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Endowment Capital in Financing Selected Organizations in the Science Sector

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ABSTRACT

Organizations need funds for their functioning. This is particularly important in the case of entities whose activities are oriented not only to achieving profit, but also pursuing other social goals. Financing an organization with endowment funds allows the organization to remain independent and survive while reducing the prices for the services provided. The first part of the study indicates the definitional aspects of "endowment capital" and the research method used in the study. The next part of the study presents an analysis of endowment management at Harvard University, the University of Oxford and the Nobel Foundation. The last part of the article presents the conclusions from the analyses.

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Introduction

A basic challenge of financing an organization is ensuring business continuity. This is particularly important under conditions of uncertainty and during crises that disrupt the stable flow of revenue. For this purpose, in addition to income from the sale of goods and services, organizations use, among others, income from property to supplement the funds needed to cover operating expenses. The assets that organizations can use are endowment capital entrusted to the organization by its founder or earned from a surplus, and established as perpetual and inviolable, allowing for the improvement of the organization's financial situation in crisis situations. The practical purpose of endowment capital is to generate profit, which is then used to supplement lower than expected levels of revenue, or to finance organizational activities unforeseen in the plan. When the organization's revenues are lower than expected, they can be supplemented with the profit generated by endowment capital. The aim of this study is to indicate how long-term organizations obtain endowment capital, as well as how they manage and use endowment capital.

The need for endowment capital is particularly visible in non-governmental organizations and universities. The perception of "endowment" from the perspective of universities' functioning is typical of the American research and practice of financing universities. Therefore, the following statement was formulated as a research hypothesis: *Endowment capital ensures the long-term existence of the organization, and funds obtained systematically from endowment capital are allocated to the current functioning of the organization*. To verify the research hypothesis, financial statements and reports on the management of endowment capital were analyzed.

The first part of the study presents the definitional aspects of endowment capital, followed by the research method used in the study. The second part of the study is an analysis of endowment management at Harvard University, Oxford University and the Nobel Foundation. The last part presents the conclusions from the analyses.

Endowed Capital – Definitional Aspects

The first mention of endowment capital to finance places in schools appears around 176 CE, when the Roman emperor and Stoic philosopher Marcus Aurelius founded one chair for each of the four main philosophical schools: Platonism, Aristotelianism, Stoicism and Epicureanism. Similar endowments were later established in several other major cities of the Empire. The first universities in Europe, created to train state officials, were also funded by princes or kings. In Islamic civilization, madrasas, or theological schools, were financed by waqf funds, permanent donations of a building, plot of land or other assets for religious or charitable purposes. It was pointed out that "when a person dies, only three actions will survive him: continuation of alms, knowledge, and children praying for him", so making a donation to a kind of endowment has become an element of a good life even after death.

In the literature, numerous authors have taken up the issue of endowment capital and drawn attention to its practical purpose. Tobin (date) presented a model in which income from endowment capital is intended to smooth the organization's income in the long term. Issues related to endowment capital were the subject of work focused on financing universities. Research in this area has been presented in the studies of Ennis and Williamson, who present the history of endowment capital models at the disposal of universities and various patterns of adopted spending principles, as well as the interactions between expenses and investment policy. Brown (date), Dimmock (date), Kang (date), and Weisbenner (date) point out that over the last two decades, endowment has become an important source of financing for universities because the rate of growth in the average income from endowment to support universities has significantly increased. outpaced the growth rate of spending on universities. In turn, earlier the issue of endowment capital was present in the works of Merton, who analyzed a portfolio model in which payment of profits from endowment capital is part of the general income of the organization (universities), indicating that these funds should be used to secure income in situations of shocks and losses in other sources of income. Black, in contrast, points out that income from endowment capital is one of the sources of financing universities, and due to their specificity and cyclicality, they are a form of self-insurance.

An important source of knowledge about the endowment used by colleges and universities is the National Association of College and University Business Officers (NACUBO), an organization that collects data on colleges and universities for professionals in college business and finance.

It is worth emphasizing that basing the organization's activities on endowment capital may provide the organization's authorities, its employees and other stakeholders (e.g., owners, shareholders or shareholders) a sense of security. This is particularly important for long-term organizations that intend to operate for a long time.

It is difficult to find a single definition of endowment capital in economic literature. It is therefore worth pointing out that due to the widespread financing of universities in the United States from funds originating from endowment capital, many references to endowment capital and its functions in organizations can be found in the research on the functioning of universities in the United States.

"Endowed capital" can be defined as perpetual funds derived from donations to nonprofit organizations to achieve their status goals. Donations can take the forms of cash, marketable securities, real estate and rare works of art.

Funds collected as part of the endowment capital are repositories of donations and operating surpluses generated by nonprofit organizations. Endowment funds are often referred to as "nest eggs" or "rainy day funds" by their parent organizations. These funds are invested in stocks, bonds and alternative asset classes, such as hedge funds or private equity, and the investment income is paid to the original entity to subsidize operating costs.

Tim Smith points out that endowment capital is a donation of money or property to a nonprofit organization that uses the income from investment for the statutory purposes of its activities [1].

The American Institute of Certified Public Accountants (AICPA) defines "endowment" as an established fund of cash, securities, or other assets that provide income for the maintenance of a nonprofit entity. Endowment funds are generally established based on gifts and bequests restricted by donors to provide either permanent income to ensure a constant source of funds, or a periodic subsidy to provide income for a specified period of time [2].

Endowment capital is often an important element of financing organizations receiving donations, including universities, cultural institutions (e.g., museums, libraries and theaters), service and charity organizations (e.g., hospitals, retirement homes, or the Red Cross); as well as religious organizations. The functioning of endowment capital in an organization seems to be a form of stewardship of the organization's funds, which are not consumed but, thanks to their long-term purpose, allow the organization to survive for a long time.

For foundations operating in the United States, the legal basis for the operation of endowment capital is enshrined in the Uniform Prudent Management of Institutional Funds Act. Funds that constitute endowment capital in the case of non-governmental organizations can therefore be divided into four groups.

- An unrestricted donation that can be used in any way the recipient chooses to achieve their mission.
- An endowment fund, which assumes that all or part of the capital can be spent by the organization only after a specified period of time or a specific event occurs, depending on the wishes of the donor.
- Quasi-endowment funds, which are created by the organization's management body, and not by the donor. Both capital and income can then be available at the discretion of the organization. Quasi-endowed funds are still subject to any other restrictions or donor intentions.
- Limited capital funds ensure that the original capital, increased by a specific rate (e.g., by investing in safe asset classes) is maintained indefinitely and prudent spending methods should be used to avoid a decline in its value [3].

Endowment capital is perceived as inviolable as the initial investment fund of nonprofit organizations. The income obtained from investing funds from the fund should be put towards the achievement of statutory goals, the financing of projects supporting desired social changes and ensuring the organizations' financial stability. In other words, endowment capital is an instrument used to generate stable and passive income for an organization [4].

The International Financial Reporting Standards do not offer a single template for a balance sheet, profit and loss statement or cash flow statement, but only provide a framework within which an enterprise must operate. Therefore, the individual decides whether the balance sheet will start with fixed or current assets; the company is also responsible for the possible aggregation of balance sheet items or their naming. According to IAS 39, a financial instrument may be defined as any contract that gives rise to a financial asset in one entity and a financial liability or equity instrument in another. Therefore, the financial assets of an organization are any asset that has the form of cash or an equity instrument of another entity. It can also be a contract that will or may be settled in the entity's own capital instruments and is a non-derivative instrument that results or may result in an obligation for the entity to accept a variable number of its own capital instruments; or a derivative that will or can be settled other than by exchanging a fixed amount of cash or other financial asset for a fixed number of the entity's own equity instruments [5].

The contractual right to

- Receive cash or another financial asset from another entity
- Exchange financial assets or financial liabilities with another entity on potentially favorable terms

This means that, based on accounting standards, the catalog of instruments that can be included in endowment capital is very wide, and therefore, for further consideration, the purpose of endowment capital, and not only specific financial instruments, should be taken into account. This is reflected, for example, in investment properties, which are often used to build endowment capital, as stipulated in IAS 40. According to this standard, an investment property is held for its rental income, and/or increase in its value. these benefits [6].

Therefore, for the purposes of this study, endowment capital consists of an organization's presumably inviolable assets, the purpose of which is to increase value while transferring funds to the organization's current activities. The sources of endowment capital include the allocation of the founder's funds, the investment of financial surpluses or the allocation of funds from a specific transaction to secure the future of the organization. The functions of endowment capital include

- A function that stabilizes the company's revenues, consisting in supplementing revenues in the event of a worse financial situation of the organization
- Asset value protection function
- A supplementary function that allows for the transfer of funds to the functioning of departments of the organization that do not generate current income (e.g., research and development departments).

Research Method

Under International Accounting Standards, a financial statement is a structured presentation of the financial position and financial results of an entity's operations. The purpose of financial statements is to provide information about an entity's financial position, and the results of operations and cash flows that a wide range of users can factor into their economic decisions. In addition, financial statements present the results of management's stewardship of the resources entrusted to it. To achieve this goal, the financial statements provide information about assets, liabilities, equity capital, revenues and expenses (including profits and losses), other changes in equity, and cash flows.

Therefore, auditing an organization's financial statements allows one to obtain information about the organization's situation, including the management of its endowment capital. The research method used here was based on the analysis of financial statements and the comparison of financial data and mechanisms related to the management of endowment capital and the indication of similarities and differences between the studied entities.

Endowment Capital in Universities

Due to the nature of their activities, universities are in a special position. As a rule, these entities are not focused on maximizing profits, but the economic calculation is important, because it is the basis for the organization's survival. Therefore, among organizations with significant endowments, we can find many universities based in the United States.

Table 1: Private Universities in the United States with Endowment Capital Exceeding 10 billion USD

University	State	Endowmnet
Harvard University	Massachusetts	$49.444
Yale University	Connecticut	$41.383
Stanford University	California	$36.300
Princeton University	New Jersey	$35.794
Massachusetts Institute of Technology	Massachusetts	$24.740
University of Pennsylvania	Pennsylvania	$20.724
University of Notre Dame	Indiana	$16.729
Northwestern University	Illinois	$14.121
Columbia University	New York	$13.280
Washington University in St. Louis	Missouri	$12.252
Duke University	North Carolina	$12.116
Vanderbilt University	Tennessee	$10.206

Source: NACUBO, https://www.nacubo.org/

However, the possession of endowment capital by universities is not only appropriate for non-public schools. This method of securing organization financing is also appropriate for public entities. According to the data, public schools also collect funds that have the nature of endowment capital.

Table 2: Public Universities in the United States with Endowment Capital Exceeding 10 billion USD

University	State	Endowmnet
University of Texas System	Texas	$42.668
Texas A&M University System[b]	Texas	$18.243
University of Michigan	Michigan	$17.347
University of California System[c]	California	$15.418

Source: NACUBO, https://www.nacubo.org/

It is therefore worth taking a closer look at how selected organizations that use an endowment function. The analysis criteria included sources of endowment capital, investment policy, and payments from endowment capital. The organizations were grouped by sector: science, non-governmental organization and market.

Case Study: Harvard University

Among universities that disclose their financial data to NACUBO, Harvard University has the highest value of accumulated assets as part of the endowment capital. At the end of 2022, the value of funds amounted to $49.4 billion [7].

Harvard University's endowment has accumulated for nearly 400 years and "it belongs to the current and future generations of Harvard students, lecturers and researchers." The total value of assets consists of over 14,000 individual accounts. These accounts can be continuously supplemented with subsequent donations, and the adopted financing model assumes that the donation should continue to work rather than be used to fund one-time activities.

Harvard University indicates that the functioning of the endowment capital is intended to achieve two incompatible goals: to subsidize the school's operating budget and to maintain the long-term value of the fund. Moreover, funds for current activities cannot be spent at the expense of future generations, in accordance with the principle of preserving the value of endowment capital. This means that the University may spend funds obtained from invested capital and not the accumulated capital itself. The capital must survive and stabilize the functioning of the University in the long term. According Harvard University's financial report, donors gave $584 million to the school in 2022 alone, up from $465 million in 2021. These funds contribute to the school's endowment capital.

Harvard Management Company (HMC) has managed the university's endowment portfolio since 1974 [8]. HMC is a not-for-profit corporation owned by Harvard University, and is committed to achieving strong investment performance in support of the school's educational and research goals. John Campbell states that "when donors provide funds for the operation of a school, they want to see results immediately and also in the long term." Therefore, according to Campbell, endowment capital is a promise of "vigorous immortality," the ability to see results now and in the future [9].

HMC's investment policy assumes being an actively investing in climate transformation based on new technologies. In 2022, MHC introduced a carbon neutrality policy in its operations. Therefore, HMC describes the 2022 investment results as worse than those of other market players, because HMC, guided by its policy of counteracting the effects of climate change and supporting sustainable solutions, did not invest assets in the conventional energy sector, which was growing in 2022 [10].

However, it should be borne in mind that funds under the endowment capital are invested in financial instruments with low financial liquidity in order to obtain a higher rate of return. Therefore, it is not possible to use these funds on the basis of withdrawal from a bank account, which can be used at any time, and withdrawals from endowment capital must be allowed by the financial plan.

Despite the long-term investment horizon of funds accumulated under endowment capital, in 2009 the rate of return on investment was -25%. The causes of this event should be sought in the effects of the global financial crisis of 2007-2009. It should therefore be emphasized that even investing for such a long period of time as the endowment capital of Harvard University is prepared for, does not offer protection from the effects of unforeseen crises. However, since 2014.

Tabel 3: Rate of return on investment of Harvard University's "endowment capital" in 2014-2022

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
Rate	15%	6%	-2%	7%	8%	6%	6%	36%	-1%

Source: Harvard Financial Report, Annual Financial Report | Financial Administration (harvard.edu)

Harvard has been required to maintain the value of its endowment capital by allocating only part of its endowment funds to co-finance its operating budget. intergenerational justice. Harvard generally aims for an annual principal distribution rate of 5.0 to 5.5% of market value. The actual payout rate varies each year based on endowment returns. In 2021, the macroeconomic situation after the first wave of the COVID-19 pandemic translated into extraordinary returns on endowment capital, which allowed for a nearly $11 billion increase in the market value of the fund, raising the payout rate to the operating budget to $2.1 billion, or 36% of Harvard's total operating revenues in a given year. This was the largest transfer from the endowment to the school's operating budget [11].

Despite the nominally historically high transfer of funds for operating activities, the payout rate in 2021 was 5.2%, meaning that it was only slightly higher than the average for 2014-2022, which was 5.02%.

Table 4: Rate of Payments from Endowment Capital for Operating Activities of Harvard University, 2014-2022

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
Rate	4,9%	4,6%	4,9%	5,4%	5,3%	5.3%	5.3%	5,2%	4,2%

Source: Harvard Financial Report, Annual Financial Report | Financial Administration (harvard.edu)

The funds coming from 70% of the endowment capital have a specific purpose. In accordance with the wishes of contributors to the endowment capital, part of the funds from disbursements for operational activities is to be allocated for specific purposes. Only 30% is at the disposal of school authorities. Endowment funds support almost every aspect of the University's work, from financial aid for students through renovation programs, museum and library operations, to grants and funding for lecturer positions [12].

To sum up, boasting the highest-valued endowment capital of, Harvard seems to be the best example of long-term capital building, with an average and safe investment policy and real support for the operating budget of several billion dollars annually.

Case Study: University of Oxford

Each year, the University of Oxford receives new donations, which in 2022 alone amounted to £103.8 million (£94.2 million in 2021). Donation agreements often include conditions that the University of Oxford must follow to use these funds. The collected funds support the Oxford Endowment Fund, which aims to generate an annual 5% real return in the long term and provide permanent income to the school. The University of Oxford has assets worth GBF 1.3 billion, and individual Colleges have their own funds, amounting to GBF 5.06 billion at the end of 2022. Over the last 10 years (until July 31, 2022), the Fund achieved an annual net return of 9.9% nominal (7.4% real). However, for the financial year to 31 July 2022, the value of the Fund decreased by 1.2% (£39.5 million), resulting from the impact of market and political uncertainty relating to inflation, energy costs and the war in Ukraine. In 2022 alone, the Fund transferred GBF 234.3 million to the operating budget [13].

OUEM's investment philosophy rests on four pillars that shape the investment decisions of endowment funds

- Multiple return engines should be used. Owning shares in companies is the best way to achieve the investment goal, but it is necessary to diversify the fund in terms of strategy, geography and sector
- Risk management should be comprehensive. Effective risk management is achieved by constantly assessing a number of indicators to ensure that fundamental decisions lead to optimal portfolio positioning
- Fundamental investment research. Managing endowment capital allows OUEM to engage in research and investments in which it is possible to learn about the investment project.

Cooperation with investment groups is essential. In most cases, active management with the right investment group leads to higher returns. It is therefore essential to build relationships and interact regularly with managers, collaborating long-term and across market cycles [14].

An important aspect of the investment policy is basing activities on the ESG paradigm. According to the information presented in the endowment management report, OUEM Executive Directors supervise the implementation of the ESG Principles in all investments. OUEM indicates that the work of the investment team is focused on acquiring attractive investment opportunities, conducting detailed investment analysis, making investment and sales decisions, and continuously assessing all investments held by the Fund. For this purpose, it is determined whether the portfolio has appropriate exposure from a risk perspective, including ESG risks [15]. OUEM's operational goals include achieving full portfolio coverage of net zero emissions targets and net zero strategies aligned with the Paris strategies by 2035. In 2022, 46.9% of the Oxford Endowment Fund was invested in ventures that meet ESG criteria [16].

Endowment Capital in Non-Governmental Organizations

Endowment capital is a popular source of financing among non-governmental organizations. By assigning the organization's goals and tasks, the founder provides the endowment capital that allows the organization to operate.

Among the organizations with the highest value of endowment capital are many global foundations. Table 5 presents the value of assets constituting the endowment capital of the largest foundations in the world.

Table 5: Organizations with Endowment Capital Exceeding 10 Billion USD

LP	Name of the organization	Country	Value (USD billion)	Year of establishment
1	Novo Nordisk Foundation	Denmark	73,1	1989
2	Bill & Melinda Gates Foundation	USA	46,8	1994
3	Stichting INGKA Foundation	Netherlands	36	1982
4	Wellcome Trust	UK	32,9	1936
5	Howard Hughes Medical Institute	USA	23,8	1952
6	Azim Premji Foundation	India	21	2001
7	Open Society Foundation	USA	19,6	1993
8	Garfield Weston Foundation	UK	15,7	1958
9	Lilly Foundation	USA	15,1	1937
10	Ford Foundation	USA	13,7	1936

Source: Endowment funds benchmark, https://fundacjaproanima.pl/benchmark-kapitalow-zelaznych/

Case Study: Nobel Foundation

One of the most famous organizations that finances its activities largely from endowment capital is the Nobel Foundation. In 1895, a year before his death, Alfred Nobel made a will in which he indicated that most of his estate, over SEK 31 million (SEK 1.794 million in 2023), should be converted into a fund and invested in "safe securities." Nobel noted that the investment goal was to generate funds that would be distributed annually in the form of prizes to those "who brought the greatest benefits to humanity in the previous year."

The Nobel financial group considers the Alfred Nobel Memorial Foundation an umbrella organization for companies delegated to perform tasks, such as asset management and running the Nobel Peace Prize Center in Oslo, or activities carried out by the Nobel Prize Museum in Stockholm. Through licensing agreements, these foundations are connected to the Memorial Foundation. The primary task of the entities included in the financial group is to disseminate information about the Nobel Prize and Nobel laureates, and to stimulate interest in science, humanism and peace [17].

According to the information in the report on activities, the Nobel Foundation's investment activities are to achieve a sufficiently high return over time, in a responsible manner, to maintain the financial base of the Nobel Prize, and to guarantee the independence of the work of the Prize Chapter in selecting the laureates [18]. This means that the management of the Foundation's assets must be sensitive to the risks in financial markets. The strategic goal is to provide a rate of return of at least 3% per year above inflation. This return should be achieved while maintaining a balanced overall financial management risk. The Nobel Foundation indicates that this level of reimbursement will cover future expenses [19]. At the same time, it is worth noting that since 2016, the Nobel Foundation has been a signatory of the United Nations Principles for Responsible Investments [20].

The market value of all Nobel Foundation assets at the end of 2022 was SEK 5.8 billion ($550 million). Excluding the value of directly owned properties, investment capital amounted to SEK 515 million ($50 million) at the end of 2022. The investment capital commitment made amounted to 53% equity funds, 9% real estate and infrastructure funds, 17% fixed income assets and cash, 22% alternative assets and 0% accrued gains on currency hedging.

The tasks of the Board of Directors of the Nobel Foundation include defining the framework for asset management. This means that, based on the assessment of risk and possible rates of return, the Council determines the time intervals in which the Foundation should hold shares, fixed income assets, alternative assets and real estate funds. As a consequence, the adopted portfolio strategy assumes

- 55% in the range from -15 to +10 percentage points, invested in shares
- 10% in the range from –5 to +45 percentage points, invested in fixed income assets
- 10% within the range of ±10 points in real estate
- 25% within the range of ± 20 points in alternative assets [22].

The Investment Committee was entrusted with the implementation of investment strategies and the appropriate asset allocation. The Committee is responsible for regularly reassessing the principles and rules governing asset management activities and presenting proposals for changes. In addition, the Committee decides on the use of time intervals established by the Management Board for various asset classes. It is therefore up to the Investment Committee to make tactical decisions regarding asset allocation.

The annual operating costs of the Nobel Foundation amount to SEK 118.5 million ($11.3 million). These measures can be divided

into four categories
- Prizes, 50 million SEK ($4.8 million USD)
- Compensation to award committees, SEK 25.3 million ($2.4 million)
- Nobel Week in Stockholm and Oslo, SEK 25.5 million ($2.4 million)
- Administration, SEK 17.6 million ($1.7 million)

Although the Nobel Foundation does not have endowment capital of a value comparable to the world's wealthiest universities, the specificity of the founder and the ennobling nature of the laureates have given the Foundation a global impact [23-42].

Conclusions

The research hypothesis presented in the introduction of the work was verified. The surveyed organizations use endowment capital in their current operations and manage the value of capital, maintaining and often increasing its value through investing.

Endowment capital is a long-term financial resource that is typically funded by donations from founders or donors. It can be used to generate added value for an organization, such as by providing financial stability, smoothing out income fluctuations, and financing long-term projects. However, there are also risks associated with endowment capital, such as dependence on market valuations and management costs.

The U.S. government taxes the profits from endowment capital, and there are no uniform industry regulations in this area worldwide. Entities with endowment capital need to actively manage it to ensure that it is invested effectively. A good practice is to have a separate team responsible for capital management. The investment policy should be long-term oriented and allow for risk reduction, while being aware of periodic devaluations of the value of endowment capital. Payments from endowment capital can help an organization to maintain financial independence and survive difficult times. It can also be used to provide scholarships to students and finance research and development departments.

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