

# ANALYSIS OF THE FINANCIAL MANAGEMENT OF THE UNIVERSITY OF DEBRECEN

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**Abstract:** *Today, the general statement that due to the insufficiency of resources and the unlimited of user demands budgetary organisations have to act with strong, targeted rationalism becomes increasingly accepted. Hungary witnesses a full-scale transformation of the financing of its system of higher education, and therefore the management is required to monitor the changes of the environment continuously, and modify its objectives accordingly. A gradually emerging need is that these educational units have to frame operating structures that are suitable for flexibly following the changes occurring in their environment. This is a terrain where the management is supported by management control system, which is in fact means of regulating operations and driving preparations for decision-making. The purpose of this study is to examine to what extent the actual financial management data of the University of Debrecen coincide with the plans for the given budgetary year. The empiric research relies on the received reports, and embraces the years of 2008–2012; in this manner, a comprehensive view can be formulated in relation to the efficiency of planning in the past 5 years. To ascertain the correctness of operative management, mathematical, statistical and calculation methods are used. The study is conducted in view of the three major questions defined by the methodology of management control system; realistic grounds of the planned data, deviation analysis, identification of causes. The plan fulfilment indicator is used to present the efficiency of planning both on the institutional and the key budgeting levels. In the context of deviation analysis – supervision of the implementation of planned figures –, figures are prepared for better demonstrability. For the detailed identification of the underlying causes, structure analyses are performed for the income and expenditure sides alike. With respect to expenditures, it is examined whether there is any correlation between remunerations, tangible and other current expenses, because they are the two largest budgetary groups of expenditures, while the work of the personnel indeed necessitates the availability of tangible assets. My analysis has concluded that the obtained results confirm the University does not perform its planning operations appropriately. At the time of planning, historic experience and the available information are neglected. The completed analysis directs attention to the importance of the management control system, and the fact that by today this tool for the support of decision-making has become indispensable even for budgetary organisations.*

**Keywords:** University, budget, management control system

**JEL classification:** H80

## Introduction

As a result of the irresponsible management of public finances and the incalculability, permanent changes of the economic environment, Hungary's institutions of higher education have had to face serious challenges these days. The funding of educational institutions is a scene of ongoing systemic transformations.

I have chosen the analysis of the financial management of the University of Debrecen as my research topics with the time interval under review being the years of 2008–2012. I have examined the financial management of the University to see whether it can comply

with its obligations from the available budget; both in terms of incomes and expenditures I have detailed where changes have occurred, and what the underlying reasons have been.

## **1. Materials and methods**

To conduct efficient research activities, I contacted the director of finance of the University of Debrecen. At our meetings in person, I had the opportunity to raise questions in relation to the past and present of the finance management of the institution, as well as potential changes in the future. I have analysed the data included in the reports that were made available to me with the use of various methods of mathematical and statistical calculations.

## **2. Results**

### **2.1 Analysis of data**

Management control system (MCS) is deemed as a subsystem of the organisation with the principal function to ensure and enhance efficient system operation. (Boda-Szlávik, 2005)

For the managers of the University of Debrecen handling budgetary amounts, it has outstanding significance to see the operating aspects of finance management and daily operations clearly. There is a need for the establishment of key indicators in order to have regular information in relation to the available proceeds of the institutions belonging to them, their types, as well as the operating and maintenance costs. For the deviation analysis of the planned and factual figures of strategic controlling, the frequency of factual data is 6-monthly or annual, or even scheduling for several years ahead can be characteristic. (Körmendi-Tóth, 2011)

The fundamental goal of comparing planned and factual figures is the identification of deviations; the control of implementation. In the conventional approach, the two end points of financial management are planning and the review of the implementation of the planned tasks on the basis of factual information. (Körmendi-Tóth, 2011)

The basic function of deviation analysis is the clarification of the reasons having caused the change. This activity promotes the improvement of planning work and timely responses to changes in the environment. (Subhash, 2011)

In order to conduct an appropriate study, 3 questions have had to be answered:

1. whether the planned data have been well-grounded,
2. establishment of absolute and relative deviation between the planned and factual data,
3. what the causes of the deviations have been.

#### **2.1.1 Grounds of the planned data**

Today, the general wisdom that due to the insufficiency of resources and the unlimited nature of user demands budgetary organisations have to act with strong, targeted rationalism becomes increasingly accepted. Leaders, managers are in charge of the determination of strategic objectives, the operative management and control of planning, decision-making, the implementation of decisions. MCS has an important role in meeting this requirement. My analysis has studied the quality of the planning activities with the use of the so-called plan fulfilment indicator. This indicator relates performance data to the original targets.

In view of the calculations performed, it can be seen how the plan fulfilment indicator changed from 2008 until 2012.

**Table 1:** Plan fulfilment indicator of the University of Debrecen, 2008–2012

Year	Target expenditure (HUF th)	Fulfilment of the target expenditure (HUF th)	Target income (HUF th)	Fulfilment of the target income (HUF th)	Plan fulfilment indicator, expenditure ( % )	Plan fulfilment indicator, income ( % )
2008	54729568	65801695	54729568	70365691	83.17	77.78
2009	54656510	65998073	54656510	69102211	82.82	79.10
2010	54194248	74462862	54194248	79716396	72.78	67.98
2011	58317284	77758509	58317284	83542561	75.00	69.81
2012	57735500	73523784	57735500	80653501	78.53	71.58

Source: own compilation on the basis of the data received

Planning is one of the determining functions of management. (Hanyecz, 2006) The point of planning is to have the management of the University systematically consider, and at the same time elaborate its objectives relating to the future. The outcome of the planning function is the plan itself. (Hanyecz, 2006)

The implementation of the budget takes the form of the collection of incomes and settlement of expenditures. Table 1 above relates the figures of actual performance to the original targets. The calculation relies on the following logic: if performance remains under the target, more has been planned than what should have been, i.e. some smaller level would have been sufficient; on the other hand, in case the value of the factual figure runs over the planned level, the excess part will be deemed as unplanned.

In the above calculations, it has been unnecessary to modify the initially entered formula (original target/factual data), as the planned data were always smaller than actual performance. The performed calculation of the ratios demonstrates that the planning and performance data largely deviate from each other. In the review of the five-year interval, the corresponding average values are:

- ~21.54% for expenditures
- ~26.75% for incomes

In association with the planned expenditures, it can be ascertained that there has been a permanent tendency of overspending. Similarly, incomes have consistently been subject to overperformance. It means that when realisation is monitored for recent years planning can be claimed to have been ungrounded on the institutional level.

### 2.1.2 Establishment of deviations

Below, as an important aspect, the absolute and relative deviations of the values are examined. The relative deviation can be calculated with the use of the plan fulfilment indicator. During the deviation analysis, the information obtained in connection with the correlations of the planned and factual figures needs to be arranged in order to make proper decisions and execute the necessary measures. This study has been conducted in the form of Table 2 and Figure 1.

**Table 2:** Relative deviations between the planned and factual data

Year	Expenditures (%)	Incomes (%)
2008	16.83	22.22
2009	17.18	20.90
2010	27.22	32.02
2011	25.00	30.19
2012	21.47	28.42

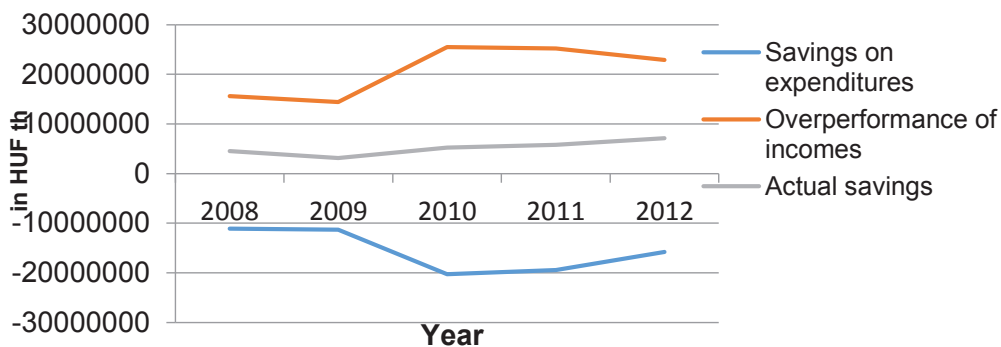
Source: own compilation on the basis of the data received

In my opinion, such tables and statements are demanded the most by managers. They reflect the necessary information clearly, and exactly show where and to what extent there are deviations. As it seems to be expedient to align incomes to expenditures even for a budgetary organisation, it is primarily the expenditures that have to be taken into account first. It is apparent from Table 2 that the degree of the deviation was the smallest in 2008, and came to be the largest in 2010. The process of planning cannot have been appropriate, which is confirmed by the 27.22% deviation. The same year witnessed the largest overspending in terms of expenditures, as well. Thereafter, a phase of gradual decrease could be seen, meaning that the efficiency of planning improved. Incomes show the same tendency increase and decrease as the one observed for expenditures. The largest deviation falls on 2010 again, yet here the degree is ~32.02%. The subsequent years brought about a diminishing tendency for incomes, as well. On the whole, it can be ascertained that for incomes the difference has always been larger than for expenditures, and therefore overspending has been covered by the overperformance of incomes.

*First, efficiency should be measured on the expenditure side, which is to be followed by incomes in spite of the fact that they are strongly correlated with each other; incomes cover expenditures. The underlying reason is that every organisation needs resources for executing the associated activities. Strong correlation can be detected among outflow and inflow processes. The various information, feedbacks are the ones that help to maintain the appropriate relationship in between the two points.*

*The obtainment of inputs appears in the form of costs on the part of the institutions of higher education, and with respect to the available maximum budget to be expended it is essential to use liquid assets efficiently, while the income side may be difficult to regulate in the case of this market actor.*

Economics can be defined as the science of decision-making and selection among various alternatives, and from the perspective of economy it cannot be deemed as a real cost when one has no option to decide on it. (Kopányi, 2009)

**Figure 1:** Deviation analysis, 2008–2012

Source: own compilation on the basis of the data received

Graphs tend to be much more informative than tables. It can be clearly seen without explanations where and when changes occurred, while graphs are also capable of presenting negative and positive changes more drastically.

The difference between the planned and factual figures is shown in Graph 1. In expenditures, the difference came in the form of overspending in each a year, with consistent increase until 2010, and then a decreasing tendency. The largest growth rate was recorded from 2009 to 2010: ~78.71%. Between 2010 and 2012, the rate of fallback was ~28.37%.

Concerning incomes, a temporary halt occurred from 2008 to 2009, but by 2010 the growth proved to be significant again. In comparison with 2009, the rate of increase in 2010 was ~76.67%. From this year on, the extent of overperformance reflected rather slow decrease.

In spite of these major deviations between actual performance and targets, the budget of the University shows surplus; it is indicated by the green line.

In summary, the deviations of expenditures and incomes can be presented in the form of lines that are mirror images to each other. In the years under review, the management of the University succeeded in making decision that always generated positive residual amounts at the time of the closing of the individual budgetary years. It is apparent that they have always tried to respond to changes in the environment in a timely manner. The income and expenditure targets have to be in line with each other at all times. As expenditures are typically over the planned level, they are to be covered from incomes, meaning that the original targets have to be modified. This is the reason why deviations can be presented as mirror images to each other. Yet, their extents are varied with the underlying reason being that the available budget is not always spent fully, and similarly there are occasions when it is impossible to collect all the incomes.

### **2.1.3 Causes of the deviations**

Resources are scarce, and therefore every single use of resources needs to be paid for. In the case of organisations of higher education, the emphasis is on decisions concerning operations, while profit orientation surfaces only indirectly. While a company is active in the market, and among other things it has the option to expand or change its margin, an educational organisation that is maintained by the government does not have such potential prospects. It has a fixed budget from which it is required to ensure its operations. (Anthony-Young, 2007)

In all the years under review, the University underplanned both expenditures and incomes. Planning does not seem to be efficient on the institutional level. Therefore, I have conducted a structure analysis to reveal the causes of the deviations.

#### **2.1.3.1 Structure analysis on expenditures**

Result-oriented control is one of the key elements of the regulation cycle. When it is executed, attention needs to be paid to the issued regulations, the implementation of instructions for both the subunits of the budgetary organisation and the organisation as a whole. It is true that in its entirety planning was not efficient, but the same has to be examined for the main targets for incomes and expenditures, too. Due to the huge number of figures to be included in the tables, only the main calculation results are presented here. In the management of budgetary organisations, the basis of planning from time to time is that in the light of the environmental impacts and the internal resources of the organisation the management should always set realistically feasible objectives. Planning involves the determination of the tasks needed for the accomplishment of the defined goals and the establishment of the set of conditions required for the execution of tasks. (Körmendi-Tóth, 2011).

The main components of the planning system are:

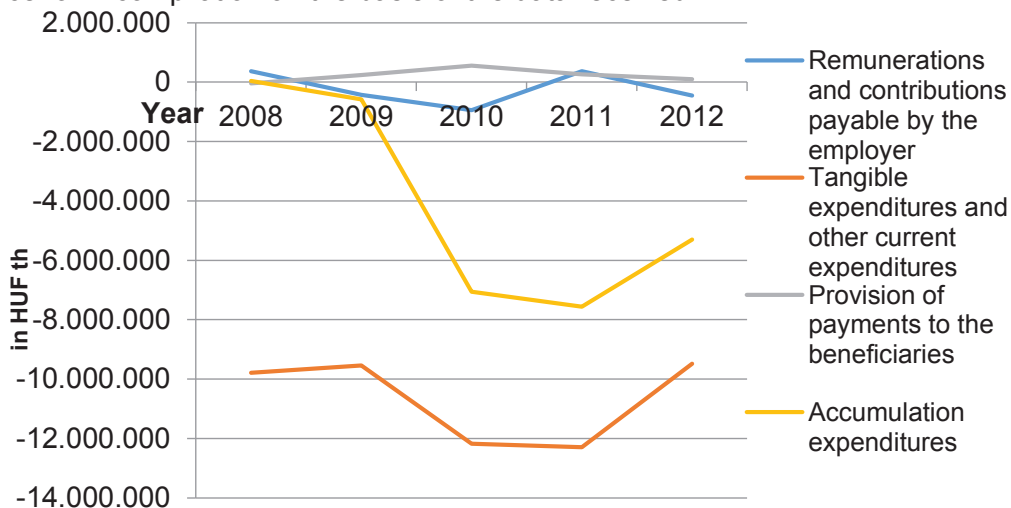
1. The University performs top down & bottom up planning
2. The time horizon of planning in MCS is one budgetary year
3. Financing is planned for a budgetary year.

The fundamental goal of determining budgetary targets is to ensure the balance between the income and expenditure sides of the budget. The University determines normative limits, and sends out these data to its individual institutions; by undertaking certain performances and the collection of own incomes, it also independently frames its budget. In case the anticipated expenditures exceed the budget, modification is carried out. MCS uses the available base data to support the appropriate compilation of budgetary targets.

**Table 3:** Grounds for the main items of expenditures

Year/Description	Remunerations and contributions payable by the employer (%)	Tangible expenditures and other current expenditures (%)	Provision of payments to the beneficiaries (%)	Accumulation expenditures (%)
<b>2008</b>	98.65	67.73	98.82	98.65
<b>2009</b>	98.35	70.14	92.63	85.18
<b>2010</b>	96.46	64.00	84.35	31.75
<b>2011</b>	98.61	66.42	92.54	30.67
<b>2012</b>	98.38	72.19	97.24	31.24

Source: own compilation on the basis of the data received



**Figure 2:** Savings on expenditures/overspending

Source: own compilation on the basis of the data received

Result-oriented control means the comparison of the planned and factual figures relating to one-yearly intervals in this case. The data of all the significant areas have to be reviewed. This activity is the precondition of active management over the operations, yet in itself it is not suitable for making the measures successful. For better demonstrability, Table 3 and Graph 2 have been analysed in parallel with each other.

In the case of expenditures, it is an interesting aspect that during my earlier studies (at the local government) it was remunerations that formed the majority of expenditures. In



this case, however, most of the expenditures have been associated with tangible and other current expenditures.

For remunerations and contributions payable by the employer, the performed calculations do not reflect significant deviations. Overspending has been witnessed only for 2009, 2010 and 2012, while the average extent of deviation for the three years has been HUF 604 873 th. For the years of 2009 and 2010, it can be claimed that the increase was caused by regular remunerations and allowances provided to persons not belonging to the headcount. Furthermore, in 2010–2012 the given growth can be obviously attributed to the new wage scale introduced in healthcare, changes in the base pays and the wage compensation scheme. 2010 saw the commencement of a research university project in the framework of which 1100 salary-type payments were executed.

With respect to tangible expenditures and other current expenditures, it can be ascertained that there is considerable deviation between the planned and factual figures: with the average rate of difference being ~32%. A discrepancy of such a scale suggests that the management of the University is not able to determine with the necessary efficiency what a level of tangible expenditures is necessary for operations in the given budgetary year. Until 2011, this expenditure category showed significant increase, and then came to an approx. ~7.42 % halt in performance. Every year reflects major overperformance, in an average amount of HUF 923 192 th. The main items of expenditures that have increasing weights include

1. purchasing of medicines and chemicals
2. other communication services
3. district heating and hot water supply charges
4. maintenance, repair servicing and other operating services

From 2011 to 2012, a HUF 2,529,910 th decrease was recorded in relation to performances. In that year, a cost-cutting program was introduced, in the framework of which reductions were focused at

1. purchasing of medicines and chemicals
2. purchasing of newspapers and journals
3. purchased public services
4. use of other operating services

The other categories of expenditures could not compensate for the planning inaccuracies in these items.

I have examined whether any considerable difference occurred between the two expenditure categories, and if there were identities in terms of standard deviation. I have made the following findings: significant discrepancies can be found among personnel expenditures and tangible expenditures, as well as other tangible type expenditures, and their dispersions are also different.

The financial allowances granted to the beneficiaries comprise the payments to the participants of intermediate and advanced level education, higher education, as well as other financial allowances provided. With the exception of 2008, savings were consistently achieved. However, they could compensate for the overspending in tangible and other current expenditures only to a negligible extent. The University involves more and more students in its EU grant application activities, which results in an increase in this category, i.e. growing amount of scholarships. It is rather interesting that it is the legal title where planning approaches the level of performance the closest.

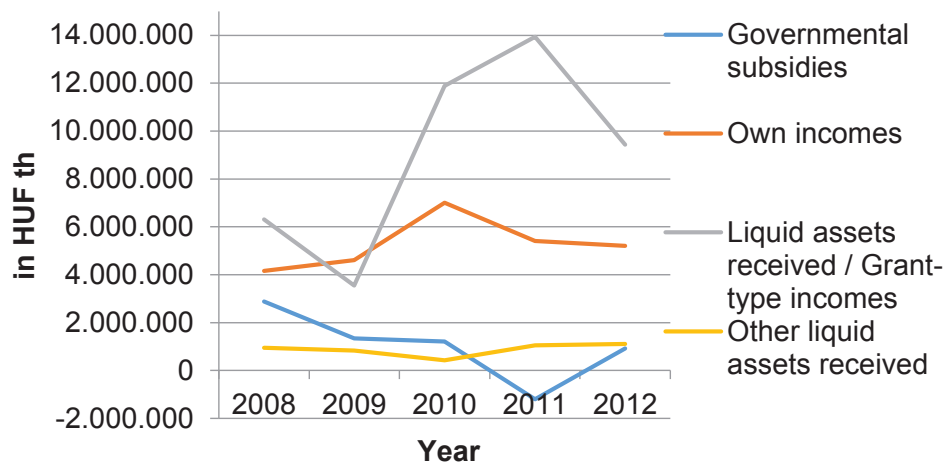
Accumulation expenditures are not indicative of efficient planning, either. Within the framework of reconstruction works, the student hostel of the Medical and Health Centre was renewed. In 2011, the rate of overspending came to be ~69%. The underlying reason was the acquisition and establishment of real-estate properties, as well as the procurement, installation of machines, equipment and facilities. In 2010 and 2011, such investments were financed from grant funds.

### 2.1.3.2 Structure analysis on incomes

**Table 4:** Grounds for the main items of incomes

Year/Description	Governmental subsidies (%)	Own incomes (%)	Liquid assets received / Grant-type incomes (%)	Other liquid assets received (%)
<b>2008</b>	87.90	60.79	80.76	46.57
<b>2009</b>	94.03	58.48	88.07	52.97
<b>2010</b>	94.45	46.77	69.00	70.80
<b>2011</b>	94.52	61.26	65.95	42.32
<b>2012</b>	95.24	65.79	75.07	40.77

Source: own compilation on the basis of the data received



**Figure 3:** Income overperformance

Source: own compilation on the basis of the data received

Table 4 has been compiled to see in summary how well-grounded planning was. It is apparent that there are substantial discrepancies between the corresponding data. For an institution of higher education, the main source of incomes is grant-type incomes and governmental subsidies.

Grant-type incomes form by far the largest proportion of incomes. On the other hand, the amount of governmental subsidies in 2010 was reduced by more than HUF 2 billion in comparison with the base year (2008). Then in 2012, more than HUF 1 billion less was granted in comparison with the 2011 volume. The reason for this latter reduction was the modification of the earmarked amount provided by the government in its own scope of competence. The withdrawal of this amount of money meant a material cut from the available–utilizable budget of the educational institution. It affected the following areas:

1. subsidy granted for the payment of 13<sup>th</sup> monthly remuneration
2. subsidy granted for the increase of remuneration
3. coverage of the costs of headcount reduction
4. subsidy granted for the for supplementary salaries
5. public health tasks
6. education at majors with small student populations
7. subsidy granted for the PhD schools



When planning these target figures, consistently reduced amounts have been budgeted, which means that the management has become prepared for this change in the environment. The deviation between planning and performance figures has also been diminishing continuously. Still, the calculation performed indicates that the efficiency of planning is still not satisfactory.

Concerning changes in the original target figures of own incomes in the past 5 years, it can be seen that the associated data were nearly unchanged in the first 3 years, and then were increased by 38.87% from 2010 to 2011, and 62.52% to 2012. On the other hand, the volume of performance exceeded HUF 10,000,000 th in every year. Still, planning activities did not involve a review to see whether an appropriate amount was raised for the upcoming budgetary year. The substantial deviation can be explained by other incomes, including

- goods and inventory sales, counter-value of services.

In spite of the fact that the collection of incomes became more uncertain under the changed economic circumstances, the University succeeded in increasing the collected amount of the incomes from year to year due to the liquidity and willingness of the partners to pay. Calculated from performance figures, the amount of change was HUF 5,275,554 th on the average.

In the years under review, the targeted amounts of grant-type incomes changed just minimally, yet significant overperformances could be enforced in incomes. 2009 brought about an outstanding discrepancy due to the amounts of incomes received from domestic and EU co-funding resources. From 2011, the amounts of grants started to shrink; more and more grant schemes came to their ends.

The least accurate income category belongs to other liquid assets received. The largest amount was planned in 2010: HUF 1,037,021 th. Despite the fact that incomes are overperformed from year to year, the management remains conservative with their forecasts in relation to this income category.

## **Summary**

In order to give appropriate and timely responses to changes in the environment, the management of the University needs to be aware of the tendencies in the deviations, discrepancies of planned and factual figures. The sooner the intervention is implemented, the more efficiently the available budget can be utilised. The performed analysis confirms the assumption that planning is far from being adequate. I think the management prepares a conservative budget in each year, and then rather applies modifying measures to shape the budget subsequently so that it could come as close as possible to the factual data. Still, it is not an appropriate process. Factual figures regularly and considerably exceed the planned levels. The management does not take historic experience into consideration, and the derived information is not incorporated into the plans of the following year. With respect to financial management, it is of outstanding importance that in spite of the ill-grounded nature of planning the budget is always closed with a surplus. There is a need for a more efficiently planning basis, because today decisions have to be made quickly, still with thorough circumspection. The current system does not support such an approach. Changes in recent years should be taken into account, and the utilizable limits could be raised for the future accordingly. It would be expedient to prepare regular deviation analysis wherein the differences found should be reported and classified, and then the proposed interventions could be executed.

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