

HIGHER SCHOOL OF INSURANCE AND FINANCE



DOCTORAL DISSERTATION

AUTO - SUMMARY

ON THE SUBJECT

**THE ROLE AND SIGNIFICANCE OF FINANCE, ACCOUNTING AND
FINANCIAL MATHEMATICS IN COMPANIES**

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GENERAL CHARACTERISTICS OF THE DOCTORAL DISSERTATION

INTRODUCTION

No company can operate without an efficient supply of finance. Finance is the lifeblood of all organizations and the common denominator by which most business performance is measured both internally and externally. The accounting and finance departments are at the centre of any organization and are responsible for ensuring the efficient financial management and financial controls necessary to support all business activities.

Finance and accounting play an important role in the management of any company. Companies are operated with money, so it is very important to control money in order to have a hold on the business. Accounting of a company helps to manage income and expenses and also the flow of money and thereby direct the course of business activities of companies.

For companies to achieve financial success, it's important for them to have a financial strategy with thorough oversight for the entire company. The finance department oversees income and expenses throughout a company to ensure that it can sustain its operations and invest in expansion.

The finance function refers to practices and activities directed to manage business finances. The functions are oriented toward acquiring and managing financial resources to generate profit. The financial resources and information optimized by these functions contribute to the productivity of other business functions, planning, and decision-making activities.

Accounting plays a vital role in running a business because it helps to track income and expenditures, ensure statutory compliance, and provide investors, management, and government with quantitative financial information which can be used in making business decisions. Accounting is the part of a business that is responsible for the company's finances. Understanding the function of accounting helps manage and analyze monetary resources.

Mathematics is an important part of managing business. Business and mathematics go hand in hand this is because business deals with money and money encompasses everything in itself. Financial mathematics is used by commercial enterprises to record and manage business operations. Commercial organizations use mathematics in accounting, inventory management, marketing, sales forecasting, and financial analysis. Mathematics helps to know the financial

formulas, fractions; measurements involved in interest calculation, hire rates, salary calculation, tax calculation etc. which help complete business tasks efficiently. Financial mathematics also includes statistics and provides solution to business problems.

METHODOLOGICAL APPROACH TO RESEARCH

1. SOCIAL JUSTICE FOR STUDYING THE TOPIC

The justification for researching the topic for this doctoral dissertation stems from the need to find out why finance, accounting and financial mathematics are important for successful business management in companies.

All companies need finances for daily operations, and this is what makes the concept of finance very important as an area for all organizations to cover. There is an underlying need to keep a business well financed and managed, in alignment with the economic development goals of the country. For a business to keep running successfully, the amounts of profits coming in must keep increasing. This means that the initial capital investment must be well managed.

Finance for most companies entails some operational costs such as remunerative payments for staff members, raw materials, inventory, interest payments. The finance sector allows companies to have a solid saving plan that is not dependent on short-term finances to meet this need. Investing in items such as land, equipment, and machinery will definitely boost the production scale, but will only happen with intelligent financial management.

Among other necessary goals for a business set-up, every organization has a set of financial goals. While most involve hitting a certain profit margin over a specified period, financial goals go as far as catering for the overall economic demands and requirements of the nation.

Accounting help management to determine the financial position of the organization. The financial report helps the management to know the current position of a business and also assists them in what will be the position of a company in a specific time. Accounting assist management in planning, decision making, and controlling processes in an organization. This helps in running the business efficiently and effectively. Accounting helps businesses in recording, classifying, and then summarizing all the transactions in an organization. This allows the business to come with a well-assessed financial document such as a balance sheet, statement of profit and loss, statement of cash flows, and trail balance when all accounting is an account for all business transactions.

Financial mathematics is the discipline that consists of mathematical concepts related to the business and it is not only limited to cost, profit/loss, and interest. It is beyond these basic concepts and includes other mathematical concepts as well. The operations or financial activities are controlled by financial mathematics such as control on the cash flows, payroll, revenue, financial analysis, risk analysis, etc. The mathematical formulas help in almost every field of business such as in wage or salary calculation, employee performance management, profit & loss analysis, etc.

2. SUBJECT OF RESEARCH

The subject of research of this paper is to prove that a company needs finance in order to be able to operate successfully and achieve its goals. Every company needs accounting to

The role and significance of finance, accounting and financial mathematics in companies

register, track and analyze financial data and, based on the analysis made using mathematical methods, make appropriate financial decisions.

As a special subject of research in this paper, it is to confirm that finance is the lifeblood of a company, accounting is the basic system for providing financial data, and financial mathematics is a way of modeling and projecting and predicting the future financial flows of a company.

Also, as a research subject of this paper, it is to prove that finance is of particular importance in the development and operation of companies, accounting for preparing appropriate reports and reporting to management, and financial mathematics to forecast and predict the future operations of the companies.

3. PURPOSE OF THE RESEARCH

The research objective of this paper is to prove that:

The main objectives of finance in companies are to provide maximizing return on investment and market value per share, maximizing profits, maximizing profitability, maximizing liquidity.

Objectives of accounting in any business are systematically record transactions, sort and analyzing them, prepare financial statements, assessing the financial position, and aid in decision making with financial data and information about the business.

One of the *key objectives of financial mathematics* is also to understand how to construct the best investment strategies that minimises risks in the real world.

4. HYPOTHESIS

Basic (general) hypothesis:

Basic (general) hypothesis is that finance is the money available to spend on business needs. Right from the moment someone thinks of a business idea, there needs to be cash. As the business grows there are inevitably greater calls for more money to finance expansion. The day to day running of the business also needs money..

First special hypothesis:

Finances are necessary for companies for their operations, financial flows should be monitored and registered and analyzed in order to be able to make appropriate decisions, and mathematical models should be used in the analyses.

Second special hypothesis:

Finances are the basis for business operations of companies, they are recorded and projections are made for future financial movements in the operations of companies..

Third special hypothesis:

Companies' finances are the result of their work and cooperation with investors and business managers on how to evaluate business proposals and develop the business most effectively.

Auxiliary hypothesis:

Basically, finance, accounting and financial mathematics are interconnected and enable companies to make real business decisions that will achieve the desired development.

5. RESEARCH METHODS

The preparation of the topic of the doctoral dissertation requires a multidimensional approach and application of a number of research methods such as:

- **historical** - by applying this method, the financing situation of companies is historically perceived,
- **content analysis** - by applying this method, the legal bases and other elements of the financing systems of companies are analyzed.
- **comparative method** (comparative) - with the application of this comparative perception of the experiences, methodology and differences in the functioning of the financing systems in companies is performed.
- **statistical method** - statistical method is used for relatively accurate understanding of the general determinations, regularity and legality of current and possible forms of financing companies.
- **synthesis** - with the help of this method the data obtained with the help of the previous methods are combined.
- **induction and deduction** - is used in research procedures to draw conclusions from the theoretical views and opinions of other authors, as well as the experiential collection of data from the practice of certain other entities.

6. TIME FRAMEWORK OF THE RESEARCH

The time frame of the research of this paper is determined for the period from 2000 until today.

7. INFORMATION BASE OF THE DOCTORAL DISSERTATION

The information base for the preparation of the dissertation was based on materials from statistical yearbooks, statistical bulletins, materials from the Internet, materials from State institutions and research materials related to finance, accounting and financial mathematics in companies.

8. DEGREE OF PROBLEM DEVELOPMENT

There are numerous studies in the literature on finance, accounting and financial mathematics. In recent years, a large number of theoretical and practical aspects of the characteristics of finance, accounting and financial and financial mathematics have been considered as activities that are of great importance for the development of every company.

II. SCOPE AND STRUCTURE OF THE DISSERTATION

The dissertation has been developed in the volume of 155 pages, and the content is structured according to the set goal of the research and specific tasks and is in accordance with the subject of the research.

Structurally, the work consists of an introduction, main text in three chapters; conclusion; used literature 119 sources total in English language,

- ✓ reference to major contributions;
- ✓ statement of authenticity and originality.

III BRIEF JUSTIFICATION OF THE DOCTORAL DISSERTATION

PART ONE: THE ROLE AND SIGNIFICANCE OF FINANCE COMPANIES

1.1. DEFINING FINANCE IN COMPANIES

Finance is the foundation of any company. It is near impossible to succeed without strong finances in place. It is the money companies require to start, run or expand a business. Funds are known as the lifeblood of any business. Simply companies cannot function properly if they don't have an adequate amount of money accessible for business.¹

Finances for companies are the foundation of a business. That are finance requirements are to purchase assets, goods, raw materials and for the other flow of economic activities.²

- Meaning of Finances for companies includes those business activities that are concerned with the acquisition and conservation of capital funds in meeting the financial needs and overall objectives of a business enterprise.
- Business is identified with the generation and circulation of products and services for fulfilling of needs of society. For successfully doing any operation, business requires money which is known as business finance. Therefore, funds are known as the lifeblood of any business. A business would not function unless there is adequate money accessible for use.
- The capital contributed by the company to establish the business isn't adequate to meet the financial needs of the business. Consequently, the company needs to search for an option to generate funds. A research of the financial needs and options to fulfill those needs must be done with a specific end goal to arrive at effective financial management to maintain the business.
- The fundamental necessities of companies would be to buy a plant or apparatus, or it could be to buy raw materials, development of a business that prompts more enrollments, paying wages and so on. The money related necessities of a business can be classified as follows:

Finance is the lifeline of every company as it helps in the overall conduct, growth, and expansion of a business. It is next to impossible to conduct a company without finance:³

¹ Business Finance: Definition, Meaning & Importance, (2022), <https://www.freshbooks.com> ›

² Meaning of Business Finance - Toppr, (2022), <https://www.toppr.com> › guides.

³ Business Finance Definition and Meaning | Emeritus India, (2022), <https://emeritus.org> › learn.

- Finances is the cornerstone of every organization. It refers to the corpus of funds and credit employed in a business. Finance is required for purchasing assets, goods, raw materials and for performing all other economic activities. Precisely, it is required for running all the business operations.
- Finance for companies includes activities concerning the acquisition and conservation of capital funds for meeting an organization's financial needs and objectives. The importance of finances in companies is evident from the fact that finance is required to undertake every business operation successfully.
- The amount or capital that is pooled in by a business owner into their company is often not enough to meet the financial needs of a company. Herein, the importance of business finance and their management rises even more. Consequently, business owners along with their team look out for various other ways to generate funds.

Finance is the heart of a business, and its importance is in establishing a sound foundation for administrative institutions and expanding their operational capabilities. The development drivers are emphasised and placed into proper perspective via the appropriate use of business finance in the conceptualisations of strategy and marketing. Modern corporate finance models are distinct from conventional financing methods due to the availability of finance technology and adequate data analysis methodologies.⁴

- Financing helps a company's day-to-day operations, growth, and expansion. It includes the initial capital to establish or build a firm and taxes, earnings, and total asset value.
- The term "business finance" refers to the credit availability to a firm or a company. A company's financial basis is its most essential asset. Finance is vital for the acquisition of support, the production of commodities, the procurement of raw materials, and the continuation of economic activity.
- Business is defined as the production and distribution of goods and services to meet customers' demands and the general public. Business finance means the money required for a company to run a successful operation. For example, a firm would not be able to operate unless there was sufficient money available for usage.

Finances of companies or business finance refers to that area of finance which deals with money and credit used in the business and how the money is raised. It is all about estimation, arrangement, and application of funds so that the business has sufficient cash to carry out operations effectively and efficiently, without any interruption:⁵

- Finances of companies involves activities like planning, raising, controlling, and administering funds of any kind which is employed in the business. The size and scale of operations of any business can be determined by the availability of finance.
- In multinational corporations, there are finance committees who are responsible for making financial decisions, whereas, in small enterprises, the owner or manager is responsible for making such decisions.
- Finance is the basic need of every company to survive, grow, expand and diversify.

⁴ Business Finance – Types, Benefits, and Prospects - Khatabook, (2022), <https://khatabook.com › blog>.

⁵ What is Business Finance? Definition, Nature, Need, Types, (2022), <https://businessjargons.com ›>

1.2. THE ROLE OF FINANCE IN COMPANIES

There are a variety of different ways to finance a companies, including borrowing money from a lender, issuing stocks or bonds to investors, or receiving venture capital, but ultimately, companies' financing is the process of funding a business' operations with money from outside the business.⁶

- When it comes to understanding finance of companies, it's worth noting right away that the world of modern finance is no longer what it used to be – where the finance department only carries out accountant-based functions. Rather, it has evolved significantly to include a more holistic value-add to businesses.
- People in business finance also take care of a business's funding, and the tools and financial analysis used to distribute these financial resources.
- Corporate finance teams identify any potential financial problems the business might encounter, and subsequently prevents them from happening.
- The goal of finance in business is to maximize the value of a business through effective financial planning, resource management, and finance growth, while always being mindful of risk and profitability.

1.2.1. Investments and budgeting

Within an economy, there are many important factors that go into keeping the flow of money running as smoothly as possible. In order to be successful, governments and their citizens must both earn and spend currency to keep the economic cycle in motion. Investment is a basic principle of economics that has the purpose of helping to grow the economy and generate profit.⁷

- An investment is defined as putting money, time, or effort into something, be it a material or an intangible asset, with the hope that it will generate a profit or advantage in the future. The contribution may gain interest or appreciate over time. Essentially, when a person invests in something, they have the intention of being better off after a period of time as the asset accrues more value. Simply put, investing is spending money to make money.
- There are usually more benefits than drawbacks with investment, meaning that most people find it worthwhile to take the risk of putting money or time into an asset. However, an asset being successful in gaining interest is never a guarantee. Investments could end up causing more loss than gain in some situations and should be considered carefully.

Investing is act of putting money into a business or organization to earn a profit. Investing, broadly, is putting money to work for a period of time in some sort of project or undertaking in order to generate positive returns (i.e., profits that exceed the amount of the

⁶ Understanding Finance in Business | GetSmarter Blog, (2022), <https://www.getsmarter.com › blog › market-trends › und>.

⁷ Denomme, D., (2022), What is an Investment? - Definition & Overview - Study.com, <https://study.com › lesson › w>.

initial investment). Investing is the act of allocating resources, usually capital (i.e., money), with the expectation of generating an income, profit, or gains.⁸

- One can invest in many types of endeavors (either directly or indirectly) such as using money to start a business, or in assets such as purchasing real estate in hopes of generating rental income and/or reselling it later at a higher price.
- Investing differs from saving in that the money used is put to work, meaning that there is some implicit risk that the related project(s) may fail, resulting in a loss of money. Investing also differs from speculation in that with the latter, the money is not put to work per-se, but is betting on the short-term price fluctuations.

Investing is the process of buying assets that increase in value over time and provide returns in the form of income payments or capital gains. In a larger sense, investing can also be about spending time or money to improve own life or the lives of others. In the world of finance, investing is the purchase of securities, real estate and other items of value in the pursuit of capital gains or income. In the most straightforward sense, investing works when one buy an asset at a low price and sell it at a higher price. This kind of return on investment called a capital gain. Earning returns by selling assets for a profit or realizing capital gains is one way to make money investing.⁹

The term investment can be used to describe any activity where money, time or effort is put into something to make a profit or gain an advantage. From a financial perspective, this includes buying bonds, stocks, or property. However, non-financial investments can also be made such as committing to further education in the hope of increasing skills and knowledge to secure a better job, and therefore more money, in the future.¹⁰

1.2.2. Capital financing

Businesses run on money. Capital financing refers to the methods used to raise money to launch business and set up cash reserves in case the revenue stream dries up for a while. The two primary forms of capital finance are selling ownership in company and taking on debt.¹¹

- Financial capital makes it possible for to buy goods and services such as office equipment, factory equipment, vehicles, web design services and liability insurance.
- With equity financing, compaany sell off an ownership stake in hers business in return for capital. Public stock offerings are one way to raise money, but company can also issue stock privately to venture capital firms or individual investors. Unlike debt financing, company don't pay interest and don't have to make installment payments every month; investors make their money from dividends or from selling the stock when the price rises.
- The alternative to selling equity in business is to take on debt. The most common form of debt financing is borrowed money. Loans can be short-term or long-term, backed by cosigners or by collateral, and high-interest or low. The advantage of

⁸ Picardo, E., (2022), Investing Definition - Investopedia, <https://www.investopedia.com › Investing › Investing Basics>.

⁹ Napoletano, E., Benjamin C., (2022), What Is Investing? How Can You Start Investing? - Forbes, <https://www.forbes.com › wh>.

¹⁰ Investment - Business & franchising definitions, (2022), <https://www.pointfranchise.co.uk ›>

¹¹ Sherman, F., (2020), Definition of Capital Financing - Bizfluent <https://bizfluent.com › Funding/ Financing>.

borrowing money using any of these types of capital financing is that companies don't give up any control over their company. However, companies have to make regular payments on the loan, including interest.

Financing capital is the money that lenders and equity holders provide to a company for daily and long-term needs. A company's financing capital consists of both debt (bonds) and equity (stock). The company uses this money for operating capital. The bond and equity holders expect to earn a return on their investment in the form of interest, dividends, and stock appreciation. To acquire capital or fixed assets, such as land, buildings, and machinery, businesses usually raise funds through capital funding programs to purchase these assets. There are two primary routes a business can take to access funding: raising capital through stock issuance and raising capital through debt:¹²

- A company can issue common stock through an initial public offering (IPO) or by issuing additional shares into the capital markets. Either way, the money that is provided by investors that purchase the shares is used to fund capital initiatives. In return for providing capital, investors demand a return on their investment (ROI) which is a cost of equity to a business. The return on investment can usually be provided to stock investors by paying dividends or by effectively managing the company's resources so as to increase the value of the shares held by these investors. One drawback for this source of capital funding is that issuing additional funds in the markets dilutes the holdings of existing shareholders as their proportional ownership and voting influence within the company will be reduced.
- Capital funding can also be acquired by issuing corporate bonds to retail and institutional investors. When companies issue bonds, they are in effect, borrowing from investors who are compensated with semi-annual coupon payments until the bond matures. The coupon rate on a bond represents the cost of debt to the issuing company.
- In addition, bond investors may be able to purchase a bond at a discount, and the face value of the bond will be repaid when it matures.

1.2.3. Dividends and capital return

A dividend is the distribution of a company's earnings to its shareholders and is determined by the company's board of directors. Dividends are often distributed quarterly and may be paid out as cash or in the form of reinvestment in additional stock:¹³

- A dividend is a reward paid to the shareholders for their investment in a company's equity, and it usually originates from the company's net profits. Though profits can be kept within the company as retained earnings to be used for the company's ongoing and future business activities, a remainder can be allocated to the shareholders as a dividend.
- The board of directors can choose to issue dividends over various time frames and with different payout rates. Dividends can be paid at a scheduled frequency, such as monthly, quarterly, or annually. For example, Walmart Inc. (WMT) and Unilever (UL) make regular quarterly dividend payments.

¹² Twin, A., (2020), Capital Definition - Investopedia <https://www.investopedia.com>

¹³ Hayes, A., (2022), Dividend Definition - Investopedia, <https://www.investopedia.com> › Stocks › Dividend Stocks.

- Companies can also issue non-recurring special dividends, either individually or in addition to a scheduled dividend.

Dividend refers to a reward, cash or otherwise, that a company gives to its shareholders. Dividends can be issued in various forms, such as cash payment, stocks or any other form. A company's dividend is decided by its board of directors and it requires the shareholders' approval. However, it is not obligatory for a company to pay dividend. Dividend is usually a part of the profit that the company shares with its shareholders:¹⁴

- After paying its creditors, a company can use part or whole of the residual profits to reward its shareholders as dividends. However, when firms face cash shortage or when it needs cash for reinvestments, it can also skip paying dividends. When a company announces dividend, it also fixes a record date and all shareholders who are registered as of that date become eligible to get dividend payout in proportion to their shareholding.
- Dividend payment usually does not affect the fundamental value of a company's share price. Companies with high growth rate and at an early stage of their ventures rarely pay dividends as they prefer to reinvest most of their profit to help sustain the higher growth and expansion. On the other hand, established companies try to offer regular dividends to reward loyal investors.

Return of capital refers to a return that an investor receives of the amount invested, and is excluded from the taxable income category. It takes place when an investor gets a percentage of his or her actual investment, and such proceeds are not included in the income or capital gains from the investment category:¹⁵

- Return-of-capital are non-dividend returns of some or all of the investments made in a stock or fund. Return of capital, also known as "ROC," is a return of some or all of an investment in a stock or fund.
- Return of Capital essentially measures the earnings as a proportion of debt plus equity required by a business to continue normal operations. In the long run, this ratio should be higher than the investments made through debt and shareholders' equity.

1.2.4. Debt Financing

Debt financing occurs when a firm raises money for working capital or capital expenditures by selling debt instruments to individuals and/or institutional investors. In return for lending the money, the individuals or institutions become creditors and receive a promise that the principal and interest on the debt will be repaid:¹⁶

- When a company needs money, there are three ways to obtain financing: sell equity, take on debt, or use some hybrid of the two. Equity represents an ownership stake in the company. It gives the shareholder a claim on future earnings, but it does not need to be paid back. If the company goes bankrupt, equity holders are the last in line to receive money.

¹⁴ What is Dividend? Definition of Dividend, Dividend Meaning, (2022), <https://economictimes.indiatimes.com> ›

¹⁵ Gordon, J., (2022), Return of Capital - Explained - The Business Professor, LLC, <https://thebusinessprofessor.com> ›

¹⁶ Chen, J., (2022), Debt Financing Definition - Investopedia, <https://www.investopedia.com> › Bonds › Fixed Income.

- A company can choose debt financing, which entails selling fixed income products, such as bonds, bills, or notes, to investors to obtain the capital needed to grow and expand its operations. When a company issues a bond, the investors that purchase the bond are lenders who are either retail or institutional investors that provide the company with debt financing. The amount of the investment loan—also known as the principal—must be paid back at some agreed date in the future. If the company goes bankrupt, lenders have a higher claim on any liquidated assets than shareholders.

1.3. THE SIGNIFICANCE OF FINANCE FOR COMPANIES

Finances is the part of any company that needs money to creating budgets, analyzing investment systems, and many other things that determine the smooth running of a company.¹⁷

- Finance is the process of managing an organization's money. The purpose of finance in companies is, also, to ensure that a business has adequate operating funds and that it is spending and investing its money carefully, wisely, and effectively. The importance of finance in companies is in the ability to ensure that a company operates without any financial hiccups like running short of cash, and at the same time making sure, that funds are secure and well invested for long-term gains.
- All companies are run on money, and finance is there to help them make smart and wise financial decisions concerning long-term funding strategies as well as cash flow. By learning more about finance, using the money that company have in her business, and how to get even more capital when company need it, the profitability of organization will improve, and will increase the potential to leverage more opportunities.

Importance of finance for companies is inescapable part of any company and efficient financial decisions are essential for success and growth since it involves the management of financial activities and financial resources of the company. When companies increase and hire a greater number of individuals, it benefits a grouped community and plays a vital role in the economy of the country as well. An increase in the number of companies, also, lead to increase in government revenues through direct taxes or indirect taxes.¹⁸

Companies finance is essentially concerned with the process of maximizing shareholder value by implementing various strategies through long term and short term financial planning. It mainly consists of capital investment decisions to investment banking decisions. The principles of finance involves issues such as determining how to value a stock, cost of capital, and time value of money.¹⁹

- The concept of companies finance is to make smart investment decisions by implementing various strategies through long term and short term planning. Some very important concepts of corporate finance are real options analysis, cost benefit analysis, financial analysis, and financial ratio.
- Real options analysis helps by evaluating the call and put options which are helpful in making long term capital investment decisions. Cost benefit analysis helps

¹⁷ Nordqvist, C., (2020), The Importance of Finance in Business, <https://marketbusinessnews.com> ›

¹⁸ Significance / Importance of Business Finance, (2022), <https://wikifinancepedia.com> ›

¹⁹ Importance Of Corporate Finance - 864 Words | 123 Help Me. (2022), <https://www.123helpme.com> ›

determine the total input in a project and receive results from that project which leads to identifying the options where the investments can be made.

1.3.1. Strategic planning and budgeting

A companies needs to have both a strategic plan and a budget. The strategic plan lays out the direction and goals of the business and guidelines for actions to achieve those goals, while the budget looks at the money needed to support achieving those goals. Budgeting is only one part of the strategic planning process.²⁰

- Many approaches to strategic planning are available. One approach is to start with a strategic analysis of where the organization is now, including its strengths and weaknesses and the economic, social, political and technical environment in which the business operates. The next step is to decide what direction the company wants to head; this process may involve developing a mission statement or strategic philosophy and setting goals. The next step is to identify tactics or action steps for achieving strategic goals.
- A budget is a forecast of all income and expenses, and helps a business identify future financial needs and plan based on expected profit, expenses and cash flow. If a business doesn't have the budget to support its strategic plan, the business needs to either modify its plan or find the financial means to support the plan.
 - ✓ Budgets cover a certain period of time. Most businesses develop monthly, quarterly and annual budgets. The "Entrepreneur Small Business Encyclopedia" recommends developing budgets that cover at least the next three years, and preferably five years.
 - ✓ Budgets can be periodically updated based on current information; however, "Entrepreneur" warns businesses against getting so caught up in the budget process that they forget to keep doing business.

1.3.2. Equity or loan

To raise capital for business needs, companies primarily have two types of financing as an option: equity financing and debt financing. Most companies use a combination of debt and equity financing, but there are some distinct advantages to both. Principal among them is that equity financing carries no repayment obligation and provides extra working capital that can be used to grow a business. Debt financing on the other hand does not require giving up a portion of ownership. Companies usually have a choice as to whether to seek debt or equity financing. The choice often depends upon which source of funding is most easily accessible for the company, its cash flow, and how important maintaining control of the company is to its principal owners. The debt-to-equity ratio shows how much of a company's financing is proportionately provided by debt and equity.²¹

- Equity financing involves selling a portion of a company's equity in return for capital. The main advantage of equity financing is that there is no obligation to repay the money acquired through it. Of course, a company's owners want it to be

²⁰ Wiley, C., (2022), What Is the Difference Between a Strategic Plan & a Budget?
<https://smallbusiness.chron.com> ›

²¹ Maverick, J.B., (2022), Equity Financing vs. Debt Financing: What's the Difference?,
<https://www.investopedia.com> ›

successful and provide the equity investors with a good return on their investment, but without required payments or interest charges, as is the case with debt financing. Equity financing places no additional financial burden on the company. Since there are no required monthly payments associated with equity financing, the company has more capital available to invest in growing the business. But that doesn't mean there's no downside to equity financing.

- Debt financing involves the borrowing of money and paying it back with interest. The most common form of debt financing is a loan. Debt financing sometimes comes with restrictions on the company's activities that may prevent it from taking advantage of opportunities outside the realm of its core business. Creditors look favorably upon a relatively low debt-to-equity ratio, which benefits the company if it needs to access additional debt financing in the future.

1.3.3. Cash flow management

Cash flow management is the process of tracking how much money is coming into and out of company: ²²

- Cash flow management helps predict how much money will be available to company in the future. It also helps identify how much money company needs to cover debts, like paying employees and suppliers.
- Cash flow is the term used to describe changes in how much money company has from one point to another. Cash flow management is keeping track of this flow and analyzing any changes to it. Cash flow helps spot trends, prepared for the future, and tackle any problems with cash flow.

Cash flow management is the process of understanding and optimizing the amount of money, cash and non-cash, moving into and out of a company. A positive cash flow is more money coming in than going out, and a negative cash flow is less money coming in than the business needs to cover outgoings: ²³

- To calculate cash flow, a companies takes note of how much cash is available at the beginning and at the end of a specific period. This time period may be a week or a month. The Company will have a positive cash flow if there is more in the account at the end of the period than when the period began; it will have a negative cash flow if there is less cash at the end.
- Getting good at cash flow management is one of the best things that company can do for her business. Not only that, it's a skill that company can carry over into other ventures, as well as in personal finances.

1.3.4. Cash planning and cost control

A cash planning is used internally by companies to estimate cash inflows (receipts) and outflows (disbursements) of cash during a period and the cash balance at the end of a period. In other words, a cash planning means prepare a plan for an organization to obtain and use

²² What is Cash Flow Management | Xero US, <https://www.xero.com › glossary › cash-flow-management>.

²³ Campbell, C., (2022), What is Cash Flow Management + Template and Examples <https://www.shopify.com › ca>.
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resources over a specific period of time. This means an organization must have an idea of where their money is coming from and how it should be spent:²⁴

- Cash planning allows an organization to set a goal and move toward that goal. This is important because each organization has a finite amount of resources and these resources need to be used effectively. Company uses cash planning to manage the cash flows.
- The cash planning allows to company to predict having large amounts of free cash on-hand. Having plenty of cash is great – however, a surplus of cash is often better used to expand and develop areas of an organization. Whether it is a shortfall or surplus, a cash planning is used to allocate cash in the most effective way possible across an organization.

Cost control produces cost savings and it is an essential tool in reducing business and project expenses through cost accounting, budgetary control, financial statement analysis:²⁵

- Cost control is the process of identifying, eliminating or reducing unnecessary business expenses in order to increase profits. Cost control starts with the budgeting process and looks at vendor selection and negotiation, leveraging early payment and volume discounts, using spend management systems, and improving manufacturing or construction efficiency and product quality.
- Cost control reduces costs and expenses by managing budget vs. actual variances by cost center, profit center, department, or project and taking corrective action. Cost control is one step in the cost management process.
- Cost management is a broader term, encompassing estimating methods to forecast resources required and perform cost estimation, budgeting, cash flow forecasting, funding the budget, controlling costs, and performing a post-project evaluation for future cost-saving opportunities. The cost accounting function in a business contributes to the cost management process.

1.3.5. Management of unavoidable risks

Risk management is the practice of proactively managing individual and corporate risks to reduce threats to a minimum and maximize success. Risk management involves the identification, analysis, and response to risk factors that form part of the life of a business:²⁶

- The sources of risks stem from various sources such as financial, legal, management, cyber security, data, or even accidents and natural disasters. With the advent of the digital age, the threats have only multiplied, bringing new challenges such as intellectual property and proprietary data protection into focus.
- Risk transfer (insurance) is one of the most common responses in risk management, offering compensation for specified loss or damage in return for the payment of a premium. In essence, insurance and risk management anticipate the worst-case scenarios, providing a safety net. However, there's more to managing risks than

²⁴ Maclay, K., (2022), Cash Planning - Personal Finance Lab,(2022), <https://www.personalfinancelab.com> › accounting › cash-

²⁵ Cook, B., (2022), Understanding Cost Control, Control Methods and Its Importance, <https://tipalti.com> › cost-control.

²⁶ What Is Risk Management: Definition, Strategies - Axxima, (2022), <https://www.axxima.ca> › blog.

insurance and, if you want to have an unshakable strategy, your business must tackle the challenge from a holistic perspective.

1.4. BUSINESS PLANNING AND DECISION-MAKING SUPPORT

People are constantly making plans or making decisions. A good plan will prepare company better for uncertainty, which can help to ensure the success in the future. Meanwhile, business decisions are constantly being made by managers at each management level. A good decision determines the fail or success of a business operation. No doubt that business planning and decision making are mutual important in a business operation, many factors can contribute to quality planning and decision making. Among all the factors, personal factors and environment factors are the two major topic in today's business world.²⁷

Planning and decision-making are the most important managerial functions, and there are many relations between them. Planning is thinking of doing. Decision-making is a part of planning. Planning is the process of selecting a future course of action, where Decision-making means selecting a course of action:²⁸

- Planning is managerial function where managers are required to establish goals and state the ways and means by which these goals are to be attained. Therefore planning is taken as the foundation for future activities. Planning is deciding in advance what is to be done. Planning is thinking of doing.
- Management every time has to look for planning long-range and short-range future direction by estimating and evaluating the future behavior of the relevant environment and by determining the enterprise's own desired role.
- Plans have two basic components: goals and action statements. Goals represent an end state the targets and results that managers hope to achieve. Action statements represent how an organization goes ahead to attain its goals. Planning is a deliberate and conscious work using which managers determine a future course of action for attaining a specific goal.
- Decision-making is the process of identifying a set of feasible alternatives and choosing a course of action from them. Decision-making is a part of planning. Decision-making is an intermediate-sized set of activities that begins with an identifying problem and ends with choice making or decision giving. Management is constantly influencing the organization's activities and the decision-making process is central to doing it. In the decision-making process, a manager identifies a specific situation and finds the threats and opportunities that it offers.

1.4.1. Providing financial information

To achieve effective financial management, all company areas should use and provide data to obtain thorough knowledge of business operations. One of the main roles of the financial management is to analyze the data and transform it into useful information so that the

²⁷ Business Planning And Decision Making | Bartleby, (2022), <https://www.bartleby.com> > B.

²⁸ Relation between Planning and Decision-Making - iEduNote, (2022), <https://www.iedunote.com> > planning-decision-making-rel.

different corporate areas can evaluate performance against projections, and on this basis make decisions to correct or improve corporate strategy objectives:²⁹

- Financial statements and ratios illustrate key aspects of the performance of any company. This information is not only relevant to creditors and prospective investors but also to the company's management.
- In many cases, a careful analysis of financial indicators can determine the risks or viability of the enterprise over the long term.

1.4.2. Supporting business decision-making

The decision-making process involves identifying a goal, getting the relevant and necessary information, and weighing the alternatives in order to make a decision. The concept sounds simple, yet many people overlook some of the critical stages and risks that occur when making decisions. Wherever possible, it's important to make the best decisions under the circumstances. There are at least four strong benefits to making good decisions:³⁰

- Good decisions last longer. Company will rarely need to revisit a decision that was made using a well thought out process, and it can sometimes last the entire lifespan of an organization.
- Good decisions have impact on internal and external factors. A decision-maker should consider a company holistically. A sound decision won't have one part of the business succeed at the expense of another. Both internal and external factors can affect the decision and the company's road map.
- Good decisions eliminate conflicts of interest. With transparency and stakeholder buy-in during the decision-making process, questions or concerns after the fact become far less likely. The benefits of this process keep the organization on track and focused, and reduce churn.
- Good decisions actually work better overall. Good decisions actually get the decision-maker, department, and company closer to their goal, and solve the initial problem.

PART TWO: THE ROLE AND SIGNIFICANCE OF ACCOUNTING IN COMPANIES

2.1. PURPOSES OF ACCOUNTING

Accounting is a term that describes the process of consolidating financial information to make it clear and understandable for all stakeholders and shareholders. The main goal of accounting is to record and report a company's financial transactions, financial performance, and cash flows:³¹

- Accounting standards improve the reliability of financial statements. The financial statements include the income statement, the balance sheet, the cash flow statement,

²⁹ Financial Information - Doing Company Research, (2022), <https://guides.loc.gov/financ>.

³⁰ Eby, K., (2018), Business Decision-Making Guide | Smartsheet, (2022), <https://www.smartsheet.com/business-decision-making>.

³¹ Powell, S., (2022), Accounting - Overview, Importance, Types, Careers, <https://corporatefinanceinstitute.com/Accounting>.

and the statement of retained earnings. The standardized reporting allows all stakeholders and shareholders to assess the performance of a business. Financial statements need to be transparent, reliable, and accurate.

- Accounting is important as it keeps a systematic record of the organization's financial information. Up-to-date records help users compare current financial information to historical data. With full, consistent, and accurate records, it enables users to assess the performance of a company over a period of time.
- Accounting is especially important for internal users of the organization. Internal users may include the people that plan, organize, and run the organization. The management team needs accounting in making important decisions. Business decisions may range from deciding to pursue geographical expansion to improving operational efficiency.
- Accounting helps to communicate company results to various users. Investors, lenders, and other creditors are the primary external users of accounting information. Investors may be deciding to buy shares in the company, while lenders need to analyze their risk in deciding to lend. It is important for companies to establish credibility with these external users through relevant and reliable accounting information.
- Proper accounting helps organizations ensure accurate reporting of financial assets and liabilities. Tax authorities, such as the U.S. Internal Revenue Service (IRS) and the Canada Revenue Agency (CRA), use standardized accounting financial statements to assess a company's declared gross revenue and net income. The system of accounting helps to ensure that a company's financial statements are legally and accurately reported.

The purpose of accounting is to accumulate and report on financial information about the performance, financial position, and cash flows of a companies. This information is then used to reach decisions about how to manage the business, or invest in it, or lend money to it. Information is accumulated in accounting records with accounting transactions, which are recorded either through such standardized business transactions as customer invoicing or supplier invoices, or through more specialized transactions, known as journal entries.³²

From the illustration presented, and for a straightforward answer, it is clear that the ultimate purpose of accounting is to provide information to different users. The users utilize the information in making economic decisions.³³

- Accounting is a service activity. Its function is to provide quantitative information, primarily financial in nature, about economic entities that is intended to be useful in making economic decisions, in making reasoned choices among alternative courses of action.
- Accounting is the process of identifying, measuring and communicating economic information to permit informed judgment and decision by users of the information.

The primary purpose of accounting is to provide the information that is needed for sound economic decision making. The main purpose of financial accounting is to prepare financial statements that provide information about organization. Preparation of statement is

³² The purpose of accounting - AccountingTools, (2022), <https://www.accountingtools.com> ›

³³ Purpose of Accounting - Accountingverse, (22022), <https://www.accountingverse.com> ›

basic to financial accounting; they are also called General Purpose Financial Statements, because they serve the purpose of several users of financial statement. Accountants basically prepare four financial statements for meeting decision makers need. Following are four financial statements:³⁴

- Income Statement,
- Statement of Retained Earning,
- Balance Sheet,
- Statement of Cash Flow.

2.2. TYPES OF ACCOUNTING IN COMPANIES

Generally, accounting refers to the process of gathering, analyzing, and reporting financial data. However, there are different types of accounting, each with its own objective. A company might use this data to gain internal insights into the business's financial health. They could also use this data for reporting to external parties—such as potential business investors, regulatory agencies, or tax collectors. Common accounting types are:³⁵

- Financial accounting,
- Managerial accounting.

2.2.1. Financial accounting

Financial accounting records, summarizes and reports a company's business transactions through financial statements. These include the income statement, the balance sheet, the cash flow statement and the statement of retained earnings. These financial reports provide insight into a company's performance to its creditors, investors and tax authorities. There are two types of financial accounting: cash accounting and accrual accounting:³⁶

- *Cash accounting* - Cash accounting focuses on business transactions involving cash. Using the cash accounting method, a company bookkeeper debits and credits the cash account in each journal entry. Transactions with no monetary input are not included in the financial statements. With this method, bookkeepers debit and credit the cash account in each journal entry depending on the transaction. For example, when recording customer remittances, the bookkeeper debits the cash account and credits the sales revenue account.
- *Accrual accounting* - Accrual accounting records transactional data. The cash accounting method is used, but accrual accounting accounts for all transactions that make up a company's operating activities. Using the accrual method, revenue and expenses are recorded when a transaction occurs, rather than when payment is received or made. The terms "accounts payable" and "accounts receivable" illustrate the concept of accrual. Accounts payable is money owed by a business to vendors. Payables accrue until the business settles the underlying debt. Accounts receivable represents money that is owed by clients to the business. As with accounts payable,

³⁴ Purpose of Accounting - Accountancy Knowledge, (2022), <https://www.accountancyknowledge.com> ›

³⁵ The Main Types of Accounting Explained - Upwork, (2022), <https://www.upwork.com> › ty.

³⁶ Uzialko, C., (2022), Types of Accounting Methods - businessnewsdaily.com, <https://www.businessnewsdaily.com> ›

the debt owed to the company accrues until payment is made by the client and the debt is subsequently satisfied.

Financial accounting involves capturing and summarizing all of a business's financial transactions and creating reports to provide a clear overview of those business transactions. Financial accounting also generate financial records that provide valuable information about a company's fiscal health, such as balance sheets, cash flow statements, and income statements. Financial accounting is always focused on past performance, not the future.³⁷

- The statements created by financial accounting are useful for internal purposes, providing business executives with a clear snapshot of a company's performance. Creditors who have loaned business money and tax authorities like the Internal Revenue Service (IRS) may also request such statements in audits. Finally, companies that are traded publicly must issue statements in line with the International Financial Reporting Standards (IFRS) that investors can access.
- Since a company's financial statements can be used for official purposes, financial accounting experts must stick to strict guidelines as outlined by the Generally Accepted Accounting Principles (GAAP). These guidelines ensure consistent financial reporting across companies and are set by the Financial Accounting Standards Board (FASB).

2.2.2. Managerial Accounting

The main objective of managerial accounting is to maximize profit and minimize losses. It identifies, measures, analyzes, interprets and communicates financial information to management. This information assists business owners managers in making well-informed decisions. Some examples of managerial accounting techniques include:³⁸

- *Margin analysis*: This technique explores optimizing production. It involves calculating the break-even point and determining the optimal sales mix for the company's products.
- *Constraint analysis*: This analysis helps identify inefficiencies and their impact on the company's ability to generate profits.
- *Capital budgeting*: This technique analyzes information required to make necessary decisions related to expenditures. Managerial accountants present their findings to owners and managers to help with budgeting decisions.
- *Trend analysis and forecasting*: Trend analysis and forecasting identifies patterns and trends of product costs and recognizes unusual variances from the forecasted values.

The management accounting is used by businesses to gain greater insights into a company's operations. Since managerial accounting is strictly focused on providing accounting information for internal use, it doesn't have to stick to the same strict GAAP guidelines as financial accounting. Rather, it focuses on things like financial analysis, budgeting, and cost analysis.³⁹

³⁷ The Main Types of Accounting Explained - Upwork, (2022), <https://www.upwork.com> › ty.

³⁸ Uzialko, C., (2022), Types of Accounting Methods - businessnewsdaily.com, <https://www.businessnewsdaily.com> ›

³⁹ The Main Types of Accounting Explained - Upwork, (2022), <https://www.upwork.com> › ty.

- By analyzing past financials and forecasting future outcomes—for example, how much a company could cut expenditures by switching software providers—managerial accounting provide companies owners with the data they need to make savvy business decisions. Generally, the emphasis is on strategic management, risk management, or performance management. It depends on what kind of data business owners and investors want.
- Techniques commonly used by management accounting include margin analysis, capital budgeting, and constraint analysis. Trend analysis—which identifies patterns in business expenditures over time—is also useful. Ultimately, the primary goal of managerial accounting is to improve business outcomes by ramping up profits and minimizing losses.

2.3. ROLE OF ACCOUNTING IN COMPANIES

The role of accounting is to provide financial information to the stakeholders of the business: management, investors and creditors. Accounting measures and summarizes the activities of the company and communicates the results to management and other interested parties. Managers need accurate and timely financial data to make intelligent decisions, and accountants are the ones who produce this information. While the accounting process collects the data and presents it in various types of reports, the accountants help interpret the meanings of the reports and suggest ways to use these details to solve business problems.⁴⁰

Accounting is a systematic and detailed recording of all the financial transactions that further help owners, investors, suppliers, etc. in making the right business decision. If companies do not focus on accounting, then it would be challenging for the management to ascertain the financial position of the business. Accounting helps to realize in which direction the business is going. It helps in recording, summarizing, and classifying all the transactions that are related to business.⁴¹

2.3.1. Evaluates business performance

Business performance evaluation is an inseparable management part of a company without which it would be difficult to define the impact of business management decisions, the direction of its activity results and the decisions that must be taken to improve the results.⁴²

- The evaluation of a company's performance is an integral part of the management of every company, which allows determining the impact of business management decisions on the performance results, as well as the direction of the results and the decisions that need to be made to improve them.
- Traditionally, a company's performance is evaluated on the basis of an analysis of financial performance indicators, but it is noted that in today's dynamic business environment the timely control of the performance is crucial, thus, there is an increasing attention on non-financial performance indicators.

⁴⁰ Woodruff, J., (2018), The Role of Accounting in Business <https://smallbusiness.chron.com> ›

⁴¹ Role of accounting in business and why it is important? (2022), <https://www.webdew.com> › r.

⁴² Comparative analysis of company performance evaluation, (2019), <https://hal.archives-ouvertes.fr> › document.

2.3.2. Create budget projections

Accounting helps in creating future projections, which owns the power to make or break business. It helps to evaluate the business trends and projections that will allow to keep operations profitable. In the business world, it's common to hear words like budget, forecast and projection. These financial terms are types of predictions about a company's future financial conditions and goals. Budget projection is a valuable business tool that helps with informed decision making at any level of a business. In this article, we discuss what a budget projection is, why it's important and how to prepare a budget projection:⁴³

- A budget projection analyzes qualitative and quantitative data to develop a long-term prediction of estimated future financial results.
- Companies use budget projections at almost every level of the organization, from sales projections to granular forecasting of a specific product to the overall finances of the entire company.
- Financial terms that can help understand budget forecasting include:
 - ✓ Budget: A budget is an estimate over a specific current time period of revenues, costs and resources reflecting future financial goals and conditions.
 - ✓ Budget forecast: This is a short-term estimate (one to four quarters out) of financial goals and conditions using quantitative data.
 - ✓ Budget projection: A budget projection is a long-term estimate (one or more years) of financial goals and conditions using qualitative and quantitative data.

2.3.3. Maintain financial statements

Accounting also helps in maintaining financial statements. Every company needs to file its financial statement for tax filing purposes. If any company have a proper record of her business finances, then can easily resolve all the scenarios and hit the targets:⁴⁴

- Keeping accurate and up-to-date records is vital to the success of companies. Good records help to minimise losses, manage cash, meet any legal, regulatory and taxation authority requirements and improve financial analytics.
- Record keeping is how is log, store and dispose of important financial information for company business. Records are:
 - ✓ source documents, both physical and electronic, that show transaction dates and amounts,
 - ✓ contracts and other legal documents,
 - ✓ private customer and business details.

2.3.4. Ensure statutory compliance

Companies need statutory compliance so that their accounting system gets validated in different laws and regulations. All the liabilities, such as income tax, sales tax, pensions,

⁴³ Budget Projection: Definition, Importance and Preparation, (2022), <https://www.indeed.com> › bu.

⁴⁴ Financial record keeping - Business Queensland, (2022), <https://www.business.qld.gov.au> › finance › essentials › re.

employee funds, etc., can easily be addressed, for which is needed to have a structured accounting system. Statutory compliance essentially implies an organization's adherence to laws and regulations. A statutorily compliant business benefits in the following ways:⁴⁵

- Avoiding penalties and legal issues – Complying with rules and regulations avoids problems such as penalties, license revocation, lawsuits, business shutdown, and so on.
- Higher employee engagement – Compliance with labor and employee laws indicates a work environment that is safe, professional, and employee-friendly.
- Quality improvements – Statutory compliance prevents potential risks associated with non-compliance and ensures the quality of products and services.
- Boosts employee morale – Fully compliant businesses build an atmosphere of goodwill and reliability, enhancing the spirit of the workforce.
- Improved business operations – Focus and resources can be directed towards high-priority business activities.
- Brand loyalty and better public relations – A dedication to high ethical standards reflect fair and transparent business operations and fosters trust in customers.
- More business opportunities – Companies having a strong reputation for statutory compliance attract investors and other businesses seeking partnerships.

2.4. IMPORTANCE OF ACCOUNTING IN COMPANIES

Accounting is an essential part of running a company, whether big or small. It is the process and method of recording, analysing, summarising, and extracting reports about the transactions of an organization or company. Accounting the company's transactions makes the financial dealings easy and transparent to track and understand. It helps all the stakeholders easily understand the transactions, cash flows and financial performance of the company:⁴⁶

- Accounting records the details of the business transactions of the company in the books of accounts. These records are essential for the owners, investors, managers and other stakeholders in a company to have the ability to view and evaluate the financial details of the business. It is only when there is a precise and accurate record of every transaction that the overall financial performance of the business can be studied. The books of accounts can be summarised into reports that tell the stakeholders about:
 - ✓ Profit and loss,
 - ✓ Cost and earnings,
 - ✓ Liabilities and assets.
- The ability to measure these aspects of a business is essential for planning and decision making in the company. Financial records are also required to be in compliance with the tax reporting and other requirements of government agencies. Financial records are required at various levels of management to manage and control the operations of the company.

⁴⁵ Ensuring Statutory Compliance For Business Growth - BSH, (2022), <https://bshsoft.com> › Blog.

⁴⁶ Why is Accounting Important for Business - Tally Solutions, (2022), <https://tallysolutions.com> › w.

2.4.1. Keeps a record of business transactions

At the simplest level, financial accounting is the recording of the transactions of a business. This day-to-day recording process is the basis of the entire financial accounting system. When transactions are recorded, you are able to look up and retrieve details about a specific transaction whenever you need to. Company can also easily compare current data to historic data to see trends. Financial accounting enables to study and measure the performance of a business over a period of time.

2.4.2. Facilitates decision-making for management

Financial accounting records help drive decision making at all levels of the organization. Every level of management uses the financial data pertaining to their scope of operations in order to make decisions. These decisions could be as simple as determining which supplier is more cost-effective. Managers use these reports to make the operations more efficient and profitable. Financial accounting reports could also be used to make major decisions such as extending the operations of the company to another location. Accurate reporting also makes it easier for the management to avoid losses and mismanagement.

2.4.3. Communicates results

Financial accounting reports quantify and measure the success and failure of a company in monetary terms. Business owners can ascertain exactly how much profit or loss the business has made over a period of time. Key performance indicators (KPIs) can measure different aspects of business performance. These KPIs can be studied over a period of time to study the past performance of the business. It can also be used to compare companies with each other. Regular monitoring of reports helps the business owner identify bottlenecks and potential problems and address them before they become a bigger problem.

PART THREE: THE ROLE AND SIGNIFICANCE OF FINANCIAL MATHEMATICS IN COMPANIES

3.1. DEFINING FINANCIAL MATHEMATICS

Financial Mathematics is the application of mathematical methods to financial problems. (Equivalent names sometimes used are quantitative finance, financial engineering, mathematical finance, and computational finance.) It draws on tools from probability, statistics, stochastic processes, and economic theory. Traditionally, investment banks, commercial banks, hedge funds, insurance companies, corporate treasuries, and regulatory agencies apply the methods of financial mathematics to such problems as derivative securities valuation, portfolio structuring, risk management, and scenario simulation. Industries that rely on commodities (e.g. energy, manufacturing) also use financial mathematics. Quantitative analysis has brought efficiency and rigor to financial markets and to the investment process and is becoming increasingly important in regulatory concerns.⁴⁷

Financial mathematics focuses on applying mathematical formulas and equations to financial problems, market modeling and data analysis. With this strategy, financial professionals can better understand business performance, including profitability and growth

⁴⁷ What is Financial Math, (2022), <https://financial.math.ncsu.edu/what-is-financial-math>.

potential. Financial mathematics is a branch of mathematics that focuses on analyzing data, solving problems and modeling financial markets. Financial mathematics is used in many industries and there are many potential applications in financial mathematics including:⁴⁸

- ✓ Economics: Economics is the study of how businesses or consumers produce and consume goods and services, including the supply and demand of goods.
- ✓ Statistics: Statistics is the study of data, including data analysis.
- ✓ Probability: Probability is the likelihood of an event occurring in mathematic terms like percentages.

3.2. USERS OF FINANCIAL MATHEMATICS

Professionals in many roles and institutions use financial mathematics. Some institutions that may prioritize this strategy include investment and commercial banks, insurance companies and more. Here are some types of roles for those interested in applying mathematical strategy to finance:⁴⁹

- *Financial analysts*: Financial analysts are responsible for analyzing financial data to identify potential financial opportunities or risks. Financial analysts typically have degrees in math or finance.
- *Data scientists*: Data scientists are responsible for analyzing a variety of data to spot patterns and trends. Data scientists often have degrees in math, statistics, computer science or economics.
- *Business intelligence analysts*: A business intelligence analyst is a financial professional who analyzes data to prepare financial reports that can help companies use patterns and trends to make decisions. Business intelligence analysts usually have degrees in business administration, computer science or statistics.
- *Bankers*: Bankers are responsible for helping clients make financial decisions, including saving and investing. Often, bankers have degrees in finance, economics, accounting or other business-related degree.

3.3. APPLICATIONS OF FINANCIAL MATHEMATICS

Financial mathematics is common across many industries, and there are several real-world applications of financial math, including:

- Risk management,
- Data mining,
- Stock trading,
- Econometrics,
- Forecasting,
- Marketing,
- Inventory management,

⁴⁸ Financial Mathematics: Definition and Real-World Applications, (2021), <https://www.indeed.com> ›

⁴⁹ Financial Mathematics: Definition and Real-World Applications, (2021), <https://www.indeed.com> ›

- Investing strategies.

3.3.1. Risk management

One application for financial mathematics is risk management. Using this strategy can help professionals identify and manage financial risks. Financial analysts often use mathematics to analyze market data, find patterns in data and predict risks. Financial risks can fall under these categories:

- ✓ *Market risk*: Market risk refers to financial risks in the company's target market, including market changes. Financial mathematics can help companies analyze their target market and predict changes to reduce risks.
- ✓ *Operational risk*: Operational risk includes risks that arise from a company's internal factors, including processes and employees as well as external events affecting operations. Financial mathematics can help companies analyze their finances to prepare for and mitigate operational risk.
- ✓ *Credit risk*: Credit risk refers to risks associated with loans and contracts, including being unable to pay back loans or fulfill contracts. Companies can use financial mathematics to make smart decisions on loans and contracts to reduce credit risk.
- ✓ *Liquidity risk*: Liquidity risk includes short-term and long-term funding risks that can cause a company to be unable to fulfill financial costs. By analyzing their budgets and predicting expenses, companies can use financial mathematics to help reduce liquidity risk.

3.3.2. Data mining

Data mining is another application for financial mathematics. Data mining is the process of identifying patterns and anomalies in data in order to make predictions. There are many uses for data mining, including managing financial risks, decreasing expenses and more. Professionals can use data mining across a variety of industries, including insurance, manufacturing, banking, technology and retail.

3.3.3. Stock trading

Financial mathematics is also applicable to stock trading. Stock trading is the buying and selling of stocks in an effort to capitalize on changing markets. Understanding financial mathematics can help traders analyze financial data to make predictions and choose the right stocks to buy and sell.

3.3.4. Econometrics

Financial mathematics can also apply to econometrics. Econometrics involves analyzing and interpreting economic data to forecast future market trends. Econometrics can help companies plan for their futures, including how they determine and allocate their budgets. Typically, econometrics focuses on the relationships between financial data and variables.

3.3.5. Forecasting

Understanding financial mathematics is also valuable for forecasting. Forecasting is using existing data to generate predictions on future events, including sales, demand and other market factors. There are many types of forecasting, including qualitative and quantitative forecasting. Accurate forecasting can help companies make smart financial decisions that can contribute to their overall success.

3.3.6. Marketing

Financial mathematics can also inform a company's marketing strategies. When company forecast market demand, company can determine when should launch marketing campaigns and which products should market the most. This can allow to create effective marketing strategies that have the largest possible impact.

3.3.7. Inventory management

Financial mathematics is also useful in inventory management. Forecasting market demand can allow you to determine how much inventory to keep on hand and when you need to increase your inventory. There are many methods of inventory management, and understanding financial mathematics can help inventory managers make smart business decisions about inventory.

3.3.8. Investing strategies

Financial mathematics can also be applied to investing strategies. Understanding how to analyze data and make predictions can help you make smart investments. Often, investment bankers use financial mathematics to make investments and manage portfolios.

3.4. RELATIONSHIP OF FINANCIAL MATHEMATICS AND FINANCE

Financial mathematics is the product of applying mathematics to portfolio selection theory and option pricing theory. With the rapid development of the economic situation, the products and derivatives of the financial industry are constantly optimized and innovative, and new financial products and services are gradually increasing. The operation of financial markets, the design and pricing of financial derivatives, and the analysis and management of risk become very important, and the research and development of financial mathematics is becoming more and more important.⁵⁰

Financial mathematics are mathematics and use financial objects in mathematical reasoning to obtain theoretical results of mathematical significance. Finance is the use of mathematical tools in finance in order to serve realistic goals, focus on adequacy with data or solve numerical issues. Financial mathematics comes from math and research on mathematical concepts in the field of finance and economy, whereas finances denotes financial affairs which have a great tendency to use the mathematical methods.⁵¹

⁵⁰ Three Important Applications of Mathematics in Financial Mathematics, (2022), <https://www.scirp.org › journal › paperinformation>.

⁵¹ Is there any difference between financial mathematics and finance, (2022), <https://www.researchgate.net> ›

Relationship between finance and mathematics is based on the use of financial mathematics in solving financial problems using mathematical models:⁵²

- Mathematical models can be used for quantitative analysis of most objective problems, especially in the field of finance. At present, mathematical models have become a tool used by professionals in the financial field. Therefore, with the continuous development of science and technology economy and the continuous innovation of mathematical models, there are constantly new challenges in solving financial problems based on mathematical models.
- Mathematical models play an important role in studying many specific financial problems. In the field of financial research, it is a very effective method to analyze and solve financial problems by establishing the corresponding mathematical model based on the functional relationship between variables. With the help of mathematical models, we can analyze financial problems in a more scientific way, to seek effective solutions to financial problems. Through the reasonable application of mathematical models, the analysis of financial problems can be more clear, theoretical verification more specific, and calculation and solution more convenient.
- The aim of this Special Issue is to bring together original research articles and review articles in the field of mathematical model-based analysis of financial problems (e.g., financial credit, securities trading, internet financial security, risk supervision, bond investment, insurance, accounting, etc.).

3.5. RELATIONSHIP OF FINANCIAL MATHEMATICS AND ACCOUNTING

Accounting and Mathematics are closely related. Accounting is the language of business. On the other hand, Mathematics is the language of Accounting. At different stages of accounting addition, subtraction, multiplication, and division of arithmetic are applied. Accounting expresses all its transactions and events of financial changes in the language of mathematics. At all stages of accounting i.e. in preparing journal, ledger, trial balance, and financial statements mathematical principles are applied. For this reason, the processes of keeping accounts become easy and short. So, Mathematics is an indispensable part of Accounting.⁵³

Mathematics is a subject which can be defined as the science of numbers and their operations, generalizations, interrelations, combinations, abstractions, measurements and transformations. The definition of accounting is given as the measurement, communications and processing of financial information about the entities of economics like business and corporations. Accounting is also known as the language of business.⁵⁴

- The relationship between mathematics is given that accounting is an application of elementary arithmetic which is a part of mathematics. Accounting is nothing but a comprehensive discipline of measuring, identifying and communicating a business's economic health. Accounting equation is actually used to express the core concept of accounting. Some accounting calculations like determination of loan instalment,

⁵² Analysis of Financial Problems Based on Mathematical Models, (2022), <https://www.hindawi.com> › j.

⁵³ Accounting's Relation with Other Disciplines (Explained), (2022), <https://www.iedunote.com> › accounting-relation-other-dis.

⁵⁴ Relationship between Mathematics and Accounting - Medium, (2018), <https://medium.com> › relation.

computation of depreciation, determination of cash prize, etc. requires mathematical techniques.

- Not much maths is required for accounting, but accounting includes basic mathematics like small amount of basic algebra and working knowledge of arithmetic allows in finishing the preliminary accounting course successfully because accounting information consists of numerical data.

Mathematics is related to accounting. Accounting is defined as a ‘process of collecting, measuring, analysing and communicating information to and decision making within the business and other organisations’, mathematics is defined as ‘the science that studies and explains numbers quantities, measurements, and the relations between them’. The majority of accounting definitions assert that accounting requires numerical and analytical skills which are also integral elements of mathematics.⁵⁵

Accounting is the process of collecting, measuring, analysing and communicating information to aid decision making within business and other organisations. Mathematics incorporates successful explorations of numerical, geometrical and logical relationships.. Not much maths is required for accounting, but accounting includes basic mathematics.⁵⁶

CONCLUSION

Finance and accounting are part of the same field, companies need to be aware of these two terms. Accounting is all about numbers and financial statements, while finance focuses on how money flows through a company. Finance is a large part of a company’s operations. Finance includes activities such as acquiring and managing capital, which can consist of both the money that is invested into your company by shareholders or loans from other entities like banks. The finance department also manages cash flow, preparing budgets for management to review and decide how much should be spent in specific departments per month.

Accounting is a business function focused on keeping track of the company’s financial information. Accounting prepare all necessary reports for internal and external communications, such as annual tax returns or reporting to shareholders. The accounting department also handles all banking transactions within a company: deposits, withdrawals, transfers between accounts, etc.

Accounting and finance play an essential role in the management of any business. Companies operate on money, and if they don't control that money, they don't control business. By properly accounting for company's income and expenses, company can manage the flow of money and thereby direct the course of her business.

Companies use mathematics in accounting, inventory management, marketing, sales forecasting, and financial analysis. It helps them know the financial formulas, fractions; measurements involved in interest calculation, hire rates, salary calculation, tax calculation etc.

Mathematics is an important part of managing business. Business and mathematics go hand in hand this is because business deals with money and money encompasses everything in itself. There is a need for everyone to manage money as some point or the other to take decisions which requires everyone to know mathematics. Finance mathematics is used by

⁵⁵ Mkhize, V. M., (2017), Transdisciplinary relationship between mathematics and accounting, .[https://td-sa.net > article > view](https://td-sa.net/article/view).

⁵⁶ What Is The Relation Of Mathematics And Accounting?, (2022)< <https://questionanswer.io> > w.

companies to record and manage business operations. Companies use mathematics in accounting, inventory management, marketing, sales forecasting, and financial analysis.

Companies are always surrounded with challenges which need to be dealt with in a proper fashion so that they do not arise in future. These problems that occur on a daily basis can be effectively solved with the help of mathematical models. Hence mathematics not only helps to calculate but also analyze business problems and work upon them.

IV USE OF THE SCIENTIFIC AND PRACTICAL RESULTS

1. Proposal for acceptance and development of the role of finance, accounting and mathematics in companies.
2. Acceptance of the importance of finance, accounting and mathematics in companies is suggested.
3. Proposed activities for increasing the role of finance, accounting and mathematics in companies.
4. Proposal for improving the functioning of finance, accounting and mathematics in companies.
5. Developed measures to improve the functioning of finance, accounting and mathematics in companies.
6. Proposed and designed activities to improve the system of finance, accounting and mathematics in companies.

Guidelines are given to improve coordination and cooperation between the separate departments of finance, accounting and mathematics in companies.

LIST OF PUBLICATIONS RELATED TO THE DISSERTATION

1. Ardit Haxhija, MSc, **The role and significance of finance in companies**
2. Ardit Haxhija, MSc, **The role and significance of accounting in companies**
3. Ardit Haxhija, MSc, **The role and significance of financial mathematics in companies**

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DECLARATION OF ORIGINALITY AND TRUST

(according to Art. 27, paragraph 2 of the ZP of ZRASRB)

By **Ardit Haxhija, MSc**, self-study PhD student at the Finance Department of Higher School of Insurance and Finance (BCYΦ) - Sofia.

I declare that the dissertation presented by me on the topic, **The role and significance of finance, accounting and financial mathematics in companies**, for awarding the educational and scientific diploma "Doctor" is an original paper and contains results obtained from my research, with the support and help of my supervisor.

I declare that the results obtained, described and / or published by other scientists are properly cited in the bibliography, subject to copyright requirements.

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I declare that the dissertation has not been presented at other universities, institutes and other higher education institutions for obtaining an educational and scientific diploma.

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