Analyzing the relationship between capital structure and profitability of organizations: A case of the UK Pharmaceutical Industry

Abstract

The research that has been conducted, has focused on the specific identification of the relationship that exists between the structure of the capital and hence significantly analyses the profitability aspect that is associated with the organisation. For the establishment of the study in a congruent manner, the case study of the UK Pharma industry has been taken into consideration. As per the topic of the research, the UK markets in dire need to establish a confined relationship between the flexibility of the financial resources and the structure of the organisation. Additionally, discussion on the several factors that determine the rapid growth reasons are also presented in the study. The study has majorly focused on integration and work of factors like, "Gross profit margin, net profit margin and operating margins of profit" based on which the chapter of Literature Review is formulated. In this chapter, considering the pivotal parts of the topic, relevant themes have been generated based on which analysis of the themes have been ideally generated. The chapter of methodology, consists in details of the different types of methods that has been considered for the formulation of the study and hence have helped in articulating the study significantly. The chapters on context and analysis have presented details on different companies coming under the Pharma industry, and discussion on the individual gearing ratio and ROA, has been pivotally focused for the successful completion of the study. The chapter of analysis discusses on the pivotal points and therefore based on that, the hypothesis has been discussed in terms to the regression valuation. Lastly, the chapter on conclusion provides the needed dimensions on discussion of the entire study hence justifying the inter relationship of the objectives with the topic.

Acknowledgment

I am grateful to the forces in the Universe, set in motion to guide me forth on this path in search of knowledge.

I would like to thank my family, in particular my father João Velez Aires, my mother Edite Cruz Santana, my wife Elvira Medeiros José and my chidren, for their continued support, love and inspiration.

I also would like to convey my sincere gratitude to my lecturers, Tushara Balendran, Konstantina Mari and Charles Oham. I also want to thank the programme manager, Dr. Gladius Kulothugan and the university Dean, Dr. Audsin Dhas, for their teachings, support and motivation and to provide me with the tools and knowledge to conduct this research.

I am significantly grateful to my dissertation supervisor, Dr. Jia Miao, who have guided me throughout and provided necessary feedback and support to accomplish the project within the scope and stipulated time span. The accomplishment of this research has significantly enhanced my capabilities as well as my skills and it has also been a rewarding journey.

Sincerely yours,

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Chapter 1: Introduction

1.1 Research Title

The title of the research provides a specific identity to the research work, and it is quite essential for providing an appropriate aim to the researcher to carry out the research process in order to accomplish the task. The title of this particular research is "Analyzing the relationship between capital structure and profitability of organizations: A case of the UK Pharmaceutical Industry".

1.2 Research Background

The capital structure indicates the sum of both long-term as well as short-term debts of a company along with common stock and preferred stock. The determination of the equity of the business is also a part of the calculation of the net capital structure for a business. Analysis of the capital structure is one of the basic requirements for every business organization to run different business functions successfully. This is due to the reason that it enables the business organization to get detailed information about the debt as well as equity ratios which are essential factors that determine the success rate of a business (Ngatno *et al*. 2021). But often business organizations fail to give proper emphasis on the analysis of the debt and equity ratios which leads to drastic consequences. Thus, it can be said that proper capital structure analysis of a business is a strong determinant of its success, and if any organization fails to provide proper attention to the determination of the capital structure, it can face an existential crisis.

This is due to the fact that the assets and rate of expenditure which the present financial status of the organization can support are based on its capital structure. Moreover, depending on the assessment of the capital structure of an organization, the financial operations required for running a business, such as funding are highly dependent (PeiZhi and Ramzan, 2020). Like any other business sector, the pharmaceutical firms of the UK are no exception to this, hence, analysis of the capital structure is also quite important for the businesses to progress.

For the conduction of the research study, the pharmaceutical sector of the UK is chosen as this particular sector is showing rapid growth which is helpful for the enhancement of the business share of the firm in the business market. Depending on the changes in consumer requirements, the spending habit of the customers also alters and as a result of this, in 2021, the net spending of the customers for buying pharmaceutical products was reported as £11 billion (statista.com,

2023). Thus, it can be understood that the pharmaceutical industry of the UK has a good prospect in the UK market to grow further. For this, the pharmaceutical industry of the UK needs to properly channelize the financial resources as without which the achievement of success for an organization is not possible. It is the reason that the efficient assessment of the financial resources can make the company quite aware of its own financial situation (Dao and Ta, 2020). This in turn, can provide the pharmaceutical industry of the UK with the knowledge to understand the flexibility of the financial structure of the business organization, based on which the companies can invest further in the business market to cope with the change in trends or changes in the customer's demands.

There are several factors that are considered the major determinants of capital structure for a business and these are as follows- the rate of risk, capital cost, rate of flexibility, growth, sales as well as inflation. Cash flow is also another important factor that can influence the capital structure of a firm. For running a business organization successfully, it is quite essential for an organization to give pepper emphasize monitoring the changes in the factors that can influence the capital structure of a business (Alkaraan *et al*. 2022). Since the pharmaceutical industry of the UK is rapidly growing, it is necessary to focus on the influencing factors of cash structures and the research work depicted below can throw light on this particular aspect.

Every business organization aims the maximization of the profit percentage in order to survive in the highly competitive corporate market. This is due to the reason enhancement of profitability can increase the scope of the business to invest in different modern technologies which in turn can increase its performance rate (Martinez *et al*. 2019). Thus, the organization can be able to get a competitive advantage in the business market which in turn can assist the organization to develop or grow optimally, and in this respect, the pharmaceutical industry of the UK is no exception. The profit percentage can be increased by focusing on the minimization of expenditure and proper utilization of financial resources. Moreover, by understanding the inter-relationship between capital structure and profitability, an organization can also be able to increase its survivability in the market (Yameen *et al*. 2019). The profitability of a firm can be improved only if the debt, as well as equity of a firm, can be combined in order to reduce the net capital cost of the business. This in the long run is responsible for the increase in the valuation of the firm in the corporate market which can be advantageous for the business organization to cope with the harsh corporate market (Asiaei *et al*. 2020). Through this research study, in-depth knowledge about “gross profit margin, net profit margin, operating profit

margin, and ROE" can be obtained which can aid in the determination of the relationship of these factors with gearing with special emphasis on the pharmaceutical industry of the UK.

1.3 Research Rationale

The research intends to determine as well as analyze the relationship between capital structure along with the profitability of business organizations in the UK, with special emphasis on the pharmaceutical industry. This is undoubtedly one of the greatest determinants of success for an organization as based on the capital structure, a business organization can be able to know its debt and equity required for analyzing its assets and operations. The capital structure depicting equity can represent the financial flexibility of an organization which is required for the achievement of success by the firm.

The determination of debt and equity rates of an organization is one of the most essential tasks as it can help in the determination of the financial stability as well as the flexibility of the organization. This is crucial for a firm to make its business success, as it can obtain required financial support necessary to run its different business operations. A study on the pharmaceutical industry of the UK shows that in 2020, the industry faced a $1 billion trade deficit which occurred due to buying more items than selling rate (ciip.group.cam.ac.uk, 2023). Thus, analysis of the business assets and requirements for carrying out business operations is quite which is possible through a proper understanding of the relationship among capital structure as well as the profitability of a business organization.

The pharmaceutical market of the UK shows a growth rate of 4.5% in 2022, which is possible as the firms are capable of properly channelizing the financial resources to enhance profitability (innomech.co.uk, 2023). This is possible by the firms as the businesses are giving special emphasis on the analysis of respective capital structure which in turn helps the pharmaceutical firms to bring required modifications in the business plan in order to achieve success and also to sustain better in the competitive business market.

1.4 Research Aim

The research aims in analyzing pharmaceutical industry by determining and analyzing the relationship among capital structure as well as profitability of business organizations. The research also intends to throw light on the significance of capital structure for the growth of an

organization which in turn is a strong determinant of the profitability of any organization and the pharmaceutical sector of the UK.

1.5 Research Objectives

- To analyze the impact of capital structure using ROE, gearing and liquidity ratios
- To analyze the special characteristic of the pharmaceutical sector and its implication on the capital structure

1.6 Research Questions

- What is the impact of capital structure using ROE, gearing and liquidity ratios?
- What is the special characteristic of the pharmaceutical sector and its implication on the capital structure?

1.7. Research Hypothesis

H1: There is a significant relationship between firm's profitability and leverage of the firm.

H2: There is a significant relationship between firm's liquidity and leverage of the firm.

Chapter 2: Literature review

2.1 Introduction

A “Capital Structure” is the equation of “debt and equity” that is required for an organization to establish itself in the economy of business enterprises. The capital performs as a “security” for the organization in the initial phases of establishment and at the same time, during the existence of the respective business as well (Sadiq *et al.* 2021). There is a prominent relationship between capital and profit as profitability is required for the organization to grow and that cannot be executed without a proper capital investment in the firm. The relationship between capital and profit will be analyzed and evaluated in the following segment.

2.2 Capital Structure, business performance, profitability, and Liquidity

2.2.1 Relationship between capital structure and business performance

Capital structures serve as among the most complicated aspects of any business or firm's monetary or financial judgment or decision-making processes. According to Hirdinis, (2019), the percentage of a corporation's capitalization, or operational resources, which are generated through loans and equities or mixed liabilities, is referred to as the financial or capital structure in business finances. The capital structure of any business comprises debts, which is a type of loan or type of monetary borrowing that is compulsory to be returned within a certain time period with specific amounts of interest. Another type of capital structure is equity, which refers to the combined ownership of or acquiring shares in a firm where the shareholder has interests. From the opinion of Khan et al. (2019), it can be commented that, these two types of structure are in the debt or loan system, the owner has to pay the whole amount with interest to the lender whereas, in equity, the lender holds some shares of the firm and does not ask for interest. The lender becomes a partner or co-owner of the business and possesses firm control of the business.

A firm's capital structuring choice is made in order to maximize profitability for joint investors. The capital structure that balances risks with profitability while also increasing stock value and lowering capital expenses, is often known as the most effective capital structure of any business. As per Javeed and Lefen, (2019), Debt financing's biggest benefit is that it permits the owners of the organization to keep proprietorship and management. This is a better option for any business as in debt commitments, the loan is allowed for a limited time period, and then it is returned which does not require any equity or shareholdings of the business but in equity

investment, the investor holds claim until his shares are traded. Debt financing is an affordable option for small businesses or startups as they do not have to give their shares to anyone. This also becomes a disadvantage for them as they have to regularly pay a certain amount of interest, which becomes challenging for them. The major advantage of equity capital is that there is no requirement for payment of the investor's capital. Especially for young business entrepreneurs, equity finance partners frequently turn out to be reliable advisors and connectors (Awaysheh *et al.* 2020). The biggest downside of equity funding is that it necessitates considerable company control from the owners.

The concept of "business performance" encompasses a combination of strategies, indices, and equipment for determining and strengthening corporate productivity. According to Soewarno and Tjahjadi, (2020), It is the mechanism of recognizing tangible business objectives or goals and surveilling the development of those goals. Business performance is a broad term that often has one outcome which is whether the business or enterprise is performing well, whether it is successful and growing or not. The business performance of any company or firm is completely linked to, or related to capital structures. The capital structure is the basis of any business, every business or organization, may be small or huge completely depending on its monetary structures. Lim *et al.* (2020) stated that, in any business and the case of startups, it becomes more significant to have efficient prices and strong capital or financial structures which can handle it during the business's peak times as well as if it is facing losses.

When the capital structure is strong, let it be in the form of equities or debts, then the business grows and achieves milestones in the global marketplace. Startups or small businesses when opting for debt and if they are managing to pay their interest to the lenders on time then the business conducts itself without any stress. Similarly, when a startup gets an efficient equity holder or partner who gives finance and also puts his own efforts in order to make the company successful, this also becomes an advantage for the owners. Therefore, the whole business performance, starting from the collection of raw materials, manufacturing process, packaging, distribution, and customer feedback towards the goods and services of the business all depends on its very basics of capital structure. When the business has strong capital structures then it consists of the leverage of employing higher marketing and promotional tools which would enable the business to expand globally. Nowadays, according to Maqbool and Hurrah, (2021), every business is more focused on their marketing and advertisements strategies through which they are able to attract huge masses of customers in different parts of the world, which is only

possible through enough finances and monetary stability of the organization. Therefore, as per the viewpoint of Bhagat and Bolton, (2019), strong and effective capital structures enable a business to attain its key indicators like effectiveness, development in revenues, work opportunities, client satisfaction scores, profitability, and many more.

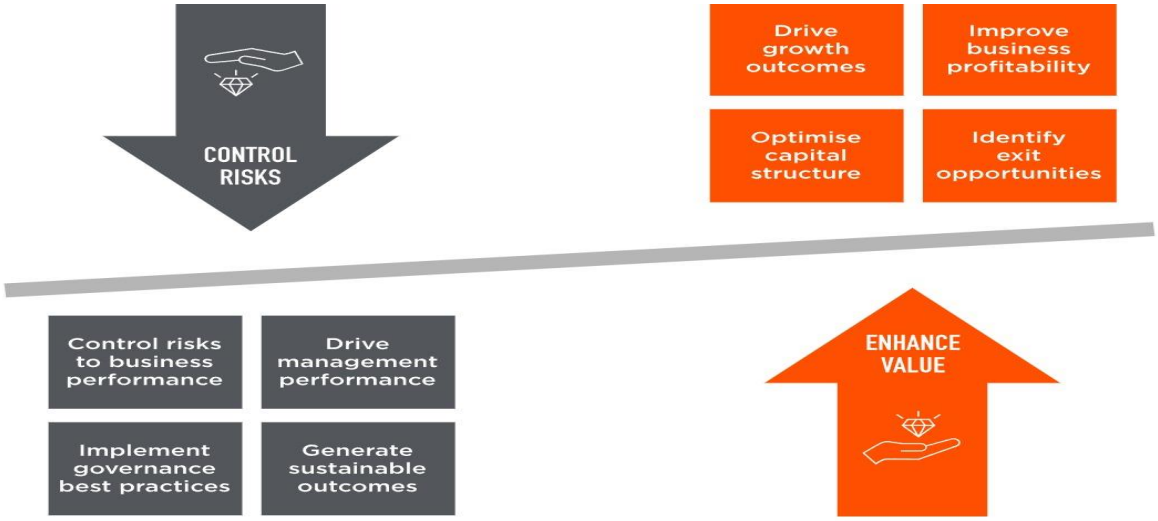

Figure 1: Relation between Capital Structure and business performance

(Source: vantageinfra, 2023)

The capital structure is a prominent requirement for a business to grow. The capital structure is the initial milestone for a business to move forward in the economy. The amount of capital investment forecasts the business on its growth and performance as well.

2.2.2 Profitability and liquidity in capital structure

As per Li *et al.* (2019), it has been observed that the capital structure of an enterprise includes the procurement of funds through equity or debt financing. Debt financing generally refers to the procedure of procuring loans from banks to raise the required funds for operating the business. In the view of Gerwanski, (2020), this type of financing mechanism demands the company to repay the principal amount with interest based on a monthly or annual contract. However, the cost of equity is the procedure of procuring necessary finance by selling shares to obtain investment where the investors are supplied with an annual dividend or a share of the overall profit of the organization.

In several organizations, it has been observed that too much reliance on debt financing reduces the profit of the company. This is because every fixed time the enterprise has to repay the loan to the bank. As per the perspective of Caragnano *et al.* (2020), this affects the net profit of the organization and that is why many companies are inclined toward equity financing. However, in some cases, the debt capital encourages the firms to expand the business to leverage the repayment costs that are addressed to the banks to maintain the net profit which not only helps the corporations to expand their business but also provides an impetus in procuring enhanced revenue which often surpasses the repayment amount thereby generating surplus income for the company. According to Wang *et al.* (2020), payment of interest has the potential to reduce taxes and thus many companies prefer opting for debt financing to reduce the overall tax imposed on the firms thus increasing the profit margin.

Equity financing on the other hand reflects much efficiency in facilitating the adequate procurement of funds without making the company pledge assets or share a large chunk of its income. In the view of Ji *et al.* (2021), this is because the investors expect a minimum percentage of return on investment while securing limited access to the organization's decision-making process which keeps the ownership rights intact. As per Triani and Tarmidi (2019), the payment of such dividends is only shared when the company procures profit that reduces pressure on the enterprise in pledging regular amounts of money. In the view of Raimo *et al.* (2021), compared to equity financing, debt capital represents a legitimate prospect because after paying back the interest charged by the banks, the concerned enterprise retains the net profit, which leaves enough scope for investing it in other operational domains to enhance profits.

Liquidity can be defined as the potential of converting securities or assets of an organization without modifying or altering the price offered in the market. It has been observed that the more liquid a company's specific asset is, the more it reflects the scope of transforming the asset into cash while the tangible resources of the enterprise demonstrate the least scope of such conversion. As per Zhang *et al.* (2023), *the* liquidity ratio on the other hand refers to the enforcement of the financial yardstick of analyzing the capacity of the concerned companies to repay the debts without needing external assistance for raising funds to pay back the loans with a key concentration on the risks associated with the process using three distinct methodologies called 'days-sales outstanding', 'current ratio' as well as the 'quick ratio'.

The 'current ratio' evaluates the capacity of a firm to repay immediate liabilities by using its current overall assets which include inventories, receivable accounts as well as cash. As per Kajola *et al.* (2019), the observed increase in ratio depicts the enhanced debt-returning capacity of the company. However, the quick ratio helps the enterprises assess their potential to repay the short-term debts while the days-sales outstanding helps the firms to identify the duration of days it takes to procure payment of its sales. An enhanced day-sales outstanding ratio indicates that the capital would be entangled with the receivables due to the increased duration of receiving payments.

If analyzed closely, it would be possible to identify that both ‘profitability’ and ‘liquidity’ are associated with the capital-structure prevalent in a company. This is because capital structure liquidity is generally a determination of the company’s efficiency in transforming assets and securities into cash while its liquidity ratio is enforced as a measurement tool to calculate the ability of the concerned firm to repay its debts. The types of financing procured determine the amount of net profit that the respective organization would be securing.

2.3 Capital structure, profitability, and financial risk

2.3.1 Impact of capital structure on profitability and financial risk within an organization

According to Toumi (2020), the term capital structure referred to the process in which the company finances its business operations utilizing the mixed method of debt and equity. The optimal capital structure for a company relies on several aspects including its enterprise, business model, development prospects, and threat appetite. As per the views of Ngoc *et al.* (2021), a capital structure of an organization might have a significant influence on its profitability. A company with a high proportion of debt financing may experience higher interest expenses, which might reduce profit margins, this is because the interest paid on debt is considered a fixed cost and must be paid regardless of whether the company generates a profit or not. According to Shaik *et al.* (2022), this is why a company with a high proportion of debt financing may have limited flexibility in managing its expenses and may struggle to generate profits.

Singh and Bagga, (2019), have shown in their studies that, a company with a higher proportion of equity financing may have lower interest expenses, but may also experience dilution of earnings due to the issuance of new shares to raise capital. This is because when a company

issues new shares, the existing shareholders' ownership percentage is reduced, which might dilute the earnings per share. However, Adarkwahm and Malonæs (2020), have established via their research that equity financing does not require re-payment of principal and interest which might provide greater flexibility to manage expenses. Therefore, the optimal wealth structure for an organization relies on its enterprise, business model, evolution prospects, and risk appetite. As per the views of Giaretta and Chesini, (2021), a company in a stable industry with predictable cash flow may opt for a higher proportion of debt financing, while a company in a rapidly changing industry with uncertain cash flow may opt for a higher proportion of equity financing.

According to Luo and Jiang, (2022), the capital structure of an organization might also influence its financial risk, a company with a high proportion of debt financing may have higher financial leverage, which increases the risk of default in the event of a downturn in the economy or industry. This risk is known as financial risk and might lead to bankruptcy or insolvency. On the other hand, Utami *et al.* (2020), have shown in their studies that a company with a higher proportion of equity financing may have lower financial leverage but may also have a higher cost of capital due to the higher equity risk premium demanded by investors. Therefore, a company must carefully evaluate its options and balance debt and equity financing to optimize its capital structure based on its unique circumstances. A company's optimal capital structure would depend on several factors, including its industry, business model, growth prospects, and risk appetite. By achieving the optimal capital structure, a company might maximize its profitability and manage its risk exposure.

According to Mathur *et al.* (2021), in their studies have shown the impact of capital construction on the profitability of the pharmaceuticals industry is significant, it has high levels of fixed costs including research and development costs, and significant capital expenditures. Therefore, a high level of debt financing may lead to high-interest expenses reducing profits. However, debt financing also provides the benefits of tax shields, which might reduce the effective cost of debt financing. Additionally, equity financing dilutes earnings which might also impact profitability. In the pharmaceutical industry companies may opt for a capital structure that balances debt and equity financing, depending on their specific circumstances. Companies with stable cash flow and predictable revenue streams may choose a higher proportion of debt financing to take advantage of the tax shields, while companies with uncertain cash flow may prefer equity financing.

According to Wang and Jie (2020), the pharmaceutical industry is highly competitive and faces a range of financial risks including regulatory risks, clinical trial risks, and patent risks. The capital structure of an organization might affect its financial risk exposure, and a high level of debt financing might lead to higher financial leverage, increasing the risk of default in the event of an economic downturn or change in the regulatory environment. In contrast, a higher proportion of equity financing might reduce financial leverage but may also increase the cost of capital due to the higher equity risk premium demanded by investors. Therefore, it needs to evaluate its financial risk exposure properly when deciding on its capital structure, companies with stable cash flow and predictable revenue streams may opt for higher debt financing while companies with uncertain cash flows may prefer a higher proportion of equity financing.

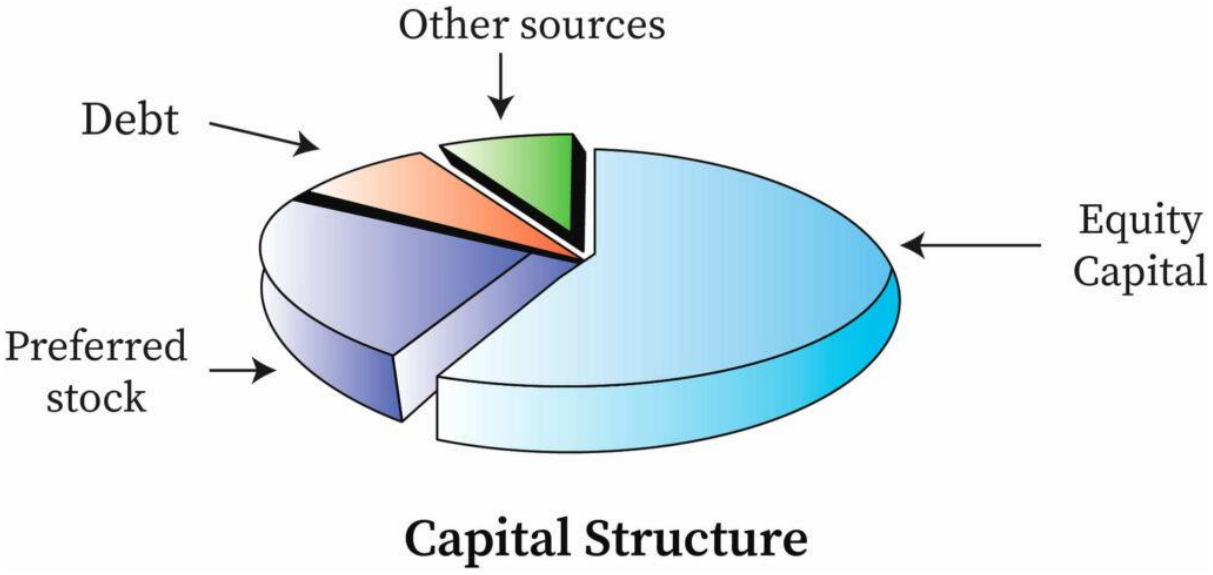

Figure 2: Capital Structure (Source: bartleby, 2023)

2.4 Factors determining the capital structure profitability.

2.4.1 Factors determining the capital structure profitability within the UK Pharmaceutical Industry

According to Shehadeh *et al.* (2022), a company's capital structure is the mix of different types of financing it uses to fund growth and operations. Research and development, marketing, and production facilities all require significant investment in the UK's highly competitive pharmaceutical industry. As per the views of Kong *et al.* (2023), a company's capital structure

among other things determines how profitable it is in this sector. The project will investigate the factors that influence the profitability of the UK pharmaceutical industry's capital structure.

According to Xin, *et al.* (2023), one of the primary sources of capital for business in the UK pharmaceutical sector is debt financing. Organizations in this area depend on acquiring from banks and other monetary foundations to subsidize their tasks and speculations. The amount of debt a company uses is one factor that affects how profitable its capital structure is. Elevated degrees of obligation increase the monetization influence of the organization, which may amplify benefits in a great time yet in addition increment the gamble of a chapter in troublesome times. On the other hand, a company with less debt may be able to invest in growth opportunities, but it may also be less likely to file for bankruptcy.

As per the views of Dahiyat, *et al.* (2023), another factor that influences a company's capital structure's profitability is the cost of debt. To borrow money, businesses with lower credit or high perceived risk may have to pay higher interest rates, which may raise their debt costs. On the other hand, businesses that have higher credit ratings or are thought to be less risky may be able to borrow money at lower interest rates, which may help them pay less interest on their debt. Due to the fact that it lowers the cost of borrowing and boosts the return on investment, a lower cost of debt may boost the profitability of the company's capital structure.

Emami *et al.* (2022), have shown in the study that another important source of capital for businesses in the UK pharmaceutical industry is equity financing. Either by keeping profits and reinvesting them in the businesses or by issuing shares to investors, businesses may raise equity. According to Kasbar, *et al.* (2023), another factor that influences a company's capital structure's profitability is the cost of equity. Organizations with high development potential or solid productivity might have the option to draw in financial backers who will acknowledge lower returns, which may bring down the expenses of values. On the other hand, in order to attract investors, businesses with lower profitability or lower growth potential may be required to offer higher returns, which may result in an increased cost of equity.

According to Yilmaz, *et al.* (2022), another factor that influences a company's capital structure's profitability is the regulatory environment. Companies in the pharmaceutical sector are required to abide by numerous regulations pertaining to product safety, marketing, clinical trials, intellectual property rights, and the pharmaceutical industry as a whole. The availability of equity and debt financing may also be affected by the regulatory environment. It is possible

that investors and banks won't lend money to or invest in businesses that face significant regulatory risks. To maintain a profitable capital structure, pharmaceutical companies in the UK must therefore effectively manage regulatory risk.

A company's capital structure's profitability is also influenced by the tax environment. When compared to other nations, the corporate tax rate in the UK is relatively low at 19 %. Companies that use debt financing benefit from this favorable tax climate because they may deduct the interest they pay on the debt. This indicates that tax savings effectively reduce debt costs. Equity financing may be more expensive than debt financing because companies using equity financing do not receive the same tax benefits. As a result, a company's capital structure profitability may be significantly affected by the tax environment in the UK pharmaceutical industry.

In conclusion, tax considerations, risk management, financial flexibility, industry characteristics, and regulatory environment all have an impact on the capital structure of UK pharmaceutical companies' profitability. Companies must carefully manage their risks, maintain financial flexibility, navigate volatile industry, and respond to the regulatory environment. UK pharmaceutical companies can determine the optimal capital structure that maximizes profitability and creates long-term value for shareholders by carefully considering these elements.

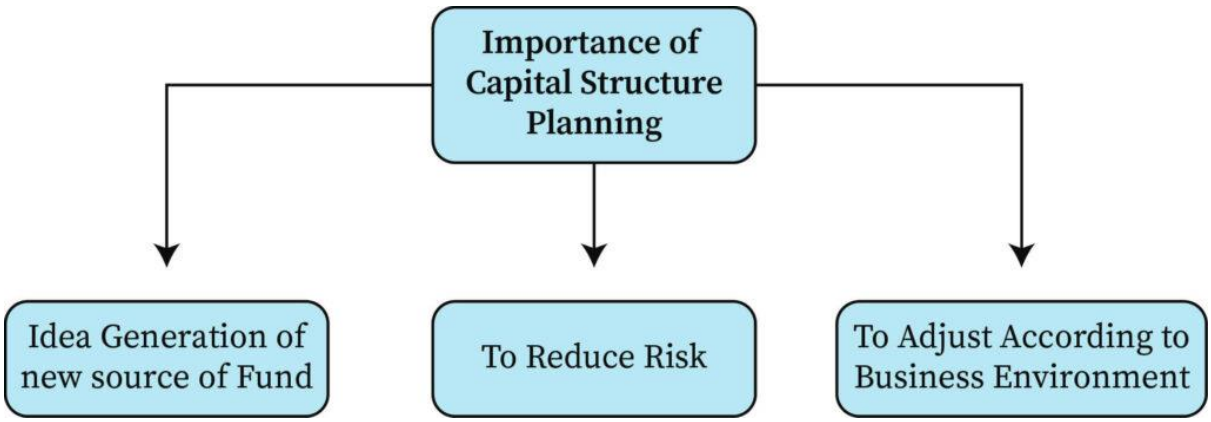

Figure 3: Capital Structure Planning (Source: bartleby, 2023)

2.4.2 Four profitability factors

According to Tran, (2022), the profitability of an organization is a crucial aspect that is influenced by multiple factors, which also include the capital structure. The link between the structure of capital and profitability is thoroughly researched in various industries, including the UK pharmaceutical industry. The profitability of a company is a critical metric that is required to measure the financial health and success of that company. This refers to the way finances and operations, which include the mix of debt and equity, are used to fund investments. Profitability is basically the capacity of a company to create earnings or financial gains relative to its expenses, assets, and sales.

In terms of profitability factors for the UK pharmaceutical industry, here are four factors:

Gross profit margin: This is a critical profitability factor for companies operating in the UK pharmaceutical industry. This is because the pharmaceutical industry is based on core research, and companies have to spend huge amounts of money on research and development to develop new drugs. As per the views of Nustini *et al.* (2022), this fact indicates that a pharmaceutical business is efficiently managing its costs, getting its products priced appropriately, and generating revenue properly. This in turn means that the company has more funds to invest in their research and development for developing new and innovative drugs. As a result, companies with a high gross profit margin can gain a competitive advantage in the industry by being able to invest more in research and development than their competitors, which can lead to the development of new and innovative drugs that can generate higher profits. However, Glover *et al.* (2022) state that companies with a low gross profit margin may struggle to generate enough funds for research, which can limit their ability to develop new and innovative drugs.

Research and development: According to Penner (2023), this is a very crucial factor for companies operating in the UK pharmaceutical industry. Investing in research and development can help pharmaceutical companies to develop new and innovative drugs that can address unmet medical needs or improve existing treatments. Such drugs can be protected by patents, allowing companies to charge higher prices for them and generate significant profits. Additionally, this factor can lead to the development of drugs with longer patent life, which can extend the period of exclusivity and generate higher profits over a more extended period.

Investing here can also help pharmaceutical companies to stay ahead of their competitors by developing drugs that have superior efficacy, safety, and tolerability profiles.

Operating profit margin: This is considered an important factor that may somehow affect the profitability of UK pharmaceutical companies. This indicates the profitability of a firm's operations, deliberated by dividing operating income by earnings. In UK pharmaceuticals, the operating profit margin can have a significant impact on the industry's profitability. According to Luo *et al.* (2022), this industry is characterized by high research and development costs, regulatory hurdles, and fierce competition. Therefore, maintaining a healthy operating profit margin is critical to sustaining profitability and supporting continued investment in innovations and research. A high operating margin indicates that a pharmaceutical company is generating strong profits from its core business activities, such as drug manufacturing and sales. As per Ali *et al.* (2023), this factor can allow companies to invest in new drug development and expand their product portfolios. Whereas, a low operating profit margin can signal challenges with a company's pricing strategies, cost structure, or competitive position. This factor can hinder a company's ability to invest and expand into new markets or sustain its operations over the long term.

Return on Equity (ROE): According to LUO, (2023), ROE is known to be a key financial metric that measures the profitability of the company by calculating the amount of net income generated by the company as a percentage of the total shareholder equity. In the UK pharmaceutical industry, ROE can be a critical factor affecting profitability. Higher ROE indicates the company benefit which is generated through the investment made by the shareholders. This can help the business to access capital at a lower cost, which can improve profitability, Companies with a high return on equity often have a strong growth potential, which can lead to increased profitability. This is because the company can use the profits generated from existing operations to invest in new products, expand into new markets, or acquire other companies. This can help to drive revenue growth and improve profitability.

2.5 Understanding the Special Characteristics of the pharmaceutical industry.

According to the statistical data it has been discovered that the market size of the Global pharmaceutical industry has increased from $1456.6 billion to $1587.06 billion in the financial year 2022 and the annual growth rate of the sector is approximately 9.1% (statista.com, 2023). The pharmaceutical industry is an innovation factor whether it is medicines as well as the

technological elements associated with critical diagnosis procedures. From the opinion of Thakur-Wernz *et al.* (2019), it has been discovered that the pharmaceutical sector is innovative new medicines as well as technology gadgets to reduce the problems of the audience by providing various innovative and creative solutions. In the year 2020, after the outbreak of the dreadful covid-19, the pharmaceutical industry has come up with adequate solutions to mitigate the challenges of the disease. Moreover, The experiment regarding the elimination of cancer is still in process and as a part of innovation, chemotherapy as well as radiation Therapy have been introduced in the industry.

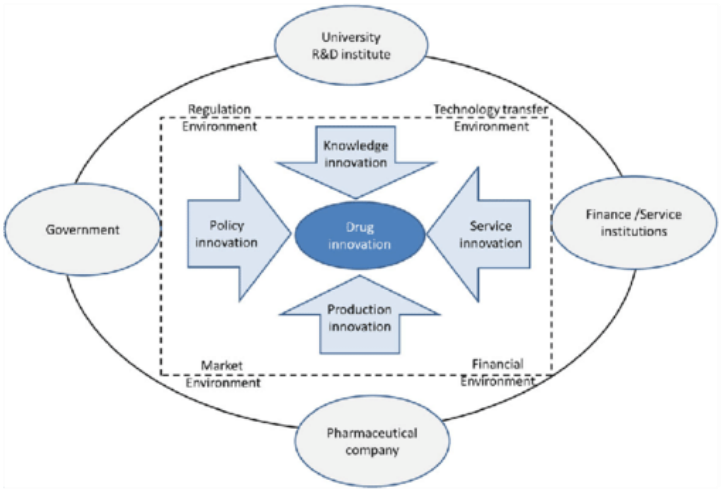

Figure 4: Innovation characteristic of the Pharmaceutical industry

(Source: Jingyun Ni *et al.* 2020)

Moreover, the pharmaceutical industry is known for providing medicines at a reasonable rate to the audience. The Pharmaceutical sector is directly related to the rules and regulations of the Government and as a result of that, the industry is bound to maintain its pricing strategy which is a significant characteristic of the particular industry. As per the viewpoint of Freitas *et al.* (2021), it has been seen that the main significant characteristic of the Pharmaceutical sector is the distribution network. This above-mentioned industry poses an effective network to provide emergency services to needy individuals to save lives.

2.6 Conceptual Framework

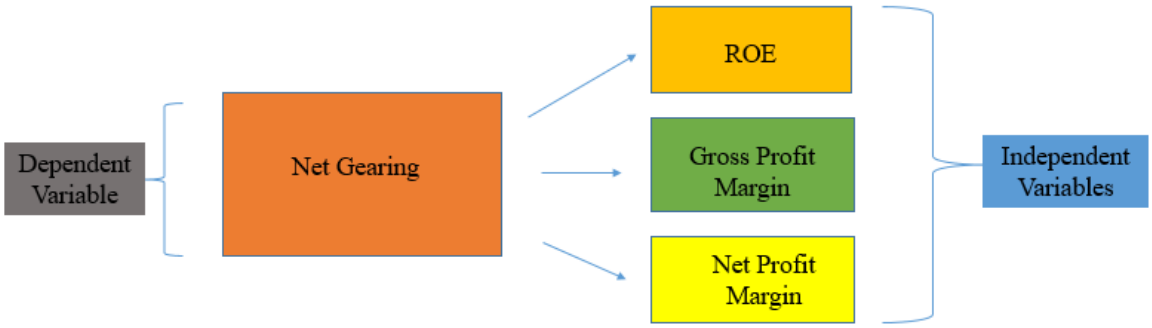

Figure 5: Conceptual Framework (Source: Self-Created)

According to Zuhroh, (2019), independent variables are those that are not influenced or changed by external influences. Independent variables can be explained as those that exhibit resistance against the presence of outside interference and has the capacity to alter dependent variables. Dependent variables on the other hand, often denote characteristics of a variable that are influenced by independent factors. These variables show a significant reliance on the independent variables that direct the behavior of such components.

For conducting this research dependent variables and independent variables have been chosen for an in-depth study and understanding of the topic. The researcher has chosen six organizations from the pharmaceutical industry to gather their financial information for the last five years. The **independent variable** chosen by the research is ROE, Gross Profit margins, and profit margins. On the other hand, the **dependent variable** that has been chosen is Net gearing. By utilizing the researcher has found out the relationship and dependability amongst the variables to identify various external economic factors that affect the overall operation of the business working in the pharmaceutical industry.

Chapter 3: Research Methodology

3.1 Introduction

Methodology is the section which illustrates the processes undertaken by the investigators for conducting the investigation to meet the objectives and research questions. These are the approaches that guide scrutinizing the context without any possibility of errors and assist to complete the investigation conveniently that is proficient for forming the suitable observation related to the context followed by the formation of positive externalities (Newman *et al.* 2020). The chapter will be attentive in explaining the shortcomings associated with the research while carrying out the analysis of the given context by implementing several models as well as the variables which are necessary to conduct the investigation profoundly.

3.2 Research philosophy

The concept based on the norms related to the research philosophy is useful to the fundamental ground that is required to provide support to develop the investigation without any inconveniences (Tamminen and Poucher, 2020). The section associated with research philosophy contains several ideologies as well as theories which are proficient for evaluating the subject properly. This factor comprises 4 remarkable components such as interpretivism, realism, positivism as well as the pragmatism approach. To operate the activities based on the investigation, the investigators have followed the ***Post-positivism approach with interpretivism philosophy*** which is highly advantageous for evaluating the factual concept linked with the given topic. The approach has assisted to scrutinize with a profound approach that has guided readers as well as the researcher effectively (Kaur, 2020).

3.3 Research approach

The approach related to the research has guided in determining the tendencies associated with the planning which are impacted by the hypothesis as well as the theories that have been selected (Maarouf, 2019). It is crucial for interpreting and evaluating the secondary facts that have been retrieved from quantitative sources. The specific approach has been classified as inductive as well as deductive approach. The researcher has taken the decision to use the ***deductive approach*** which has assisted the investigators in computing the profound inferences which have properly represented the observation (Casula *et al.* 2021). It is the approach that

has proven to be useful for the researcher in terms of gathering information which has guided to scrutinize the content properly that has resulted in the formation of a favorable response. It is the approach that has enabled the researcher to understand the concept properly which had resulted in the formation of an appropriate interpretation.

3.4 Research strategy

It is defined as the tactics that comprises the prerequisite factors as well as the assumption (Jian *et al.* 2020). The developed strategies play an important role in influencing the research design which is one of the essential factors for operating the research activities conveniently that is suitable for following the positive externalities. There are two forms related to the research design that is qualitative and quantitative design. To investigate the particular context, the researcher has used the ***Secondary Quantitative*** research method which has guided the researcher in meeting the objectives conveniently and has resulted in the creation of positive externalities for the investigators (Ruggiano and Perry, 2019). This approach has guided the investigators in evaluating the relationship that exists between profitability and capital structure, with an appropriate approach from six pharmaceutical companies of the UK.

3.5 Research design

Research design is defined as the blueprint consisting of some specific assumptions on the basis of which, the tactics related to the study will be computed. It is highly impacted by suitable planning. There are three techniques related to the approach that is research Explanatory, exploratory and descriptive components (Singh, 2021). To evaluate the given context, the investigators have undertaken the ***exploratory design*** which has guided the researcher in accomplishing the desired aims of forming the proper observation that has made the investigators better off (Swedberg, 2020). It has guided to tackle the scanning of information accurately which has proven to be advantageous for the investigators.

3.6 Hypothesis

H1: There is a significant relationship between a firm's profitability and leverage of the firm.

Model: Gearing = $\beta 0 + \beta$Profitability + Fixed Effect (FE) + Error

H2: There is a significant relationship between firm's liquidity and leverage of the firm.

Model: Gearing = β0 + βLiquidity + Fixed Effect (FE) + Error

3.7 Data collection method

The method of collecting this fact to scrutinize the content is termed the process of information collection. This is the approach that is required to carry out the analysis profoundly. There are two forms associated with information that is primary and secondary facts. To conduct the scrutinization, the investigators have incorporated secondary information which is easy to collect, are free or at an affordable price. The usage of secondary data has assisted to justify the relationship that is present between the profitability as well as the capital structure related to the six different pharmaceutical companies based in the United Kingdom. The utilization of the ***secondary facts*** has enabled the researcher in analyzing the scenario conveniently which has assisted the researcher to meet the research questions (Ruggiano and Perry, 2019). This factor has been beneficial for forming the proper observation which has assisted the readers to understand the concept. It has guided the investigators in completing the investigation within the given time period. The data will be collected on 6 Pharmaceutical companies from the UK well as Multinational companies operating in the UK. The companies are Glaxo smith Kline, Astra Zeneca, Hikma Pharmaceuticals., Pfizer, Novartis and Eli Lilly. The data are collected from the annual reports of all these companies.

3.8 Population technique and sampling

The data based on the ***six different pharmaceutical companies*** located in the United Kingdom has been gathered from ***2018-2022*** to evaluate the given content which is effective for accomplishing the desired objectives that have helped in creating suitable possibilities for the research. The investigators have taken the assistance of ***Yahoo Finance*** and ***Investing.com*** to collect the data which has enabled the researcher in operating the scrutinization. This approach has guided to tackle the analysis proficiently which has enabled the researcher in explaining the scenario logically without any kind of complications that has helped in forming the conditions related to beneficial externalities (Islam and Nguyen, 2020).

3.9 Data analysis

The tactics of evaluating the collected information for operating the research activities is known as the technique of data analysis which is suitable for executing the research conveniently. The

investigators have used ***the MS excel*** to scan the context and have used ***Descriptive statistics,*** a summarized method for quantitative description, which sates the provision of the summary stats related to the information that has been collected (Pentang and Pentang, 2021). The researcher has conducted the ***correlation evaluation*** for checking the regression and relationship monitoring for confirming the interdependencies among the variables. This method is used for the purpose of evaluating the correlation that exists between the different variables, in the study process. It is also observed that the researcher has focused on utilizing the regression analysis and empirical findings to complete the research study. The researcher has been also observed to take into consideration the ***regression analysis*** that is method based on statistical approach that helped in showing the relationship between different variables.

3.10 Research limitations

There are certain issues related to the research such as, the lack of adequate information researcher have faced when exploring the certain content of the investigation. Research limitations take place when the investigators face problems owing to the asymmetric details which are responsible for creating a complicated situation that is not profound for completing the research (Tennant and Ross-Hellauer, 2020). This issue has prevented the investigators of a particular context from exploring the specific content related to the topic within the given time frame.

3.11 Research ethics

There are a few codes based on ethics that must be maintained while doing the investigation to avoid the possibilities based on flaws. The researcher, with regards to the specific topic, have abided by the ethical codes to eradicate the flaws in creating the proper results (Cascio *et al.* 2021). This is the approach that has helped the investigators in creating the proper results which has guided to generate a favorable response.

3.12 Study variable

There are dependent as well as independent variables which are used for conducting the research. The dependent variable that has been taken by the investigators for doing the research is ***Gearing Ratio.*** In addition, ***Profitability ratios*** and ***Liquidity ratio*** *are* ***the independent variable*** (Nariswari and Nugraha, 2020).

Gearing Ratio: Debt / (Debt + Equity) * 100

Liquidity Ratio: Current Assets / Current Liabilities

Profitability Ratio: (Income before Taxes and Interest / Total Assets) * 100

3.13 Conclusion

The section has properly explained the methods that have been followed by the investigators for completing the research. The investigators have used secondary facts, secondary quantitative design, exploratory strategy, deductive approach and post-positivism with the philosophy of interpretivism for doing the research. The secondary data for the six companies based on Pharmaceutical industries have been collected from Yahoo Finance and investing.com. The researcher has used Microsoft Excel and descriptive statistics for analyzing the facts.

Chapter 4: Context

In this chapter the analysis on six companies belonging to the pharmaceutical industry of the United Kingdom is presented. This tends to elaborate the financial soundness maintained by the organizations of Glaxosmith Kline, Astra Zeneca, HIKMA pharmaceuticals, Pfizer, Novartis, and Eli Lilly. The companies are considered to be listed in the London Stock Exchange, as the financial prospects of the business entities are discussed in a significant way in this chapter. The analysis of the financial interface of the businesses is considered to be conducted through the interpretation of the accounting ratios in the study.

Glaxosmith Kline

Global healthcare giant GlaxoSmithKline (GSK) has its global headquarters in London, United Kingdom. Having a track record dating back more than 300 years, GSK is renowned for its revolutionary drug discovery, manufacturing, and production. As per Rizhamadze (2020), it also produces antibiotics and other consumer healthcare goods. It works internationally with the goal of enhancing the well-being and health of individuals everywhere. Leverage ratio data shows a steady drop from 0.8765 in 2018 to 0.6752 in 2022. This shows a decline in the use of financing via debt throughout time. A capital structure with a decreased ratio of leverage is thought to be better since it indicates a lower level of financial danger and susceptibility to debt-related problems. The lowering debt ratio for GSK shows that its financial framework is being managed with caution. GSK's return on assets (ROA), a measure of revenue, fluctuated across the time period. It recorded the lowest value of 0.0549 in 2021 and a high of 0.1062 in 2022. These variations show certain erratic behavior in the company's capacity to make a profit from its assets. The general trend, however, points to a respectable degree of revenue, with GSK striving to produce regular returns on investment. A company's current ratio has remained relatively stable over time, measuring its ability to meet short-term obligations. It varied from 0.7526 in 2018 to 0.9105 in 2022, showing that GSK was able to keep up a sufficient level of liquidity to meet its short-term financial commitments. The financial viability of the main business activities of a business as measured by the gross profit margin was moderately consistent during the time period. From 0.6747 in 2021 to 0.6994 in 2020, it varied. According to these numbers, GSK appears to have successfully controlled its manufacturing expenses while sustaining a respectable level of revenue through its main line of business.

Astra Zeneca

AstraZeneca Plc is considered to be a British-Swedish multinational biotechnology and pharmaceutical business, headquartered in Cambridge of England (Remneland Wikhamn and Styhre, 2019). The leverage ratio for Astra Zeneca fluctuated from 0.456 and 0.599 during the course of five years, remaining largely constant. This shows the company has kept its financing arrangement conservative, with a greater share of equity than debt. This is typically seen favorably because it shows a lesser risk to finances and a higher capacity to pay debts. The return on assets (ROA) and net profit margin of Astra Zeneca are significant predictors of prosperity. The ROA was 0.043 in 2018, and it fell slightly to 0.036 in 2019. In 2020, the business had significant gains as the ROA reached 0.069. The ROA, however, rapidly dropped to 0.004 in 2021, showing a drop in income. In 2022, Astra Zeneca was able to bounce back, with the ROA increasing to 0.035. The net revenue margin was 0.098 in 2018 before falling to 0.055 in 2019. With a net profit margin of 0.120 in 2020, Astra Zeneca saw an enormous increase. But in 2021, profitability worsened, falling to 0.003, suggesting problems with expense management or decreased sales. In 2022, the overall profit margin recovered and reached 0.074.

HIKMA Pharmaceuticals

Hikma Pharmaceuticals is a multinational pharmaceutical firm noted for manufacturing and distributing an extensive selection of conventional and branded pharmaceuticals. Alsawalhah (2020) stated that, Hikma seeks to enhance the lives of patients and make medicine easier to obtain by producing high-quality products. HIKMA Pharmaceuticals' leverage percentage fluctuated throughout the course of five years. In 2018, the ratio was 0.273, suggesting an average level of indebtedness. It fell to 0.243 in 2019, indicating less dependence on debt. Nevertheless, the ratio rose to 0.303 in 2020 before falling to 0.255 in 2021. It increased significantly to 0.374 in 2022, presumably suggesting a larger degree of credit and risk to finances. HIKMA Pharmaceuticals maintained a continually favorable ROA during the course of the period. The ROA was 0.095 in 2018, then grew to 0.133 in 2019 and 0.143 in 2020. On the other hand, the ROA fell to 0.134 in 2021 and then to 0.065 in 2022, indicating a reduction in the organization's effectiveness in producing revenues from operations. HIKMA Pharmaceuticals' current ratio, which gauges a company's capacity to fulfil its short-term debts, stayed above one during that time. This implies that the company's present assets were sufficient to satisfy its existing liabilities. In 2019, the present ratio fluctuated from 1.256 to 2.061, showing a healthy financial situation. HIKMA Pharmaceuticals sustained favorable net

profit margins, which ranged from 0.485 in 2018 to 0.503 in 2022. Net profit margins were likewise positive, with values ranging from 0.136 in 2018 to 0.075 in 2022. The reduction in net profit margin over time indicates that the organization had cost-control issues or saw an overall decline in competitiveness.

Pfizer

Pfizer Inc. is considered to be a multinational biotechnology as well as pharmaceutical corporation, headquartered in Manhattan of New York City. According to (), the development as well as the production of vaccines and medicines required for the neurology, immunology, oncology, cardiology, and endocrinology. The gearing ratio of the business has been observed to be highly fluctuating in terms of the operations of five years' performance of the business. The gearing ratio stood at a figure of 39.78% in 2018 which increased to 45.72% in the financial year 2019. However, it fell down to 29.10% in the year 2022. This has meant that the business has incorporated lesser debt financing as well as more equity financing. Followed by this, the "Return On Assets (ROA)" of Pfizer Inc. has been observed to be following an increasing trend over the five financial years between 2018 and 2022. In the financial year 2018, it stood at a scale of 3% which eventually raised to 7% in 2019. In 2020, it was valued at a margin of 5% followed by an increase to 14% in 2021 and 18% in the financial year of 2022. The current ratio maintained by the company has been following a decreasing order as it continued its operations on the basis of the prevalence of the working capital to the business. The fluctuations in terms of the current ratio of the company have been seen as it stood at 1.57 in 2018 which decreased to 0.88 in the following year. In the financial year 2020, it was valued at 1.35 followed by 1.40 in 2021 and 1.22 in 2022. The fluctuations in the gross profit margin of the business in the five operational years have pointed to the ill-management of the business aspects. In 2018, the gross profit margin was valued at a scale of 78% which increased to 81% in 2019 followed by a significant decline in the margin to 66% in 2022. Unlike the gross profit margin, the net profit margin has been seen to be enhancing to 31% in 2022 from a scale of 27% in 2018. In the financial year 2019, it stood at 39% followed by 22% and 27% in 2020 and 2021 respectively.

Novartis

Novartis AG is considered to be based on the Swiss multinational business as the leading pharmaceutical industry operating in Switzerland. The company has been observed to be

producing the drugs as one of the largest companies under pharmaceutical industry operating in the world (). The leverage or gearing ratio of the company has been fluctuating as it stood at 29% in 2018 that developed to a margin of 34.56% in 2019. In the financial year 2020, it stood at the highest margin of 40.17% while in 2022, it was valued at 32%. The "Return on Assets (ROA)" was valued at 10.12% in the financial year 2018 that decreased to 7.52% in 2022. While in the financial year 2021, it was valued at a margin of 20.39%. The current ratio was valued at 1.20 in 2018 and 1.29 in 2022 after being associated with several fluctuations. The gross profit margin was considered to be at 78.22% in 2018 which slightly reduced to 76.77% in 2022. In 2019, the gross profit margin was valued at 78.85% followed by 77.66% in 2020 and 75.38% in 2021. The net profit margin of the business has been observed to be increasing in nature over the five years' operations of the company. In 2018, the net profit margin stood at a scale of 15.04% which developed to 37.27% in 2019 and 19.71% in 2021, being the lowest.

Eli Lilly

Eli Lilly, being an American pharmaceutical business, head-quartered in Indianapolis, Indiana. The company has been considered to be set up in around 18 countries. The business has been considered to be highly specialized in the production of the clinical depression drugs (). The gearing or the leverage ratio has been considered to be increasing from a range of 48.74% in 2018 to 85.06% in 2019. In the financial year 2022, the ratio was valued at a margin of 61.40% which has been observed to be maintained at a significant level as the company would not require loans to pay for the operational costs of the firm. The “Return On Assets (ROA)” has been considered to be developing at a significant margin to 14.30% in 2022 while it was valued at 8.57% in 2018. In 2019, it stood at a scale of 14.22% which eventually raised to a margin of 16.20% in 2020. Although, it was valued at 14.30% in the financial year 2022. Followed by this, the standard current ratio has been maintained in 2018 as it was 1.73 and in 2022, the lowest, being at 1.05. The gross margin of the business followed a decreasing trend over the five financial years whereas the net profit margin has undergone severe fluctuations in the same tenure, 37.27% being the highest scale in 2019.

Chapter 5: Findings and Results Analysis

5.1 Introduction

The chapter on findings and analysis presents an overview of the study's outcomes which is established through a numerical framework for effective analysis. In this chapter, the study will incorporate the evaluation of the "secondary data" collected for six Pharmaceutical companies situated in the UK, using Yahoo Finance, as well as Microsoft Excel and descriptive statistics and evaluate the relativity of the factors of the collected data with appropriate and relevant data analysis methods using SPSS software (George and Mallery, 2021). For the study, the derivation of the final outcome will be based on the annual reports of the UK pharmaceutical companies through a thorough discussion and comparison between the formulated hypothesis of the study.

5.2 Testing Hypothesis 1

For testing hypothesis 1, the regression analysis will be implemented with "gearing" and "liquidity" chosen as the appropriate "variables" for the hypothesis testing. This regression analysis has been performed to deduce the "linear relationship" between "liquidity" and "gearing" for effective results in the study.

SUMMARY OUTPUT			
Regression Statistics			
Multiple R	0.330545		
R Square	0.10926	→	**10.92%**
Adjusted R Square	0.043279		
Standard Error	0.046771		
Observations	30		

Table 1: Regression Analysis

(Source: Created through SPSS)

ANOVA						
	df	*SS*	*MS*	*F*	*gnificance F*	
Regression	2	0.007245	0.003622	1.655936	0.209719	**In-Significant**
Residual	27	0.059062	0.002187			
Total	29	0.066307				

Table 2: ANOVA Analysis

(Source: Created through SPSS)

	Coefficients	*andard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*	
Intercept	0.015309	0.055367	0.276504	0.784267	-0.09829	0.128912825	-0.098294449	0.128912825	
Gearing (D/E)	0.03923	0.058767	0.667549	0.510088	-0.08135	0.159810553	-0.081350509	0.159810553	**In-Significant**
Liquidity (CA/CL)	0.049864	0.027912	1.786438	0.085264	-0.00741	0.107135335	-0.007407736	0.107135335	**In-Significant**

Table 3: Coefficients

(Source: Created through SPSS)

As per the above tabular representation, the multiple R-value is observed to be 0.33 which is the observed correlation between the dependent variable of "ROA which represents Profitability" and the "independent variables" of "Debt to Equity which represents gearing" and "Current ratio which represents liquidity" However, since the value is lesser than 0.4, the associated strength of the linear relationship between the two quantitative variables is moderate which is also significantly illustrated through the R-square value at 0.109 and hence, it is deduced that the regression model draws effectiveness in identifying the "total variation" between the two given values. The "adjusted R-Square" value is 0.043 which reveals a marginal gap between the "R-Square" and the "adjusted R-Square" values. Furthermore, as the association depicted through the positive values of the "dependent" and "independent variables" is satisfactory and enables a negative impact between "ROA which represents Profitability" and "Debt to Equity which represents gearing" and "Current ratio which represents liquidity".

The ANOVA table is incorporated to detect the effectiveness of the data calculated through the regression analysis for determining its ability to achieve the desired outcome (Chukhroba and Johannssen, 2019). The aforementioned table suggests that the significant value of the regressed data is 0.209, which, as per the hypothesis chart, is higher than the "standard P-value" of "0.05" and is, hence, declared to be insignificant in terms of accepting the hypothesis of

“there is a significant relationship between a firm’s profitability and gearing and liquidity of the firm”. The “observant value” of regression is found to be 0.0036 which is lesser than 1 which indicates a lesser variability between the chosen variables. Therefore, with a “significant value” higher than 0.00, this hypothesis stands rejected and highlights a negative impact of “profitability” on the “gearing” and “liquidity” of the capital structure of the UK pharmaceutical firms.

The coefficient table sheds light on the strength of the relationship between the “dependent variable” and the “independent variable” while emphasizing its impact on determining the “dependent variable” (Shrestha, 2020). As per the above table, the “variable” of “Debt to Equity which represents gearing” displays a positive yet a lesser significant regression coefficient at 0.51 and a P-value of 0.67. Similarly, the “independent variable” of “Current ratio which represents liquidity” also states a positive value, despite a less significant regression coefficient, at 0.027 with a P-value of 0.085. In this case, P-value of “Debt to Equity which represents gearing” stands low than the standard value of “0.05” whereas a marginal difference is noticed in the P-value of “Current ratio which represents liquidity” which is again observed to be more than “0.05”. Therefore, a conclusive outcome can be determined through a negative impact of both the “independent variables” of the “Current ratio which represents liquidity” as well as the “Debt to Equity which represents gearing” on the “dependent variable” of “ROA which represents Profitability”.

According to Frank *et al.* (2020), companies serving a higher profitability are more likely to reduce the firm’s liquidity while too much attention to the “liquidity” could negatively influence the profitability, thus indicating an inversely proportional relationship between the two. Furthermore, it is also understood that a highly levered gearing ratio, during the low profitable time period, could make the company more susceptible to bankruptcy and loan default. As can be seen through the tabular representation, only 8.1% changes in the gearing ratio could bring changes in the profitability of the capital structure of the UK pharmaceutical firm.

In accordance with the study of Caragnano *et al.* (2020) that highlights the critical relationship between “profitability” and “liquidity”, heavy dependence on debt financing proves detrimental to the revenue earnings of the UK pharmaceutical organization which is further elaborated through the scope of the **“economic theory”**. Even Pattiruhu and Paris, (2020), emphasized on the economic theory being a relevant model for explaining the fluctuating

results between “profitability” and “liquidity”. In addition to the above, Frank *et al.* (2020), state that the inversely proportional relationship between “profitability” and “financial gearing ratio” is signified through the **“pecking order theory”** which, in alliance with the primary research analysis, brings more relativity between the two aforementioned facets of the capital structure that influence the financial operations of the UK pharmaceutical firms. The empirical study of Chen *et al.* (2021) also reveals the negative relationship between “profitability” and “leverage”, through the “pecking order theory”, in which companies earning higher profits utilize lesser leverage.

Therefore, in spite of an interconnectivity of the primary research findings with the “pecking order theory” and the “economic theory”, the calculations observed through the regression analysis suggest that the dependency deduced between the “dependent variable” of “ROA which represents Profitability” and the “independent variables” of “Debt to Equity which represents gearing” and “Current ratio which represents liquidity”. The alignment of the theory of “peck order” with the research findings, suggests that between the availability of internal funds and the need for external financing, firms vouch for utilizing the funds first over “debt to equity”, thus indicating a negative relationship between “profitability” and “leverage” (Sari and Sedana, 2020). Additionally, a negative relationship is also established between liquidity and profitability over high solvency and liquid state of current assets leading to less profitable opportunities for the firms (Rahman, 2019).

5.3 Testing Hypothesis 2

At this point, the regression analysis has been utilized to state hypothesis 2. The analysis proceeded by depending on the “gearing” and “profitability” variables. The regression analysis has been conducted to measure the relationship between firms’ liquidity and profitability aspects.

SUMMARY OUTPUT		
Regression Statistics		
Multiple R	0.603413	
R Square	0.364107	**36.41%**
Adjusted R Square	0.317004	
Standard Error	0.304954	
Observations	30	

Table 4: Regression analysis

(Source: Created through SPSS)

In the analysis of statistical data, the process of regression analysis is defined as a method that helps in addressing different variables. According to the input system, it is the most reliable way to evaluate the variables appropriately. By following proper observations of the regression analysis, it can be justified that the valuation is significantly positive because of the "R-value" and "R square value" which are near "1". In this way, a positive relationship has been stated between dependent and independent variables. From the above table, it has been stated that the "R-value" is 0.603413 and the "R-square value" is 0.364107. By measuring these values, it can be stated that the independent variables which are "Debt to Equity which represents gearing ratio and "ROA which represents profitability have maintained a positive relationship with the dependent variable which is "Current ratio which represents liquidity". Through the regression analysis, it has been stated that the independent variables are effective in optimizing the dependent variable effectively.

The main purpose of this study is to address the interconnection between the capital structure and the profitability of the organization. The prime focus of the study has been to highlight the ratio of the UK pharmaceutical industry. From the analysis, it has been addressed that the relationship between the dependent and independent variables has been stated positively. According to the "Agency Theory", it has been suggested that the optimal structure of ownership and leverage can be used effectively in terms of minimizing the agency costs (Goebel, 2019). In this way, the organization can enhance its growth rate effectively. In this scenario, from the point of view of Zhang *et al.* (2019), the "theory of trade-off" suggests that a higher degree of operational leverage increases the marginal costs of debt and lowers the level of debt. In this way, the organization can maintain its liquidity aspects effectively. In this way, it has been stated that by following these theories, the pharmaceutical industry of the UK has improvised a proper capital structure which is effective in gaining maximum profitability from the business market.

ANOVA						
	df	*SS*	*MS*	*F*	*gnificance F*	
Regression	2	1.437728	0.718864	7.729986	0.002217	**Significant**
Residual	27	2.510913	0.092997			
Total	29	3.948641				

Table 5: ANOVA model (Created through SPSS)

The process that is adjoined with the calculation of the regression statistics, for the better proliferation of the results, is the process of the ANOVA model (Hoijtink *et al.* 2019). With the help and association of this model, the difference between the different sets of hypotheses and variables are analyzed and hence with the conduction of the process of the test through ANOVA, the significant result of the determined variable is presented. As observed from the above analytical table that is presented, the observant value on regression is noted to be "0.718864" which is significantly less than "1". Therefore, from the above analysis it can be worthwhile to state that, as the value is less than 1, there is a high chance and probability of the valuation being significantly positive. In addition to this, the residual value is also observed to be "0.092997", which in turn signifies that the residual value is also significantly less than 1. Therefore, from this note, it can be determined that the value being less than 1, concentrates on establishing the valuation being significantly positive. This is the case as per the rule of regression analysis, that as the value of significance is less than or equal to 1, a positive and significant relation stays between the dependent and the independent set of variables. Therefore, as stated in the table itself, the significant F value is observed to be "0.002217", which means that the significant value is less than "0.05" and therefore, the alternate hypothesis gets accepted. Therefore, as per the congruence, the significant value is less than "0.05" which thus, justifies the concrete establishment of the significant and positive relation between the variables.

	Coefficients	*andard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*	
Intercept	1.548014	0.204791	7.558993	3.94E-08	1.127817	1.96821028	1.127817381	1.968210278	
Gearing (D/E)	-1.09527	0.323753	-3.38305	0.002204	-1.75956	-0.4309853	-1.759557115	-0.43098534	**Significant**
ROA (EBIT/TA)	2.119864	1.186643	1.786438	0.085264	-0.31493	4.55465349	-0.314925722	4.55465349	**In-Significant**

Table 6: Coefficients (Created through SPSS)

The summative value of coefficients helps in the determining establishment of value that exists between different sets of variables. The values are in turn measured with the concrete establishment of the values on coefficients and standard values (Delacre *et al.* 2019). This

value helps in the process of signifying the extent to which there is a difference in the changes in the variables and their measurement and thus helps in establishing the needed understanding by keeping a value constant. Therefore, to this note, it is noted that the "gearing ratio value" and the value of "ROA" is observed to have the value of "-1.09" and the value of the ROA is observed to be "2.11..". Additionally, the standard error value is observed to be less than 1 or a bit more than for both the cases. This signifies that there is an establishment of a significant relation between the intercepts and the establishment of the given notion. Therefore, from this view, it can be seen that the p-value for Gearing is observed to be significant enough while on the other hand, the establishment of the p-value of ROA is noticed to be quite insignificant. This has been the case due to the excessive coefficient value of ROA in comparison to gearing valuation. therefore, leading to the creation of the dual value of significance and insignificance for both cases.

5.4 Conclusion

The above section has evaluated the relationship between the capital structure and the profitability of the organization. By conducting the regression analysis of the two hypotheses, the relevant outcomes of the study have been procured effectively. In terms of getting proper outcomes through the study, two hypotheses have been stated and it has also stated individual dependent and independent variables. Through the regression analysis, the relevant outcomes of the study have been depicted effectively. The section is also effective to define the interconnection between the dependent and independent variables of the two hypotheses.

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