determining the amount of borrowing costs to be included in the cost of such assets. The system of International Financial Reporting Standards considers this aspect to be governed by the requirements of IAS 23 “Borrowing costs”.

In economic literature there are different studies in the area of borrowing costs accounting related to the problems of IFRS and US GAAP convergence (Bohusova, 2009) impact of IAS 23 on corporate financials (Gupta, 2014) application of IAS 23 in fur farming (Klychova *et al.*, 2014).

Pursuant to IAS 23 “Borrowing costs” the organization must capitalize borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset by including them in the initial cost of the asset. All other costs on borrowings are recognized as finance costs in the period in which they are incurred. IAS 23 “Borrowing costs” points out that directly attributable to the acquisition, construction or production of a qualifying asset are those borrowing costs that could have been avoided if the expenses involved in cost of the related asset had not been made.

The greatest complexity is represented by the situations when no-purpose loan is used for financing expenses involved in a qualifying asset. IAS 23

“Borrowing costs” outlines that it is difficult to directly relate a specific loan and a qualifying asset to each other. Within this context, the determination of the capitalized borrowing costs amount requires an accountant’s professional judgment (Kulikova *et al.*, 2014a). IAS 23 “Borrowing costs” contains just a general algorithm for calculation of capitalized borrowing costs what requires clarification when applied to each specific situation.

In a similar vein, the resolution of the issue of borrowing costs capitalization or their inclusion in finance costs can have a considerable impact on both carrying value of a qualifying asset and the financial result of the organization activities. The problems of formation value of assets considered in the research of many researcher such as Elsukova (2015), Kouki (2015), Ivanovskiy and Azmitov (2015), Kulikova *et al.* (2015) and Tikhvatullin and Pratchenko (2014).

The aim of the study is to develop a more detailed methodology of capitalized borrowing costs calculation in compliance with the general concept of IAS 23 “Borrowing costs”.

### MATERIALS AND METHODS

In compliance with the requirements of IAS 23 “Borrowing costs” the methodology of capitalized borrowing costs calculation depends on what loans were used for financing expenditures connected with a qualifying asset those attracted specifically to create the asset (target loans) or borrowed for general purpose (non-purpose loans). General approach of IAS 23 borrowing costs is presented in Fig. 1.

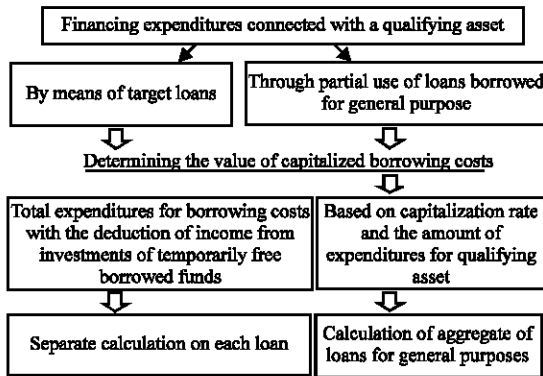


Fig. 1: Procedure for calculation of capitalized borrowing costs under IAS 23 “Borrowing costs”

In case the loan was raised specifically to finance the cost of qualifying asset and was not used for other purposes, capitalized costs on this loan are determined as the difference between the total amount of costs in accordance with the terms of borrowing and income from investments of temporarily free borrowed funds. This calculation is performed separately for each target loan and presents no special difficulties in practical application (Markaryan and Snetkova, 2015). The amount of capitalized borrowing costs involved in common goals is determined by Eq. 1:

$$CBC = CR \times EQA \quad (1)$$

Where:

- CBC = Capitalized Borrowing Costs
- CR = Capitalization Rate
- EQA = Expenditures for a Qualifying Asset

Capitalization rate is calculated as the average weighted interest rate on all non-purpose loans for the reporting period by Eq. 2:

$$CR = \frac{\sum_{i=1}^n BC_i}{\sum_{i=1}^n ACVB_i} \quad (2)$$

Where:

- $BC_i$  = Expenditures for i-th non-purpose loan for the reporting period
- $ACVB_i$  = The Average Carrying Value of i-th non-purpose loan for the reporting period
- n = Number of loans obtained for general purpose and reflected in the composition of the organization liabilities during the reporting period

Under IAS 23 “Borrowing costs” the expenditures for a qualifying asset include only those expenditures that

have resulted in cash outflow, transfers of other assets or the assumption of interest-bearing liabilities. In fact, they should be calculated based on the cash principle. This is true as to assert that the borrowed funds were aimed at financing the cost of a qualifying asset can only be the case if there has been a consequent outflow of cash or other assets. As a rule, interest on debt obligations is calculated and paid monthly. In this case, we can neglect the possible small gap in time between the date of accrual and payment of interest and consider the entire amount of the accrued interest to be paid. If under the terms of the loan agreement the interest payable to the lender for example, once a year then in this case, the amount of interest to be included in the expenditures for a qualifying asset only after paying thereof.

In compliance with the requirements of IAS 23 “Borrowing costs” the expenditures for a qualifying asset to which the capitalization rate is applied should be reduced by the amount of received interim payments from the given asset customer and the amount of subsidies obtained to finance the asset. This is because these funds are private sources of financing expenditures for a qualifying asset.

IAS 23 “Borrowing costs” provides guidance on the date of commencement and cessation of capitalization of expenses for borrowings within the period during which borrowing costs capitalization should be suspended. The date of capitalization commencement is defined in the standard as the date on which three conditions are fulfilled simultaneously for the first time, expenditures for a qualifying asset were incurred, borrowing costs were incurred, the activities necessary to prepare the asset for intended use or sale is put into practice. Borrowing costs capitalization should be suspended when the research with the asset was interrupted for a long time. Capitalization of expenses is terminated when almost all the research with a qualifying asset have been completed.

The problem of capitalization of borrowing costs dealt with in the research of such researcher as Que and Secord (2011), Wei and Wei (2012), Kulikova *et al.* (2014), Spiceland *et al.* (2016) and Mukhametzyanov and Nugaev (2016).

In case an organization along with target borrowings uses non-target for financing expenditures on a qualifying asset then at calculating capitalized borrowing costs the company may face the following difficulties:

- Adequate calculation of the capitalization rate on non-purpose loans
- Determining the amount of expenditures for a qualifying asset to which the capitalization rate to be applied

- Consideration of commencement and termination dates and periods of capitalization borrowing costs suspension and the impact there of upon the amount of capitalized costs for non-target loans

Then let us define solutions to these problems. The fact that IAS 23 “Borrowing costs” presents only the overall guidance for capitalized borrowing costs calculation provides a great space to manifest professional accounting judgment in the formation of accounting policy of the company. The main methods used in this study are the methods of analysis and synthesis.

### RESULTS AND DISCUSSION

To determine capitalization rate for non-purpose loans it is necessary to obtain information on expenditures for non-purpose loans incurred for the period and on the average carrying value amount of non-earmarked loans (Eq. 2). The method for calculating borrowing costs amount is the same for all organizations and does not imply any variability. But the average carrying amount of borrowings may be defined in various ways which can influence the value of capitalization rate and capitalized borrowing costs.

In the simplest version of computation the average carrying value amount of each borrowing during the period is calculated as the arithmetic average of outstanding debt at the beginning and end of the period. In our opinion such a simplified calculation is allowable if the primary loan within the period was practically not changed or changed evenly. Otherwise, we consider reasonable to calculate average carrying value of loan more accurately for example, based on the data of outstanding principal at the beginning of each month during the reporting period and the period end date. The most accurate calculation result will be obtained if the average book value of the borrowing is determined by the equation for weighted arithmetic mean (Eq. 3):

$$ACV_B = \sum_{j=1}^m \frac{CVB_j \times t_j}{\sum_{j=1}^m t_j} \quad (3)$$

Where:

- CVB<sub>j</sub> = Principal outstanding Balance within i-th period
- t<sub>j</sub> = Number of days in i-th period, i.e., number of days when the appropriate principal outstanding balance remained unchanged
- m = Number of periods (within the limits of the accounting period) with various values of principal outstanding balance

As a rule in practice, a single capitalization rate for non-purpose loans is calculated for the entire reporting period. Concurrently, the debt obligation may have existed either during the entire reporting period or just within the part of it. If the loan occurred after the reporting period beginning or its full repayment happened before the end of the reporting period when applying Eq. 3 it is important to properly take into account those periods during which the carrying value of debt obligations was zero.

IAS 23 “Borrowing costs” points out that the average carrying value of qualifying assets including previously capitalized borrowing costs during the period in a norm is approximately equal to the value of expenditures to which capitalization rate is applied. In our opinion, the practical application of this assumption can lead to a number of difficulties and entail a significant distortion of the capitalized borrowing costs amount.

On the one hand, to determine the amount of the cost of a qualifying asset generated on a cash basis it is required to get access to the information being grouped on different accounts, the account for the cost of a qualifying asset, the account of advances paid in connection with the given asset creation, the account for recording the acquired materials being not yet used in the asset creation, etc. On the other hand, accrued but not yet paid amounts to which application of capitalization rate is inappropriate when calculating capitalized borrowing costs can be reflected directly on the account of the expenses for a qualifying asset even if granted deferral of payment is essential.

Moreover, to correctly calculate capitalized costs on non-purpose loans you must exclude from the sum of the qualifying asset cost those expenditures that were financed from target loans or own funds (interim payments from customers, categorical grants).

To consider all these nuances will be easier if to accumulate information about the cost of a qualifying asset on a cash basis. For these purposes we propose to use off-balance sheet account “the cost of a qualifying asset”. Analytical accounting on this account should be organized as a minimum for each item of qualifying assets in terms of sources of financing the costs of a qualifying asset:

- Target loans
- General purpose loans
- Own funds (interim payments received from the customer or subsidies)

If a company has a loan or a loan obtained specifically to finance the cost of a qualifying asset

originally the expenses must be accumulated indicating the attribute “Trust (target) borrowing” as a source of funding. To achieve equality between the sum of accumulated costs and primary loan for the intended borrowing further accumulation of costs should be implemented under the attribute “general purpose borrowing”. Upon receipt of the grant or interim payment from the customer of a qualifying asset, transferal of the corresponding cost value to “Own funds” analytic account should be made.

Such arrangement of accounting records on off-balance account “the cost of a qualifying asset” will help to correctly determine the amount of costs to which capitalization rate must be applied. To calculate capitalized costs for non-purpose loans it is necessary to use solely the cost of a qualifying asset amount accumulated according to analytical basis “Borrowing for general purposes”.

With a view to the change in the accumulated cost of a qualifying asset within the reporting period and for calculation according to Eq. 1, it is necessary to use the average size of a qualifying asset cost for the period. Eq. 4 will help to most accurately calculate the latter value:

$$EQA = \sum_{k=1}^l \frac{EQA_k \times t_k}{\sum_{k=1}^l t_k} \quad (4)$$

Where:

$EQA_k$  = The cost of a Qualifying Aasset value within k-th period

$t_k$  = Number of days in kth period, i.e., number of days when the appropriate principal outstanding balance for a qualifying asset remained unchanged

$l$  = Number of periods (within the limits of the accounting period) with various values of accumulated costs for a qualifying asset

If there is very frequent change of a qualifying asset cost to reduce the complexity of calculation it is possible to count the average size of a qualifying asset cost for the period in a simplified way, based on the data of a qualifying asset cost balances at the beginning of each month within the reporting period and end period date.

When performing the calculations by Eq. 4 it is necessary to consider the requirements of IAS 23 “Borrowing costs” concerning the period of borrowing costs capitalization. If during the reporting period there were periods of time within which borrowing costs capitalization was preterlegal, then when implementing the calculations the value of a qualifying asset cost for those periods should be taken as equal to zero.

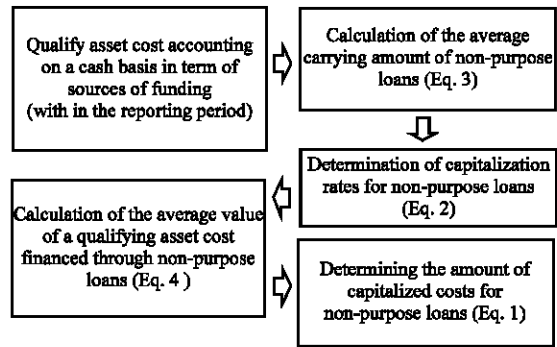


Fig. 2: Stages of calculating capitalized borrowing costs for non-purpose loans

Thus, the calculation procedure for borrowing cost on loans attracted for the general purpose but partly used to finance a qualifying asset cost can be divided into the stages presented in Fig. 2.

Let us, consider the example of this algorithm application to determine the amount of borrowing costs to be capitalized.

Example: on the 1st of February, 2016, an organization started construction of factory building by contracting construction method. Table 1 summarizes the information about transactions within the year of 2016 associated with the construction of the plant. As of December 31, 2016, the plant construction research were not yet completed.

The following information about the organization’s borrowed funds received for general purposes is available.

As of January 1st, 2016, outstanding principal balance of the loan received on July 10, 2015 amounted to 30 mln.rub., the effective interest rate made 17% per annum, the credit cost sum for the year of 2016 made 4,500,820 rub., the principal debt was repaid on November 18th, 2016 by a single payment in the amount of 30 mln.rubles.

On October, 1st, 2016, a loan in the amount of 83 million rubles for general purposes was received, the effective interest rate on the loan made 14% per annum, the amount of borrowing costs for the year of 2016 amounted to 2, 889, 126 rub.

Table 2 reflects the information formed during the year of 2016 on off-balance account “The cost of a qualifying asset”.

In compliance with IAS 23 “Borrowing costs” the commencement date for costs capitalization for the intended loan will be February 20, 2016, since, on that date all the three conditions specified in the standard will be fulfilled for the first time.

Table 1: Transactions within the year of 2016 associated with the construction of the plant

Date	Subject of the operation	Amount (mln.rub.)
20-02-2016	Target loan for the construction is received, the effective interest rate on the loan is 13% per annum	20
20-02-2016	Advance payment is transferred to the contractor	15
01-04-2016	Advance payment is transferred to the contractor	50
01-05-2016	Public subsidy to finance construction costs is obtained	-
01-12-2016	Advance payment is transferred to the contractor	70

Table 2: Off-balance sheet account "The cost of a qualifying asset" analytical account "Factory Premises" (mln.rub.)

Date	Source of Financing					
	Purpose loan		Non-purpose loans		Own funds	
	Amount	By savings account	Amount	By savings account	Amount	By savings account
20-02-16	15	15	-	-	-	-
01-04-16	5	20	45	45	-	-
01-05-16	-	20	40	5	40	40
01-12-16	-	20	70	75	-	40

Table 3: Calculation of capitalized borrowing costs for the year of 2016

Indices	Values
Capitalized costs for purpose loan, rub., $(20,000,000 \times 0.13 / 366 \times 315)$	2,237,705
Average carrying value of non-purpose credit, rub., $((30,000,000 \times 323 + 0 \times 43) / 366)$	26,475,410
Average carrying value of non-purpose loan, rub., $((0 \times 275 + 83,000,000 \times 91) / 366)$	20,636,612
Capitalization rate, ratio $((4,500,820 + 2,889,126) / (26,475,410 + 20,636,612))$	0.156859
Expenditures for a qualifying asset financed due to non-purpose borrowings $((0 \times 91 + 45,000,000 \times 30 + 5,000,000 \times 214 + 75,000,000 \times 31) / 366)$	12,964,481
Amount of capitalized costs for non-purpose loans, rub (p. 5x p.4)	2,033,596
Total of capitalized borrowing costs, rub., (p. 1+p. 6)	4,271,301

As for non-purpose loans, the commencement date for costs capitalization will be April 1st, 2016 because the qualifying asset costs due to non-purpose loans were firstly incurred on that date.

Let us, perform the calculation of capitalized borrowing costs for the year of 2016 in Table 3. Under IAS 23 "Borrowing costs" the amount of borrowing costs capitalized within a period should not exceed the cost of borrowing incurred during that period. According to the results of the calculations this condition is completely met in our example.

In the age of accounting research automation the implementation of the above calculations will not be difficult for the employees of an enterprise's accounting department and will make possible to form more precise information about the qualifying assets carrying value and the organization financial costs.

### CONCLUSION

The study substantiates and clarifies the method of calculating capitalized expenses on loans obtained for general purposes but partly used to finance the cost of a qualifying asset. The proposed procedure of calculation is quite versatile and takes the following features into account, financing the cost of a qualifying asset due to purpose and non-purpose loan, both uniform and nonuniform change of a loan principal amount and cost of

a qualifying asset within the reporting period, availability of periods during which borrowing costs capitalization is prohibited under IAS 23 "Borrowing costs".

Thus, we proposed a refined method for determining the value of costs connected with capitalized borrowings obtained for general-purpose. The method is suitable for all-purpose use and will make possible to generate more reliable information in the financial statements of any organization.

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