Ministry of Education and Science of Ukraine
Ukrainian-American Concordia University
Department of International Economic Relations, Business & Management

MASTERS QUALIFICATION WORK

REFINEMENT OF THE ENTERPRISE FINANCIAL MANAGEMENT (on the basis of LLC "TERMION-PLUS")

Master's student of
Field of Study 07 –
Management and Administration
Specialty 073 – Management
Specialization – Business Administration

Oleksandr Marchenko
____
(signature)

Research supervisor Dr. Nataly Amalyan

Kyiv – 2023

REFINEMENT OF THE ENTERPRISE FINANCIAL MANAGEMENT
(on the basis of LLC "TERMION-PLUS")
MASTERS QUALIFICATION WORK
Oleksandr Marchenko

ABSTRACT

Under current conditions of economic development, an important factor in the effective functioning of any enterprise is sound financial management - a strategy aimed at ensuring maximum efficient use of the company's financial resources. Of paramount importance this factor is for startup - newly formed business with intention to grow rapidly as a result of offering something that addresses a particular market gap. Its peculiarities (small size, young age, lack of capital and credit history) almost completely exclude using bank credits or internal resources for accelerated development. In the USA and Europe such companies usually attract funds from business angels (issuing convertible notes) and from venture capital or private equity funds (issuing preferred shares); both ways of raising funds are connected with dilution of capital and loss of control over company. Alternative option – unaided emission of own corporate bonds. Master qualification work presents comparative analyses of the advantages and disadvantages of issuing analyzed securities by LLC "TERMION-PLUS, substantiating recommendation for the company to issue corporate bonds. Besides a decision-making mechanism of choosing appropriate terms and conditions of bond issue it disclosed.
Keywords: LLC "TERMION-PLUS, startup, external financing, business angel, venture capital, convertible notes, bonds, preferred shares, dilution.

ВДОСКОНАЛЕННЯ УПРАВЛІННЯ ФІНАНСАМИ ПІДПРИЄМСТВА
(на базі ТОВ «ТЕРМІОН-ПЛЮС»)

Кваліфікаційна магістерська робота

Олександра Марченка

АНОТАЦІЯ. У сучасних умовах розвитку економіки важливим фактором ефективного функціонування будь-якого підприємства є раціональне управління фінансами – стратегія, спрямована на забезпечення максимально ефективного використання фінансових ресурсів підприємства. Цей фактор надзвичайно важливий для стартапу — новоствореного бізнесу що планує якнайшвидше зростати завдяки пропозиції того, у чому ринок відчуває потребу. Особливості такої компанії (невеликий розмір, молодий вік, відсутність капіталу та кредитної історії) практично повністю виключають

використання банківських кредитів або внутрішніх ресурсів для прискореного розвитку. У США та Європі такі компанії зазвичай залучають кошти від бізнес-ангелів (емітуючи конвертовані ноти) та від фондів венчурного капіталу або приватних інвестицій (емітуючи привілейовані акції); обидва способи залучення коштів пов'язані з розмиванням капіталу та втратою контролю над компанією. Альтернативний варіант – самостійна емісія власних корпоративних облігацій. У магістерській кваліфікаційній роботі наведено порівняльний аналіз переваг та недоліків випуску аналізованих цінних паперів ТОВ «ТЕРМІОН-ПЛЮС», обґрунтовано рекомендації компанії щодо випуску корпоративних облігацій. Крім того розкрито механізм прийняття рішень щодо вибору оптимальних умов випуску облігацій.
Ключові слова: ТОВ «ТЕРМІОН-ПЛЮС», стартап, зовнішнє фінансування, бізнес-ангел, венчурний капітал, конвертовані ноти, облігації, привілейовані акції, розмивання капіталу.

APPROVED
Prescript of Ministry of Education and Science, Youth and Sports of Ukraine
29 March 2012 № 384

PHEE-institute «Ukrainian-American Concordia University»

Faculty of management and business
Department of international economic relations, business and management

Educational level: **master degree**
Specialty: 073 "Management"
Educational Program "IT Management"

APPROVED
Head of Department Dr. of Sci. L. Zharova
____
"____" __________________202___

TASK
FOR MASTER QUALIFICATION WORK

Oleksandr Marchenko

1. Topic of the work

REFINEMENT OF THE ENTERPRISE FINANCIAL MANAGEMENT (on the basis of LLC "TERMION-PLUS")

Supervisor of the work
Associate professor, Dr. Nataly Amalyan
Which approved by Order of University from *"14" September 2022 № 14-09/2022-6c*
2. Deadline for master's qualification work submission "***02" February 2023***
3. Data-out to the master's qualification work
Materials received during the internship in of LLC "Termion-PLUS"

4. Contents of the explanatory note (list of issues to be developed) There are three main tasks for the thesis:
- to provide general characteristic of financial management with special focus on the analyses of sources for startup funding and specifics of business angels' and venture capital mode of investment;
- to analyze capital of LLC "Termion-PLUS"
- to substantiate the choice of the best for LLC "Termion-PLUS" source of funding

5. List of graphic material (with exact indication of any mandatory drawings):
Sources of business financing, Matrix of financing forms, New venture financing lifecycle, Different tiers of cash flows in a private equity or venture capital distribution waterfall, Step-by-step process of plastic recycling, Expenses structure of LLC "TERMION-PLUS" in 2021, %, The dynamics of the specific weight of equity in the structure of capital of LLC "TERMION-PLUS", during 2019-2021, Dynamics of equity and liabilities of LLC "TERMION-PLUS", during 2019-2021 and others.

6. Consultants for parts of the work

Part of the project	Surname, name, position	Signature, date	
		Given	Accepted
1	Nataly Amalyan		
2	Nataly Amalyan		
3	Nataly Amalyan		

7. Date of issue of the assignment

Time Schedule

№	The title of the parts of the bachelor's qualification work	Deadlines	Notes
1.	I chapter	*14.09-13.10.2022*	
2.	II chapter	*14.10-10.11.2022*	
3.	III chapter	*11.11-24.12.2022*	
4.	Introduction, conclusions, summary	*25.12 – 01.01.2023*	
5.	Pre-defense	*02.02.2023*	

Student ______________________
(signature)

Supervisor

Conclusions: The bachelor qualification work was designed according to the requirements: it contains all necessary parts of scientific research with the practical recommendations. The paper was written on the basis of thorough analysis of specific aspects of the operations of LLC "Termion-PLUS" (the base of internship), which provided the student with the opportunity to suggest sound recommendations for the choice of the optimal source of financing. The main shortage of the paper – low practical value of recommendations in war times.
Nevertheless, the problems of financial management in general, and startup financing specifically were highlighted and the algorithm of comparative analyses of different sources was formulated correctly.

Supervisor
(signature)

Table of contents

Introduction

Under current conditions of economic development, an important factor in the effective functioning of any enterprise is sound financial management - a strategy aimed at ensuring maximum efficient use of the company's financial resources. Financial management is one of the most important aspects that determine the effectiveness of business entities in market environment, companies' financial stability and potential of future development.

Financial management involves planning, organizing, controlling, and monitoring the business entity's financial activities in order to ensure that this entity has sufficient funds to operate profitably and to achieve its long-term goals. Also financial management involves making decisions about how to raise additional funds when neccessary and how to invest the company's funds in a way that can help maximize the company's return on investment.

Issues of research of financial management have been studied by such leading economists as I. Balabanov, O. Bandurka, V. Bielolypetskyi, I. Blank, O. Vasylyk, V.Hrebelnyi, V. Hrynova, A. Zahorodnii, H. Kireitsev, M. Korobov, V. Rodionova, A.Filimonenkov and others. I. Silina, N. Pohozha, S. Ksondz, P. Havrylo, I. Brodska and others devoted their researches to practical issues related to the formation and use of financial resources of enterprises. Significant contribution to the development of the theory and practice of financial resources management has been made by known foreign and domestic scientists-economists: M. Miller, S. Myers, N. Mailuf, Y. Brigham, L. Gapenski, R. Braly, G. Markowitz, U. Sharp, J. Tobin, S. Ross, I. Blagun, O. Zaruba, O. Kulynych, K. Pavliuk, V. Palii, A. Poddierohin, O. Redkin, V. Terokhin, O. Orlov, S. Yurii, etc.

As stated by mentioned and other authors, financial resources as an object of management provides managers with a variety of activities for making strategic and operational decisions aimed at the successful implementation of the mission of the enterprise's basic corporate strategy. In the system of corporate strategy, effective financial management is associated with all the main dominant areas of the development of an enterprise, starting from the exploration of different sources of funding in order to make an optimal choice.

Competent financial management in general and efficient use of financial resources, in particular, is essential for the wellbeing of all the companies, LLC “Termion-PLUS” including.

Limited liability company “Termion-PLUS” is a Ukrainian company that has all the features that are inherent to a startup:

- **Youth**: it is emerging company (founded at the end of 2019) that has reached the early stages of its production management**,** sales and employee recruitment. It has no prior positioning.
- **Technology and innovation**: this waste recycling company came into being upon the basis of innovative ideas in the field of alternative energy in order to satisfy a new need in the global market. LLC “TERMION-PLUS” is the only enterprise in Ukraine for the processing of plastic into alternative source of energy, which managed to start up and is already selling products. Its functioning helps to solve the most urgent fuel and environmental problem by processing plastic, which is abundant in any landfill, into an ecological waste-free source of energy that is better than coal in all respects.
- **Scalability**: it is a company that seeks **to** increase its size and income within a short period of time and improve its production and sales without the need for a rise in its costs.
- **Global approach**: The goal of the company is to grow and expand rapidly but with a broader and more global focus**,** as the problem of the processing of plastic into alternative source of energy is immanent to all the countries.

- **Reduced initial costs**: it was created with the premise of low production costs**.**

As any other startup, LLC **"**Termion-PLUS" is **in need of money** for future development. It has already passed stages of 4F (founders, family, friends and fools) financing and bootstrapping. At present the company has reached the stage where (in theory) it could raise money either from business angels or from venture capital (private equity). One more option – to place own debt securities on the market on its own. In case of raising money from the financial market LLC "Termion-PLUS" will place its notes on the market independently; in case of raising money from business angels the company will be obliged to provide investor with convertible notes and in case of attracting venture capital – with preferred shares.

Convertible note is a form of short-term debt that can be converted into equity, typically in conjunction with a future financing round; in effect, the investor would be loaning money to a startup and instead of a return in the form of principal plus interest, the investor would receive equity in the company (in case of its successful development).

Preferred shares combine features of debt, in that it conditions payment of fixed dividends, and equity, in that it has the potential to appreciate in price. Preferred shareholders have priority over common stockholders when it comes to dividends, which generally yield more than common stock and can be paid monthly or quarterly. Another advantage of the preferred shares is the possibility of their beneficial for a shareholder conversion in ordinary shares (in case of the startup's successful development).

Both types of securities are certain to lead to a dilution of startup owners' capital.

The aim of the master thesis is to evaluate alternative ways of a startup's capital management when using external sources of funding (on the example of LLC "Termion-PLUS").

To achieve this purpose the following specific objectives have been set:

- To elaborate the concepts of the capital and financial resources of the enterprise;
- To present classification of the sources of entrepreneurial activity financing;
- To present classification of investors in the companies at an early stages of business cycle;
- To collect and analyze general information about **LLC** "Termion-PLUS" and its financial performance;
- To collect and analyze dynamic and structure of **LLC** "Termion-PLUS" capital;
- To provide coefficient analysis of the capital of **LLC** "Termion-PLUS";
- To analyze specific features of debt financing of the company by way of issuing convertible notes;
- To research financial aspects of startup cooperation with venture capital (private equity)
- To present justification for the choice of the most suitable for **LLC** "Termion-PLUS" method of capital management strategy.

Finally, the main objective of the paper would be to present to the management of LLC "Termion-PLUS" recommendations on the optimal choice of business partner.

The object of the master thesis is financial management of the company.

The subject of the master thesis is alternative ways of raising capital by a startup (on the basis of comparison of debt-based and equity-based securities).

The research method is a qualitative approach with the use of a case study (LLC "Termion-PLUS"), vertical and horizontal statistical analysis, financial ratios analysis.

This thesis consists of an introduction, three chapters, conclusion and a list of references. The paper is carried out on 120 sheets, containing 17 tables, 14 figures and 2 annexes. The list of references includes 84 literature sources.

CHAPTER I. THEORETICAL BASIS OF CAPITAL MANAGEMENT

1.1 Concepts of the capital and financial resources of the enterprise

In economics, capital goods or capital are "those durable produced goods that are in turn used as productive inputs for further production" of goods and services (Samuelson, 2001). The general denotation of 'capital' is differentiated into:

- Social capital - a general concept of inter-relationships between human beings having money-like value that motivates actions in a similar fashion to paid compensation;
- Instructional capital (also called knowledge or intellectual capital) - an aspect of teaching and knowledge transfer that is not inherent in individuals or social relationships but is transferable;
- Human capital - a term combining social, instructional and individual human talent in combination;
- Public capital - the aggregate body of government-owned assets that are used as a means for productive activities which supports production in unclear or poorly accounted ways
- Natural (or ecological) capital is the world's stock of natural resources, including geology, soils, air, water and all lifeforms;
- Financial capital - any economic resource measured in terms of money that is used by businessmen and businesses to buy anything they need to produce their products or services.

Structure of financial capital refers to the specific mix of debt and equity used to finance a company's assets and operations. It is a broad topic in the field of financial management of a company, the main component of which is management of financial resources.

Financial management is the practice of handling a company's finances in a way that allows the company to be successful and comply with regulations. That takes both a high-level plan and boots-on-the-ground execution. For a new quickly developing company (startup) the main component of financial management is funds raising.

Financial management addresses the complicated issues of financial planning and control. These include performance measures and cost analysis, methods of improving profitability and techniques of financial monitoring and control – all the issues that have been common knowledge for managers of western companies (Broadbent, 2012), but terra incognita for Ukrainian Soviet-era economists, who had to start with the conceptual framework at the early years of formation of the economy of Ukraine. That is why the conceptual apparatus of business financing was extremely topical for Ukrainian researchers at the end of XIX – beginning of XX century.

As stated by prof. Ostap D.Vasylyk, financial resources are money accumulations and incomes that are generated in the process of distribution and redistribution of the gross domestic product and those that are accumulated in the appropriate funds to ensure the continuity of advanced reproduction and the satisfaction of other social needs (Vasylyk, 1997).

Vasylyk O.D. endeavored to explain the difference between financial resources and cash at the time of their collecting on the accounts or in the company's cash register, noting that the concept of "cash" is much broader, but financial resources always appear in the monetary form. Monetary resources become financial resources when they are concentrated in the appropriate funds, for which the order of creation and usage is established (Vasylyk, 2002).

According to S.I. Yuriy (2012), financial resources are money funds that are created in the process of distribution and use of GDP for a certain period of time (on macro level). The author also determined the discussed definition "as the funds accumulated by the enterprise from various sources, which enter its circulation and are designed to cover the needs of the enterprise (on micro level)".

Of the same opinion was S.V. Mocherny (2006), who notes that financial resources are money funds created in the process of distribution, redistribution and use of the country's gross domestic product.

Korobov M.Ya (2002). states that the financial resources of the enterprise are its own and borrowed purposefully accumulated money funds which are formed in the process of distribution and redistribution of national wealth, gross domestic product and national income and are used for the statutory purposes of the enterprise.

Analyzing the interpretation of the meaning of the concept of "financial resources", G. Shakhova (1993) points out the main drawback - the lack of clear quantitative and qualitative borders between financial resources and money. The functional purpose of financial resources at different stages of the reproduction process is a sign by which the author proposes to allocate financial resources from the total mass of money. G. Shakhova divides money circulation into two parts: the first, related to simple reproduction and satisfaction of current needs; the second, related to expanded reproduction. The part that can be spent on the development of the national economy, the satisfaction of public needs, the author defines as financial resources.

In the interpretation of I. Balabanov (2005), the financial resources of a business entity are the funds available at its disposal.

According to V.M. Oparin (2005), financial resources are the sum of funds directed to fixed assets and working capital of the enterprise. These are advanced funds that are put into circulation and must be returned. But this is not all money, but only money that makes money, that is, based on the use of which added value is formed. He believes that the result is reflected not in resources, but in the income received, therefore, financial resources from the standpoint of their productive use are a prerequisite for production, and, therefore, for the creation of GDP.

L.A. Lakhtionova (2001) notes that financial resources are money in the form of monetary funds (statutory fund, labor compensation fund, reserve fund) and in non-fund form (use of monetary funds to fulfill financial obligations to the budget and extrabudgetary funds, banks, insurance campaigns and etc.). The main sources of financial resources of enterprises are own and borrowed funds.

V. Belolipetskyi and I. Merzlyakov (1998) divide financial resources into internal, which in real form are presented in standard reporting in the form of net profit and depreciation, and in transformed form - in the form of stable liabilities, and involved. According to these authors, the basic part of all financial resources of the enterprise is formed at the time of its creation and functions as its own financial resources.

Khachaturian S.V. (2003) interprets financial resources as a part of the company's funds in stock and non-stock form, that is formed as a result of the distribution of the manufactured product, is involved in the company's activities from various sources and is aimed at ensuring expanded reproduction of production.

Stetsyuk P.A. (2007) considers as the most essential function of financial resources provision of cash flows of a business entity and, based on this concept, defines financial resources as the most liquid assets of a business entity that ensure the continuity of cash flows. Yu Lukina (2013) under financial resources means all funds available to the enterprise; these include cash funds and a portion of cash funds in non-security form.

The definition of financial resources as a set of own cash income and accumulations from the outside (active and passive), intended to fulfill the financial obligations of the enterprise, to finance current expenses and expenses related to the development of production, is given by N. Kolchyna and G. Polyak. In our opinion, the last definition most adequately reflects the essence of the concept of "financial resources".

Analyzing the given definitions of the concept of "financial resources", we can note that there is still no unanimous opinion among Ukrainian and foreign economists regarding the definition of this term and its role in the functioning of any economic entity, especially in modern times.

Nataliia Konstantiuk, and Tetiana Vynnyk (2019) substantiate that under market conditions, financial resources are the only type of enterprise resources that can be transformed into any other type of resources in the minimum time interval.

Review of recent papers shows that entrepreneurship scholars in the USA and Europe demonstrates that the majority of papers are aimed at the design of a toolkit for managing financial responsibilities (Tennent, 2008). Researches are engaged in the analysis of various aspects of financial resource acquisition, such in particular, as how entrepreneurs organize their networks, establish legitimacy, and make decisions on funding sources (Shepherd et al., 2019).

Davidsson and Gruenhagen (2020) in their review of process-oriented studies found only a few articles treating ‘acquisition of resources’ as a new venture creation (sub)process that unfolds over time. These articles emphasize the importance of social capital and networking in acquiring resources (Newbert et al., 2013) but not how the financial resource acquisition process unfolds as a goal-driven process.

Different classification definitions of financial resources in the economic literature make it possible to formulate our own definition, namely: the financial resources of an enterprise are funds available at the disposal of the enterprise, which can be differentiated according to two characteristics:

- by their types and composition;
- according to the sources of their occurrence (formation).

They are intended for spending on expanded reproduction, fulfilment of financial obligations to individuals and legal entities, and economic stimulation.

The financial resources of the enterprise are characterized by certain features that express monetary relations, depend on the primary distribution of the value of the gross domestic product, the formation and use of monetary income and decentralized funds. The ability to perform the function of a means of payment and the level of liquidity of assets are the defining characteristics of their classification as financial resources.

Analyzing economic substance and sources of formation financial resources of the enterprise, I. Kozachok (2012) argues that the financial resources of the enterprise are characterized by certain characteristics that represent monetary relations and depend on the primary distribution of the gross domestic product, formation and use of monetary income and decentralized funds. The ability to perform the function of a means of payment and the level of liquidity of assets is a determining factor in the classification of financial resources.

The composition and classification of qualitative characteristics of the company's financial resources are presented in Table 1.1.

Table 1.1. Composition and classification of qualitative characteristics of the financial resources of the enterprise

Qualitative characteristics of the financial resources

Macroeconomic	**Financial**	**Discrete**
Accumulated cost	Object of financial management	Assets with high transformation ability
Object of property rights	Source of income	Main component of financial management

Object of the influence of the time factor	Source of risk
Factor of economic and social development	Source of settling obligations

Source: (Козачок 2012).

Determination of qualitative characteristics of financial resources, inherent in the economic nature of this category, allows to clearly identify them among the totality of economic resources of the enterprise, to reveal the relationship with other basic financial categories, to determine individual ways of manifestation and existing cause-and-effect relationships in the system of general economic concepts. This can contribute to the development of methodological mechanisms for the analysis, assessment, planning and forecasting for the financial resources of the enterprise, as well as increase of the possibilities of more effective use of available financial instruments in order to stimulate expanded reproduction and socio-economic development of the enterprise.

The most important function of financial resources is to ensure the continuity of the company's cash flows, which makes it possible to establish the main quantitative parameters for analysis, planning, forecasting and evaluation of their formation and efficiency of use.

Under market economic conditions, the success of any enterprise, regardless of the form of ownership and type of activity, largely depends on the correct choice of sources of financial resources.

Financing of enterprises is a set of forms and methods, principles and conditions of financial support of simple and expanded reproduction. Financing is understood as the process of formation of funds or, more broadly, the process of formation of capital of the enterprise in all its forms. The concept of "financing" is quite closely related to the concept of "investing": if financing is the formation of funds, then investing is their use. Both concepts are interrelated, but the first precedes the second. It is impossible for the firm to plan any investments without having sources of financing. At the same time, the formation of financial funds of the firm takes place, as a rule, taking into account the plan of their use (Makhmudov, Avazov, 2019).

The sources of formation of financial resources are known as a set of sources of formation of additional capital for the future period, which ensures the development of the enterprise. These sources can be differentiated into own and borrowed, external and internal.

The formation of a rational structure of sources of financial resources of entrepreneurial structures to finance the necessary level of expenses and ensure the desired level of income is one of the most important tasks of the financial managers. Any enterprise in order to finance its activities needs a sufficient volume of financing, which depends on the period of turnover of assets and corresponding liabilities.

In the optimal version, it is assumed that the working capital of enterprises is financed by means of long-term liabilities, and the main and equivalent means are financed at the cost of long-term sources. Thanks to this, the total volume of expenses for fund raising is optimized.

Thus, the financial resources of the enterprise are formed during the foundation of enterprises, are shaped by means of own and equivalent funds, are mobilized on the financial market, and are received at the process of cash receipts distribution. Financial resources formed at the level of enterprises ensure the possibility of production, investment, formation of working capital, creation of economic stimulation funds, fulfillment of obligations to the budget, financial and credit system, suppliers and employees, internal and external settlements.

The flows of financial resources mediate the movement of material and labor resources, necessary components of the organization of the production process. A sufficient volume of financial resources ensures: stabilization of production volumes, as well as the possibility of its expansion; high, but not full level of utilization of production facilities; a sufficient level of providing the organization with material resources, and, therefore, the ability during the production process to reimburse the advanced financial resources.

1.2 Classification of sources of entrepreneurial activity financing

In general, all sources of business financing can be presented in the form of a graph (see Fig. 1.1.)

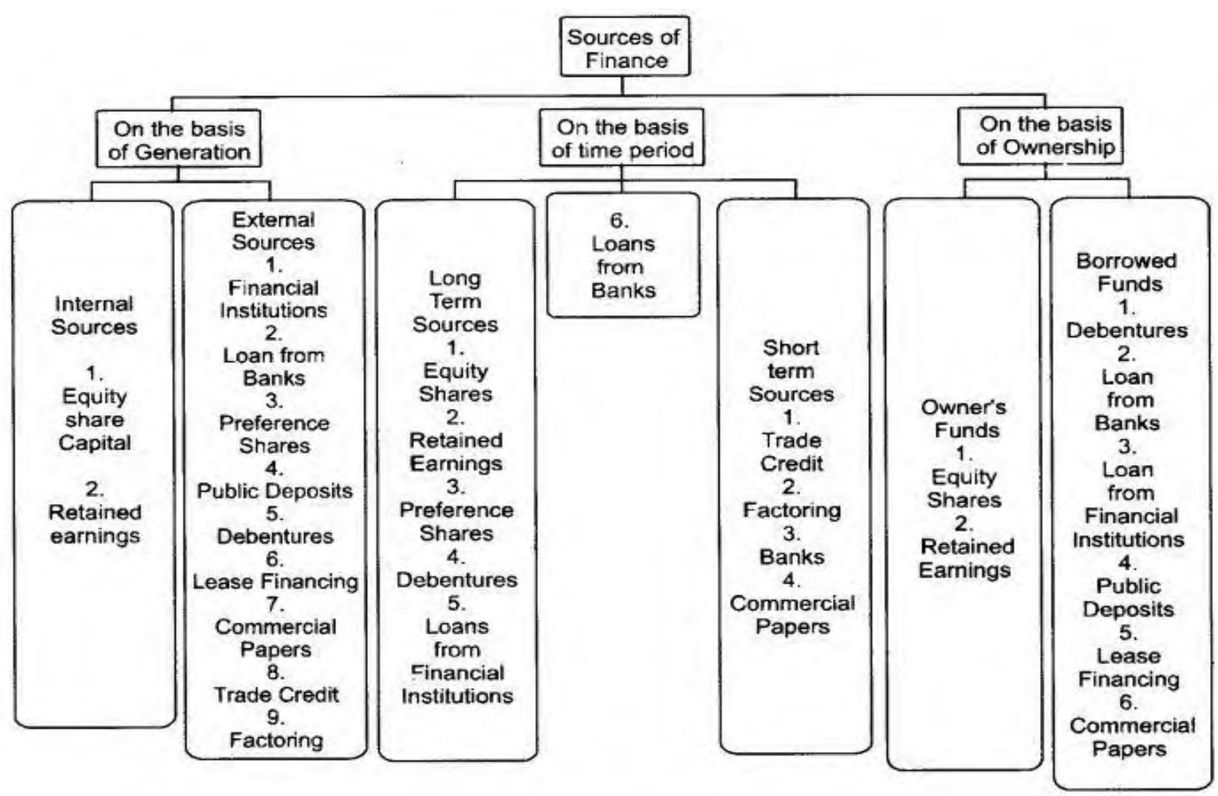


Fig.1.1 Sources of business financing

For our research we will focus only on some specific types (namely external financing of business expansion), which are discussed below.

The main forms of enterprise financing can be classified according to the following criteria:

1. Depending on the goals of financing, the following groups are differentiated:

- financing at the establishment of the enterprise;
- financing when expanding activities;
- refinancing;
- rehabilitation financing.

2. According to the sources of capital inflows, the following types of the sources of entrepreneurial activity fiunding are distinguished:

- external financing;
- internal financing.

Different types of external and internal business financing in short are presented in Fig. 1.2; expanded form see in Annex A and Annex B.

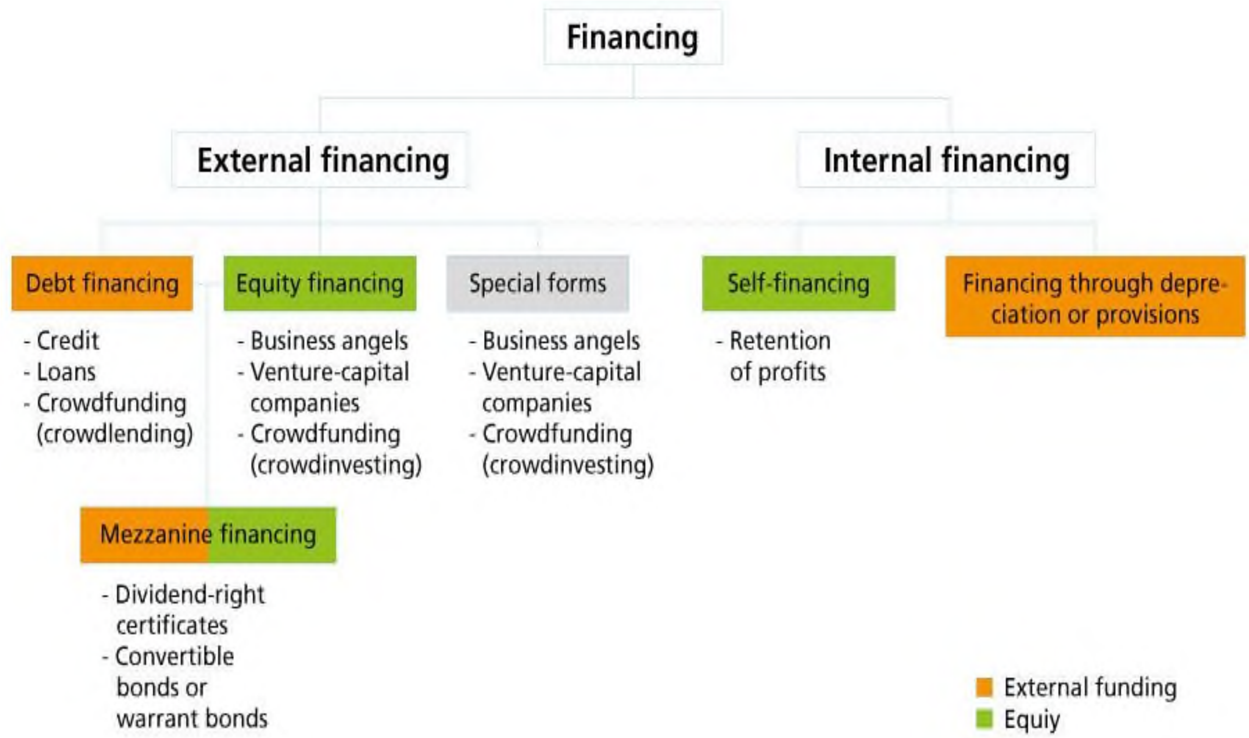


Fig. 1.2. Sources of business financing

Source: Financing: (2022)

3. According to the type of securities presented to investors:

- equity financing;
- debt capital.

Also, the sources of financing depend on the type of enterprise and the form of ownership on the basis of which the enterprise operates.

The structural and logical relationships between different forms of financing are shown in Fig. 1.3 in the form of a matrix.

Investor's status **Sources of financing**	**Debt capital**	**Own capital**	**Assets restructuring**

External	Bank, commercial loans	Equity financing (shareholders' and founders' contributions)	Disinvestment
Internal	Provision for the following expenses and payments	Undistributed profit	Depreciation deduction

Fig. 1.3 Matrix of financing forms

Source: Volkart, 2000

To raise capital for business needs, business entities primarily use two types of financing: equity financing and debt financing. Most companies use a combination of debt and equity financing, and there are some distinct advantages to both. Principal among them is the following: equity financing carries no repayment obligation, placing no additional financial burden on the company; this type of financing provides extra working capital that can be used to expand a business: since there are no required monthly payments associated with debt servicing, the company has more capital available to invest in growing the business.

But that doesn't mean there's no disadvantages of equity financing, the main of them being a requisite to give away the new investor a percentage of the company, sharing profits and consulting with new partners while making decisions affecting the company.

On the other hand, debt financing does not require giving up a portion of ownership - the lender has no control over the business. Once the loan is paid back, the relationship with the financier ends. Another advantages of debt financing: the interest payed on the loan is tax-deductible and it is easy to forecast expenses because loan payments do not fluctuate.

The problem of choice between debt, equity or a mix is explained by the so-called 'Pecking order theory', developed by Myers and Majluf (Myers, 1984). This theory put forward the hypothesis that companies prioritize their sources of financing (from internal financing to equity) according to the Principle of least effort, or of least resistance, preferring to raise equity as a financing means of last resort. Hence, own funds are used first, and when that is depleted, debt is taken/issued, and when it is not sensible to issue any more debt, equity is issued.

Thus, beginning with internal fund and finally diffusing equity, firms work their way up the pecking order to finance investment in an effort to minimize adverse selection costs. There are three factors that the pecking order theory is based on and that must be considered by firms when raising capital:

- Internal funds are cheapest to use (no issuance costs) and require no private information release.
- Debt financing as a rule is cheaper than equity financing.
- Managers usually know more about the future performance of the firm than lenders and investors. Because of this asymmetric information, investors may make inferences about the value of the firm based on the external source of capital the firm chooses to raise:
    - Equity financing inference – firm is currently overvalued
    - Debt financing inference – firm is correctly valued or undervalued

According to the pecking-order theory there is no target debt-equity (D/E) index that demonstrates how much of a company's financing is proportionately provided by debt and equity. Profitable firms use less debt (they use self-financing instead).

Main factors influencing the choice of specific source of financing are the following:

- Taxation: if corporate tax rates are higher than bondholder tax rates, there is an advantage to debt;
- Types of assets: the costs of financial distress depend on the types of assets the firm has;
- Uncertainty of operating income: even without debt, firms with uncertain operating income have high probability of experiencing financial distress.

Pecking theory has been scrutinized for several decades by scores of studies attempting to determine whether and when the pecking order accurately describes observed financing behavior; yet, there is little agreement on these issues. (Leary, 2010).

In practice the choice of the source of funding often is determined by the source most easily accessible for the company, its cash flow, and importance of maintaining control of the company to its principal owners. Depending on each specific business and how well it performs, debt can be cheaper than equity, but the opposite can also be true. If the business turns no profit and the owners close it, then in essence equity financing costs to owners nothing. If the owner takes out a small business loan via debt financing and turns no profit, he/she still needs to pay back the loan plus interest. In this scenario, debt financing costs more. However, if the company sells for millions of dollars, the amount the company pays to shareholders could be much more compared to keeping that ownership and simply paying a loan. Each circumstance is different.

From the point of view of risk debt financing can be riskier if the company is not profitable as there can be loan pressure from the lenders. However, equity financing can be risky if the new investors expect a company to turn a healthy profit, which they usually do. If they are unhappy, they could try and negotiate for cheaper equity or divest altogether.

1.3. Classification of investors in the companies at an early stages of business cycle

Companies at an early stage of a business cycle (in many cases – startups) in most cases are small business entities that has no track record to show that the business has the capacity to generate enough money to pay back the loan (and thus having bad or no credit history), weak cash flows and no sufficient collateral very rarely can receive bank loans. In developed countries as a rule such enterprises, being in need of additional funds for further development, turn to individual and institutional investors, such as business angels, venture or private equity funds (see Fig. 1.4)

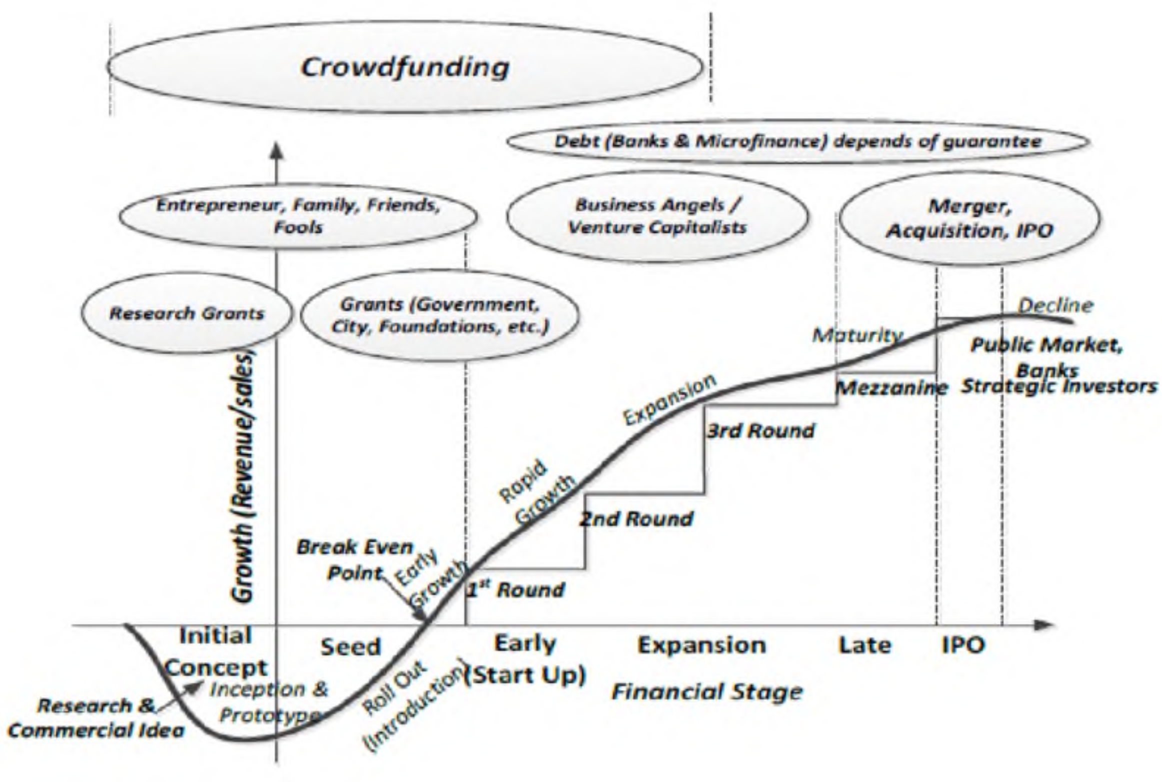


Fig. 1.4. New venture financing lifecycle
Source: Rossi, 2014.

Business angels (also known as angels, informal investor, angel funder, private investor, or seed investor) are high net worth individuals (accredited investor with a net worth exceeding $1 million) who make at least $200,000 in income and who invest their own money, along with their time and expertise, in high-risk, high-return entrepreneurial ventures, typically in the seed and/or start-up stage, in which there is no family connection, in the hope of financial gain. In the USA and Europe angel investors are estimated to provide 90% of all seed and start-up capital.

Typical angel investor is a man (99%), with a university diploma and/or professional qualifications and until recently he was 45-65 years old. In these days at least one third of business angels are over 65 years (baby-boomers): in 2011, baby boomers started turning 65, and from now until 2030, that number is swelling by 10 000 each day. That's 70 000 per week and over 280 000 per month. It is assumed that by this age these retirees/potential investors have gained enough experience and gathered enough money, and all that is left for them is to choose whether to be 'relieved of their duties' or to become business angels who are economically active. Having led until then a dynamic life (holding leading positions or managing their own business) it may be difficult for them to adapt to a passive retirement.

Business angels that take a high risk as companies they invest in do not have much publicly available information. These investors need to have high judgment skills about the entrepreneurs in whose promising business they plan to invest their money.

Angels require air-tight business plans. They conduct due diligence, perform competitive analysis, and eventually dismiss up to 90% of the applications they get. Small business owners may have to make several rounds of presentations to the angel investor or group to possibly secure their equity investment. Angels particularly care about the market opportunity being addressed and the potential for the company to become very big; a clearly thought-out business plan; interesting technology or intellectual property and the viability of raising additional capital.

Angel investors usually put a limited amount of money and are quite demanding in terms of valuation, given the huge risk of the company in these early stages. The typical angel invest $25,000 to $100,000 into a company, but can go higher. Raising capital is usually a very time-consuming process.

The capital from angel investors and the expertise of strategic partners are probably spent on prototypes, packaging, business models and business plans. To the end of this phase the product should touch the market for the first time. Usually, the first contact with the market does not require a lot of money and is really useful to confirm the entrepreneurs' idea.

As a rule, modus operandi of business angels consists of the following steps:

- Deal search
- Deal Screening and Due Diligence
- Funding Negotiations
- Post-Investment Involvement
- Exit strategy design

Deal search in the context of legions of funds needy start-ups is governed by the scan for business *that fits investor's background, ROI requirements and personal motivations.* The main sources for search include business angel network, attorneys, accountants, consultants and investment bankers.

Deal screening and due diligence: Each business angel has his/her own selection criteria. But it is possible to single out five sets of things business angel looks for in a newborn enterprise (in order of importance):

- a large, rapidly expanding market
- people / management that can get the job done
- a brilliant idea of technology that can be commercialized
- a strategy that has a strong sustainable competitive advantage

- expected high returns/reasonable price per share.

In the course of *funding negotiations* main component of the economic bucket is definition of the securities, being issued by seed companies and start-up in exchange for the money of business angels.

Equity securities are rarely used at these stages, as it is extremely difficult to calculate valuation of the company at the earliest stages. Most frequently are used convertible note/bond[1] – a flexible financing option, a type of debt security that can be converted into a predetermined amount of the underlying company's equity at certain times during the note's life. Due to their specific features, they are particularly useful for companies with high risk/reward profiles.

Post-investment involvement of business angels may include:

- Recruiting and Coaching Management/Board;
- Recruiting Venture Capitalists;
- Assistance with Financial Structuring.

Angels also provide support in organizational structuring; defining and establishing the marketing, sales and distribution strategies and providing general coaching and guidance. Some angels are willing to act as interim CEO or interim member of the senior management team.

Some angels are part of angel investing groups (in many countries there are special angel investor networks), some are on their own, but all of them have one thing in common: they will only invest in small businesses in which they think they can earn a high return on their investment. Due to the very high failure rate of small businesses, angel investors and venture capitalists require an exceedingly high return on their investments; often, they require as much as 10 times to 30 times the amount they invest over a five- to seven-year holding period.

[1] Specifics of convertible notes emission will be analysed in the third chapter.

By taking on an angel investor an entrepreneur gets the following benefits: contacts to potential customers and employees, to venture capitalists and strategic partners; contacts with lawyers, banks, accountants, and investment bankers; advice and counsel, knowledge of the marketplace and strategies of similar companies.

Contrary to Venture capital (which combines professional investors, dedicating 100% of their time to investing and building innovative companies on behalf of third-party investors or their limited partners), the angel investment community is a more informal network of investors who invest in companies for their own interests. Typically, angel investors invest less than $1 million in any particular company, whereas venture capitalists usually invest more than $1 million per company.

Among researchers, who have analyzed the essence and different aspects of business angel activities, the most known are Harrison, R. T., & Mason, C. M. (2017), Ramadani, V. (2009), Aernoudt R. (1999), White B.A. & Dumay J. (2017), Macht, S.A. & Robinson J. (2009), Sørheim, R. (2005), Landström, H., & Mason, C. (2016) and Tenca, F., Croce, A., & Ughetto, E. (2018), who have presented the literature review and a research agenda on the topic.

Majority of the mentioned scientists have also publications on the problems of venture capital and private equity funds.

Venture capital has been studied as a central entity to provide funds to rapidly growing startups (e.g., Da Rin et al. 2013).

In theory ‘Venture capital’ (VC) is a subset of the larger private equity asset class: it is professional equity co-invested with the entrepreneur to fund an early-stage (seed and start-up) business. While the PE asset class includes, on the one hand, venture capital, and, on the other - buyouts and mezzanine investment activity (focusing on investing in more mature companies), VC focuses on investing in private, staying in a very early phase of development, fast growing unquoted companies. Venture capitalists also invest cash for equity. Unlike buyout professionals, venture capitalists do not use leverage in their transactions.

Venture capitalists are professional investors who specialize in funding and building young, innovative enterprises. They are long-term investors who take a hands-on approach with all of their investments and actively work with entrepreneurial management teams in order to build great companies. The companies that venture capitalists invest in are private unquoted enterprises.

The initial investment is just the beginning of a long relationship between the venture capitalist and entrepreneur. Venture capitalists provide great value by providing capital and management expertise; they are often invaluable in building strong management teams, managing rapid growth and facilitating strategic partnerships.

Legal formats: There are two different legal formats all around the world, the European Union one, and the Anglo-Saxon one. In the European Union, there are three different vehicles: banks, closed-end funds, and investment firms**.** In the USA (Anglo-Saxon system), where venture capital is regulated by ad hoc rules, the special laws, and tax system, there are 5 different vehicles running VC: venture capital funds, SBICs (small business investment companies), banks, corporate venture and business angels.

Number of scientific papers on different aspects of the operations of venture and private equity funds is growing exponentially: if in 2001 on Web of Science platform there were no papers published on the problems of private equity and around 30 papers on venture capital, in 2021 around 60 papers were published on the problems of private equity and more than 130 papers - on venture capital (Cumming et al, 2022). Among most prolific authors for venture capital research are De Bettignies, J. E., & Brander, J. A. (2007) from University of British Columbia, Canada, Douglas Cumming (2017) from US Atlantic University, Mike Wright

(2003) from Imperial College London, Massimo G. Colombo from Politecnico di Milano, (2016), Tom Vanacker Ghent from University, Belgium (2020), Thomas Hellmann from Oxford (2002), Fabio Bertoni, Colombo, M. G., & Quas, A. (2019) and Josh Lerner from Harvard Business School, coauthoring papers with Naran R. in 2020 and with Sorensen, M., & Strömberg, P. in 2011.

As evident from the titles of their papers many mentioned scientists were also engaged in the research of the problems of private equity funds. Among the most prolific authors for private equity research (not listed above), it is necessary to name Sofia Johan from Atlantic University (2021), Steven N. Kaplan from University of Chi cago (2005), Silvio Vismara from University of Bergamo, Italy (2022) and many others. Comprehensive encapsulation of the fields' geographical focus, methodological choices, prominent themes, and future research directions are presented by Cumming, D., Kumar, S., Lim, W. M., and Pandey, N. (2022).

From the papers of these and other distinguished economists we can see that all over the world venture capital firms raise their funds from institutional investors, such as pension funds, insurance companies, endowments, foundations, family offices, and high net worth individuals.

Venture capitalists have been instrumental in developing sectors such as the computer, biotechnology and the communications industries. Today, the majority of venture capital is invested in high technology companies including software, biotechnology, medical devices, media and entertainment, wireless communications, Internet, and networking. In the last 5 years, the venture industry has also committed itself to investing in the clean technology sectors, which include renewable energy, environmental and sustainability technologies and power management. However, venture capitalists also invest in innovative companies within more traditional industries such as consumer products, manufacturing, financial services, and healthcare services and business products and services.

When a venture capital fund makes an investment, it does not expect a return on that investment for 7-10 years, on average. Typically, the venture capitalist realizes a return on his/her investment when the company goes public (IPO) or is merged or purchased by another company (M&A).

Offsetting the high risk, the investor takes is the expectation of higher than average return on the investment.

Venture capital is considered by many to be the most effective combination in the world to combine the idea of retail investing with the idea of private business, which is typical of private equity.

Private Equity (PE) is medium to long-term finance provided in return for an equity stake in potentially high growth companies, which are usually unquoted.

Definition of private equity is based on two different aspects:

On one end PE is a source of financing for a company. That means a private equity is an alternative of other sources of financing like equity or bond issuing or getting a loan from the banking system.

On the other hand, PE is an investment made by a financial institution in a company, which is not listed in the stock exchange.

The company needs money, and for this reason, because the company wants to use PE investment, is going to issue new shares (as a rule – preferred shares). These shares are bought by the PE investor, and thus the need of financing is satisfied.

But the consequences of this very simple deal both for the company and the PE investor are very complicated.

The first consequence, the PE investor is not simply a financier like a bank giving loans, but the private equity investor is also a shareholder. That means the PE investor can enter in the governance of the company, can support (or not) the management of the company itself.

The second consequence is that the only way to receive a remuneration for the private equity investor is based on the capital gain. Because the only way the private investor can use it to obtain profit is to sell the shares and to put, in his/her pocket, a capital gain. For this reason, practitioners really love to say private equity investment is a *marriage but with an end,* because the company and the private equity has to stay together, but there is clearly an end because the private equity has to exit to receive the capital gain.

As a rule, both venture and private equity funds are founded in the form of limited partnership that include

(i) Limited Partners who arrange and invest capital for the fund but are not really concerned about its daily performance.The most common types of LPs are high net worth individuals (accredited investors), pension funds, insurance companies and sovereign funds;

(ii) General Partners - investment professionals who are vested with the responsibility of making decisions with respect to investments.

There are three different parameters to compare private equity to public equity: The first parameter is related to *liquidity*, the second one is related to *pricing*, and the third one is related to *monitoring*.

Liquidity: For an investor in a company listed in the stock exchange, liquidity is not a problem. If he/she wants to exit selling his/her shares, he/she pushes the button and receives liquidity from the market. But for a private equity investor, to have liquidity is not easy because he/she cannot use the stock exchange. He/she has to identify another investor willing to buy his/her shares. That means it could very time consuming, very tough, and in some cases, very, very, difficult.

Pricing: For an investor in a company listed in a stock exchange, pricing is driven by the market. Pricing could be fair, could be unfair, could be low, could be high, but pricing is not the issue. It's given by the stock exchange. On the contrary, for a private equity investor, every time he/she has to negotiate the pricing of the share with the other investor. The negotiation in some cases could be very easy, in other cases it could be very tough.

Monitoring. It is a known fact that the private equity investor is a shareholder of the company. That means the PE investor has to protect his or her right as to monitoring the value generating in investment. So if a public equity investor invest in a company listed in the stock exchange, his/her rights are regulated by the laws of the stock exchange. On the contrary, a private equity investor, case by case has to write in a contract the way he/she protects his investment, the rights he/she wants to use to stay in the company.

To accept a private equity on board for a company it’s a very tough decision because it's not like a story of a bank giving loans, where simply the bank just gives money to the company but basically the bank remains an outsider. *The private equity becomes an insider of the company, and the company has to negotiate this “marriage” mentioned before*. Typically both academia and practitioners really love to say that a company accepts a private equity on board for four very relevant benefits, that are the certification benefit, the networking benefit, the knowledge benefit, and the financial benefit.

1. *Certification benefit:* Accepting a private equity investor on board means, in a certain sense, certification, because the decision that the private equity took to invest in a company means that the company is a company of very high quality. For this reason the company can use this stamp to promote its qualities, profiles, and reputation all around the market.

2. *Networking benefit:* Every time the private equity investor invests in a company, the PE gives a strong support to the company giving an access to his or her network, which leads to multiplying opportunities and interacting with new

suppliers and with new customers. That's absolutely important for a company willing, for example, to grow the amount of sale.

3. *Knowledge benefit:* As the private equity investor becomes a shareholder of the company, the private equity managers are able to transfer their knowledge to the company.

4. *Financial benefit:* Just simply for the reason a PE invests in a company, the company receives an incredible support. And support is rendered by the increase of the amount of equity and is made obvious by increase of the credit standing of the company. That means the rating of the company is going to increase, and as the rating of the company is going to increase, the capability of the company to reduce the cost of capital becomes absolutely affected.

The private equity can have an approach that is hands-on or hands-off. *Hands-on* means the private equity gives a lot of support to the company, not only in terms of certification, networking, and so on; the private equity operates together with the entrepreneur to lead and drive the company.

On the other hand, the attitude and the approach of the private equity could be hands-off. *Hands-off* means that the private equity gives a lot of support in terms of networking, in terms of certification, in terms of knowledge, but, the car is clearly driven by the entrepreneur. The private equity just simply gives a lot of support.

Around the world, similar to venture capital policing, there are two different formats regulating private equity investments: the European Union format regulated by the directives of the European Union and so-called Anglo-Saxon format, which is regulated by the laws of the U.S. and U.K. where private equity was born.

Under *Anglo-Saxon format,* the one in the USA and U, private equity is not a financial service, but it's an entrepreneurial activity like managing whatever kind of company. In the Anglo-Saxon format there is no supervision of a supervisor as there is in the European Union.

Under *European Union format* private equity is a financial service. For this reason it’s regulated by the directive regulating the entire financial system. Three different entities can be a private equity investor. They are: Banks, as banks are universal and they can deliver any kind of service in Europe; Closed-End funds that are in perfectly designed to be a private equity investor; and last, investment firms.

The functioning of the closed-end fund (most common institution of private equity in Europe), for example, is based on the fact that investors can invest only in the beginning and can exit only at the end, meaning that the asset management company doesn't have any pressure to manage liquidity. Investors in closed-end funds are people putting their money into a fund because they trust in the capability of the asset management company. There are no constraints coming from the law, but empirical evidence coming from the market says that typical investors in closed-end funds are high net worth individuals, banks, insurance companies, pension funds, corporations, and/or states. That means big investors really able to face a very risky and complex investment like private equity.

Asset managing company, closed-end funds, and investors altogether represent the mechanism of closed-end fund investing in private equity. A fundamental rule is that a closed-end fund can invest only the amount of money received by investors. That means by law, a closed-end fund cannot raise money through debt. That means the closed-end fund cannot leverage the investments.

To understand the functioning of a closed-end fund, it's useful to identify, in terms of timing, what are the different steps characterizing the life of a fund.

The study of the fund doesn't start at time zero. This is a surprise, but the start of a closed-end fund starts before time zero, and this time before time zero has a length of one and a half years, maximum. This timing is named fundraising. The fundraising is up to one and a half years the asset management company has at its own disposal to try to convince investors to commit their money in the closed-end fund. The average size of a closed-end fund can range between 100 and 300 million Euros on average all around Europe.

Fundraising is very tough. According to statistics, 50% of fundraising all around Europe fail to get to the final results because it's very difficult. Especially tough it is for young, for not highly reputed asset management companies to convince investors to commit their money.

If the asset management company is able to get the entire amount of money, the fundraising comes to an end and the *activity of the closed-end fund can start*. But at time zero, investors don't have to give the fund the entire amount of money. This is a very smart decision because the asset management company doesn't have the possibility to invest such a big amount of money in one shot at time zero because it's PE, it is not public equity. The asset management company needs time.

For this reason, the asset management company has the right to 'procrastinate' maximum three years*:* this period is named a draw down period. The draw down period is a period in which the asset management company has the possibility to ask investors to give a percentage of their commitment.

About the end of the closed-end fund the law doesn't say anything, but on average sort of golden end of a closed-end fund all around Europe is 10 years. That means when approaching to the last of the 10 years the AMC has an option. The option is the possibility to take 3 more years. It happens because PE is an illiquid investment, and what can happen is, in year ten, the closed-end fund doesn't have the entire liquidity because most of the private equity investments are still in place. So the AMC may have the right to take three more years using this period to exit from the different investments.

Getting to year 13 or even before year 13 the closed-end fund has to close its activity. That means the AMC has to meet the investors again, they have to calculate what is the amount of money in the closed-end fund, and the AMC has to spread the amount of money through the different investors, accordingly to the funds they had invested in the beginning of the fundraising.

The managerial process in any type of private equity fund includes four activities: *fundraising, investing, managing and monitoring, and exiting.*

In both European and Anglo-Saxon format the mechanics of investment is complicated because investors put their money into a fund, and the fund is managed by an asset management company. That is why when a businessman decides to open to PE, he has to understand that he is looking for a partner. He is not going to the bank just to have finance, he's just selecting a partner for a long period.

So the difficulties for the entrepreneur are: first to understand that if he/she is ready to open his/her shareholding; if he/she wants PE partners, he/she has to accept the rule of differentiating the role of shareholding and management; second, he has to delegate to management the decision making power. The difficulties for the PE investor are also connected with the fact that he/she becomes an active owner, not an active manager.

It is like a marriage (with a view for divorce): there's a private equity investor, there’s a company, and the exit is the aim.

To sum up: Table 1.4 presents main differences between venture capital and private equity fund.

Table 1.4. Venture capital vs private equity fund

Basis for comparison	**Venture capital**	**Private equity**
Essence	Financing of small business by investors seeing high growth potential	Investments in firms that are not publicly listed on any stock exchange

Company stage	Early to mid-stage companies	Mid to mature companies with good track record
Company type	Focused on tech, bio-tech and clean-tech companies	Any company across all industries
Investment %	Minority stakes of less than 50%	Controlling stake of 51% and up, most often 100%
Investment sum	$10 million range	$100million to $10 billion
Structure	Only equity (cash)	Combination of equity and debt
Timeline	Exit after 4-7 years	Exit after 6-10 years
Returns	>10x return target	>15% IRR
Funds required	For scaling up operations	For growth and expansion
Risk level	High risk	Moderate risk
Starting point	People (founders/leaders)	Financial figures
Focus on	Management capability	Corporate governance

Composed by author

Both private equity fund and venture capital offer two paths for business owners to raise funding to grow their companies. They are sometimes used interchangeably, as both refer to firms that invest in companies and exit by selling their investments in equity financing. However, there are significant differences in the way of conducting business. Private equity and venture capital invest in different types and sizes of companies, commit different amounts of money, and claim different percentages of equity in the companies in which they invest. Venture capital is usually given to small companies with very high growth potential. Private equity investors typically focus on mature companies that are past the growth stage.

CHAPTER 2. FINANCIAL PERFORMANCE ANALYSIS OF LLC "TERMION-PLUS"

2.1 General information and financial performance of the enterprise

Analytical part of the master's thesis was carried out within the organization LLC "TERMION-PLUS", a waste recycling company which works in the field of alternative energy.

Quantitative and qualitative analysis of the results and conditions of the LLC "TERMION-PLUS", activity is based on open public information and internal accounting and financial reporting, as well as management documents of the enterprise.

Details and basic information about the enterprise are provided in Table 2.1.

According to the Statute, the purpose of the Company's activity is to obtain profit from the implementation of economic activities in the field of production, trade, financial, intermediary and other operations to meet the needs of legal entities and individuals in goods, works, and services.

The management bodies of the LLC "TERMION-PLUS" are the general meeting of the LLC 's participants and the sole executive body, the director.

Each member of the LLC has the right to be present at the general meeting of members, to participate in the discussion of issues on the agenda and to vote on the agenda of the general meeting of members.

Each participant at the general meeting of participants has the number of votes proportional to the size of his share in the authorized capital of the company.

Table 2.1. Profile of LLC “TERMION-PLUS”

Category	**Information**
Legal entity's full name: Registration name English	 ТОВАРИСТВО З ОБМЕЖЕНОЮ ВІДПОВІДАЛЬНІСТЮ ТЕРМІОН-ПЛЮС TERMION-PLUS LIMITED LIABILITY COMPANY
Registration date	24.09.2019
USREOU code	43245567
Authorised person	Lyudmila Leonydivna Shevchenko
Type of business entity	Limited liability company
Form of ownership	Not state-owned property
The size of the authorized capital	100 000.00 UAH
Legal address	Ukraine, Kyiv, st. Antona Tsedika, 12
The industrial site location	Ukraine, Zhytomyr Region, Malyn, Ogiienka St. 55.

based on (YouControl, 2022)

LLC “TERMION-PLUS” has a full staff of qualified collaborators, currently it employs 21 people: a director, a deputy director of production, a driver, an engineer, a safety engineer, a marketer, a junior accountant, a workshop master, 10 technical installation operators, a cleaning lady, and two locksmiths.

According to the Statute, the purpose of the Company's activity is to obtain profit from the implementation of economic activities in the field of production, trade, financial, intermediary and other operations to meet the needs of legal entities and individuals in goods, works, and services.

The main activity of the LLC “TERMION-PLUS” according to the National Classifier "Classification of types of economic activity" is 38.22 – treatment and disposal of hazardous waste. In addition, the enterprise can carry out the following types of activities:

- 05.10 coal mining
- 06.10 extraction of crude oil
- 19.10 production of coke and coke products
- 19.20 production of oil refining products
- 20.12 production of dyes and pigments
- 20.59 production of other chemical products, n. in. and. in.
- 20.60 production of artificial and synthetic fibers
- 22.19 production of other rubber products
- 35.11; 40.11 electricity production
- 35.30 supply of steam, hot water and air conditioning
- 38.11 safe waste collection
- 38.12 collection of hazardous waste
- 38.21 treatment and disposal of safe waste
- 38.32 recovery of sorted waste
- 39.00 other waste management activities
- 46.12 activities of intermediaries in the trade of fuel, ores, metals and industrial chemicals
- 46.71 wholesale of solid, liquid, gaseous fuels and similar products
- 46.75 wholesale of chemical products
- 46.76 wholesale of other intermediate products
- 46.77 wholesale of waste and scrap

- 52.10 warehousing
- 52.29 other auxiliary activities in the field of transport
- 72.19 research and experimental developments in the field of other natural and technical sciences.

The company offers enterprises complex individual waste plastic to fuel solutions and optimization of energy costs. The used technologies could turn waste into highly efficient source of energy. The company develops plastic waste technology, which helps to solve the problem of polluted landfills and optimize heat costs. This is a unique solution for industrial business to help cleaning the environment at the same time making profit from waste plastic processing.

LLC “TERMION-PLUS” has developed two stages of waste plastic transformation. The enterprise produces SRF-briquettes and pyrolysis oil, which is more effective and calorific for heating. SRF-briquettes and pyrolysis oil are used by energy-intensive industrial sectors such as cement and lime kiln or coal fired power plants (Capacity, 2021).

The production capacity of the LLC “TERMION-PLUS” allows recycling of 300 tons of waste plastic per month and producing 100 tons of pyrolysis briquettes and 90 tons of oil. Step-by-step process of plastic recycling to pyrolysis is presented as Fig. 2.1.

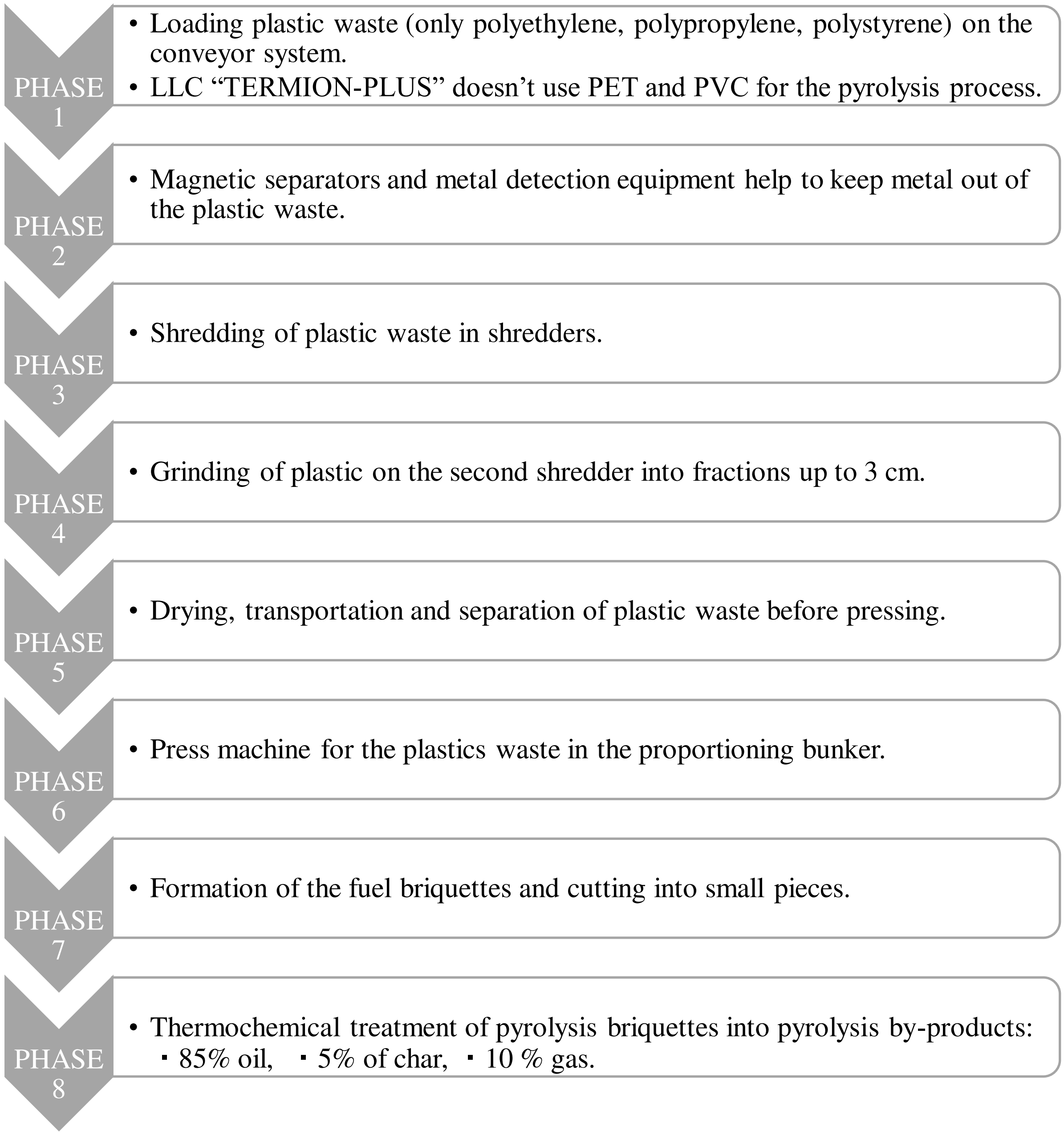


Fig. 2.1. Step-by-step process of plastic recycling

Source: based on (Capacity, 2021)

During the period of its activity, the plant has already produced and sold solid renewable fuel briquettes with a total weight of 157,79 tons. In accordance with Market Watch analyst recommendations waste-derived pyrolysis oil market is projected to witness a growth rate of 4.7% over the forecast period of 2022 and 2029 (*Waste-derived,* 2022, July).

The prices of the product, compared to the prices in India, where the cost of production (wages, taxes, cost of equipment maintenance) is close to Ukrainian realities, are lower (see Table 2.2)

Table 2.2. Prices of pyrolysis products, UAH per ton

Product	**LLC “TERMION-PLUS”**	**India**
Industrial solid fuel SRF (briquettes)	1 800	2 475
Industrial solid fuel SRF (shredded)	1 200	1 440
Liquid pyrolysis furnace fuel	11 000	13 950

Source: based on Pyrolysis Oil,2022, Shredded scrap, 2022, Thermion-plus, 2022. [9, 10, 11]

Except production LLC “TERMION-PLUS” provides complex of services, that help enterprises to be more environmentally friendly:

- Equipment & machinery consulting
  - Designing of equipment
  - Choosing the best area for manufacturing installation of the new equipment
- General contracting services
  - Maintenance Service
  - Customized Solution
  - Construction service of the new plastic to fuel plant
- Personnel trainings
  - Development of technical documentation
  - Adjustment works

- The possibility of franchising
  - Legal service franchise opportunities
  - Choosing best franchise model

The main consumers of pyrolysis oil and briquettes are heavy industry factories and thermal power plants.

Pyrolysis oil could also be used in road construction.

The heat released during pyrolysis processing is used for heating of buildings. Carbon that remains after pyrolysis processing (10%-15%) can be used as a filler for fuel purification.

Currently LLC “TERMION-PLUS” posts product announcements on open trading platforms, such as Prom.ua, OLX.ua, Flagma.ua etc., or makes direct sales to partner enterprises to with whom it has established business relations.

The LLC “TERMION-PLUS” collaborates with many contractors (Table 2.3).

Table 2.3. Organizations, with which LLC “TERMION-PLUS” has collaborated

№	Organization	Nature of Relationship	Start and End Dates of Collaboration
1	"Scientific and Production Association" "KYIVGAZPRYLAD” LLC	Assistance in sphere of product realization to objects which company converts to alternative sources of fuel	from beginning of operation till today
2	Solar Power plant "Solar wave"	Supplier of equipsolutionsment and energy	from 2020 till today
3	"Alter-In" LLC	Installation and commissioning works to launch the pyrolysis process in the plant	2019-2020

Source: compiled by author

The enterprise also cooperates with scientific institutions, the Academy of Sciences of Ukraine, with the Institute of Oil and Gas and, as well as with specialized laboratories dealing with organic chemistry.

For promotion of its products, sales stimulation and establishment of business and investment relations representatives of LLC "TERMION-PLUS" visit the trade shows, attend informative business and technical programs and network at social events, that brings together wholesale and retail liquid fuel marketers, motor fuel distributors, diesel and biodiesel distributors, propane marketers, and HVAC service professionals.

It creates opportunities to:

- Display products and services to a motivated and qualified audience
- Identify potential customers and deepen relationships with existing customers
- Network with industry professionals during the convention
- Learn about new trends and gain a competitive edge

LLC "TERMION-PLUS" has an economic development plan that helps the company to realize its economic vision and take control of the economic future. It is based on the internal and external conditions of the plant's activities, including technological, market and investment environment.

The total volume of the alternative fuel production currently does not exceed 3,000 tons per year. But the product demand on the market exceeds 50 times more. The reasons why competitors cannot fully fill the alternative fuel niche in Ukraine are lack of funding and highly qualified specialists on the Ukrainian labor market, and technological backwardness. Besides, almost all coal mines in Ukraine are unprofitable (only 4 are considered profitable (according to the Ministry of energy and environmental protection of Ukraine), and most of them are either in the occupied territories or in war zones. That's why the building of new alternative fuel plants in Ukraine nowadays is a must.

LLC “TERMION-PLUS” is planning to build more such plants in Ukraine to maximize the positive effect of recycling and develop the fuel alternative market in Ukraine.

The prime strategic goals of the enterprise LLC “TERMION-PLUS” is the maintenance of a competitive level of innovation and synchronization with the trend of minimizing the price of fuel products. On the basis of these strategic goals the company's strategic designed a development plan, that includes such targets as:

- Development of a commercial culture
- Implementation of an effective change management system
- Optimization of overall use of assets
- Establishment and maintenance of appropriate plant procedure systems
- Benchmarking to identify priorities for improvement
- Focus on core competitive advantages
- Improvement of outage planning and execution
- Using safety risk management tools to decries costs
- Minimization of anticipated costs of investment alternatives
- Recognition that plant design can affect profitability under different market conditions
- Reduction of capital costs.

According to this, to the economic development plan of LLC “TERMION-PLUS” were included activities, which correspond to strategic goal and targets of the company, namely:

- increase and/or maintenance of the level of sales, including domestic and export sales, and access to new markets and new customers,
- increase investment attraction,

- increase access to investors, and funding,
- help identify new business opportunities to utilize,
- establish new partnerships, strengthen relationships.

Target indicators were defined for each activity as well as expected outcomes and results (Tab. 2.4).

Table 2.4. Economic development plan indicators of LLC "TERMION-PLUS"

Indicators	Expected Outcome	Rationale for Expected Outcome
Anticipated increase in sales (in USD):	$ 70 000 per month	Increase 350 tons of SRF-briquettes per month, with profit $ 70 000 per month.
Anticipated increase in investment (in USD):	3 mln	Attract foreign investments to build, at least, one new plant in Ukraine, which gives 30 new jobs and producing 15 tons per day, with profit $ 200 per ton.
Anticipated number of new markets and/or new clients:	10 new B2B contacts	Appearance of at least 10 new B2B contacts abroad with purpose to build more alternative fuel plants.
Anticipated number of jobs sustained and created :	Up to 30 per year	Building at least, one new waste recycling plant in Ukraine gives 30 new jobs due to FDI

Source: compiled by author

Economic development plan of LLC "TERMION-PLUS" also includes participation in international conferences, work-shops and events, that will make it possible to present its innovative products to the general public and potential investors and partners abroad (especially the USA). Otherwise, it will help to establish new partnerships, strengthen relationships, demonstrate products in real-life, to present them among appropriate audience of potential investors and encounter bringing new opportunities.

It is obvious, that large volumes of financing resources are needed to carry out the economic development plan of LLC “TERMION-PLUS”. At the same time, attracting external financing is complicated by the fact that the LLC “TERMION-PLUS” is a newly created company and has not yet reached a sufficient level of profitability. The costs of starting and developing a business have not yet paid off.

As can be seen from Table 2.5, the company began to make a profit only in 2021, while expenses exceed income by almost 7 times.

Table 2.5. Profit and Loss Statement of LLC “TERMION-PLUS”, during 2019-2021

Assets	**Volume, thousands UAH**			**Absolute deviation, thousands UAH**	**Relative deviation, , %**
	2019	**2020**	**2021**	**2021 -2020**	**2021/2020*100**
Net income from sales (of goods and services)			267,3	267,3	
Total income			267,3	267,3	
Cost of goods sold			-28,2	-28,2	
Other operating expenses	-1,7	-464,5	-1 796,6	-1 332,1	286,8
Total expenses	-1,7	-464,5	-1 824,7	-1 360,2	292,8
Financial result before tax	-1,7	-464,5	-1 557,4	-1 092,9	235,3
Income tax	0,0	0,0	0,0		
Net profit (loss)	**-1,7**	**-464,5**	**-1 557,4**	**-1 092,9**	**235,3**

Source: compiled by author on the basis of annual financial statements of the enterprise

The largest share in the structure of expenses is linked to labor costs (Fig. 2.2). Together with obligatory state social insurance they make 70.28% of annual expenses.

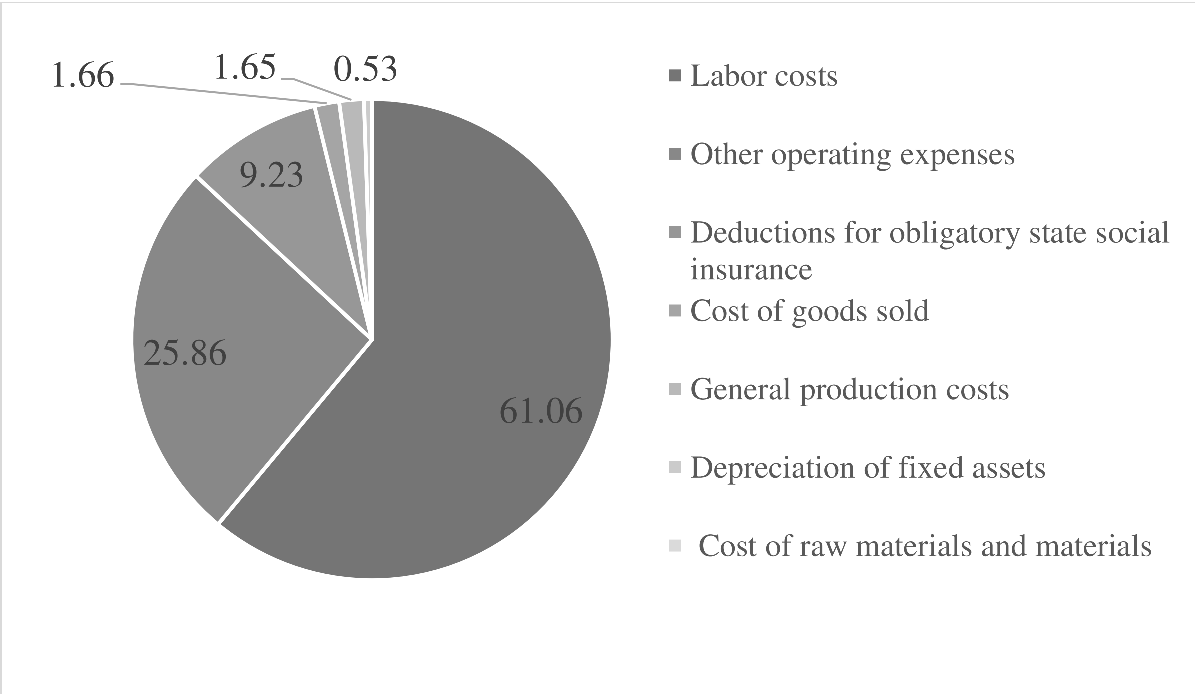


Fig 2.2. Expenses structure of LLC “TERMION-PLUS” in 2021, %

Source: compiled by author on the basis of annual financial statements of the enterprise

And currently, the sole source of income for the plant is the sale of its own products. The production of the pyrolyze fuel is an innovative, scientifically intensive technology and requires stable investment infusions, to maintain the proper composition and structure of the company's assets.

The Table 2.6 demonstrates dramatically growth of almost all assets items of LLC “TERMION-PLUS” during last two years.

Table 2.6. Dynamics of assets of LLC “TERMION-PLUS”, during 2019-2021

Assets	Volume, thousands UAH			Absolute deviation, thousands UAH	Relative deviation, %
	2019	**2020**	**2021**	**2021 -2020**	**2021/2020*100**
I. Non-current assets					
Unfinished capital investments		1 342,3	1 698,5	356,2	26,5
Fixed assets:		38,3	36,2	-2,1	-5,5
Initial cost		38,3	45,2	6,9	18,0
Depreciation		-0,1	-9,0	-8,9	8 900,0
Total for section I		**1 380,5**	**1 734,7**	**354,2**	**25,7**
II. Current assets					
Inventory:			110,5	110,5	
Including finished goods			15,1	15,1	
Accounts receivable for taxes		93,0	259,6	166,6	179,1
Other current accounts receivable	63,7	208,8	3 199,0	2 990,2	1 432,1
Cash and equivalents	84,6	112,8	67,8	-45,0	-39,9
Other current assets		26,0	94,0	68,0	261,5
Total for section II	**148,3**	**440,6**	**3 730,9**	**3 290,3**	**746,8**
III. Non-current assets held for sale and disposal groups					
Balance	**148,3**	**1 821,1**	**5 465,6**	**3 644,5**	**200,1**

Source: Annual financial statements of the enterprise

The reduction is observed only in value of fixed assets and cash and equivalents. This is due to the use of the plant's equipment for the production of fuel and the increase in depreciation. Liquid funds, in turn, were used for settlements with suppliers, purchase of equipment and consumables.

The start of production led to an increase in capital investment, which accounts for about 98% of non-current assets.

The dynamics of current assets indicates the activation of production processes, the formation of production stocks and finished products. Unfortunately, so far, they account only 3 percent of non-current assets.

Other current accounts receivables account the largest specific weight in the structure of current assets. This is the current receivables of various debtors for issued advances, accrued income, for claims, compensation, damages and for other transactions.

Over the period under review the company has increased the balance sheet amount significantly (200.1%), but there has been a downturn in overall performance in that there has been a growth of net loss (235,3%) in the primary indicator – total expenses (292,8%).

Ensuring the profitability of activities requires improving the efficiency of financial management, primarily by optimizing the capital management strategy. In order to formulate rational proposals for the enterprise to diversify its' sources of funding and capital management tools, it is advisable to conduct a comprehensive analysis of equity and liabilities of LLC "TERMION-PLUS".

2.2 Dynamic and structure of the capital

During the studied period, the company did not use other sources of financing besides its own, which significantly restrains its production potential.

The authorized capital of LLC "TERMION-PLUS" remained unchanged from the moment of registration and amounts to 100,000 UAH (Tab. 2.7).

Table 2.7. Dynamics of equity and liabilities of LLC “TERMION-PLUS”, during 2019-2021

Equity and liabilities	**Volume, thousands UAH**			**Absolute deviation, thousands UAH**	**Relative deviation, %**
	2019	**2020**	**2021**	**2021 -2020**	**2021/2020*100**
I. Equity					
Authorized capital		100,0	100,0	0,0	0,0
Retained earnings (uncovered loss)	-1,7	-466,4	-2 049,0	-1 582,6	339,3
Unpaid capital			-20,0	-20,0	
Total for section I	-1,7	-366,2	-1 969,0	-1 602,8	437,7
II. Long-term liabilities, targeted financing and provisions			**-9,5**	**-9,5**	
III. Current liabilities					
Products and services			0,2	0,2	
Other current liabilities	150,0	2 187,3	7 443,9	5 256,6	240,3
Total for section III	**150,0**	**2 187,3**	**7 444,1**	**5 256,8**	**240,3**
IV. Liabilities associated with non-current assets held for sale and disposal groups	0,0	0,0	0,0		
Balance	**148,3**	**1 821,1**	**5 465,6**	**3 644,5**	**200,1**

Source: Annual financial statements of the enterprise

The minimum size of LLC’s authorized capital is not determined by the legislation of Ukraine. Thus, the founders jointly determine the size of the shares at their discretion. In practice, evaluation of an authorized capital amount is based on the fact that the company needs initial funding (e.g., for payment of rent, salaries, etc.) to support itself. The contribution of a company member may be in cash, securities, or other property. An in-kind contribution must have a monetary value approved by a unanimous decision of the members' general meeting.

Until 2021, the company was under sole ownership, and in 2021 it was decided to sell a share of the company, in particular 20% (20,000 UAH) to a new co-owner. However, at the time of reporting, this amount had not yet been paid, as evidenced by the balance sheet item "Unpaid capital" (Tab. 2.6).

The dynamics of the specific weight of equity in the structure of capital is shown in Figure 2.3.

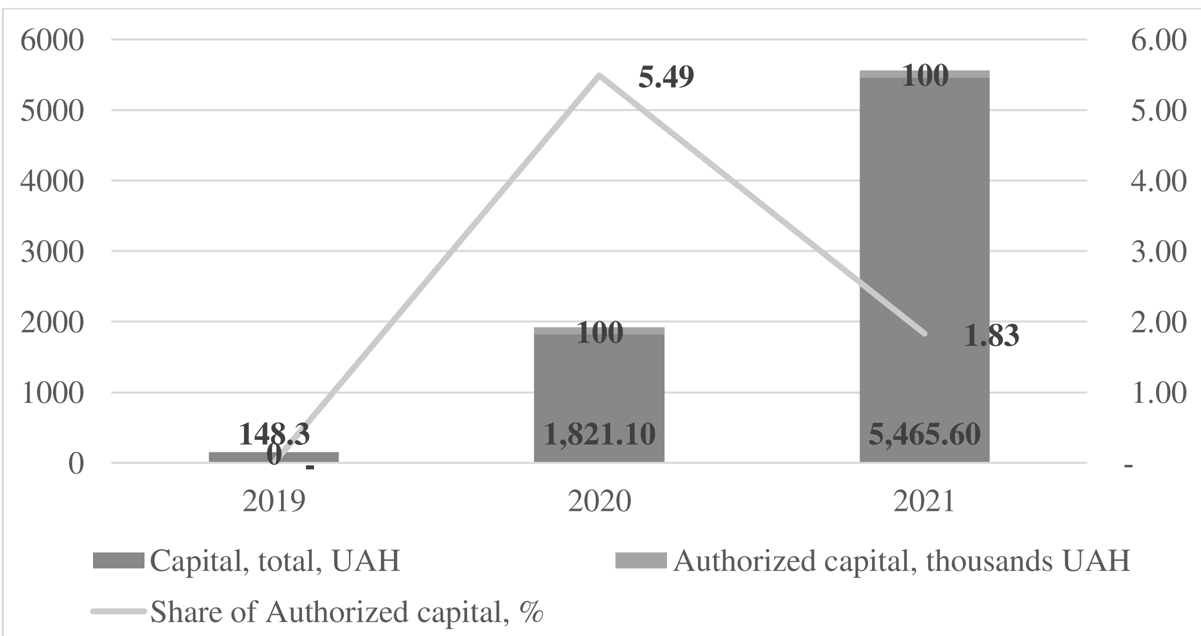


Fig 2.3. The dynamics of the specific weight of equity in the structure of capital of LLC "TERMION-PLUS", during 2019-2021.

Source: compiled by author

As can be seen from Figure 2.3, the share of equity capital in the capital structure has significantly decreased, namely by three times, which is evidenced by the decrease in its role in financing the company's activities.

A dramatic negative dynamic was demonstrated by uncovered loss. Over the past two years, it has increased by 339.3%, and compared to 2019, it has escalated by 1204 times. Currently the uncovered loss exceeded the capital by 20.5 times.

A retained loss is a loss incurred by a business, which is recorded within the retained earnings account in the equity section of its balance sheet. Its amount is calculated as the cumulative value of the net loss for all previous years. The retained earnings account contains both the gains earned and losses incurred by a business, so it nets together the two balances. Thus, obtaining the cumulative retained losses of a business can be difficult to derive, unless the business has incurred nothing but losses since its inception.

A retained loss should be of concern to shareholders, managers and investors if a company has been in business for a long period of time, since it indicates that the entity has struggled to find a consistent strategy for earning a profit. However, this is not necessarily the case for a startup company, which is expected to incur losses as it rolls out its initial products and services and attempts to gain market share.

In general, almost 99% of the decrease in the equity of the enterprise has resulted from the increase in retained loss and 1% from the appearance of unpaid capital.

Long-term liabilities arose at the enterprise only in 2021 and to date they are represented only by ensuring vacation payments. Their turnover during the year is presented in Figure 2.4.

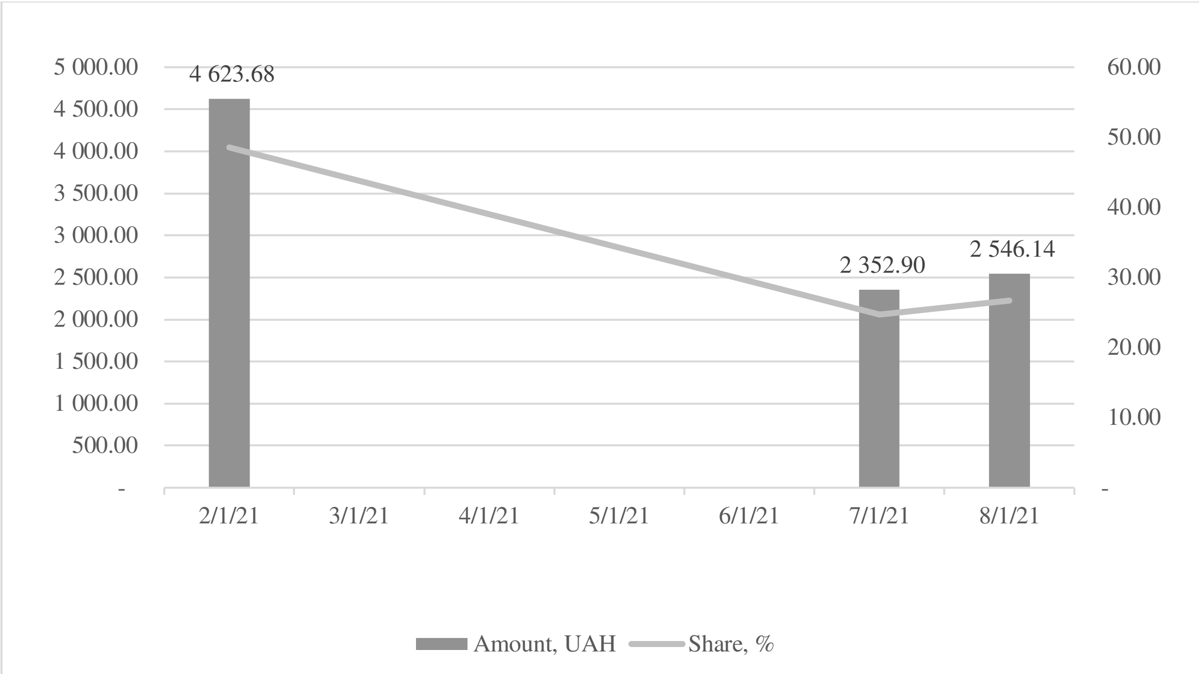


Fig 2.4. Turnover of account 471 "Ensuring vacation payments"

Source: compiled by author

As evidenced by the meaning of the item current debts for products and services, the company fulfilled all its short-term obligations to suppliers. The only debt that appeared in 2021 in the amount of UAH 200 is a debt to mobile operator for prepaid bundle of payments.

The item "Other current liabilities" accounts the largest weight in the structure of the plant's liabilities – 100% during 2019-2020, and 99,997% in 2021. This account includes: debt for advances received, debt to founders in connection with the distribution of profits, debt to related parties, the balance of subaccount 644 "Tax credit", the amount of gross debt to customers under construction contracts.

Since the company has outsourced a number of internal management tasks (chemical analysis of products, certification, legal support, etc.), a large amount of the structure of current debt is presented by settlements with relevant counterparties, as well as tax credit and lease payments for the building and land plot, which are accounted for under accounts 671, 672, 372, 681 682, 683, 685, 644 and presented in the balance sheet item "Other current liabilities".

The highest growth rate of this item was observed in 2020, namely 1352%, in 2021 it slowed down somewhat and amounted to 240%. The total increase over three years was 4862.6%, which is a characteristic feature of a newly established enterprise.

In the studied period, the enterprise did not have liabilities associated with non-current assets held for sale and disposal groups.

As can be seen from the balance sheet, the company did not receive loans from banks or other financial institutions and did not receive investment support.

Unfortunately, caused by the war crisis in Ukraine have led to the reduction in volumes of credit and investment support for the development of enterprises. Beside this, Ukrainian banks do not have a methodology for assessing the risks of startups, so they do not provide loans to such enterprises. In general, in conditions of high volatility of financial markets and macroeconomic instability financial institutions are increasingly constrained on long-term lending and investing in alternative energy, that entailing high initial capital expenditure and long payback periods. And with regulatory changes such as Basel 4 coming, lenders will have more and more difficulty aligning the maturity of the financing solutions with the maturity of the project (Booming, 2021).

In this regard, the company in 2022 intensified the preparation of grant applications and already has the first positive results (Tab 2.8).

Table 2.8. Major donor-funded activities of LLC “TERMION-PLUS” in 2022

	Donor Agency	**Total Funding (in UAH)**	**Title of Project, Location, Start and End Dates**

1	Ukrainian Governmental , Ministry of economy of Ukraine, Program "Diia" grant for enterprises	5 600 000	Application is approved, expecting to receive grant
2	Ukrainian business in action	50 000 euro (2 000 000 UAH)	expecting to receive

Source: compiled by the author based on Ukrainian business, 2022 and On the approval, 2022.

However, this type of financing is provisional, it is competitive and conditional. As a rule, grants are given for a specific project for a limited period of time and they offer only a percentage of the cost of the project – generally between 10-30%, though some grants can be as high as 50%. Grant recipient is responsible for sourcing the rest of the funding needed to complete the project. Grants are restrictive with what they cover and can't be used for marketing or working capital for a business.

The conducted analysis proved that in the current period the enterprise has very limited range of resources for financing its activities. And it needs funds with a long-term duration to ensure stable and reliable financial support for all strategic initiatives

2.3 Coefficient analysis of the capital of the enterprise

Coefficient analysis of the capital is a quantitative method of gaining insight into a company's financial management efficiency, stability, reliability and profitability by studying its financial statements such as the balance sheet and income statement. Coefficient analysis is a cornerstone of fundamental capital analysis.

There is a wide range of capital analysis coefficients, that could be broadly grouped into the following three silos, based on the sets of data they provide:

- solvency ratios
- efficiency ratios
- profitability ratios

Let's start with solvency ratios in particular the equity ratio. The equity ratio helps measure the value of the assets financed using the owner's equity. It is a financial ratio used to measure the proportion of an owner's investment used to finance the company's assets. It indicates the proportion of the owner's fund to the total fund invested in the business.

It is calculated by dividing the company's total equity by its total assets:

Equity Ratio = Total Equity / Total Asset (2.1)

Equity ratios that are 0,5 or below are considered leveraged companies, those with ratios of 0,5 and above are considered conservative, as they own more funding from equity than debt.

The value of the equity ratio of LLC "TERMION-PLUS" during 2019-2022 was negative (Fig.2.5). For companies that have been operating on the same market for a long time, such value indicates financial weakness and lack of long-term solvency. However, for a startup such values are not yet ample signal for negative conclusions. As we have already established in paragraphs 2.2. the negative value of equity is determined by the presence of retained loss. As soon as the company reaches full production capacity and establishes marketing activities to stimulate sales, the situation should change dramatically.

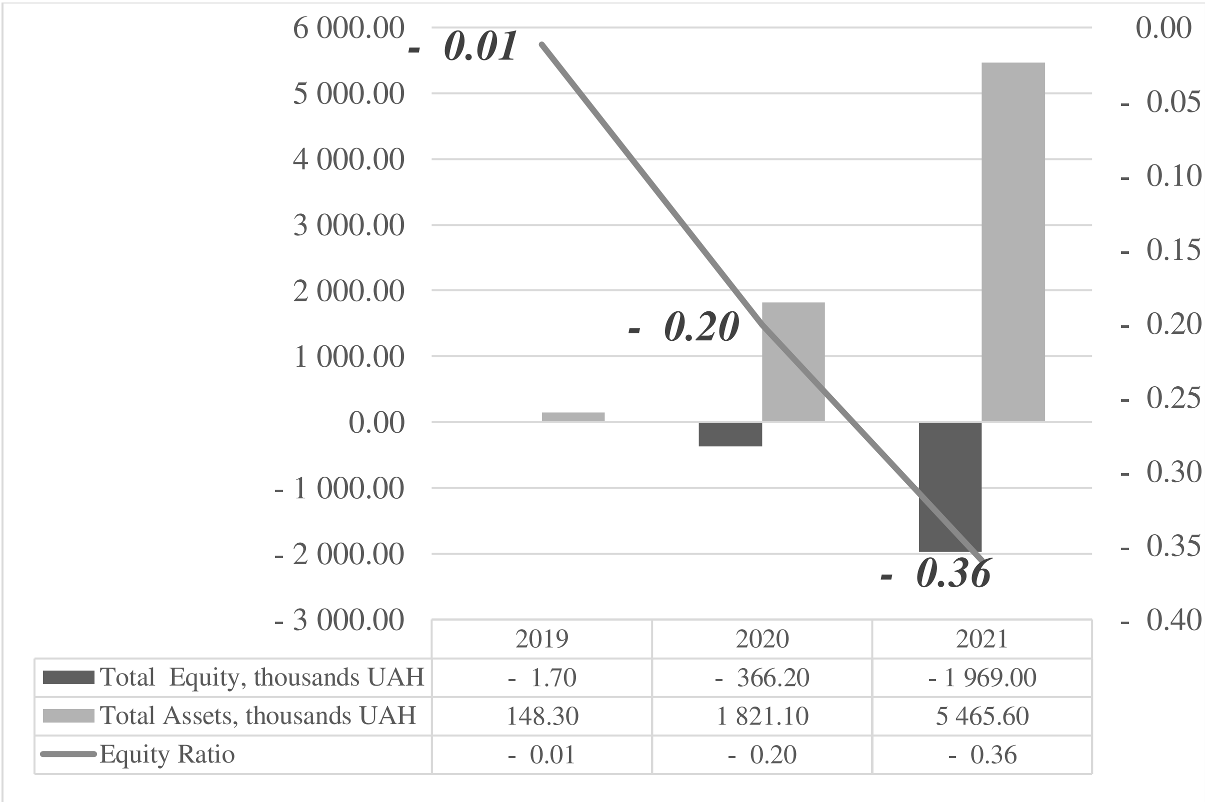


Fig 2.5. Dynamic of the equity ratio of LLC “TERMION-PLUS” during 2019-2022

Source: composed by author

Another solvency ratio is debt ratio. It aims to determine the proportion of the total assets, including both current assets and non-current assets, financed by total debt. It helps evaluate the total leverage of the business.

The debt ratio is calculated by dividing the company’s total debt by its total assets:

$$Debt\ Ratio = Total\ Debt\ /\ Total\ Asset \quad (2.2)$$

The higher the ratio, the higher the leverage and higher is the financial risk on account of a heavy debt obligation on the part of the business activity. This is exactly the situation observed in LLC “TERMION-PLUS”.

It can be concluded that the assets of the plant are fully financed by the attracted capital. The situation is worsened by the fact that the company does not have long-term debt instruments (Tab.2.7), but only short-term ones, and therefore there are high risks of their loss or inability to continue using them in the future. This determines the need to find stable sources of financing activities.

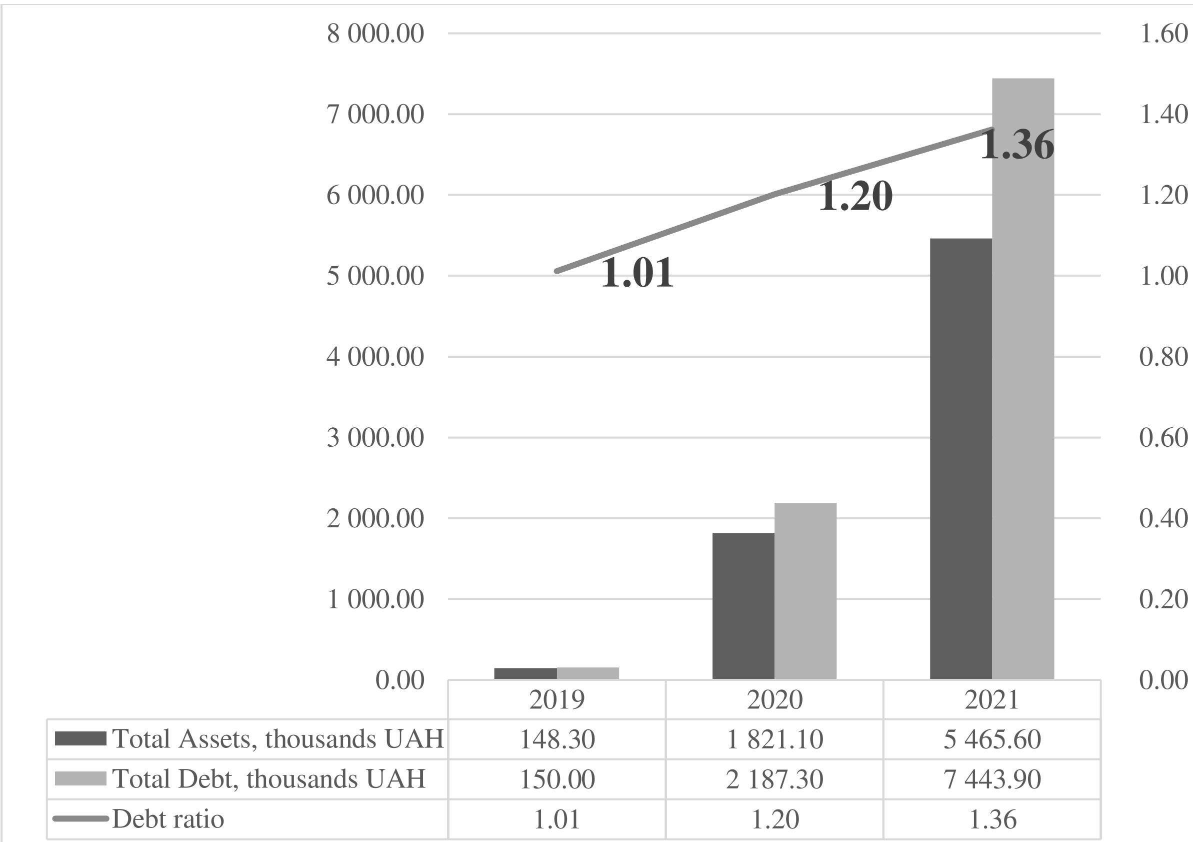


Fig 2.6. Dynamic of the debt ratio of LLC "TERMION-PLUS" during 2019-2022

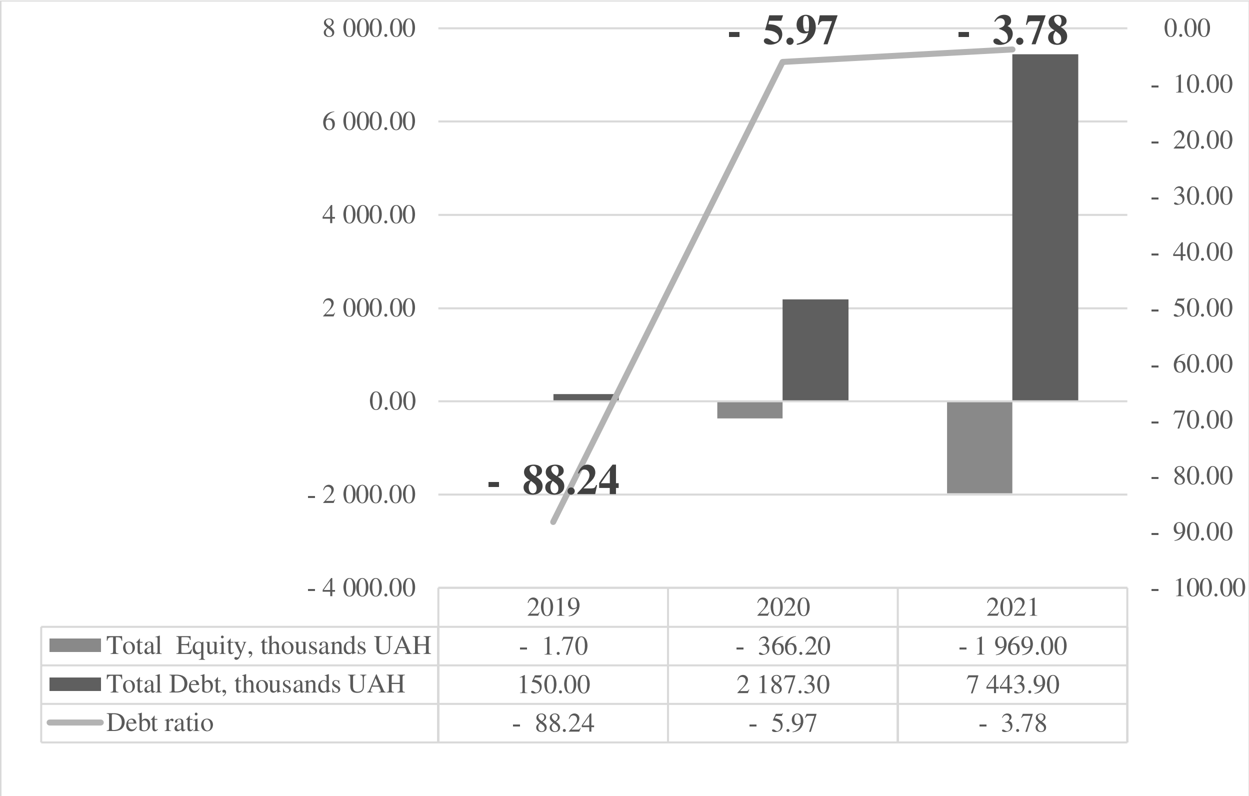
Source: composed by author

Perhaps the most well-known solvency ratio is a leverage ratio. A leverage ratio looks at how much capital comes in the form of debt and assesses the ability of a company to meet its financial obligations. It is important because companies rely on a mixture of equity and debt to finance their operations, and considering the amount of debt held by a company is useful in evaluating whether it can pay off its debts as they come due.

There are a lot of approaches to calculate it. In this work will be used the most widely used one - the debt-to-equity (D/E) ratio:

Debt-to-equity Ratio= Total Liabilities / Total Debt (2.3)

As a rule, a high debt-to-equity ratio indicates that an enterprise has been aggressive in financing its growth with debt. Such strategy may result in volatile earnings as a consequence of the additional interest expense. If the company's interest expense grows too high, it may increase the company's chances of a default or bankruptcy. Generally, a debt-to-equity ratio greater than 2.0 indicates a risky scenario, however, this yardstick can vary by industry. Businesses that require large capital expenditures (CapEx), such as utility and manufacturing companies, may need debt instruments more than other companies. The company we are analyzing belongs to such a category and a high value of the indicator is not a threat to it. In addition, during the analyzed period, the company did not use interest-bearing debt instruments, and therefore the risks of using debt capital for it are not significant. A cause for concern is a negative value of the ratio, as it indicates that the company currently does not have the ability to repay retained loss through equity (Fig 2.7).



	2019	2020	2021
Total Equity, thousands UAH	- 1.70	- 366.20	- 1 969.00
Total Debt, thousands UAH	150.00	2 187.30	7 443.90
Debt ratio	- 88.24	- 5.97	- 3.78

Fig 2.7. Dynamic of the debt-to-equity ratio of LLC “TERMION-PLUS” during 2019-2022

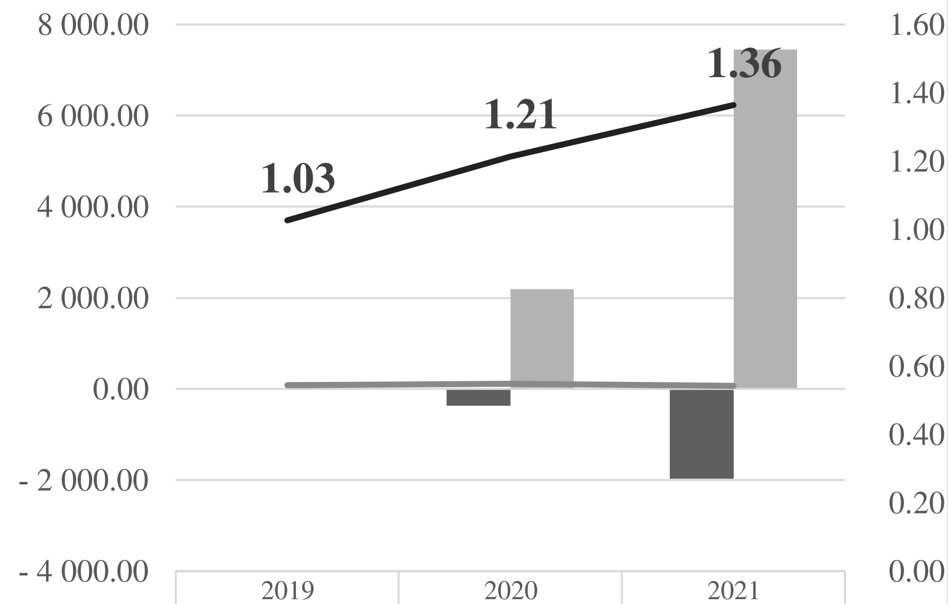
Source: composed by author

The modification of leverage ratio is net debt-to-total capitalization ratio. The formula of net debt-to-total capitalization ratio is:

Net debt-to-total capitalization ratio = (Total Debt – Cash) / (Debt + Equity + Minority Interest + Preferred Stock – Cash) (2.4)

Thus, the inherent assumption in the net debt-to-capital ratio is that the cash can be used to help pay down existing debt and the total debt amount is adjusted to account for the available cash balance.

According to the results of calculations net debt-to-total capitalization ratio of LLC “TERMION-PLUS” even after excluding cash the debt exceeds the amount of the total capitalization due to its reduction by the amount of the retained loss (Fig. 2.8.)



	2019	2020	2021
Total Equity, thousands UAH	- 1.70	- 366.20	- 1 969.00
Total Debt, thousands UAH	150.00	2 187.30	7 443.90
Cash and equivalents, thousands UAH	84.6	112.8	67.8
Net debt-to-total capitalization ratio	1.03	1.21	1.36

Fig 2.7. Dynamic of the net debt-to-total capitalization ratio of LLC "TERMION-PLUS" during 2019-2022

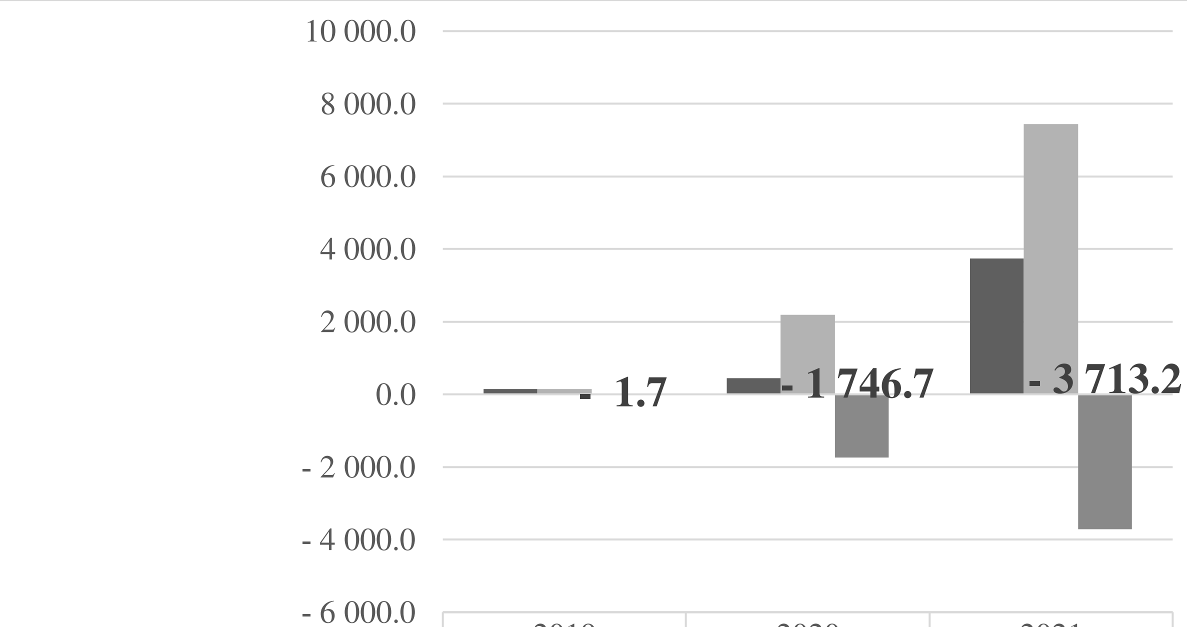
Source: composed by author

The capital indicator that measures a company's liquidity and its ability to meet short-term obligations, as well as fund operations of the business is working capital or net current assets. This indicator and ratios that are calculated on its basis belong to the group of efficiency ratios.

It is calculated as a difference between a company's current assets and current liabilities:

Net current assets (working capital) = Current assets – Short-term liabilities (2.5)

Current liabilities of LLC “TERMION-PLUS” exceed its current income and assets (Fig. 2.7). This is a common situation for new company. A temporarily negative working capital typically occurs when a company makes large purchases, such as investing in new busines, new products and equipment.



	2019	2020	2021
Current Assets, thousands UAH	148.3	440.6	3 730.9
Short-term Liabilities, thousands UAH	150.0	2 187.3	7 444.1
Working capital, thousands UAH	- 1.7	- 1 746.7	- 3 713.2

Fig 2.8. Dynamic of the working capital of LLC “TERMION-PLUS” during 2019-2022

Source: composed by author

A negative working capital occurs when a business collects money at a faster rate than the time required to pay its bills. This means the business can free up cash quickly for use elsewhere that would otherwise be stuck in the negative working capital cycle. And it is not threatening if it is a temporary phenomenon. But for the enterprise it's important to adjust its standard working capital cycle in order to understand if it can afford to use negative working capital to cover suppliers' bills, payroll and other regular expenses with no risk.

After calculating the working capital, it is advisable to analyze the working capital ratio, which is used for assessing the financial performance and the health of the enterprise.

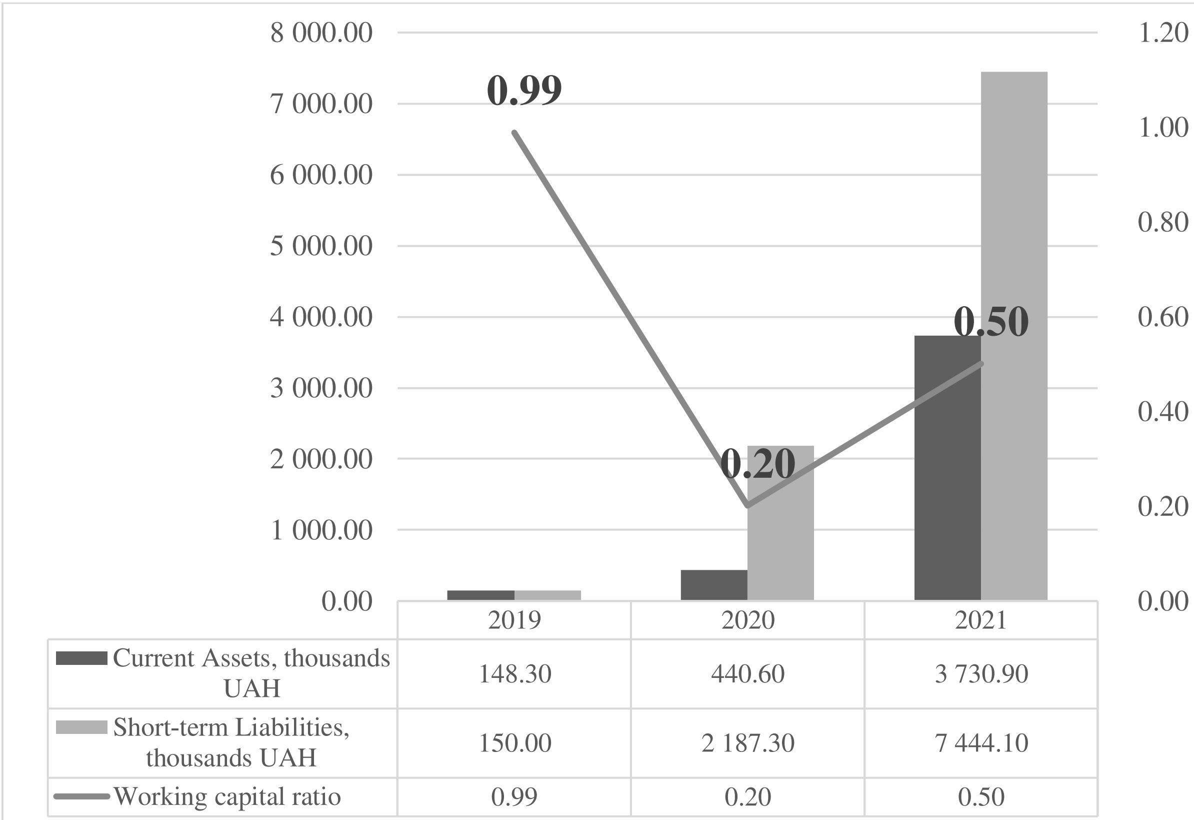
The working capital ratio is calculated by dividing the total current assets by total current liabilities.

The working capital = Total current assets / Total current liabilities (2.6)

The results of calculations can be interpreted as follows:

- Value around 1.2 to 1.8 is a balanced ratio, and it could be assumed that the company is in a healthy state to pay its liabilities.
- Value less than 1 is known as negative working capital ratio, which generally means that the company cannot pay its liabilities. As we already defined consistently negative working capital may lead to negative consequences up to bankruptcy.
- Value greater than 2 is an exceeded ratio, which means that enterprise may have idle funds that are not utilized well. The consistently exceeded working capital also may have bad influence, as the cost of idle funds is also high.

Fig 2.9. demonstrates that during reviewed period LLC "TERMION-PLUS" had negative working capital ratio. Its lowest value was observed in 2020, which is due to the start of operational activities. The growth of the ratio in 2021 outlines a positive trend demonstrating that in the near future this indicator will reach its balanced level.



	2019	2020	2021
Current Assets, thousands UAH	148.30	440.60	3 730.90
Short-term Liabilities, thousands UAH	150.00	2 187.30	7 444.10
Working capital ratio	0.99	0.20	0.50

Fig 2.9. Dynamic of the working capital ratio of LLC "TERMION-PLUS" during 2019-2022

Source: composed by author

The last efficiency ratio of capital management, that is used in this exploration, is capital turnover. This ratio indicates an efficiency of the utilization of capital employed in the business. The higher the ratio, the better is the utilization of capital employed.

Capital turnover is calculated as a ratio of total sales divided by the registered capital:

$$\textit{Capital Turnover} = \textit{Total Sales} / \textit{Shareholder's Equity} \quad (2.7)$$

The company’s total sale is the total turnover of the company in an accounting year or of a period for which the ratio is calculated.

As the LLC “TERMION-PLUS” performed sales only since 2021, this ratio can be calculated only for this year (Tab. 2.9)

Table 2.9. Calculation of capital turnover ratio of LLC “TERMION-PLUS” in 2021, UAH

Items	№	Value
Net income from sales of goods and services, UAH	1	267 300
Registered capital	2	100 000
Capital Turnover	**1/2**	**2,67**

Source: calculated by author

The result may be interpreted as quite effective, as it means, that each hryvnia of capital investment has contributed 2,67 UAH towards the company’s sales.

The one of the most widely used indicator among profitability ratios is return on invested capital (ROIC). It measures success of the enterprise in using its invested capital for generating profit.

The formula for calculating ROIC is as follows:

$$\textit{Return on Invested Capital} = \textit{Net Profit} / \textit{Invested Capital} \quad (2.8)$$

It is important to note that invested capital is not the same as capital listed on the balance sheet. Neither is it the balance sheet total. Invested capital is a term analysts have coined in the recent past to denote capital that has been listed for the long term in the company’s operations.

Invested capital is derived by starting from the balance sheet liabilities total and then subtracting the current liabilities from it. This is because current liabilities are not sustainable sources of long-term financing and therefore cannot qualify as capital (Return, 2022).

As it was already determined, LLC “TERMION-PLUS” has no long-term liabilities, therefore, only its equity in the part of the registered capital will be used in the calculations (Tab 2.10).

LLC “TERMION-PLUS” is a young company, that’s why it is possible to calculate the ROIC only for two years, since 2020, when the registered capital was paid.

Table 2.10. Calculation of capital turnover ratio of LLC “TERMION-PLUS” in 2021, UAH

Items	**№**	**2020**	**2021**
Net profit (loss), thousands UAH	2	-464,50	-1557,40
Registered capital, thousands UAH	1	100,00	100,00
ROIC	**2/1**	**-4,65**	**-15,57**

Source: composed by author

Since the enterprise did not make a profit during the studied period, the indicator has a negative value, which means that the capital invested by the owners does not generate a profit. At the same time, the burden of covering the loss with equity is increasing (in two years, it has grown more than three times), which necessitates the addition of long-term liabilities to the investment capital.

In general, the values of the calculated indicators are typical for the initial stage of the startup life cycle. However, there is a problem of capital concentration and dependence on short-term and small external sources of financing, as well as maintenance of adequate liquidity and solvency, and most important problem is accumulation of unsecured debt. Therefore, the transition to the development stage requires the LLC “TERMION-PLUS” to find long-term and sustainable sources of financing, sufficient to reduce the burden of liquidity, to ensure a high level of diversification of liabilities and assets, the value of which will allow turning into profit.

CHAPTER 3. WAYS OF THE FINANCIAL MANAGEMENT REFINEMENT AT LLC "TERMION-PLUS"

3.1. Debt financing by way of convertible notes emission

While raising capital the enterprise can use different financial instruments, which can be divided according to asset class, depending on whether they are debt-based or equity-based. An asset class is a group of securities that exhibits similar characteristics, behaves similarly in the marketplace and is subject to the same laws and regulations. This subchapter is presenting different subcategories of debt-based instruments with the aim of choosing the most suitable characteristics for the emission of debt security by LLC "TERMION-PLUS".

Debt based security

Debt security is representing a loan given by an investor to an issuer. A debt security is a fixed income security that can be bought or sold between two parties and has basic terms defined, such as the notional amount (the amount borrowed), interest rate, and maturity and renewal date.

Classification of debt securities:

1. On the basis of issuer: They can be supranational organizations (e.g. World Bank), governments, local authorities, companies or individuals. In this paper we are dealing exclusively with debt securities issued by enterprises.

2. On the basis of purpose of raising capital: T-bonds/bills usually help to fund shortfalls in the state budget, regulate the nation's money supply, and execute national monetary policy; in contrast, special purpose bonds are targeted at financing specific goals of the government (e.g. War bonds), local authorities ('Public Purpose

Bond') or a business entities. *The purpose of possible emission of debt securities by LLC "TERMION-PLUS" is financing further growth of the company.*

3. On the basis of the market of bonds floatation: they can be national, foreign (issued in a domestic market by a foreign entity in the domestic market's currency, e.g. bulldog, samurai, yankee etc.) or global (also referred to as Eurobonds). Eurobond is any corporate or government bond issued offshore (commonly in Luxembourg or Netherlands Antilles) outside the regulations of the issuing country and denominated in a currency other than that of the issuer's country. *At present debt securities of LLC "TERMION-PLUS" can be issued and traded only on the national Ukrainian market – due to small size of the company, lack of credit history and credit rating.*

4. On the basis of character of asset backing (pledge): They can be (i) unsecured (government bonds or T-bills), (ii) secured only by the issuer's reputation and credit (debenture) or (iii) fully secured by a specific asset that can be sold by the bondholder to satisfy a claim. Lien secured bonds can differ by the character or priority of lien: it can be first (second, third), general, blanket, consolidated or income. *Debt securities of LLC "TERMION-PLUS" can be secured by the assets of the company.*

5. On the basis of availability of guarantee: in case of its presence they differ in an object of guarantee – principal or interest or both. *It could be too expensive for LLC "TERMION-PLUS" to get guarantee for its debt securities.*

6. On the basis of transfer method: it can be a bearer-bond (an official certificate issued without a named holder) or a registered bond. Bearer bonds are very risky because they can be lost or stolen, but they may be traded like cash. Registered bond is a bond whose ownership (and any subsequent purchaser) is recorded by the issuer, or by a transfer agent. *It seems appropriate to issue debt*

securities of LLC "TERMION-PLUS" as a bearer bonds in order to facilitate trade in them on the secondary market.

7. On the basis of maturity: They can be short-term (bills, maturing in less than one year), medium term (notes, maturing in one to 10 years), long-term (bonds, maturing in more than 10 years) and ultra-long-term bonds (e.g. West Shore Railroad issued a bond which matures in 2361); very rare are perpetual bonds: with no maturity date, not redeemable, e.g. Consols, issued by the British Treasury for World War I and the South Sea Bubble of 1720. *Debt securities of LLC "TERMION-PLUS" should be issued in the form of notes (maturing in 4-7 years).*

8. On the basis of price: the bond can be sold below par value, at par value, or above par value. *Debt securities of LLC "TERMION-PLUS", unfortunately, will be sold below par value (with discount).*

9. On the basis of tax position: They can be tax exempt (government bonds) or taxable. Taxable can be income, gained through interest payment or capital gain (difference in buy/sell prices). *Debt securities of LLC "TERMION-PLUS" should be entirely taxable.*

10. On the basis of income payment: usually it is done in the form of regularly paid coupon, but it can also be a discount bond (that is issued for less than its face value with coupon payments) and zero-coupon bonds, which are also sold at a discount, but the difference is that their owner do not receive interest. *Debt securities of LLC "TERMION-PLUS" should be coupon notes.*

11. On the basis of method of payment definition: as a rule it is fixed coupon rate, that is why bonds are defined as fixed-income securities. But sometimes they can have a floating rate, fluctuating in step with the market reference interest rates (like LIBOR or key policy rate of the national bank), or some other external measure. Variable coupons for such bonds equal the sum of such rate and a quoted spread

(quoted margin). *Debt securities of LLC "TERMION-PLUS" should be fixed-income notes.*

12. On the basis of regularity of interest payment: most common are semiannual interest payments, but payment can also be annual, quarterly, monthly, weekly, daily, or continuous. The coupon is always tied to a bond's face or par value, and is quoted as a percentage of par. *Interest payment on the debt securities of LLC "TERMION-PLUS" should be semiannual.*

13. On the basis of currency (of principal and coupon), which can be national or foreign. Some bonds can be sold in one currency and redeemed in another (as World Bank bonds). *Debt securities of LLC "TERMION-PLUS" should be nominated in national currency.*

14. On the basis of principal payment: bond can be 'bullet bond', whose entire principal value is paid all at once on the maturity date, as opposed to 'amortizing bond', that repays part of the principal (face value) along with the coupon payments according to an amortization schedule, typically through equal payments. *The most suitable form of the debt securities of LLC "TERMION-PLUS" seems to be "amortizing'.*

15. On the basis of risk potential (credit quality): Credit quality stems from a combination of the issuing company's fiscal health and the length of the loan, earnings and general unpledged assets of issuing company.

Bonds are rated by various Rating Agencies, most known of them being Moody's Investor Service, Standard & Poor's (S&P). International Bond Rating Scale (starting from the best or least risky): AAA, AA, A, BBB, BB, B, CCC, CC, C, D. Bond ratings are based on such factors as the creditworthiness of the issuer, the issuer's past record of interest and/or dividend payments, and the nature of the assets or revenues that will be applied to repayment.

The most risky bonds are called Junk Bonds & High Yield Bonds: They are high-risk debt with rating below BB by S&P.

Insolvency on the part of the bond issuer is also known as default.

Debt securities of LLC "TERMION-PLUS" seems to carry rather a high risk, that is why a higher (than risk-free) coupon rate should be proposed.

16. On the basis of availability of certain provision (fixed in the indenture): they can be:

(a) *Called:* If there is a call provision in place, it typically comes with a time window (stated date or a schedule of dates before the stated maturity date) under which the bond can be called by the issuer, with a specific price to be paid to bondholders, and any accrued interest defined within the provision. When callable bonds are called, it can be for the entire issue or for just a part of it. Most callable bonds allow the issuer to repay the bond at par. With some bonds, the issuer has to pay a premium, the so-called call premium. This is mainly the case for high-yield bonds. These have very strict covenants, restricting the issuer in its operations. To be free from these covenants, the issuer can repay the bonds early, but only at a high cost.

(b) *Put Provision:* A relatively uncommon condition that allows a bondholder to resell a bond back to the issuer at a price - which is generally par - on certain stipulated dates prior to maturity. The put provision is an added degree of security for the bondholder, since it establishes a floor price for the bond. This mitigates the risk of a decline in the bond price in the event of adverse developments such as rising interest rates or a deterioration in the credit quality of the bond issuer. *Debt securities of LLC "TERMION-PLUS", to our mind, should not have either Call or Put provision.*

(c) Convertibility: A convertible bond/note is a type of debt security that can be converted into a predetermined amount of the underlying company's equity at certain times during the bond's life, usually at the discretion of the bondholder. Convertible bonds are a flexible financing option for companies and are particularly useful for companies with high risk/reward profiles.

Convertibles bonds are issued by companies for a number of reasons. Issuing convertible bonds is one way for a company to minimize negative investor interpretation of its corporate actions. For example, if an already public company chooses to issue stock, the market usually interprets this as a sign that the company's share price is somewhat overvalued. To avoid this negative impression, the company may choose to issue convertible bonds, which bondholders are likely to convert to equity anyway should the company start/continue to do well.

Another reason for issuing convertible bonds is that investors demand a security that optimally protects their principal on the downside but allows them to participate in the upside should the underlying company succeed. A startup or relatively new company, for example, may carry out a risky project that results in a loss of a great deal of money on one end but may lead the company into profitability and outsize growth. A convertible bond investor can get back some principal upon failure of the company but can benefit from capital appreciation by converting the bonds into equity if the company is successful. Convertible bonds are a useful financing option for both investors and companies when the company's success resembles a binary outcome.

Convertible bonds also allow the companies issuing them to lower their borrowing costs. From the investor's perspective, a convertible bond has a value-added component built into it; it is essentially a bond with a stock option, particularly a call option, attached to it. Thus, it tends to offer a lower rate of return in exchange for the value of the option to trade the bond into stock. Otherwise, the bond just pays interest to the investor for his capital investment.

For the debt securities of LLC "TERMION-PLUS" it is a prerequisite to be convertible in cases of attracting capital of business angels.

Convertible notes attract investors who want to increase return on their investment as a result of the growth of the company and at the same time to reduce the risks (protection from downside).

As long as investors do not convert the note, they earn a fixed income. With the successful development of the company and the increase in the price of common shares, the bondholders can exercise their conversion right and exchange the note for common stock. For the issuer, emission of convertible note makes it possible to reduce the coupon interest because it may subsequently offer the investor additional profit in the conversion process.

Administrative requirements for issuing convertible debt:

Before closing a deal, investors will engage in *due diligence* - a review of various aspects of the company to certify that the information you have presented is accurate. Each investor will have a slightly different list of information requests, but most will, at a minimum, want to see important financial and legal records and check intellectual property rights. Investors often require startups to have audited financial statements, but investors may be more lenient for very early-stage companies.

Next step is development of Convertible Note Agreements (CNA)

Although CNAs contain many debt-like features, startup investors view the debt instrument like an equity investment. Investors expect the debt to convert into equity as the startup grows and raises additional financing.

Peculiarities of Convertible Note agreements: Beside traditional terms & conditions (*principal amount*, an *interest rate, maturity date, pre-payment terms, legal and other expenses),* Convertible Note Agreements specify additional point, in particular regulating accrued interest on convertible debt.

Accrued interest on convertible debt, as a rule is not payable in cash. For the most part it accrues and is converted into equity shares at the same time as the principal amount of the loan. There are no set standards for accruing return rates, but commonly the rates vary between 4% and 8%. When the startup raises an equity round, the principal amount and accrued interest convert into equity (normally preferred stock).

While developing Convertible Note Agreements the parties have to make an agreement whether the conversion of notes has to be optional or mandatory.

Typically, conversion to equity is automatic at the next round of equity raise, but may be *conditional* on a round meeting certain thresholds such as a minimum round size.

The legal agreements typically dictate that the triggering event must raise above a minimum threshold (often 1-2x the principal amount) to convert. The threshold ensures that the startup is well capitalized before convertible debtholders forego their lender protections.

Another point to discuss is the stimulus for business angel to invest in the risky business. Business owners can propose either discount on series A shares or 'cap on valuation' – in case when the start-up becomes too successful. In other words, CNA can include provision regulating notes conversion into stock prior to maturity.

Conversion into stock prior to maturity can be based on an average share price (the "Conversion Price") that is the lower of either:

- Price calculated by Method 1: The Preferred Stock price, discounted by a specified percentage (e.g., 20%), or
- Price calculated by Method 2: The per share price determined by the Conversion Cap.

Capped vs uncapped round (example)

If a company raises \$500,000 in convertible notes in an uncapped round and later new investors value this company at \$10 million, convertible note investors will be left with just 5% of the company (500 000/10 000 000 x 100).

If the same company raises \$500,000 in convertible notes at a \$5 million cap, and later new investors value this company at \$10 million, the early investors will own at least 10% of the company when it raises a later round of funding (0,5M/5M x 100), irrespective of a sum od valuation.

Allocating ownership in a capped round rewards early-stage investors for making high-risk investments in start-up, while later-stage investors receive lower returns for taking on less risk. If the price is set low, the investors win and get more stock for their original investment.

An *uncapped round, more favorable to the entrepreneur*, means that the investors get no guarantee of how much equity their money purchases. At present in the USA the median valuation cap for convertible notes remained steady at \$6M.

In short, advantages and disadvantages of both options for investors are presented in Table 3.1.

Table 3.1. Advantages and disadvantages of Valuation cap vs Conversion discount for investors

	Impact on conversion price	Advantages for investors	Disadvantages for investors
Valuation cap	Establish an upper limit on the conversion price	Protect investors against dilution if the company's valuation increases dramatically	If the valuation cap is higher than the valuation in the subsequent funding round, investors receive no benefit

Conversion discount	Set the conversion price at a lower value (discount) than the latest funding round	Always provides a cheaper share price relative to subsequent investors	Investors can still experience significant dilution if the company's valuation increases dramatically

Source: (Jepsen, 2019).

The main reasons to use convertibles are the following:

- The earlier the start-up is, the more difficult & costly it is to give it a fair valuation, so investing for equity is always a long conversation.
- The great thing about convertible notes is that it postpones the valuation discussion, and allows the future equity investor to decide the company's valuation based on more traction and growth.
- The conversion option allows the convertible debtholders to participate in the startup's upside while also retaining the protections associated with lenders.

Thus, convertible notes attract investors who want to increase return on their investment as a result of the growth of the company and at the same time reduce the risks.

As long as the investor does not convert the note, he earns a fixed income. With the successful development of the company and the increase in the price of common shares, the bondholder can exercise his conversion right and exchange the note for common stock. For the issuer, the issue of convertible note makes it possible to reduce the coupon interest because it may subsequently offer the investor additional profit in the conversion process.

Advantages of issuing convertible debt during seed financing

- *Speed* – Raising capital in the form of preferred stock usually requires lengthy negotiations and considerable due diligence. Convertible notes offer a simpler, faster way to obtain capital.

- *Legal Costs* – Convertible debt agreements are much cheaper to execute than Preferred stock agreements (saves $600/hour lawyer's fee).
- *Flexibility of Additional Financing* – Unlike preferred stock arrangements that issue a fixed number of shares, companies can raise multiple rounds of convertible debt under the same terms.
- *Ease of Negotiations* – Convertible debt arrangements do not explicitly assign a valuation to the startup. This allows investors to avoid uncomfortable negotiations that could strain relationships with 4Fs.
- *Absence of investor's Influence* – Under a convertible note arrangement, incoming capital providers do not receive influence over management decision-making. Unlike preferred stockholders, convertible debt holders do not receive a board seat and management does not need bondholder's approval for key decisions.

Vast majority of convertible debt deals are structured for the debt to automatically convert into equity upon the startup's next round of financing.

Although Convertible note arrangements contain many debt-like features, startup investors view the debt instrument like an equity investment. Investors expect the debt to convert into equity as the startup grows and raises additional financing: 'a loan from investors that is never meant to be paid back'.

To sum up: For companies, the debt-securities market offers many ways to raise capital. From an company's perspective, the bond market offers a lot to consider. The variety of choices, ranging from instrument types to duration, currency and interest rates, enable both parties to select particular form of investment that is closely aligned with personal funding/investing needs. The wide variety of choices also means that the owners of the companies should do their homework to make sure they understand whom they are taking money from and how much it will cost.

3.2. Financial aspects of cooperation with venture capital

Conventional wisdom states that attracting venture capital and private equity funds to finance small and medium-sized enterprises, including startups, is very good. In support of this statement one can list the following advantages of using VC or PE funds:

- PE and VC use equity-based financial instruments instead of debt-based. From the point of view of decrease of debt, elimination of compound interest payments month after month and a horrifying late fee penalty when missing the monthly instalment, equity-based financial instruments can be seen as preferable.
- PE and VC investments have medium to long-term time horizon (not short); both types of investors provide a solid, flexible, capital base to meet future growth;
- PE and VC investments are favorable for cash flow, as capital repayment and dividend are tailored to the company’s needs;
- PE and VC firms want and assist the business to grow because it’s in their interest. The startup receives expert support at the forefront — thinking, creating strategies, mentoring and coaching, and building leadership skills of the managers so that the company can grow;
- PE and VC are committed until ‘exit’;
- The returns to the PE investor depend on the business’ growth and success. The more successful the company is, the better the returns all investors will receive;

- If the business fails, PE and VC investors will rank alongside other shareholders; If the business runs into difficulties, the PE and VC firms will work hard to ensure that the company is turned around. They are true business partners, sharing in risks and rewards, with practical advice and expertise to assist.

Alongside with the benefits of business cooperation with VC and PE funds it is necessary to list some disadvantages, including the duration of the process (as PE and VC fund managers conduct detailed market, financial, environmental, legal and management due diligence) and lack of control over the timing of a sale of (or a part of) the business. The fact of using equity-based instruments, mentioned as advantage, can be also interpreted as disadvantage, as this is accompanied by the necessity of concession of ownership and control (or a part of it).

In order to appraise the role of VC and PE investments impartially it seems necessary to analyze common terms and conditions of cooperation of such investors with the companies in need of finance. In particular, attention should be paid to the problems of distribution of gains/losses, dilution and liquidation preferences.

In economic literature distribution of gains is traditionally linked to the term '*Distribution waterfall'*. By definition it means a 'way to allocate investment returns or capital gains among participants of a group or pooled investment', or, more precisely, method by which the capital gained by the fund is allocated between the *limited partners* (LP or investors), who put in the money and the *general partner* (GP or sponsor), who has responsibility (liability) for the debt taken in the deal.

From the very beginning GP and LP talk over a set of operating and financial terms and conditions of each case. A key points agreed on is the terms and timing of the future repayment of the cash flows from the investment.

The repayment of capital, profits and fees is always based on achieving specified return milestones (hurdle rates) and varies depending on the nature of the investment. These different types of payout levels are called investment tiers (see Fig. 3.1)

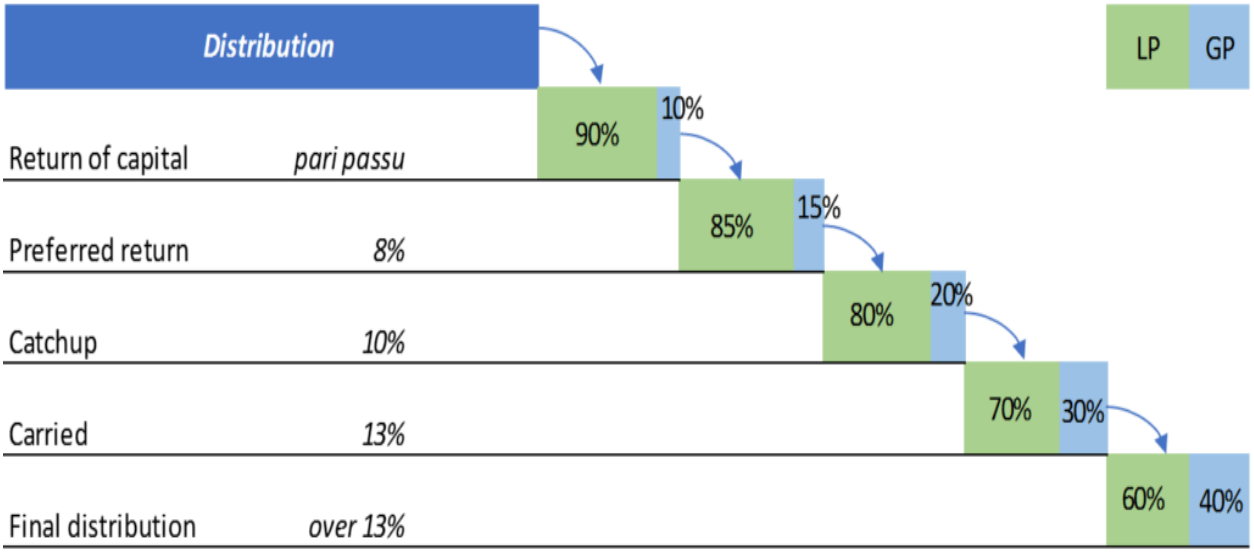


Fig. 3.1. Different tiers of cash flows in a private equity or venture capital distribution waterfall.

Source: CFI Team, 2023

Tier 1 is a return of capital (ROC). At this tier, 100% of any distributions go directly to LPs until they've recouped all their initial investments.

In the majority of contracts the gains are split between LP and GP at specified ratios based on achieving specified cash levels (eg: initial investment recovery), or hurdle rates (IRR) or specific events (eg: M&A, IPO). These contracts have multiple targets at which cash flows move to different tiers.

Tier 2 – Preferred return: 100% of the distribution goes to the LPs until the preferred IRR based on every distribution to them and every contribution called is reached. As a rule, it is the minimum targeted return is 8%.

Tier 3 - Catch-up bucket: this is the cash flows exceeding the funds required to get the promised 8% return for the limited partners. This is also referred to as excess returns and is usually split 90:10 between the LP and GP. The catch-up bucket is highly favorable to the general partner. They are given all or a major portion of the gain until they receive a certain percentage of profits.

Tier 4 – Carried interest/Residual Split: the cash flows over and above the cash flow required to get the return for the LPs. The carried interest is defined in the investment contract and the terms and conditions of the carried interest vary greatly. As a rule, it is paid out only after the initial capital is paid back and the promised return is obtained by the limited partners. This part is usually split 75:25 between the limited and general partners.

Some investment contracts include **Catch Up Clause.** Such clause allows the general partner or another investment tier to get a targeted share of the profits received. For instance, the agreement may require that all the cash flows first be paid to investors till the capital has been repaid and a target return of 10% is achieved. Then general and limited partners are paid an agreed distribution of the subsequent cash flows, which may be 60:40 or 80:20.

The two most common forms of distribution waterfalls are the American Waterfall and the European Waterfall (Hutchison, 2012).

In the European Waterfall model (also called global waterfall) investors receive preference, typically applied directly at the aggregate fund level. Managers don't receive any profits until investors make back their initial investment and the preferred return. It can take GPs a long time, up to several years, before they get back their initial investment and start seeing any profits.

In the American Waterfall model general partners benefit more. The risk gets spread out over each investment and ensures that GP receive their investment before LPs receive back their initial investment andpreferred returns.

None of the models benefits the owners of business that is the object of financing. Moreover, many VC and PE term sheets include 'liquidation preference' that can leave the owners of the company without anything in case of insufficient level of gains or losses.

A **liquidation preference** determines a repayment priority: it is a clause in a contract that dictates the payout order in case of a failure of a company, that regulates who gets how much when a company is liquidated, sold, or goes bankrupt. This provision is meant to serve as protection for investors if a company exits at a value lower than what was initially expected.

In VC and PE terms sheets liquidation preference referrers to the right of investor (who have received preferred stock when investing their money) to get paid before stockholders of ordinary shares. It can be expressed in terms of 'multiple of initial investment', 'cap' and 'participating or non-participating'.

The term '**multiple'** refers to the multiplier that determines the amount to be returned to investors before a company's founders or employees receive returns.

VC as a holder of preferred stock with 1X liquidation preference should expect to receive at minimum the sum invested. With 2X VC expects to get two times its money back, with 3X - to get three times its money back and so on.

Let's consider an example: venture fund 'Concordia' invests $5M in LLC "Termion-PLUS", receiving 20 million convertible preferred shares (20% of $25M post-money valuation); in 3 years the company is sold for $40 M

In scenario 1 (with 1X liquidation preference) VC receives 20% of $40M, that is $8M.

In scenario 2 (with 2X liquidation preference) VC receives $5 multiplied by 2, that is $10M before any common shareholders are paid anything.

In scenario 3 (with 3X liquidation preference) VC receives $5 multiplied by 3, that is $15M.

But if the company was sold for $5M, the VC even with a 1X multiple will take all the money!

Every term that is asked for by early stage investors, later stage investors will feel entitled to, and higher than 1X multiple can have a multiplying effect in future, directly affecting the LLC “Termion-PLUS” returns. Such repayment priority transforms the clause into more of an offensive clause (getting a return) than a defensive clause (merely getting investor’s principal back) and introduces financing dynamics that tend to destroy the company over time (Angel fundamentals, 2023).

Next term to discuss – ‘**participating’ or ‘non-participating**’. Up till now all the scenarios were designed on the basis of ‘non-participation’. But, if in addition to multiplier, the convertible preferred stock is ‘participating’, then the preferred stockholders have the right to share in the distribution of the value of the company in proportion to their ownership in excess of the multiple (so called “double-dipping”).

In scenario 4 (with 1X liquidation preference and participation) VC receives 20% of $40M, plus 20% of $32M, that is $14.2M.

In scenario 5 (with 2X liquidation preference and participation) VC receives $5 multiplied by 2, plus 20% of $30M that is $16M before any common shareholders are paid anything.

In scenario 6 (with 3X liquidation preference and participation) VC receives $5 multiplied by 3, plus 20% of $35M that is $22M.

It is pointless to calculate what could receive the owners of LLC “Termion-PLUS” if in Scenario 6 the company was sold for $5M.

In view of possible huge losses of the owners of the companies’ term sheets often **cap** the proceeds to the preferred stockholder where the liquidation preference is exercised (Martin, 2011). Capped participation indicates that the investor will share in the liquidation proceeds on a pro-rata basis until total proceeds reach a certain multiple of the original investment

In other words: First the investors receive their investment back, then they also participate in the remaining proceeds in proportion to their ownership stake in the company UNTIL the cap (e.g. 2x or 3x of the original investment) is reached.

In our example in exchange for 20% of the company, an investor invests $5M with a participating liquidation preference subject to a 2X cap. The company is sold for $40M. The investor receives:

1. $5M (his investment), AND
2. $5M (20% of the $35M remaining proceeds capped at $5M when the 2x of the original investment is reached).

In total, the investor receives $10M (2X the original investment).

The capped distribution to the preferred stockholders reduces the cost of the liquidation preference to the company founders.

These days, payout caps are typically around 3x the investment amount.

On the surface, capped participation seems like a reasonable alternative to full participation and non-participation options. Digging deeper, though, the researchers (Jones, 2022) detect a problem: regardless of the cap value, capped participation creates a range of exit proceed values where the investor is indifferent to how much the company receives in an exit transaction. In the so-called “zone of indifference” the interests of the investors and the common shareholders diverge, as all the marginal proceeds in the zone accrue to the common shareholders. That divergence of interests can bite the common shareholders.

In our example any VC, investing $5M in LLC “Termion-PLUS” (the owners of which hold ordinary shares) on conditions of participating liquidation preference subject to a 2X cap, receives twice his investment ($10M) irrespective of whether the company is sold for $10M or $40M. Meanwhile for the owners of LLC “Termion-PLUS” the difference is essential: Zero against $30 million.

Summary of our calculations can be presented in the form of the tables (3.2 and 3.3), given that VC has invested $5M in a startup receiving 20 million convertible preferred shares (20% of $25M post-money valuation)

Table 3.2. VC and startup return in case of inclusion of liquidation preferences (non-participating) clause

	Stockholders' returns by liquidation preferences (uncapped)					
	1X non-participating		**2X non-participating**		**3X non-participating**	
Valuation at liquidation event	Preferred	Common	Preferred	Common	Preferred	Common
$500K	$500K	$0	$500K	$0	$500K	$0
$1M	$$1M	$0	$1M	$0	$1M	$0
$5M	$5M	$0	$5M	$0	$5M	$0
$10M	$5M	$5M	$10M	$0	$10M	$0
$15M	$5M	$10M	$10M	$0	$15M	$0
$20M	$5M	$15M	$10M	$10M	$15M	$5M
$40M	$5M*	$35M	$10M	$30M	$15M	$25M

* in this case it would be more profitable for VC investors to opt out of the liquidation preference clause and simply receive its share of invested capital – 20 percent of $40M is $8M (better than $5M).

Source: calculation of the author

Table 3.3. VC and startup return in case of inclusion of liquidation preferences (participating) clause

	Stockholders' returns by liquidation preferences (uncapped)		
	1X participating	**2X participating**	**3X participating**

Valuation at liquidation event	Preferred	Common	Preferred	Common	Preferred	Common
$500K	$500K	$0	$500K	$0	$500K	$0
$1M	$1M	$0	$1M	$0	$1M	$0
$5M	$5M	$0	$5M	$0	$5M	$0
$10M	$5M+1M	$4M	$10M	$0	$10M	$0
$15M	$5M+2M	$8M	$10M+$1M	$4M	$15M	$0
$20M	$5M+3M	$12M	$10M+$1M	$9M	$15M+$1M	$4M
$40M	$5M+7M	$28M	$10M+$6M	$24M	$15M+$5M	$20M

Source: calculation of the author

As follows from above tables, liquidation preferences are an important way for companies to attract investment because it can help VC and PE funds protect their capital in case of an unfavorable exit (limiting investor's downside risk). But, at the same time, it can be problematic when used to create potential upside benefit for some investors at the expense of common stockholders. This powerful tool, if misused, can favor investors too heavily, especially when both multiples and participation are included in the term sheet.

In the nearest future, according to the prognosis of Paul Jones (2022), with the market shifting from greed-driven to fear-driven, investor-friendly terms will be dusted off and reinserted into a lot of deals. One of the more significant of those terms is participating preferred, in both its full and capped forms. Entrepreneurs should understand the implications of participation, including the nuances of capped participation and the interplay of those nuances with other investment terms.

The last but not the least disadvantage of raising funds from VC or PE fund is determined by dilution of the company's capital.

Dilution is the reduction in shareholders' equity positions due to the emission of new shares. Whenever a company raises equity financing, investors contributing the capital receive shares. By issuing additional shares to new investors, the prior shareholders concede some of the company's ownership to the incoming investors, decreasing own share.

Going back to the data from table 3.2 and 3.3 it is easy to calculate that while the valuation of the company has increased from \$25M to \$40M, the share of owners of the company has decreased from 80% to 62.5% (in case of \$40M valuation at liquidation event and non-participation of preferred stockholders) or to 50% (in case of \$40M valuation at liquidation event and participation of preferred stockholders). Another negative consequence of dilution is a decrease of a company's earnings per share (EPS), which can have a negative impact on share prices.

Dilution is often a necessary tradeoff if a company wants to maximize its value. A founder who controls 100% of a \$1 million company is worse off financially than a founder who owns 10% of a \$100 million company.

In addition to the aim of maximizing value, some founders accept significant amounts of dilution out of necessity. A struggling, cash-strapped startup may have no other way to raise funding. Other founders willingly accept some dilution because they believe that the experience and expertise that the new investors provide will bring the value exceeding the losses due to dilution.

3.3. Selection of the effective methods for capital management strategy

At present LLC "TERMION-PLUS" is on the initial stage of the business life cycle. It has all the characteristics of a startup: it is young, designed to scale incredibly quickly, it is involved with innovation, new ideas and uses technology to create something that addresses a problem, it is tech-oriented.

At this stage any company can raise funds from different sources (see Fig. 3.2)

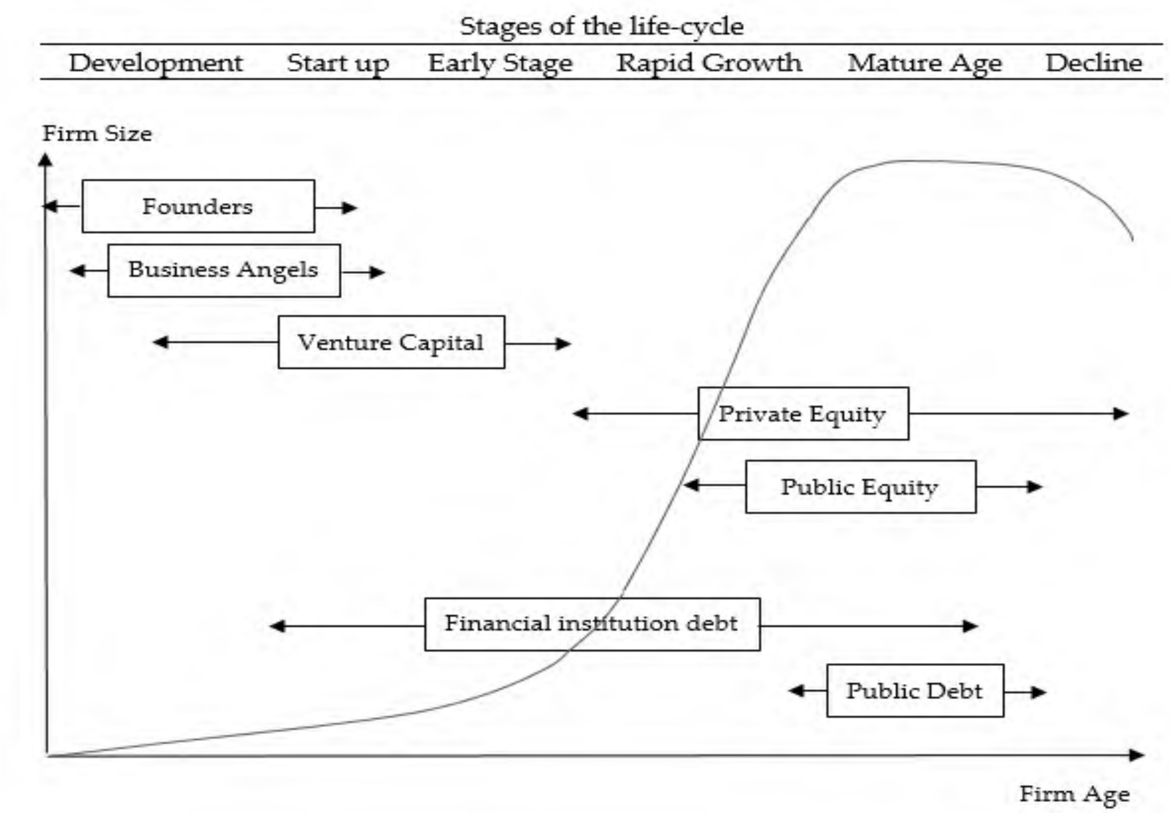


Fig. 3.2.Business funding of the companies.

Source: Composed by author based on Berger & Udell (1998) and Caselli, S (2009)

LLC "TERMION-PLUS" has already used the possibilities of financing activities at the expense of the family. Based on this, at the current stage of development LLC "TERMION-PLUS" may use such funding sources as business angels and venture capital. Over the past 2 years, LLC “TERMION-PLUS” has increased production capacity and started earning income, and if this pace is maintained, the company will be able to claim for financing from private capital. As for loans from financial institutions, as already defined in the second chapter, this type of financing is not available for startups such as LLC “TERMION-PLUS”. However, LLC “TERMION-PLUS” may turn to debt financing by issuing convertible commercial bonds.

To determine which funding strategy is the most promising for the enterprise, we will analyze advantages and disadvantages of these funding tools.

Table 3.4 Advantages and disadvantages of funding sources available at the initial stage of the life cycle of the enterprise

Source	**Advantages**	**Disadvantages**
Business angels	– Startups are no problem – All locations and industries are eligible – Paperwork is minimal – Monthly payments aren’t required – Guidance and support are included – Networking opportunities are provided – Assistance with future funding is available	– Availability is based on who you know – Terms can be ambiguous and funding can be slow – Average amounts are less than venture capital – An option for investors to convert debt to equity is required – Angel investor support and guidance may be limited – Founder control is reduced and roles may be unclear – Rapid growth is expected
Venture capital	– Substantial funding and large sum of capital available – No interest and repayments – Open to risk and support for high-risk idea	– Venture capitalists have high standards – Venture capitalists ask for shares and when business grows and becomes worth more money, they can sell the

	– Hands-on support help transform idea into a full-blown business – Networking opportunities – Quicker growth	shares for more than they initially paid – Venture capitalists want that risk to translate into reward. – Pressuring on startups to grow as quickly as possible and be on their way to going public or getting acquired – The injection of cash also means an infusion of opinions, that can distract from business goals – Hard to get the right deal – Can't go back
Commercial bonds	– Fixed interest rate pricing (less volatility and interest risk) – Less Restrictive Covenants – The bond market is big and there is hight trading liquidity in secondary markets – Longer-term maturities of bonds is making them a “permanent” form of capital – Corporate bonds can extend out in certain instances – Once a bond becomes callable, the borrower may repay some (or all) of the debt balance and pay less interest. It enables them to: – Have the discretion to retire debt ahead of schedule using excess free cash flows – Reduce the amount of leverage risk on its balance sheet – which can prevent coming close to covenant breaches	– Since bonds come with less restrictive covenants and are usually unsecured, they’re riskier for investors and therefore command higher interest rates – An attempt to redeem debt prior to the call period triggers a make-whole provision and is punitive relative to the face value of the debt (or the trading value in some cases) – Bonds will oftentimes have call protection clauses that last two or three years (denoted as NC/2 and NC/3, respectively). Or, bonds can be issued as NC/L in certain cases, which means the bond is not callable for the term’s entire term.

	– Opt to refinance at lower interest rates if the lending environment has improved	

Source: compiled on the basis of Bad debts, 2022, Pros and Cons of Using, 2022, Pros and Cons of Venture, 2022

One of the most serious disadvantages when looking and the pros and cons of a busines angels and venture capitalist is giving up part of the business. To date, maintaining the concept of management and strategic innovative development laid down by the founders of the enterprise is very important. In addition to the financial aspect, innovativeness, economic efficiency and social orientation of business are very important for them. Considering this, the risk of losing control due to the involvement of equity investments is unacceptable.

Besides this, Ukrainian realities are such that the areas of interest of domestic business angels are IT, medicine, mobile financial services (Top, 2021). Thus, proposals for energy enterprises that require large capital expenditures with long-term payback are either absent at all or accompanied by additional requirements, the fulfillment of which requires time and resources.

Among the additional advantages of bonds, it can be noted that the terms of their issuance are determined by the issuer himself. That is, it is he who chooses for what amount, how many bonds and with what nominal value to issue. Beside this, the issuer is independent from the creditors/investors, and he is not connected with them by direct contractual relations. The issuer does not necessarily need collateral for borrowed funds. There is also tax benefit, as funds raised from the placement of bonds are not included in the gross income of the issuer, that is, they are not subject to income tax.

As experts of the Ukrainian securities market explain, bonds have several advantages: they have a longer maturity and allow you to get the required amount faster. In addition, there are standards and requirements of the National Bank regarding the amount of liabilities and deposits of the population. Funds raised through bonds will not fall under these requirements

But the company that decided to place securities must pass the inspection of the regulator – the National Commission for Securities and the Stock Market. The very process of issuing bonds and informational support requires expenditure.

According to experts, it takes about three months to issue bonds. The main expenses are for audit reports (annual and for the last quarter), preparation of emission documents, state duty and a number of other minor expenses. Under such conditions, in their opinion, it is advisable to issue bonds in the amount of UAH 10 million or more (Корпоративні облігації: чи реально, 2022).

Thus, to our mind the most appropriate for LLC "TERMION-PLUS" terms and conditions of the debt securities in case of choosing this option are the following:

At present debt securities of LLC "TERMION-PLUS" can be issued and traded only on the national Ukrainian market – due to small size of the company, lack of credit history and credit rating.

Debt securities of LLC "TERMION-PLUS" can be secured by the assets of the company. It could be too expensive for LLC "TERMION-PLUS of" to get guarantee for its debt securities.

Debt securities of LLC "TERMION-PLUS" should be issued in the form of notes (maturing in 5-7 years).

It seems appropriate to issue debt securities of LLC "TERMION-PLUS" as a bearer notes in order to facilitate trade in them on the secondary market.

Debt securities of LLC "TERMION-PLUS" should be nominated in national currency.

Debt securities of LLC "TERMION-PLUS" should be entirely taxable.

Debt securities of LLC "TERMION-PLUS" should be fixed-income coupon notes.

Interest payment on the debt securities of LLC “TERMION-PLUS” should be semiannual.

The most suitable form of the debt securities of LLC “TERMION-PLUS” seems to be “amortizing’.

Debt securities of LLC “TERMION-PLUS” seems to carry rather a high risk, that is why a higher (than risk-free) coupon rate should be proposed. At least 25%.

Let's assume that in order to increase the capital by 10,000,000 hryvnias in 2023, LLC “TERMION-PLUS” will issue bonds with a nominal value of 1,000 hryvnias and a yield of 25% {the minimum yield of corporate bonds of Ukrainian enterprises - 14% (Корпоративні облігації. Freedom)} and a maturity of 7 years.

The amount of income payable on bonds is calculated by the formula:

$$S= (N*Pi*n)/(100*d) \quad (2.9)$$

where S is the amount of income for one bond, hryvnias.

N is nominal value of one bond, hryvnias.

Pi is the rate at which interest income is calculated on bonds in the corresponding period, % per annum.

n is the number of calendar days in the corresponding interest period for which income is accrued (determined from the actual placement date).

d is the number of calendar days in the corresponding year.

Let’s calculate the income payable on bonds till the end of 2023 using this formula.

If the LLC “TERMION-PLUS” decides to start issuing bonds from the beginning of 2023, and the time for preparation will take the 3 months (predicted by experts), it is appropriate to start calculating interest starting from the 2nd quarter (see Table 3.5).

Table 3.5. Calculation of income payable on bonds

Month	**Quantity of days**	**Formula**	**Income**
March	31	(1000*25*31)/(100*365)	21,23
April	30	(1000*25*30)/(100*365)	20,55
May	31	(1000*25*31)/(100*365)	21,23
Quarter 2		*21,23+20,55+21,23*	*63,01*
June	30	(1000*25*30)/(100*365)	20,55
July	31	(1000*25*31)/(100*365)	21,23
August	31	(1000*25*31)/(100*365)	21,23
Quarter 3		*20,55+21,23+21,23*	*63,01*
September	30	(1000*25*30)/(100*365)	20,55
October	31	(1000*25*31)/(100*365)	21,23
November	30	(1000*25*30)/(100*365)	20,55
Quarter 4		*20,55+21,23+20,55*	*62,33*
Total		*63,01+63,01+62,33*	*188,36*

Source: calculated by the author

Thus, by the end of 2023, LLC “TERMION-PLUS” will have to pay 188,36 UAH or an average of 62,79 UAH per quarter for each bond. The total amount of payment will depend on the number of bonds sold. If we assume an optimistic scenario, according to which all bonds will be redeemed, the amount of interest to be paid for the first quarter will be 630 100 and for the year – 1,883,600 UAH (18.836% of the borrowed amount of 10,000,000).

These costs must be paid off at the expense of future revenues, so they must be taken into account when planning sales volumes and product prices.

As it was estimated, the capital turnover ratio of LLC “TERMION-PLUS” in the last accounting year was 2,673 and it means, that each hryvnia of capital investment has contributed 2,673 UAH towards the company’s sales. If the ratio stays the same, with attracted funds the company may earn next year:

$$100\ 000*2{,}673/12*3 + (2{,}673*(100\ 000+10\ 000\ 000))/12*9 = 20\ 314\ 800 \text{ UAH}$$

In addition to interest costs, we will analyze the costs of servicing the issue. The issuer's costs can be divided into mandatory and additional/optional (Фінансові інструменти, 2019). Mandatory costs of the issuer are related to depository services (Table 3.6).

Table 3.6 Mandatory costs of the bond issuer

Cost item	**Provider**	**Price**
Assignment of the international identification number of securities	National Depository of Ukraine	1975 UAH
Servicing of the issue of securities	Depository of the National Bank	750 UAH
Deposit of global certificate /1 operation	Depository of the National Bank	420 UAH
Temporary global certificate /1 operation	Depository of the National Bank	420 UAH
Information services regarding the publication of regulated information on behalf of a participant of the capital markets and/or organized commodity markets and the submission of reporting data to the National Commission for Securities and the Stock Market (annual maintenance)	Stock market infrastructure development agency of Ukraine (SMIDA)	4 800 UAH

Auditing services	At the issuer's option	20 000 – 50 000 UAH
Storage of securities in the issuer's securities account / percent of the average nominal value of securities for the settlement period	Depository of the National Bank	0,00034 %
Payment of income and/or repayment of securities, including cash clearing / 1 operation minimal	Depository of the National Bank	750

Source: calculated by author on the basis of Тарифи при здійсненні, 2022, Тарифи на депозитарні послуги, 2022, Ціни та тарифи, 2022.

Thus, minimal mandatory issue costs reach at least about 35 000 UAH.

Additional emission costs include but are not limited to:

- Connection and support of the terminal for access to the trading system of the stock exchange if the issuer makes a public offer through the stock exchange.
- The services of the rating agency for assigning ratings to the issuer and bonds
- Payment of the underwriter's services (see Table 3.7)

Table 3.7 Examples of additional (optional) costs of the bond issuer

Cost item	**Provider**	**Price**
Connection and support of the terminal for access to the trading system	PJSC «PFTS Stock Exchange» (as example)	2 200 UAH
Assigning ratings to the issuer and bonds	There are 8 authorized rating agencies registered in the National Commission for Securities and the Stock Market	20 000 -60 000

Underwriting services	Wide range of banks and investment companies	0.1–10% of the nominal value of the placed bonds or of the amount for which the bonds are placed
Additional services	National Depository of Ukraine (as example)	426 UAH for one hour of work of one specialist and additional costs related to the provision of the service

Source: Calculated by author on the basis of Тарифи на послуги, 2022, Тарифи при, 2022 and Рейтингові агентства*, 2022*.

Underwriter fees are one of the largest expense items among all issuer costs, but they are not mandatory. However, involvement of an underwriter relieves the issuer of the need to organize and service the bond issue himself, as underwriter functions include:

- Financial consulting
- Organization of registration of the issue of corporate bonds and the prospectus of the issue of corporate bonds
- Placement of corporate bonds on the market

It is worth paying attention, that the costs associated with issuing bonds are debited to a contra liability account such as bond issue costs. Over the life of the bonds, the issue costs must be systematically moved from the balance sheet to the income statement (how to, 2022).

According to the example under consideration an enterprise incurs 35 000 UAH of bond issue mandatory costs to register its issued bonds that will mature in 7 years. The enterprise records these fees by debiting Bond Issue Costs for 35 000 UAH and crediting Cash 35 000 UAH.

Using straight-line amortization, each month the corporation will debit Interest Expense for 416,67 UAH (35 000 UAH divided by 84 months) and credit Bond Issue Costs for 416,67 UAH. The purpose is to match the 35 000 UAH of bond issue costs to the 84 monthly accounting periods that are benefiting from the bonds having been issued.

The described algorithm for estimating the cost of bond issuance can be used as a basis for scenario analysis, which will allow to significantly increase the efficiency of management decision-making regarding the diversification of business financing sources.

CONCLUSION AND RECOMMENDATIONS

Knowledge of theoretical basis of capital management, acquired at the University, alongside the review of international experience of startup funding, provides the author with the possibility to present some conclusion and suggestions for the management of LLC “TERMION-PLUS”.

1. To raise capital for business needs, managers/owners of the companies primarily use two types of financing: equity financing and debt financing. Most companies use a combination of debt and equity financing, and there are some distinct advantages to both. Principal among them is the following: equity financing carries no repayment obligation, placing no additional financial burden on the company; this type of financing provides extra working capital that can be used to expand a business: since there are no required monthly payments associated with debt servicing, the company has more capital available to invest in growing the business. Main disadvantage of equity financing is a requisite to give away the new investor a percentage of the company, sharing profits and consulting with new partners while making decisions affecting the company.

Advantages of the debt financing for startups are the following: it does not require giving up a portion of ownership - the lender has no control over the business; once the loan is paid back, the relationship with the financier ends. One more advantage of debt financing: the interest payed on the loan is tax-deductible and it is easy to forecast expenses because loan payments do not fluctuate.

2. The problem of choice between debt, equity or a mix is explained by the so-called ‘Pecking order theory’, stating that companies prioritize their sources of financing (from internal financing to equity) according to the Principle of least effort, or of least resistance, preferring to raise equity as a financing means of last resort. Hence, own funds are used first, and when that is depleted, debt is taken/issued, and when it is not sensible to issue any more debt, equity is issued.

3. Companies at an early stage of a business cycle (like LLC “TERMION-PLUS”) in most cases are small business entities that has no track record to show that the business has the capacity to generate enough money to pay back the loan very rarely can receive bank loans. In developed countries as a rule such enterprises, being in need of additional funds for further development, turn to individual and institutional investors, such as business angels, venture capital or private equity funds.

By taking on an angel investor (high net worth individuals who invest their own money, along with their time and expertise, in high-risk, high-return entrepreneurial ventures) an entrepreneur gets the following benefits: contacts to potential customers and employees, to venture capitalists and strategic partners; contacts with lawyers, banks, accountants, and investment bankers; advice and counsel, knowledge of the marketplace and strategies of similar companies. As a rule, in exchange for money angel investors get convertible notes of a startup.

‘Venture capital’ is professional equity of investors who specialize in funding and building young, innovative enterprises. Private Equity is medium to long-term finance provided in return for an equity stake in potentially high growth companies, which are usually unquoted. Benefits of raising venture capital or private equity money include certification benefit, networking benefit, knowledge benefit, and financial benefit.

4. LLC “TERMION-PLUS” is a waste recycling company which works in the field of alternative energy. It was founded in 2019. The main activity of the enterprise is the processing of safe mixed plastic waste into alternative sources of energy using the innovative technology of pyrolysis. According to the Statute, the purpose of the Company's activity is to obtain profit from the implementation of economic activities in the field of production, trade, financial, intermediary and other operations to meet the needs of legal entities and individuals in goods, works,

and services. The production capacity of the LLC “TERMION-PLUS” allows recycling of 300 tons of waste plastic per month and producing 100 tons of pyrolysis briquettes and 90 tons of oil.

5. The authorized capital of LLC “TERMION-PLUS” remained unchanged from the moment of registration and amounts to 100,000 UAH. During the studied period, the company did not use other sources of financing besides its own, which significantly restrains its production potential. In 2021 the share of equity capital in the capital structure has significantly decreased (by three times) due to the increase of uncovered losses (by 339.3%). Long-term liabilities at present are insignificant. At present the enterprise has very limited range of resources for financing its activities. And it needs funds with a long-term duration to ensure stable and reliable financial support for all strategic initiatives

6. Coefficient analysis of the capital of LLC “TERMION-PLUS” demonstrates that the values of the calculated indicators are typical for the initial stage of the startup life cycle. However, there is a problem of capital concentration and dependence on short-term and small external sources of financing, as well as maintenance of adequate liquidity and solvency, and most important problem is accumulation of unsecured debt. Therefore, the transition to the development stage requires the LLC “TERMION-PLUS” to find long-term and sustainable sources of financing, sufficient to reduce the burden of liquidity, to ensure a high level of diversification of liabilities and assets.

7. For companies, the debt-securities market offers many ways to raise capital. The variety of choices, ranging from debt instrument types to duration, currency and interest rates, enable both parties to select particular form of investment that is closely aligned with personal funding/investing needs. The wide variety of choices also means that the owners of the companies should do their homework to make sure they understand whom they are taking money from and how much it will cost.

7. When choosing the option of attracting business angels' funds LLC "TERMION-PLUS" will have to issue convertible notes. Convertible notes are a useful financing option for both investors and companies when the company's success resembles a binary outcome: the conversion option allows the convertible debtholders to participate in the startup's upside while also retaining the protections associated with lenders. Thus, convertible notes attract investors who want to increase return on their investment as a result of the growth of the company and at the same time reduce the risks.

While discussing terms and condition of such notes the managers of a company should pay attention to the method of future shares price calculation, which can be stock price, discounted by a specified percentage or Conversion Cap.

8. When choosing the option of attracting venture capital, LLC "TERMION-PLUS" will have to issue preferred shares. While discussing terms and condition of such shares the managers of a company should pay attention to the following specifications: 'multiple of initial investment', 'cap' and 'participating or non-participating'. Entrepreneurs should understand the implications of participation, including the nuances of capped participation and the interplay of those nuances with other investment terms.

When attracting venture capital, the managers of LLC "TERMION-PLUS" should keep in mind the problem of capital dilution: by issuing additional shares to new VC investors, the prior shareholders concede some of the company's ownership to the incoming investors, decreasing own share.

9. When choosing the option of issuing debt securities without attracting business angels' funds, the most appropriate for LLC "TERMION-PLUS" terms and conditions of the debt securities will be the amortizing notes nominated in national currency with fixed-income coupon and interest rate not less than 25%.

Considering the significant advantages of financing via bonds (fixed interest rate pricing, the terms of issuance are determined by the issuer, the independence from the creditor/investor, tax and expenses accounting benefits), it was recommended to LLC "TERMION-PLUS" to issue long-term corporate bonds.

10. For informational and analytical support of decision-making regarding capital diversification via the issuance of bonds, a cost estimation algorithm was developed. It includes the calculation of interest costs, mandatory and optional costs of servicing the issue. It could be easy adapted and modified for the needs and assumptions of the bond issuer and used for scenario analyses and planning.

REFERENCES

1. Балабанов І.Т. Основи фінансового менеджменту. Як управляти капіталом? / І.Т. Балабанов – М.: Фінанси і статистика, 2005.-384 с.
2. Белолипецкий В. Финансовые ресурсы и их превращенные формы / В.Белолипецкий, И. Мерзляков // Аудитор. – 1998. - №5. – С.51-55.
3. Козачок, І.А. (2012). Економічна сутність та джерела формування фінансових ресурсів підприємства. old-zdia.znu.edu.ua
4. Коробов М.Я. Фінансова діяльність підприємства: підручник / Коробов М.Я., Бандурка О.М., Орлов П.І., Петрова К.Я. - К.: Либідь, 2002. - 384с.
5. Корпоративні облігації. Freedom Broker. Retrieved from https://ffin.ua/service/korporativni_oblihatsii
6. Корпоративні облігації: чи реально заробити 25% річних. Українське об’єднання лізингодавців Retrieved from https://uul.com.ua/2020/korporatyvni-obligatsiyi-chy-realno-zarobyty-25-richnyh/
7. Лахтіонова Л. Фінансовий аналіз суб’єктів господарювання: монограф. / Л. Лахтіонова. – К. : КНЕУ, 2001. – 387 с.
8. Опарін В. Фінансова система України (теоретико-методологічні аспекти) : монограф. / В. Опарін. – К. : КНЕУ, 2005.– 240 с.
9. Поляк, Г. Б., Акодис, И. А., Колчин, С. П., Лукасевич, И. Я., Пантелеев, А. П., & Половников, В. А. (2015). Финансовый менеджмент.
10. Рейтингові агентства. Національна комісія з цінних паперів та фондового ринку Retrieved August 17, 2022, from https://www.nssmc.gov.ua/register/reitynhuvannia/reitynhovi-ahentstva/

11. Стецюк П.А. Економічна суть фінансових ресурсів//Фінанси України. – 2007. –№1. – С. 129-141
12. Тарифи на депозитарні послуги (операції), що надаються (здійснюються) Національним банком України, а також на послуги щодо обліку і обігу депозитних сертифікатів Національного банку України. Верховна Рада України. Законодавство України. Retrieved from https://zakon.rada.gov.ua/laws/show/z0790-03/sp:max15#Text
13. ТАРИФИ НА ПОСЛУГИ АКЦІОНЕРНОГО ТОВАРИСТВА «ФОНДОВА БІРЖА ПФТС». Retrieved from https://pfts.ua/images/Tarify_293.pdf
14. Тарифи при здійсненні нумерації (кодифікації) ЦП . Національний депозитарій України. Retrieved from https://www.csd.ua/index.php?option=com_content&view=article&id=2975&Itemid=259&lang=ua
15. Фінансові інструменти: емісія муніципальних облігацій : наук.-практ. посіб. /В. І. Козак, С. О. Москвін, В. В. Посполітак. – К. : DESPRO, 2019. – 142 с.
16. Хачатурян С.В. Сутність фінансових ресурсів та їх класифікація / С.В.Хачатурян // Фінанси України. – 2003.– № 4.– С. 77–81.
17. Ціни та тарифи на послуги та роботи, що надаються чи виконуються Державною установою «Агентство з розвитку інфраструктури фондового ринку України» з 01 липня 2022 року. SMIDA. Retrieved from https://www.smida.gov.ua/services
18. Шахова Г.Я. Финансовые ресурсы в системе макроэкономических взаимосвязей / Г.Я. Шахова // Финансы . – 1993. - № 3. – С.3-11.

19. Aernoudt, R. (1999). Business angels: should they fly on their own wings?. *Venture Capital: An International Journal of Entrepreneurial Finance*, *1*(2), 187-195.

20. Angel Fundamentals: Understanding Equity Deal Terms – Economics (2023) Seraf blog, Angel Investing Deal Terms: Economics and Provisions | Seraf-Investor.com

21. Annual financial statements of LLC "TERMION-PLUS"

22. Avazov, N., & Maxmudov, N. (2020). Investment as a source of financing. *Архив научных исследований*, (24).

23. Bank Debt vs. Corporate Bonds. WallStreetPrep. Retrieved from https://www.wallstreetprep.com/knowledge/bank-debt-vs-corporate-bonds-comparison-of-debt-financing-types/

24. Berger, A. N., & Udell, G. F. (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. Journal of Banking & Finance, 22(6), 613-673.

25. Bertoni, F., Colombo, M. G., & Quas, A. (2019a). The role of governmental venture capital in the venture capital ecosystem: An organizational ecology perspective. Entrepreneurship: Theory and Practice, 43(3), 611–628. https://doi. org/ 10. 1177/ 10422 58717 735303

26. *Booming renewable energy sector faces financing obstacles*. Capital Monitor' (2021, December 23). Retrieved August from https://capitalmonitor.ai/institution/banks/fast-growing-renewable-energy-sector-faces-financing-obstacles/

27. Broadbent, M., & Cullen, J. (2012). *Managing financial resources*. Routledge.

28. *Capacity of Termion.* Termion Company. (2021, October 22). Retrieved from https://www.youtube.com/watch?v=oL1fQVfClos

29. Caselli, S. (2009). Private equity and venture capital in Europe: markets, techniques, and deals: Academic Press.

30. CFI team. Distribution Waterfall. The way in which capital gains of a fund are allocated between the participants in an investment. Updated January 11, 2023. Official CFI site. Retrieved from https://corporatefinanceinstitute.com/resources/equities/distribution-waterfall/

31. Colombo, M. G., Cumming, D. J., & Vismara, S. (2016). Governmental venture capital for innovative young firms. Journal of Technology Transfer, 41(1), 10–24. Retrieved from https:// doi.org/ 10. 1007/ s10961- 014- 9380-9

32. Cumming, D. J., & Johan, S. A. (2017). The problems with and promise of entrepreneurial finance. Strategic Entrepreneurship Journal, 11(3), 357–370. https:// doi. org/ 10.1002/ sej. 1265

33. Cumming, D., Kumar, S., Lim, W. M., & Pandey, N. (2022). Mapping the venture capital and private equity research: a bibliometric review and future research agenda. *Small Business Economics*, 1-49.

34. Da Rin, Marco, Thomas Hellmann, and Manju Puri. 2013. A Survey of Venture Capital Research. Handbook of the Economics of Finance 2:573–648.

35. Davidsson, P., & Gruenhagen, J. H. (2020). The New Venture Creation Process: A Review and Agenda. In *Academy of Management Proceedings* (Vol. 2020, No. 1, p. 13658). Briarcliff Manor, NY 10510: Academy of Management.

36. De Bettignies, J. E., & Brander, J. A. (2007). Financing entrepreneurship: Bank finance versus venture capital. *Journal of Business Venturing*, *22*(6), 808-832.

37. Financing: Overview of sources of financing. (2022). SME Portal for small and medium-sized enterprises of the Swiss *Confederation.* Retrieved from https://www.kmu.admin.ch/kmu/en/home/concrete-know-how/finances/financing.html
38. Harrison, R. T., & Mason, C. M. (2017). Backing the horse or the jockey? Due diligence, agency costs, information and the evaluation of risk by business angel investors. *International Review of Entrepreneurship*, *15*(3), 269-290.
39. Hellmann, T., & Puri, M. (2002). Venture capital and the professionalization of start-up firms: Empirical evidence. Journal of Finance, 57(1), 169–197. Retrieved from https:// doi. org/ 10.1111/ 1540- 6261. 00419
40. How do you account for bond issue costs? Accounting coach. Retrieved from https://www.accountingcoach.com/blog/bond-issue-costs
41. Hutchison, D. E. (2012). Understanding and teaching private equity structures: Modeling real estate development joint venture agreements. *Journal of Economics and Finance Education*, *11*(2).
42. Jepsen, D. (2019) Valuation Caps and Conversion Discounts. IPOHUB, January 14, 2019. Retrieved from https://www.ipohub.org/valuation-caps-and-conversion-discounts/
43. Johan, S., & Zhang, Y. (2021). Information asymmetries in private equity: Reporting frequency, endowments, and governance. Journal of Business Ethics, 174(1), 199–220.
44. Jones, P. A Dive into "Partial Participation": A Better Alternative to Capped Participation? July 7, 2022. Michael Best full-service law firm blog. Retrieved from https://www.michaelbest.com/Newsroom/292201/A-Dive-into-Partial-Participation-A-Better-Alternative-to-Capped-Participation

45. Jones, P. Liquidation Preferences: The Reality Behind the Zone of Indifference. June 21, 2022. Michael Best full-service law firm blog. Retrieved from https://www.michaelbest.com/Newsroom/291102/Liquidation-Preferences-The-Reality-Behind-the-Zone-of-Indifference
46. Kaplan, S. N., & Schoar, A. (2005). Private equity performance: Returns, persistence, and capital flows. Journalo f Finance, 60(4), 1791–1823. Retrieved from https:// doi. org/ 10. 1111/j.1540- 6261. 2005. 00780.x
47. Konstantiuk, N., & Vynnyk, T. (2019). Peculiarities of formation and effective use of financial resources of the enterprise under modern conditions of management. In *Business Risk in Changing Dynamics of Global Village 2, 2019* (pp. 211-222). Publishing House of University of Applied Sciences in Nysa.
48. Landström, H., & Mason, C. (Eds.). (2016). *Handbook of research on business angels*. Edward Elgar Publishing.
49. Lerner, J., & Nanda, R. (2020). Venture capital's role in financing innovation: What we know and how much we still need to learn. Journal of Economic Perspectives, 34(3), 237–261. Retrieved from https:// doi. org/ 10. 1257/ jep. 34.3. 237
50. Lerner, J., Sorensen, M., & Strömberg, P. (2011). Private equity and long-run investment: The case of innovation. The Journal of Finance, 66(2), 445–477. Retrieved from https:// doi. org/10. 1111/j. 1540- 6261. 2010. 01639.x
51. Lukina Yu. V. (2013). Formation and Implementation of Enterprise Financial Management Strategy. Finance of Ukraine, No. 3, pp. 113–118.
52. Leary, Mark T., Roberts, Michael R., The pecking order, debt capacity, and information asymmetry, Journal of Financial Economics, Volume 95, Issue 3, 2010, Pages 332-355

53. Macht, S. A., & Robinson, J. (2009). Do business angels benefit their investee companies?. *International Journal of Entrepreneurial Behavior & Research.*

54. Martin, J. D. (2011). Liquidation Preference, Participation Rights, and the Cost of Venture Finance. *Participation Rights, and the Cost of Venture Finance (August 22, 2011).*

55. Mocherniy, S. V., Larina, Y. S., Ustenko, O. A., & Yuriy, S. I. (2006). Ekonomichniy entsiklopedichniy slovnik [Economic encyclopedic dictionary]. *Lviv: Svit (in Ukrainian).*

56. Myers, S. C, and Majluf, N. J.. "Corporate Financing and Investment Decisions when Firms Have Information that Investors Do Not Have." Journal of Financial Economics, 13 (06.1984), 187–221.

57. Newbert, S.L. *et al.* Exploring the evolution of supporter networks in the creation of new organizations. J. Bus. Ventur. (2013)

58. Official site of *Thermion-plus LLC. Products* (2021, October 22). Retrieved from https://termion.com.ua/products/

59. *On the approval of the Procedure for evaluating applications, evaluation criteria and the required number of points (valuations) for making decisions on granting for the creation or development of processing enterprises, the form of a business plan, the form of a grant agreement, as well as the deadlines for submitting applications and the maximum amount of grants.* Order of the Ministry of Economy № 840/38176 (2022, July 27). Retrieved from https://zakon.rada.gov.ua/laws/show/z0840-22#Text

60. Pros and Cons of Using Angel Investors to Fund Your Business. Fit Smart Business. Retrieved from https://fitsmallbusiness.com/angel-investors-pros-cons/

61. Pros And Cons Of Venture Capitalists: A Complete Guide. Base templates. (August 26, 2022). Retrieved from https://www.basetemplates.com/blog/pros-and-cons-of-venture-capitalists

62. *Pyrolysis Oil.* Indiamart.com. (2022, June 16). Retrieved from https://www.indiamart.com/abhayenterprises-aurangabad/pyrolysis-oil.html

63. Ramadani, V. (2009). Business angels: who they really are. *Strategic Change: Briefings in Entrepreneurial Finance*, *18*(7-8), 249-258

64. *Return on Invested Capital (ROIC).* Management study guide.) Retrieved from https://www.managementstudyguide.com/return-on-invested-capital.htm

65. Rossi, M. (2014). The new ways to raise capital: an exploratory study of crowdfunding. *International Journal of Financial Research*, *5*(2), 8.

66. Samuelson, Paul A., and Nordhaus, William D. (2001), 17th ed. *Economics*, p. 270. McGraw-Hill.

67. Shepherd, D.A. *et al.* VCs' decision processes: evidence suggesting more experience may not always be better. J. Bus. Ventur. (2003)

68. *Shredded scrap.* Indiamart.com. Retrieved from https://dir.indiamart.com/search.mp?ss=shredded+scrap&stype=attr=1&res=RC2

69. Sørheim, R. (2005). Business angels as facilitators for further finance: an exploratory study. *Journal of small business and enterprise development*.

70. Tenca, F., Croce, A., & Ughetto, E. (2018). Business angels research in entrepreneurial finance: A literature review and a research agenda. *Journal of Economic Surveys*, *32*(5), 1384-1413.

71. Tennent, J. (2008). *Guide to financial management* (Vol. 15). John Wiley & Sons.

72. *Thermion-plus LLC products*. Prom.ua. (2022, June 29). Retrieved from https://prom.ua/ua/opinions/list/3613076
73. Top Angel Investors in Ukraine. Teamwave (October 30, 2021). Retrieved from https://blog.teamwave.com/top-angel-investors-in-ukraine/
74. *Ukrainian Business in Action.* Grant Program (2022, June 9) Retrieved from https://www.businessesinaction.com/?fbclid=IwAR27meN1_Jxk8Rjvv4dLurdlImhBC3vxJmOXJsGREsagMrkQduq9dvRfwso
75. Vanacker, T., Forbes, D. P., Knockaert, M., & Manigart, S. (2020). Signal strength, media attention, and resource mobilization: Evidence from new private equity firm. Academy of Management Journal, 63
76. Vasylyk, O. D. (1997). *Derzhavni finansy Ukrainy*. Vyshcha shkola.
77. Vasylyk, O. D., & Pavliuk, K. V. (2002). Derzhavni finansy Ukrainy [Public finances Ukraine]. *Kyiv, Ukraine: NIOS (in Ukrainian).*
78. Vismara, S. (2022). Expanding corporate finance perspectives to equity crowdfunding. Journal of Technology Transfer, Forthcoming. Retrieved from https:// doi. org/ 10. 1007/s10961- 021- 09903-z
79. Volkart, R., & Universität Zürich. Institut für schweizerisches Bankwesen (Zürich). (2000). *Unternehmensfinanzierung und Kreditpolitik*. Versus.
80. *Waste-derived pyrolysis oil market.* (2022, July). Retrieved from *https://www.futuremarketinsights.com/reports/waste-derived-pyrolysis-oil-market*
81. White, B. A., & Dumay, J. (2017). Business angels: a research review and new agenda. *Venture Capital*, *19*(3), 183-216.
82. Wright, M., & Lockett, A. (2003). The structure and management of alliances: Syndication in the venture capital industry. Journal of Management Studies, 40(8), 2073–2102. Retrieved from https:// doi. org/ 10. 1046/j. 1467- 6486. 2003. 00412.x

83. *YouControl.* (2022, August 15). Retrieved from https://youcontrol.com.ua/en/catalog/company_details/43245567/

84. Yuriy, S. I., V. M. Fedosov, and L. M. Alekseienko. "Finances: textbook." (2012).

Annex A

Table 1.2. Internal financing of the enterprise

Retained profits:	Companies can increase funds by retaining profits and not distributing them as dividends. The shareholders deprived of capital will expect retained profits to be invested to achieve a competitive rate of return. Most big businesses retain 50% of profits to fund expansion.
Tighter credit control:	The remaining internal financing options increase businesses' cash assets by decreasing working capital items. For example, chasing trade receivables owed by credit customers releases funds which can be re-invested in the business.
Reduce inventories:	Purchase and storage costs use revenue that could otherwise be used to expand the business. However, when reducing inventories enterprises should be careful to retain the capacity to meet future demand.
Delay paying trade payables:	This cheap form of finance extends the period before a business has to make good on their credit payments, releasing the funds in the interim. This can come at a reputational cost, which damages the possibility of buying on credit in the future.

Annex B

Table 1.3. External financing of the enterprise

Emission of ordinary shares:	Under this arrangement, companies raise capital by selling stock in their business. This entitles the purchaser to a voice in the decisions made by the firm. While ordinary shares do not have a fixed rate of dividend (a share of company profits) from profits after current liabilities and other investors are services, not paying them can diminish share value. A business will avoid this if they hope to issue shares in the future.
Emission of preference shares:	Preferential shareholders receive dividends before individuals with ordinary shares. Their lower risk and lower levels of return mean that preference shares have a less volatile market price. These have lost popularity since, while they are alike borrowings in many other aspects, dividend payments are not tax deductible.
Rights issue:	In order to raise finance without diluting control of the business, a rights issue offers new shares to existing shareholders. Shares issued this way generate goodwill and maintain the predictability of shareholder governance, but must also be discounted (sold at an average of 31% under market price).
Bank overdraft:	Businesses can access funds by maintaining a negative balance on its bank account. The advantages of using an overdraft include flexibility, competitive interest rates

	and can become a long term source of finance (dependent on the confidence inspired by the borrower). But, reliance on an overdraft can have devastating consequences, since it is repayable on demand.
Term loan:	Financial institutions provide negotiable loans in which the rate of interest, repayment dates and security for the capital offered must be agreed. Because they are commonplace, this option is easy to set up and has a degree of flexibility. At the same time, borrowed capital often comes with obligations and restrictions known as ‘loan covenants’.
Loan notes/stock:	This form of borrowing, exchanges capital from investors for a note representing the loan which can then be traded on the Stock Market. The value of a loan note fluctuates with the business’s performance.
Finance lease:	Under this arrangement, a business will select an asset which is then purchased by a finance company. The lease will then be paid in a series of rentals or installments. This avoids the large cash outflows of an outright purchase. The risks and rewards associated with the purchased item are transferred to the lessee.
Operating lease:	This is similar to the finance lease, except the rewards and risks of the item stay with the owner. The asset becomes security, meaning that operating leases are usually given without detailed credit checks. The term of an operating lease is short compared to the useful life of the asset, and

	so the asset might be used by multiple lessees in its lifetime. Businesses can, therefore, avoid obsolesce risks by this means.
Sale and lease back:	Businesses can raise funds by leasing their unused assets to a financial institution.
Debt factoring:	Debt collection can be outsourced to specialist subcontractors. This can increase cash assets by providing savings in credit management and certainty in cash flows. Stakeholder opinion should be considered before opting for this financing option, as the use of outside agents could be viewed as an indication of financial difficulties.
Invoice discounting:	This is a loan based on the value of a business's outstanding credit sales. This is used as a short term alternative to debt factoring. It is more widely used based on its low service charges and the autonomy it gives to the business to collect payment for its own credit sales. However, repayment of the advance not dependent on trade receivables being collected, so a business must have confidence they can raise finance within the term of the loan.