**Cost Calculation under Inflationary Conditions.**

**The Impact of Inflationary Profit.**

**Abstract**

The cost calculation of the services provided by a tourism company can be distorted under inflationary conditions. This distortion does not only result from nominal changes in the expression of real values. It also results from the creation of the so-called inflationary profit. The prevailing view in the economic literature is that monetary assets play no part in the creation of inflationary profit. This essay presents a number of arguments in support of the view that, under inflationary conditions, monetary assets can also be a source of inflationary profit. Consequently, the essay shows how the inflationary profit can distort the reliability of the information relating to the profitability of the services provided by the tourism company.

**Key words:** inflation, asset valuation under inflationary conditions, inflationary profit, profitability under inflationary conditions.

**Introduction**

Cost calculation is a process which aims to provide the management of a company with information on:

- the value of expenditures incurred to produce a product / service,

- the profitability of the product / service, which is the difference between the product / service price and the above-mentioned cost expenditures.

An appropriately conducted calculation also allows to obtain a number of additional pieces of information, such as:

- the global amount of costs (the costs incurred thus far and projected costs),

- the ability to carry out production tasks (e.g., the purchase of raw materials or expanding the labour force).

Cost calculation is an indispensable tool in management decision making in a tourism-related company. It helps them decide what services to provide based on market needs and how profitable they are.

Profit is one of the key elements influencing the management decisions in the company. Its measurement is the domain of accounting departments. T. Peche rightly states that “...the whole powerful recording machine of accountancy, directed to the registration of fixed assets, stocks and the manufacturing process, is in fact subordinated to only one goal: a proper calculation of the financial result” [5, p.55].

This calculation can be carried out in two ways. The first one aims at the calculation of surplus which was reached by the company from the sale of its products or services over the costs it has incurred. The second way of measuring profit is to analyse the changes in the value of assets and liabilities of the company. A recorded surplus of assets over liabilities at a specified time interval (when the company has more asset components than recorded capitals financing them at the end of the accounting period) can be deemed as a profitable financial result (profit). This result is “closely related to equity capital, since it can be determined as the change in the equity capital during a given period, assuming that there are no new capital inflow and/or dividend payments” [8, p.221]. When done properly, these two methods of calculating the profit should subsequently produce the same result.

**Valuation of assets during inflation**

The accuracy of the two profit calculation methods shown above is significantly distorted under inflationary conditions.

First, the equality of the calculation methods outlined above disappears during inflation. This is because the value of individual assets and liabilities in an inflationary environment changes as a result of economic processes in the enterprise (which also occurs in an inflation-free environment) but it changes also because of inflation process’. And inflation changes the value of individual company’s assets and liabilities in varying ways and intensity. Thus, the difference between the left and right sides of the balance sheet, recorded at the end of a reporting period, are no longer the sole determinant of the company’s income obtained during this period as it is nominally increased by the inflation rate. This is a cumulative result of the enterprise’s economic efficiency (the profit) and the impact of inflation on the valuation of individual items of its assets and liabilities (what the real profit is not)[[1]](#footnote-1).

Second, the equality of nominal and real economic values, assumed in the accounting records, ceases to apply during inflation. As S.Szejna puts it briefly and aptly, the nominal and real values diverge from each other during inflation [9, p.71]. Costs in accounting are adopted according to their valuation in the nominal value[[2]](#footnote-2), and during inflation, the nominal expression of the costs incurred during the manufacturing cycle corresponds to real values ​​only at the time of such an expenditure. The same nominal value in another unit of time will have a different real value. In such conditions, the nominal values of economic events ​​reported in the company’s accounts begin to differ from their real values​​. They express different purchasing power because the prices of goods in the market have changed within the period.

**Places of cost calculation distortion during inflation**

Cost calculation is made up of two basic elements:

- the price for a product (service),

- costs incurred for this product (service). These are various products and services obtained from the suppliers as well as the company’s internal costs, e.g., depreciation and labour fees.

The price and the costs acquired from outside (products and services) entail inherently the concept of term of payment. Whenever we buy anything, we receive three pieces of information from the supplier:

- what the product / service is being sold,

- the selling price for the product,

- term of payment: for cash or a deferred payment scheme. This deferred payment scheme is commonly called the trade credit and is a regular part of business.

All of the above three elements are inseparable. A change in one of them will cause a change in another. For example, when instead of selling product A we offer product B for sale, then obviously a different price will be applied for the second product (e.g. instead of a 5-night stay in a hotel, the customer wants to stay for 7 days). However, also when we propose to our supplier extending the current payment period from 30 days to 180 days, we can expect a price increase. This increase in price is likely to be small, but nevertheless the price may increase by at least the value of a 5-month money cost in the economy. In an extreme case, our supplier may even withdraw from the transaction, for example, if they consider it too risky with the possibility of their counterpart being insolvent within half a year, or when they cannot afford to give such a long period of credit.

In the conditions of inflationary economy (which, in fact includes most economies in the world today), where money loses its value, additional factors appear to reduce the suppliers’ readiness to use extended terms of payment. These factors are:

- an inflationary profit arising from receivables

- income tax charged on the above-mentioned inflationary profit by fiscal authorities.

**The concept of inflationary profit and the sources of its creation in a tourism company**

In Polish literature on this subject, the term ‘inflationary profit’ is most often used to describe differences between the nominal and real values of recorded costs and prices, which occur in an inflationary environment.[[3]](#footnote-3) In the words of Szejna S. inflationary profit is “...the result obtainable by a company due to changes in prices caused by inflation, which is also an integral part of the nominal financial result” [10, p.303]. In specialist literature, however, there is a well-established notion limiting the sources of inflationary profit only to some of the company’s assets – the non-monetary assets such as fixed assets and stocks. Remaining assets or monetary assets such as receivables and monetary means, do not contribute to the creation of inflationary profit, because they do not change their nominal value in an inflationary environment [1]. According to this opinion, during inflation, monetary assets will decline in their real value while their nominal expression remains unchanged. In this situation, according to these authors, any profits (real or only inflationary ones), are out of question. Consequently, the valuation of monetary assets during inflation would not affect the reality of the recorded financial result.

However, this view is considered to be incorrect as it cannot be justified. The remainder of the paper will present the actual impact of inflation on the changes in the nominal and real values of several monetary asset components. It will prove the possibility of creating an inflationary profit from monetary assets.

The most important sources for the creation of inflationary profit in a tourism-related company are:

- the underestimated value of the recorded depreciation (e.g., a hotel complex and equipment),

- the overestimated nominal value of receivables (from contractors) in relation to its real value,

- the overestimated nominal value of gains from capital investments (usually from the customer prepayment accounts).

The real value of the above mentioned items, changed in the conditions of inflation, directly affects the reality of cost calculation in the company.

**The creation of inflationary profit from fixed assets**

Inflationary profit from fixed assets is created in two ways:

* when selling a given asset, or
* in the course of calculating depreciation.

The depreciation of fixed assets is usually an important component of the cost calculation of a hotel service. This depreciation is calculated on the basis of the depreciation rate, which is a specified percentage of an asset value. An asset is valued as of the date of its purchase, or after putting a facility into use after an investment period. During inflation, this value is nominally maintained at an unchanged level. In reality, however, it steadily falls. Thus, the real value of an asset’s depreciation is undervalued against its physical wear and tear, as in the case of a hotel complex. The result of this cost underestimation will result in overstatement of the generated profit in the accounting statements. Thus, the profitability of the company will be distorted. This is illustrated in Graph 1 below.

Graph 1 Creation of inflationary profit from underestimated depreciation

V1

Vr

Pi

V0

Vn

V

0

t

t1

t – the axis of time

V – the axis of value

Vo – the nominal value of depreciation at point t0

Vn – the nominal value of depreciation

Vr – the real value of depreciation

V1 – the real value of depreciation at point t1

t1 – a succeeding period of depreciation

Pi – the value of inflationary profit = the value

of underestimated depreciation

Source: own elaboration

**The creation of inflationary profit from receivables**

In addition to fixed assets, another important asset component of tourism enterprises is receivables. The nominal value of receivables is determined with an external contractor of the company by virtue of a sales contract and therefore, cannot be altered[[4]](#footnote-4). After a contractual period of deferment, the contractor will pay the exact nominal value as shown in the invoice, regardless of changes in inflation that occurred at that time in the economy. Inflation, however, will affect the change in the real value of receivables, specifically, it will reduce its value.

Even though it is not possible to change the nominal value of receivables while recording the value in the company, it does not mean that this change cannot occur before determining the nominal value of receivables. In the face of rapidly rising prices, enterprises can determine their prices, and specifically raise them, so that they include the loss of the real value throughout the deferred payment period. If a product with a deferred payment option is being sold (only in such a situation a financial asset, that is receivables, can occur), then the real value of the price in an inflationary environment will be lower than the same nominal price of the same product sold for cash. In order to eliminate these inequalities, so that the same products cost the same amount of money in real terms (the real value of two the same products at the same time is after all really the same), the seller can determine prices to include the decline in the real value of receivables in an inflationary environment. Consequently, the longer the term of payment is, the higher the products’ nominal prices will be. This procedure can also be observed, among other instances, in the practice of higher discounts for cash payment. In this case, the prices will be the lower if the payment term is shorter and there is a higher level of inflation in the economy.

Therefore, the real value of receivables in the assets of the firm is consistently lower than their nominal value and decreases until the contractual date of payment [6]. This is illustrated in Graph 2.

Graph 2 Creation of inflationary profit from receivables

V1

Vo

Pi

V

Vr

0

t

t1

Vn

T – the axis of time

V – the axis of value

Vo – the nominal value of a receivable at point t0

Vn – the nominal value of a receivable

Vr – the real value of a receivable

V1 – the real value of a receivable at point t1

t1 – the maturity day of a receivable

Pi – the value of inflationary profit

Source: own elaboration

**Creation of inflationary profit from the monetary means of the company**

Companies can choose to keep their monetary means in the form of cash or invest them. During inflation, the real value of cash decreases in direct proportion to the rate of inflation. If companies want to protect themselves against a decline in the real value of their cash, they must invest the money.

The company invests its cash surplus with the use of various money market instruments such as bank deposits, treasury bills, bonds, etc. In this way, it generates income in the form of interest. During inflation, the interest rate on loans and deposits consists of two basic elements: the margin of the creditor (which is the real interest rate) and the rate of inflation [3]. The part of the interest value corresponding to the rate of inflation is nothing else but an inflationary profit. Graph 3 depicts the creation of an inflationary profit from cash deposits.

Graph 3 Creation of inflationary profit from cash deposits

Vri

Pi

Vni

Vo

V

V1

Vno

Pr

t – the axis of time

V – the axis of value

Vo – the initial value of the cash deposit

Vno – the nominal value of the cash deposit (interest excluded)

Vni – the nominal value of the cash deposit (interest included)

Vro – the real value of the cash deposit (interest excluded)

Vri – the real value of the cash deposit (interest included)

t1 – the closing day of the cash deposit

V1 – the nominal value of the cash deposit at point t1

Pi – the inflationary profit at point t1

Pr – the value of real profit at point t1 = the real value of interest

Source: own elaboration

Vro

= Pi

t

t1

0

There is also another way to create inflationary profit from invested monetary means. In the case of securities, such as bonds sold with a discount (known as zero coupon bonds), the bond buyer’s remuneration is calculated in advance, i.e. on the date of their purchase, just in the form of a discount. Also, a discount includes the predicted level of inflation in the economy in the period between the sale of a bond and its redemption. Thus, the nominal value of such a bond on the date of the sale is set above its real value according to its price on the day of sale. Therefore, inflationary profit emerges the same way as it occurs in the case of receivables. As such, the graphical visualisation of this phenomenon will be similar as shown in Graph 4.

Graph 4 Creation of inflationary profit from zero-coupon bonds

V2

Vo

Vn

Vr

V

Pi

Pr

T – the axis of time

V – the axis of value

Vo – the initial value of the zero-coupon bond

Vn – the nominal value of the zero-coupon bond

Vr – the real value of the zero-coupon bond

V1 – the nominal value of the zero-coupon bond (interest excluded)

t1 – day of the expiry of the zero-coupon bond

V2 – the real value of the zero-coupon bond at point t1

Pi – the value of inflationary profit

Pr – the value of real profit

Source: own elaboration

t1

t

0

V1

**Inflationary profit and the level of the company’s liabilities**

According to the above analysis, some of the company’s assets contribute to increase the nominal value of its profit. However, certain liabilities can contribute to lower the value of profit. Trade credit, which is part of the company’s receivables, has a positive effect when it comes to the company’s suppliers, although at a later stage it will contribute to the creation of undesirable inflationary profit. The purchase of products and services with a deferred payment date causes a decline in the real value of these costs during inflation. Therefore, the higher the level of the company’s liabilities (a longer payment period), the greater the impact of the devaluation of the real value of the company’s costs.

During inflation, this phenomenon will undervalue the financial results of such an enterprise as compared to what the same company would achieve in the absence of inflation (excluding the effect of change in the nominal value of prices and costs in an inflationary environment). D.L. Blakley and A.D. Sti [2, p.19] summarised their theoretical analysis by drawing similar conclusions on the benefits a company can gain from having an excess of liabilities to its suppliers in relation to the value of working capital. They wrote:

“We have demonstrated that firms with positive net working capital balances will be harmed, ceteris paribus, by inflation while those with negative balances will gain.”

**Summary and conclusions**

In a tourism company the most important role in the structure of assets play: fixed assets, receivables and cash. Unfortunately, in the conditions of inflation all of these assets are sources of inflationary profit. Managements of companies must be aware of this phenomenon and its consequences.

Inflationary profit can significantly affect the real assessment of the effectiveness of business activities carried out by a tourism company:

* First, inflationary profit distorts the actual revenue from sale (prices).
* Second, it distorts the real level of individual cost burdens of the business activities.
* Third, it misrepresents the actual amount of the company’s tax burdens, which under normal conditions (non-inflationary ones) are not part of the cost calculation. In the conditions of inflation the tax effect resulting from the creation of the inflationary profit must be taken into consideration when analysing the real performance of the company’s business activities.

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1. Changes in the nominal value of the company balance sheet items in an inflation environment may also occur without recording them as a profit. These are, for example, the statutory revaluations of fixed assets in enterprises that adjust their nominal value to the real one. [↑](#footnote-ref-1)
2. This “nominalism” results directly from the content of tax and accounting laws – for example Art. 28 of the Polish “Accounting Act”. [↑](#footnote-ref-2)
3. Some authors also called inflationary profit as “apparent profits” or “fictitious profits” [4], [10]. [↑](#footnote-ref-3)
4. The legal and economic feasibilities of changing the nominal price of sales are limited to exceptional situations, which are not related to the topic of this paper, therefore they have been omitted in the following discussion. [↑](#footnote-ref-4)