Profitability of the Management Consulting Industry in Norway

An empirical study of factors influencing the profitability of the management consulting industry in Norway

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Abstract

Building on resource-based view (RBV) as a theoretical foundation, the purpose of this thesis is to identify and investigate firm specific factors influencing the profitability of management consulting firms operating in Norway. The investigated variables are firm size, firm age, growth rate, productivity, location and lagged profitability. Consequently, the dependent variable is profitability, measured by ROA. The source of data used in this study is secondary data from the database Proff Forvalt in the period 2014-2021. The regression analysis shows that there is a significant relationship for the variable growth rate, productivity, and lagged profitability on profitability. The results of the regression coefficient indicates that growth rate, productivity and lagged profitability have a positive influence on profitability. The empirical results suggest that productivity is the most significant determinant of profitability. No statistically significant relationship was found for the variable firm size, firm age and location on profitability. The lack of significance can be due to several factors that characterize the management consulting industry. Such as, high employee turnover, high flow of experience and digitalization. The nature of the industry counteracts the potential positive relationship of firm size, firm age and location on profitability. This study provides further empirical evidence in a research area where previous studies have conflicting findings, by investigating an unexplored context. Our study uses theories from the RBV in order to better understand the conflicting findings in this research area.

Acknowledgments

This thesis was written in the spring of 2023 at the Norwegian School of Economics as part of our Master of Science degree in Economics and Business Administration. We are both pursuing a major in Business Analysis and Performance Management, and early on we developed an interest in profitability analysis, which was initially introduced in the BUS401 course on Strategic Profitability Analysis. We are, as many fellow NHH students, planning on starting our career in the management consulting industry. It was therefore extra engaging to be able to take a deep dive into this industry. We have also truly enjoyed being able to use some of our theoretical learnings in a more practical manner, simultaneously contributing to expanding the field on profitability analysis and shining more light on a somewhat secretive industry.

We would like to express our utmost gratitude to our supervisor, Assistant Professor Tomi Rajala. His constructive feedback, insights, and guidance has been invaluable throughout the process of writing this thesis. We also want to thank the Norwegian School of Economics for providing access to literature and databases used in this thesis.

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1. Introduction

1.1 Background of the Thesis

Profitability indicators are central when measuring a company's performance, thus a natural factor in the success of any company. Identifying key drivers is important to generate profit and keep sustainable competitive advantage. Key drivers for profitability have been the focus of several studies over decades. For example, Barney (2001) and Stulz (1990) found that firms' internal resources and assets have a significant impact on profitability. While Slater and Olson (2002) identified macroeconomic factors and competitor level to be the main drivers of profitability.

Profitability is a vital factor in determining the success and sustainability of businesses. Existing research has investigated the relationship of various variables on profitability across different firms, industries and countries, thereby providing insight of profitability drivers (e.g., Vijayakumar, 2011; Kant, 2018). Interestingly, the findings of previous studies are contradictory to each other (e.g., Yazdanfar, 2013; Margaretha & Supartika, 2016; Kant, 2018). This implies that a specific factor may not necessarily have a specific effect on profitability in any given context. Meaning that there are no general results to explain the effect of various factors on profitability between industries and countries.

There has been a considerable amount of research within profitability, where previous research focuses on developing countries, such as Indonesia, Ethiopia and China, more recent research also focuses on industries in North America (e.g., Vijayakumar, 2011; Kant, 2018). Furthermore, previous studies have used data from the 2000s and earlier, which can weaken the relevance of the result, because of major changes, such as digitalization. Other studies have focused on a specific firm size or industry in a selected country. In the last mentioned studies a large number have been focusing on research within the manufacturing industry and commercial banking (e.g., Kant, 2018).

Based on this we have chosen the management consulting (MC) industry in Norway as our study object. This is an industry strongly driven by human capital, which sets it apart from previously studied industries requiring manual labor (e.g., Vijayakumar, 2011; Kant, 2018). MC firms offer temporary services that are intellectual in nature, enabling the firms to adapt and scale as needed (Konsulentguiden, 2021). This is peculiar to the MC industry, and deviates

from the industries that have been studied previously, and thus the study context can provide wider insight into profitability determinants. The MC industry is generally also known as a secretive industry. At the same time almost every large company and organization have been impacted by MC in some way, as well as being an industry that over the years employ an increasing share of the workforce (Cerruti et al., 2019). To further understand what drives profitability in this industry would therefore be interesting. We have chosen to investigate this in Norway. To the best of our knowledge there is not any previous studies focusing on profitability determinants in the MC industry in Norway. The MC industry in Norway has experienced significant growth and profitability in recent years, and the positive development is expected to continue in the future (Consultancy.eu, 2018a). Furthermore, Norway is a developed country, hence a digitized society with highly skilled employees who use advanced technology (Yazdanfar, 2013). The Norwegian MC industry faces the challenge of recruiting highly qualified employees in an increasingly competitive market, which is also the case in MC industries in other developed countries (Consultancy.eu, 2018b). Additionally, based on the access to up to date firm performance data, as well as there being limited profitability studies that focus on the Norwegian contexts, we consider Norway a relevant and good place to study the MC industry.

Firstly, the contradiction in findings in previous studies provides the basis for the choice of studying variables relationship on profitability. Secondly, this study aims to address the limitations mentioned above by focusing on the profitability in the MC industry, which is a research gap considering the special nature of consulting. Thirdly, the Norwegian context is interesting to study because of its competitive market and expected future growth and profitability potential. Lastly, the profitability of the Norwegian MC industry has not been studied before.

1.2 Research Question

The purpose of the study is to identify and investigate factors influencing the profitability of management consulting firms operating in Norway, providing further empirical evidence for the research gap mentioned in the previous section. This study will investigate the relationship of six variables on profitability within the management consulting industry in Norway. The variables were chosen based on their ability to examine profitability from a resource-based view and manager perspective, in addition, the availability of the data played a crucial role.

Based on the purpose of this thesis, we have formulated the following research question:

"How do firm size, firm age, growth rate, productivity, location and lagged profitability influence profitability in management consulting firms operating in Norway?"

1.3 Study Design

Through our investigation, we will identify and analyze variables relationship on profitability in the Norwegian management consulting industry. The study uses a quantitative research method approach with secondary data in the period 2014-2021. The hypotheses are developed from a resource-based view based on previous studies. The use of RBV contributes to understand the variables' influence on profitability on a firm level, with references to specific firm-level resources and capabilities. We perform descriptive statistics, correlation analysis and several regression analyses to uncover the relationship between the variables and profitability. The number of management consulting firms in this study is 59, and the observations are of an eight-year period, which is a total number of 472 observations.

1.4 Contribution and Motivation

Factors affecting profitability are a well-known area of research. The purpose of this study is not to revolutionize the field of profitability, but rather to investigate and analyze it in an unexplored context. This study aims to investigate and contribute knowledge to fill the research gap, with focusing on the relationship between various variables and profitability within a human capital-intensive industry. To achieve this the study investigates the Norwegian MC industry, which is characterized by significant growth, high employee-turnover, high competition and extensive digitalization. This study will be carried out with a more recent time horizon, and generate results that can be assumed to be relevant today. This study will theoretically contribute to how firm size, firm age, growth rate, productivity, location and lagged profitability influence profitability in relation to established theory and previous research on the subject. While the practical contribution of this study can be useful from a manager's perspective and MC firms in Norway, as it gives insight and greater understanding of how their firm structure influences their performance.

Our motivation for this study is also driven by the importance of the management consulting industry, providing solutions and expertise on challenges other industries face. We also believe this will give us a deeper understanding of profitability across other industries.

1.5 Description of the Management Consultant Industry

The use of consultants is an important part of many organizations, both in the public and private sector. The use of consultants can vary from getting help with a small and specific question, to having large consultant teams be in charge of major projects and changes within the organizations. Consultant work is typically project based with a clear beginning and end, but some firms also hire consultants on a more permanent basis. They then become a more integrated part of the internal workforce (Kubr, 2002).

Because it is a broad term, it can be hard to define what a consultant is. Kubr (2002, p. 3) presents two different views on what consulting is. The first is a broad perspective, where consulting can be understood as a function. By this definition it can be argued that anyone that is helping change or improve on a topic, without actually being the one to implement the ideas, are in some way consulting. This definition would certainly include a lot of people that do not necessarily think of themself as consultants. The other perspective presented understands consulting as a professional service, with more strict characteristics that must be met to fall within this definition. Common to both viewpoints is that there is someone who provides expert advice or training on a particular subject or project. In this thesis we will lean on Kubr´s definition of what MC is. He builds on the consulting as a professional service view. Kubr described MC as:

> "Management consulting is an independent professional advisory service assisting managers and organizations to achieve organizational purposes and objectives by solving management and business problems, identifying and seizing new opportunities, enhancing learning and implementing changes" (2002, p. 10).

What type of project or help a consultant is working on can widely differ. This distinguishes management consulting from other kinds of consulting, such as IT consulting or construction consulting. Although the line between the two may be blurry, a management consultant mostly advises corporate executives on how to manage and enhance various elements of the firm (Kubr, 2002). In other words, organizations that engage management consultants expect to be

helped to solve problems, as well as find and implement new and better ways of doing things. The service areas of management consulting will also vary from firm to firm, however some of the major activities that the majority of MC firms undertake are shown in table 1.1.

Strategic management	Information technology	Financial management
Human resource management	Knowledge management	Productivity and performance management
Total quality management	Company transformation	Corporate social responsibility

Table 1.1: Consulting Activities (Kubr, 2002).

However, the reason for engaging management consultants will differ from organization to organization. An important reason may be that the firm does not have the capabilities, or needs to build up this expertise internally. This can also be a good solution if there are projects with a short timeframe, where hiring a full time employee would be unnecessary. Fully employing someone can potentially pose a significant risk to the company, especially in Norway where employee rights are strongly protected (Jervell, n.d.). When a company needs to cut costs, it will often be easier to cut down on the use of consultants, rather than laying off internal employees. Kubr (2002, p.11) also points towards four generic reasons why organizations hire consultants, these are: to solve management and business problems, identifying and seizing new opportunities, enhancing learning, and implementing changes.

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Figure 1.1: Generic Consulting Purposes (Kubr, 2002, p. 11).

As mentioned, a typical MC work is project based, and therefore has a fixed beginning and end. How MC firms charge for such projects varies. Some firms charge an hourly or weekly rate, while others charge a fixed price for the entire project. Kubr (2002) claims that the most important number for MC firms is anyways how much each consultant bills, as well as how many hours are being billed. Additionally, MC firms are renowned for being set up as partnerships with top-down, pyramidal organizational structures. The ratio between the number of consultants divided by the number of partners at the top, is what Kubr calls leverage in a MC profit model that he presented. This is a profit model developed by David Maister, that works as a variant of the DuPont formula, but where ROE is changed with profit per partner.

$$\frac{Profits}{Partners} = \frac{Profits}{Fees} \times \frac{Fees}{Consultants} \times \frac{Consultants}{Partners}$$

$$\text{(Profitability)} \qquad \text{(Margin)} \qquad \text{(Productivity)} \qquad \text{(Leverage)}$$

Equation 1.1: Profit Model (Kubr, 2002, p. 616).

As we see from this formula, the three important ratios for MC firms to look at are their margins, how productive each consultant is, as well as how many consultants there are in comparison to how many partners there are. Kubr (2002, p. 616) contends that this final leverage ratio is only relevant if there is a partner structure in place, which is not the case in all MC firms.

History and evolution of the industry

The industrial revolution of the 19th century marked the beginning of what is today known as management consulting. The early users of MC were referred to as "efficiency experts" before it developed into a more organized industry. Their work focused on factories and how to improve the output and efficiency of production (Kubr, 2002). Later, other MC firms that we are familiar with today were established. For instance, A.T. Kearney (1937), McKinsey & Company (1925), Booz Allen Hamilton (1917), Arthur D. Little (1909), and Booz Allen & Hamilton (1917) were a few of the earliest businesses that actively focused on management consulting. Today, McKinsey & Company is recognized as the leading firm in its field and is considered one of the key organizations that have helped shape the sector into what it is

recognized for today. A significant number of new businesses entered the market in the 1960s. A strong global economy, more globalization, new technology, and increased data and computer capacity all contributed to the industry's tremendous expansion after the 1980s (Kubr, 2002). The largest firms also started expanding to new markets, such as to the Norwegian market (Poulfelt, 1999). Four of the top five management consulting firms in Norway were founded abroad and then developed domestically.

Management consulting firms in Norway

There is currently no precise estimate of the number of MC enterprises in Norway. By filtering for firms registered as "Business consultancy and other administrative consultancy" (SIC code 70.220) in Proff Forvalt, we find that there are over 5000 firms registered as this that have one or more employees. If we filter for firms that have ten or more employees we are left with 369. This includes businesses that might be incorrectly categorized as well as those that might be registered under various SIC codes. The latter applies to businesses that offer MC services, but where this is not their core business. Nevertheless, this figure provides us with an estimate. In terms of revenue, SSB reports that in 2020, business and management consultancy activities had a turnover of 25.532 NOK million. This amounts to almost a doubling of the sector's turnover since 2010 (SSB, 2020).
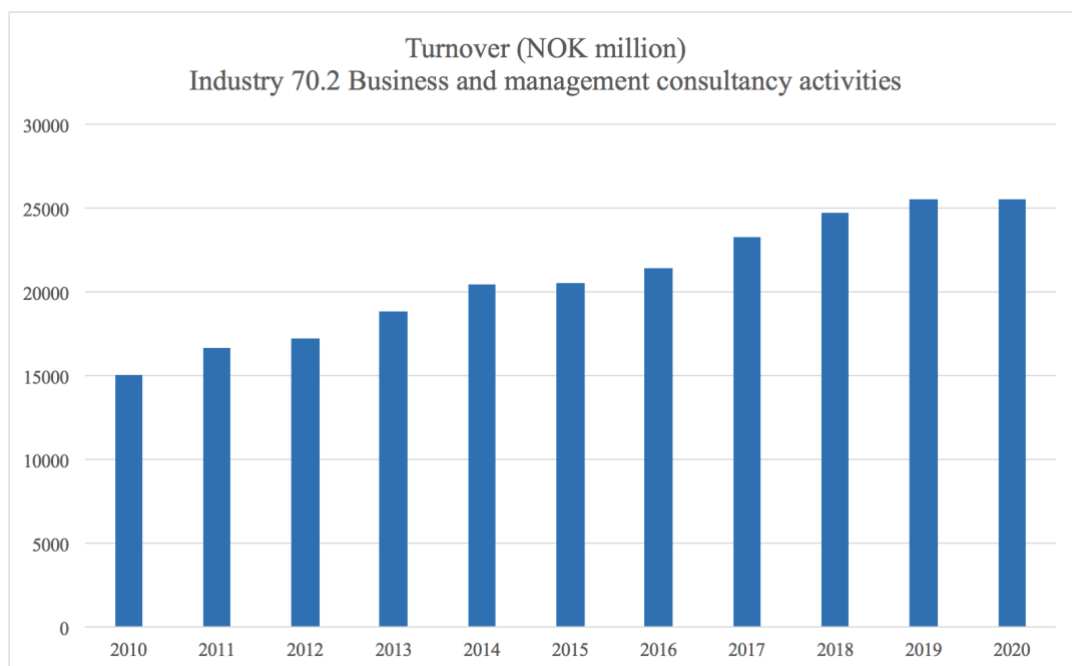

Figure 1.2: Turnover in Industry 70.2 (SSB, 2020).

A report from Konsulentguiden (2021) documents the use of management consultants in Norwegian companies. Among those who responded the top ten recognized firms are: Deloitte, PWC, KPMG, EY (Ernst & Young), Accenture, McKinsey & Company, Rambøll Management Consulting, Capgemini Consulting, Tieto Evry, and Bouvet (Konsulentguiden, 2021). Several of these companies are also large providers of other services, such as auditing and legal services, which could account for why they are more well-known than businesses that concentrate on MC.

In the same report, they also present the most common types of services the MC firms advise on. Where digitalisation of the organization is the most common type of engagement. This was followed by leadership development and human resource management, project management, procurement and sourcing, and finance advisory and financial management. This appears to be comparable to Kubr (2002) lists as being the most important activities for MC firms.

Konslutentguiden (2021) also investigated why the companies chose to engage MC firms. The most frequent reason stated was that they had a problem that needed expertise that would not be reasonable to have internally on a permanent basis. Other significant factors included a lack of capacity, cost-saving measures, organizational competency growth, and knowledge gained from previous similar problems.

1.6 Outline of the Thesis

The thesis is organized as follows. In chapter 2, we provide an insight in the theoretical foundation, previous studies and hypotheses development of our study. Chapter 3 consists of the study's methodological approach, where we present our study object, research design, justification for the data collection and choice of empirics. Additionally, the chapter examines whether the model assumptions are satisfied. In chapter 4 the empirical results are presented through descriptive statistics, correlation analysis and regressions analysis. Chapter 5 consists of a discussion of how our findings compare to related theory, previous studies and the developed hypotheses. Finally, chapter 6 will contain a conclusion that answers the research question of this thesis, how the study has contributed theoretically and practically to the research area, as well as a recommendation for further research.

2. Theoretical Background

The theoretical basis for the thesis and the research question are presented in this chapter. We will start by outlining the resource-based view. This will serve as the thesis' theoretical basis, contributing to increase our understanding of firm specific factors' effect on profitability. The central cost driver theories of Porter and Riley are included, as some of these drivers can, from the resource-based view, be seen as resources to create sustainable competitive advantage. Subsequently, previous research on potential relationships between factors and profitability will be highlighted. Finally, previous results of selected variables and formulated hypotheses are presented.

2.1 Resource-based view (RBV)

Different perspectives exist regarding what causes variations in firm performance. During the 1980s the idea of positioning and industry analysis was popularized by many. Frameworks like Porter's "five forces model" (1979) quickly gained a significant role in corporate strategy work. The focus was then pointed towards the external factors and how the business may position itself in these contexts to gain a competitive advantage. As a response to this external focus, the resource-based view (RBV) was introduced (Barney, 1991). In the 1990s, this new perspective swiftly took hold as the leading perspective in strategic management (Barney, Ketchen & Wright, 2011). In contrast to the earlier focus, RBV argues that a firm's unique resources and capabilities are key determinants of its competitive advantage, and hence its long-term success. This builds on the assumption that firms in similar industries are heterogeneous, as for the strategic resources they control, as well as resources being imperfectly mobile. By such, these internal differences can impact the profitability variation between firms that operate in the same industry (Barney, 1991).

Barney (1991) is one of the most known scholars that drove RBV forward. As earlier mentioned, he found that a firm's internal resources have a significant impact on profitability. His findings suggest that firms should focus on identifying and leveraging their unique resources and capabilities to create sustainable competitive advantages. Barney (1991) understands firm resources as to include assets, capabilities, firm attributes, knowledge, information and organizational processes. A resource must meet four requirements in order to be a source of sustainable competitive advantage, Barnley states, namely valuable, rare,

imperfectly imitable and not substitutable (VRIN). The firm must therefore analyze, protect or acquire resources that meet these criterias in order to gain sustained competitive advantages.

When attempting to identify elements that affect profitability using RBV as a basis, the emphasis must be on a firm's internal resources and capabilities.

Hitt, Bierman and Shimizu (2001) takes an approach from the resource-based view, stating that human capital is the primary resource in professional service firms. The researchers are in accordance with RBV, suggesting that these firms use human capital resources to create sustainable competitive advantage, resulting in higher firm performance (Hitt et al., 2001).

We are certainly aware of other theories that also could be used to describe factors that influence profitability, such as the mentioned Porter's five forces model. However, we find that Barney's interpretation of the RBV provides a solid theoretical basis for expanding the theory, as our study focuses on the effect of firm-specific resources. Thus our study focus is not directed at the effects of market structures, which are emphasized in Porter's five forces model. A number of more recent theories and frameworks that aim to build on RBV are also applicable (Hart, 1995; Sirmon, Hitt & Ireland, 2009). However, we find that Barney's interpretation of the RBV provides a solid theoretical basis for expanding the theory.

Barney does not specifically state what resources, or in other words what variables, one should try to look at to find differences in firm performance. He rather argues that one should look at internal resources and capabilities. He also presents a framework that can be applied in order to understand whether a resource can lead to sustained competitive advantage, that in turn might be used to explain differences in profitability among firms in the same industry. While competitive advantage can be helpful in understanding the causes of profit differentials, it is crucial to emphasize that competitive advantage is not the only causal mechanism by which profit can be generated, according to authors like Makadok (2011).

As RBV builds on resources and capabilities that can create sustainable competitive advantage, our study will focus on the connection between resources and profitability. Furthermore, cost drivers can be understood as factors contributing to this, thus helping to identify possible factors influencing competitive advantage. We have decided to expand the theoretical basis by integrating two theoretical frameworks for cost drivers. RBV and cost drivers are included to try to comprehend the outcomes and broaden the discussion as well as

to understand what resources (variables) can be important to look at in order to explain profitability variations throughout an industry.

2.2 Porter and Riley's Cost Drivers

Cost drivers are defined by Porter as "structural factors that affect costs" (Porter, 1985, p.91). Reduced cost does not directly translate to increased profit, since such changes also can impact the revenue. However, understanding cost drivers can serve as a foundation for an explanation of variances in profitability among companies in the same industry. Cost drivers can also be understood in relation to RBV, as several of the cost drivers can be understood as resources and capabilities. RBV says that these resources and capabilities in turn can be leveraged to create sustained competitive advantage. Both cost drivers and RBV also take on an internal focus on the firm. Cost advantage can also in itself be a valuable resource that can lead to sustained competitive advantages for a firm.

Scale, learning, capacity utilization, linkage, interaction, integration, timing, principles, location, and institutional factors are Porter's 10 cost drivers. An activity in the firm can be affected by several cost drivers, thus having an overlapping effect. Companies may be able to control cost drivers as they relate to strategic choices that companies make.

Riley expanded on Porter's framework, which he first introduced in 1987, and included a framework with structural and operational cost drivers (Shank, 1989). The structural cost drivers include strategic choices the company makes that have an impact on production costs. The five structural cost drivers are scale, operational scope, experience, technology and complexity. Operational cost drivers are a company's ability to carry out the activity in an efficient manner. The five operational cost drivers are employee commitment, quality management, capacity utilization, design of the production premises, product design and collaboration.

Porter and Riley's cost drivers have been included as from RBV these can be seen as possible factors affecting the firm's performance. In the study we will further concentrate on factors that characterize the MC industry. As the industry consists of firms in various sizes, we chose to examine the effect of scale more closely. The industry is project-based with employees of high knowledge and expertise. Therefore, we will also examine the effect of location and experience on the firm's profitability.

2.3 Profitability

Profitability is a critical ratio that may be used to evaluate the performance of the company in a variety of ways. A company's ability to produce earnings, assets, and capital is demonstrated by its profitability. Every company should aim to maximize performance in order to please shareholders, obtain funding, and maintain operations (Kant, 2018). Several studies examine its financial component, the fulfillment of the financial goals of the firm, although firm performance is portrayed multidimensional by aspects such as operational efficiency, corporate reputation and organic survival (Gentry & Shen, 2010). According to Gentry and Shen (2010, p. 514), researchers typically utilize accounting-based metrics like return on assets (ROA), return on sales (ROS), return on equity (ROE), or return on investment (ROI) to evaluate the success of the organization.

From previous studies investigating the relationship between various variables and profitability, ROA was the most commonly used measure. Studies by Ayele (2012), Margaretha and Supartika (2016) and Kant (2018) have used ROA as their dependent variable on profitability. ROA is relevant from the perspective of managers and stakeholders. According to Simerly and Li (2000, p. 40), ROA and ROI are more appropriate than ROE and ROS in capturing the firm's contributions to more general resource investments. Hagel, Brown and Davison (2010) argue that ROA is a better measure of company performance than ROE. Increased gearing can help maintain the company's ROE, if the underlying profitability weakens further, more debt will be necessary to maintain the return on equity. Therefore, Hagel et al. (2010) suggest that ROA is a better measure of company performance, as ROA explicitly takes into account the assets used to support business activities.

This study will use ROA as the measure of profitability. The choice of the profitability measurement is primarily based on previous research, as well as the measurement being appropriate for manager and stakeholder perspective.

2.4 Review of Previous Studies

Existing literature has investigated the relationship between various variables and profitability in different countries, industries and firms. In this section we will review relevant research, before determining the selected variables in this investigation.

Between 1970 and 1989, Dhawan (2001) examined the relationship between firm size and productivity for US businesses. The study found that smaller firms have a higher level of productivity than "too big" firms. According to the study, smaller businesses also have a greater profit rate, which is in contrast to theories such as the resource-based view and economies of scale by Porter and Riley. Dhawan (2001) suggests that increasing the size of a firm is beneficial up to a certain point, beyond this point the firm may face reduced economies of scale for their "too big" size.

Vijayakumar (2011) investigated the relationship between firm structure and profitability of five sectors within the Indian Automobile industry, in the period of 1996 to 2009. According to Vijayakumar, the firm's characteristics have a significant impact on profitability. Firm size and growth was found to be the most important determinants of profitability. Three sectors showed a positive relationship between firm size and profitability, which Vijayakumar believes is due to changes in production brought on by rising demand and reduction costs. In contrast, the two other sectors showed a negative relationship between firm size and profitability. This, according to Vijayakumar, is a result of organizational inefficiency, higher bureaucracy and the concept of x-inefficiency[1] in larger firms. Overall, the researcher concludes that larger firms are more profitable. Furthermore, there was a positive relationship between growth and profitability, where the findings in the researchers' study was in accordance with Singh and Whittington (1968). Singh and Whittngton's (1968) positive relationship was due to increased motivation among employees who expected increased gains in the future as a result of larger firm size. The study also revealed a strong relationship between firm age and profitability, suggesting that older businesses are more successful. Vijayakumar suggests that older firms have more experience in predicting market capacity, which provides profitability if the firm manages to capture the market. The researcher further contends that older firms will be able to connect with pertinent customer segments and provide competitive products to meet demand.

The impact of firm-specific factors on the profitability of Ethiopian insurance companies between 2003 and 2011 is examined in a study by Ayele (2012). The researcher reasons that larger insurance firms achieve higher profitability as a result of being able to utilize economies

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[1] X-inefficiency measures the extent to which costs are higher than necessary, causing higher production costs due to managerial or technological inefficiency in larger firms (Vijayakumar, 2011).

of scale, as they do not operate in a highly competitive market. Ayele explains that growth is positively related to profitability as more assets over time increases internal capacity. However, the researcher points out that the positive impact of growth on profitability does not only depend on the internal capacity, but also the ability of firms to exploit external opportunities.

Salman and Yazdanfar (2012) study investigate the impact of firm size, sales growth, productivity, lagged profitability, asset turnover and firm age on the profitability of Swedish micro-enterprises in the sectors of health, transport, trade and metal in 2007. The findings indicate that growth and productivity have a significant positive effect on microenterprises' profitability, while firm size has a significant negative effect. In the same sectors as Salman and Yazdanfar's (2012) study, Yazdanfar (2013) evaluates five of the six same profitability variables in Swedish non-financial micro-enterprises in the years 2006–2007. In contrast to Salman and Yazdanfar (2012), Yazdanfar's (2013) research indicates that size has a positive impact on profitability. Salman and Yazdanfar (2012) and Yazdanfar (2013) both reached the same conclusion that productivity was the key factor in determining profitability.

A similar investigation to Salman and Yazdanfar (2012) was conducted by Margaretha and Supartika (2016) of Indonesian small and medium-sized enterprises in the year 2011. The findings indicated that firm size, sales growth and lagged profitability has a significantly negative effect on profitability, while productivity and industry affiliation has a positive influence on profitability. Margaretha and Supartika argue that larger firms are less profitable since they will have organizational inefficiencies and higher bureaucracy. On the other hand, it is suggested that smaller firms are more profitable, because they are compelled to use their resources more creatively and efficiently, which in return makes them more competitive, leading to increased profitability. This argument is supported by several other findings showing that the firm's productivity is the strongest factor that positively affects profitability (e.g., Salman & Yazdanfar, 2012; Yazdanfar, 2013). In addition, Margaretha and Supartika (2016) suggest that the negative relationship between sales growth and profitability may be a result of firms focusing less on current earnings than on future gains. This indicates that the firm makes investments that increase the sales growth of the firm, which results in a lower level of profitability.

A study by Kant (2018) examines 250 American manufacturing companies in the years 2012-2017. The results suggested a positive relationship for R&D investment, growth rate,

productivity, leverage ratio and current ratio on profitability. According to Kant, there is no relationship between firm size and profitability, in contrary to the studies reviewed above. In contrast to the studies reviewed above, Kant suggests that larger companies are not necessarily more successful companies.

The study by Qureshi, Strønen & Urdal (2020) investigated all Norwegian sectors between 2008-2016. The study found that firm characteristics explains most of the variation in profitability in Norwegian industries. Their findings indicate that bigger firms are overall more profitable in Norway, as well as growth is the main determinant of profitability variation.

2.5 Summary of Findings in Previous Studies

We have created a summary table to give a more thorough understanding of the findings presented in subsection 2.4. The table enables effective and organized comparison of results across investigations. Table 2.1 outlines the independent variables that were included in each study and their relationship on profitability.

Study	Firm Size	Firm Age	Growth rate	Productivity	Leverage	Liquidity	Lagged Profitability	Asset turnover	Industry Affiliation	Volume of Capital	Tangibility	Capital-output	Market share	Current ratio	R&D intensity
Vijayakumar (2011)	+	+	+	N/A	-	-	+	N/A	N/A	N/A	N/A	+	+	N/A	N/A
Ayele (2012)	+	No sig.	+	N/A	-	-	N/A	N/A	N/A	+	No sig.	N/A	N/A	N/A	N/A
Salman & Yazdanfar (2012)	-	No sig.	+	+	N/A	N/A	+	+	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Yazdanfar (2013)	+	-	+	+	N/A	N/A	+	N/A	-	N/A	N/A	N/A	N/A	N/A	N/A
Margaretha & Supartika (2016)	-	No sig.	-	+	N/A	N/A	-	N/A	+	N/A	N/A	N/A	N/A	N/A	N/A
Kant (2018)	No sig.	No sig.	+	+	+	N/A	N/A	-	N/A	N/A	N/A	N/A	N/A	+	+

Table 2.1: Summary of Findings in Previous Studies

(+) meaning a positive relationship between the selected variable and profitability. (-) meaning a negative relationship between the selected variable and profitability. No sig. meaning there is no significant relationship between the selected variable and profitability. N/A meaning the variable were not studied in the paper.

Dhawan (2001) and Qureshi et al. (2020) are not included in table 2.1. Dhawan (2001) was excluded as the study does not investigate the relationship on profitability, but focuses on firm size and productivity differences. In addition, Qureshi et al. (2020) studied profitability variation in 17 different sectors separately. Qureshi et al. (2020) had significantly many and varying findings which were not appropriate to include in table 2.1. The studies have given us relevant and valuable information, which we will take with us through our study.

2.6 Selected Variables and Hypothesis Development

The summary of previous studies shows that the various mentioned factors have an inconclusive effect on profitability. Due to mixed results in previous studies and the nature of management consulting, it was unclear which variables that should be studied. Based on available data, we chose to start knowledge development about profitability determinants in the Norwegian MC industry by examining the following variables: firm size, firm age, growth, productivity, location and lagged profitability. Previous research has on average used three or four variables in the profitability investigation (Kant, 2018). We have chosen to examine six variables to increase the relevance of our thesis and provide better insight.

Firm size

According to the resource-based view of Barney (1991), internal factors such as firm size will influence the sustainable competitive advantage. Kant (2018, p. 4) states that firms with more assets and capital can form competitive advantage, which allows the firm to engage in more investments or projects compared to smaller firms. Larger firms are more likely to benefit from economies of scale, which happen when a business is able to do tasks more effectively at a higher volume (Porter, 1985; Shank, 1989). Aldrich and Auster (1969) argue that smaller firms suffer from "liabilities of smallness", as they lack the resources and experience to be significantly profitable. According to Coase's (1937) theory of transaction costs, there is not always a relationship between a firm's size and profitability. This is because larger organizations may have higher transaction costs due to more coordination and administration.

The examination of the relationship between firm size and profitability yielded mixed results. Vijayakumar (2011), Ayele (2012) and Yazdanfar (2013) found that firm size has a positive effect on profitability. While the investigation by other researchers found that firm size has a negative effect on profitability (Salman & Yazdanfar, 2012; Margaretha & Supartika, 2016).

Dhawan (2001, p. 290) stated that although smaller enterprises make better profits, they have a lower surviving probability than larger firms.

Based on theory and prior research, we expect that larger firms in the MC industry are more profitable in the long run due to stronger market position (Kant, 2018). Larger firms also have the potential to benefit from economies of scale, resulting in cost reduction (Shank, 1989). Lastly larger firms have sufficient resources and experience to avoid limitations faced by smaller firms, known as "liabilities of smallness" (Aldrich & Auster, 1969). Therefore, the following hypothesis has been formulated to investigate firm size as a profitability driver in MC context:

H1: The size of a firm positively influences profitability.

Firm age

According to the resource-based perspective, it can be claimed that older organizations have an easier time acquiring resources through time than younger ones. This is supported by the notion that older businesses tend to have, among other things, more knowledge and expertise, a better reputation, and better access to networks (Curran & Keele, 1993). In Riley's framework experience also has an impact on the firm's cost, since the production or service will be carried out more efficiently and limiting the risk of errors (Shank, 1989). In addition, "liability of newness" affects newer organizations, making it harder for them to survive their initial years (Henderson, 1999). In contrast, the Organizational Life Cycle theory by Dodge, Fullerton & Robbins (1994) suggests that older firms tend to experience lower performance.

Previous studies examining the relationship between firm age and profitability have mixed results. The results of Yazdanfar's (2013) study showed that firm age has a negative influence on profitability. Other research finds no relationship between firm age and profitability (Ayele, 2012; Salman & Yazdanfar, 2012; Margaretha & Supartika, 2016; Kant, 2018). Vijayakumar (2011) found that firm age positively influences profitability.

According to theory and previous research, more established and older firms ought to be more profitable. This can be argued to be due to the fact that they might have more experience and information on how to conduct their operations (Curran & Keele, 1993), and more efficient and limiting amount of errors in their operations (Shank, 1989). Older firms might also have built up a more stable portfolio of customers (Kant, 2018). Based on these premises, the

following hypothesis has been formulated to investigate firm age as profitability driver in MC context:

H2: The age of a firm positively influences profitability.

Growth rate

Previous research on the relationship between profitability and growth has shown to be both positive and negative. Growth refers to a company's expansion from a small to a large size, as well as from a weak to a strong corporation (Mao, 2009). From RBV, it can be argued that firms with greater growth will have greater access to resources, a factor that can contribute to the firm achieving sustainable competitive advantage. According to Greiner (1972), the relationship between growth and profitability can be positive or negative. Indeed, some researchers found a positive relationship between firm growth and profitability (Vijayakumar, 2011; Yazdanfar, 2013; Ayele, 2012; Kant, 2018), whereas Coad, (2007) showed no connection between profitability and growth. In addition, Margaretha & Supartika (2016) discovered that profitability is negatively impacted by growth.

Past research does not give a clear indication of what to expect in the MC context. We believe that if a MC firm grows in size, measured by sales, it affects profitability, since it can contribute to the firm having better access to resources (Yazdanfar, 2013). Greater growth can also mean development into a stronger business (Mao, 2009), or enable entry into new markets (Kant, 2018). Therefore, the following hypothesis has been formulated to investigate growth rate as profitability driver in MC context:

H3: The growth rate of a firm positively influences profitability.

Productivity

Previous research on the relationship between productivity and profitability has produced mostly similar results. According to Yazdanfar (2013), greater profitability will be attained through increased output and resource efficiency. Meaning, profitable firms are more productive and cost effective. According to the resource-based view, the productivity level will affect the profitability, as it reflects the firm's ability to utilize resources efficiently. Many researchers have found that productivity has a positive effect on profitability (Salman & Yazdanfar, 2012; Yazdanfar, 2013; Margarita & Supartika, 2016; Kant, 2018). Other empirical research has suggested productivity to be the key determinant of profitability.

Based on previous studies, we expect that MC firms with higher productivity are more profitable due to the following reason: use all available resources efficiently (Yazdanfar, 2013). Therefore, the following hypothesis is formulated to investigate the productivity as a profitability driver in MC context:

H4: The productivity of a firm positively influences profitability.

Location

One of Porter's (1985) cost drivers is location; he believes that as customers from various geographic places will have varying preferences and levels of willingness to pay, businesses from various geographic locations will also experience varying advantages and disadvantages. The location is also decisive for the workforce available. From a resource-based view, geographic location can have an impact on profitability, depending on whether the location is limiting or provides access to valuable resources. Empirical findings suggest that there is no significant difference between profit of firms with different locations (e.g., Henderson, 1984; Coombes, Storey, Watson & Wynarczyk, 1991). Qureshi et al., (2020) documented that location only has a notable influence on profitability for finance & insurance and building & construction industries, but a significant negative relationship in the other industries. According to the researchers, the majority of the big, successful companies would establish their headquarters in the capital, which is a possible explanation for this.

Based on theory and previous studies, we believe MC firms located in larger cities can generate more profits because they encounter wider willingness to pay and customer preferences (Porter, 1985), as well as having a more available workforce (Porter, 1985; Qureshi et al, 2020). Due to this, the following hypothesis is formulated to investigate location as a profitability driver in MC context:

H5: The location of a firm positively influences profitability.

Lagged Profitability

Lagged and current profitability are somewhat related and can be explained by the fact that higher profitability in the previous year can mean that the company has access to more resources and opportunities. The relationship between lagged and current profitability is inline with the resource-based view, since firms with higher lagged profitability have the ability to acquire more resources current year more easily than other firms (Yazdanfar, 2013).

Previous studies that have investigated the effect of lagged profitability on profitability have mixed findings. Margaretha and Supartika (2016) found that lagged profitability significantly influences profitability in a negative way. Other studies indicate that lagged profitability has a positive relationship with profitability (Vijayakumar, 2011; Salman & Yazdanfar, 2012; Yazdanfar, 2013).

Based on theory and previous studies, firms with higher lagged profitability are more profitable. This is due to lagged profitability enabling them to retain their competitive advantage or gives the firm an important tool for further investment and development (Salman & Yazdanfar; Yazdanfar, 2013). As a result, the following hypothesis is formulated to investigate lagged profitability as a profitability driver in MC context:

H6: The lagged profitability of a firm positively influences profitability

3. Methodology

This chapter presents the strategic choices and methods utilized in this thesis. We have decided to break up the methodology of this thesis into seven sections in order to present it clearly and thoroughly. The study design is presented first, followed by the selection, collection, processing, and evaluation of the data, and finally the analysis technique and underlying assumptions.

3.1 Study Design

Our study design reflects how we will test the hypotheses to provide answers to the proposed research question.

Research Purpose

The purpose of the study is to identify and investigate the relationship between various variables and profitability in the Norwegian management consulting industry. As we examine factors' effects on profitability using the hypotheses provided in chapter 2.6, the research topic is classified as explanatory. Using regression analysis, we will look into whether those variables have an influence on profitability.

Research Approach

This study uses hypothesis testing, based on existing theory and studies corresponding to a deductive research approach. A deductive research approach is characterized as theory-driven (Saunders, Lewis & Thornhill, 2019, pp. 152-153). The hypotheses are developed before collecting and analyzing empirical data. These hypotheses are accepted or rejected with empirical data using various tests, normally statically. This approach is generally associated with scientific research. Furthermore, the deductive research approach is appropriate since it enables us to generalize the findings for the population in the study.

Research Design

In order to get the most accurate picture of the industry's development in terms of profitability, it is essential to have a sufficiently long time horizon. We carry out a longitudinal study, meaning that the same observation units are followed over time. A longitudinal study takes

into account year- and firm-specific factors over time. The strength of a longitudinal study is its ability to study changes and development over time, as well as that study over time provides more observations, which also strengthens the investigation (Saunders et al., p. 212).

3.2 Data Selection

In this study our aim is to identify and investigate factors influencing profitability of MC firms operating in Norway, therefore our population in the study is limited accordingly. Management consulting is referred to, in this context, as external sale of service related to business consulting. Firms with the aforementioned service should be registered as 70.220 in the Standard Industrial Classification system (SIC 2007). The description for this SIC code is "Business consultancy and other administrative consultancy" (SSB, 2023). We used Proff Forvalt to retrieve data, sorted for firms classified with this specific SIC code. These firms were given further requirements limited by size, age and that they were still active:

- Firms were required to have 10 or more employees
- Firms were required to be registered before 01.01.2014
- Firms were required to be active in the time period 2014-2021

The requirements given for the firms must be met for the last year in the selected time period. The decision on requirements for a minimum threshold of 10 employees for firms is aimed at minimizing the probability of having unsuitable candidates for answering the research question. Firms with less than 10 employees may not have the same resources and operational complexity, or may be in the start-up phase with different types of challenges, than larger established firms. Therefore, the threshold is set in order to minimize possible noise from observations that do not provide insight into factors that influence profitability. Similarly, the prerequisite for registration and activity is necessary to ensure that we have data available for all years within the relevant time period. The requirements are set to ensure relevant and reliable data to answer the research question.

The time horizon for this study is eight years, from 2014 to 2021, with the financial year 2022 being excluded due to insufficient and unpublished data. An eight-year period is used to get a comprehensive view of the profitability development within the industry, as well as including as many observations as possible for minimizing transitory effects, and therefore increase reliability. The time period extends over the years with Covid-19, and it is presumed that this will have an impact on how the industry develops.

In this study we are using secondary data, which increases the risk of coverage error. Coverage error occurs when the chosen framework does not accurately represent the desired population. As a result, some firms have different probability of being selected in the sample There are two types of coverage errors, undercoverage and overcoverage. Undercoverage happens when firms that should be included in the sample are omitted, while overcoverage is the opposite, where firms that should be left out are included (Saunders et al., 2019, p. 361). In this study, there is a probability that both over and under coverage occurs, as a result of an unperfect SIC code for this investigation. The SIC code, 70.220, is the most appropriate in this study, but as it might exclude firms desired for the population, it also included firms not operating within the MC industry. This led us to manually reviewing 166 firms to determine if they fit within the sample. This process excluded firms that were obvious misclassification, or where their core business was not management consulting. This resulted in a total of 59 firms being included in our study. There is a possibility of coverage error in the study due to human error, which may have included or excluded desired firms from the sample. As a consequence of our repeated reviews of the firms, we anticipate that any coverage errors will be minor and have little impact on the study's results.

The sample consists of 59 companies that were examined during an eight-year period, yielding a maximum of 472 observations. However, some data was absent from the Proff Forvalt database, primarily the number of employees, as it was not updated when there were no changes. To compensate for this, missing data was manually filled in based on patterns that indicated that data was available when there were changes in the number of employees. Besides this, other data were also missing, leading to a final count of 58 firms, resulting in 452 observations in the study.

3.3 Data Collection

Data collection is important for the study to be credible and for the result to be of high quality.

Quantitative data

The study uses statistical analyses and profitability figures to answer the research question, which is consistent with the use of a quantitative research approach to collect data. An analysis of numerical data is used in quantitative research, usually on a large sample size to assure a fair representation of the population under investigation.

Secondary data

The data is either categorized as primary or secondary, which refers to acquired research or existing data, respectively (Saunders et al., 2019, p. 338). We have decided to obtain data from secondary sources, as there is a large amount of available theory, literature and data material on the topic of our research. The relevant quantitative secondary data for the analysis has been obtained from Proff Forvalt. Additionally, information has been obtained from the firm's annual reports and websites, articles and other public documents.

3.4 Data Processing

Our dataset includes firms of all ages, sizes, and stages of development, which might inevitably result in observations with extreme values. We have opted to value-adjust these observations in order to restrict the number of observations with extreme values and the impact they may have on the outcome. As done in the study by Kant (2018), observations are limited to the 99th and 1th percentile, to minimize the impact of outliers. This is done on the variables profitability, growth and lagged profitability. The variables were selected since these had clear outliers, and we decided to cap them at the 99th and 1st percentile to prevent making unneeded modifications that would cause information loss or data distortion.

Analyzes of the entire dataset without any caps were performed. The results, whether absence or inclusion of the caps, were similar in terms of positive and negative coefficients. The strength of the significant level was impacted on the variable growth rate and lagged profitability, but not on the variable productivity. However, the variables were still statistically significant without caps at the 99th and 1th percentiles.

3.5 Evaluation of the Data Material

In this subchapter we evaluate the quality of the data material in the thesis. This is done according to reliability and validity, to minimize the risk of research bias.

Reliability

Reliability concerns how reliable the data material is, this refers to how consistent the researcher is in the collection and measurement of the data (Saunders et al., 2019, pp. 517-

518). The data material has high reliability if others are able to obtain the same result by using the same research method under similar conditions (Dudovskiy, 2016).

As mentioned earlier, the majority of the data collected is categorized as secondary and quantitative. The majority of the data material is obtained from Proff Forvalt, which is based on the Bronnoysund register. It is the firm's themselves that submit audit-approved annual accounts to the Bronnoysund register. The reliability of secondary data then depends on the secondary source. As external auditors are used to audit the annual accounts that have been submitted, this contributes to considering the reliability as high.

Validity

The validity concerns in this study the extent to which the data material is relevant for answering the problem statement. There are two types of validity; internal and external validity Internal validity focuses on whether the study can demonstrate a causal relationship between variables, while external validity focuses on whether the findings in the study can be generalized to other contexts or are only relevant to the study (Saunders et al., 2019, p. 517).

In this study, we are not investigating which variable affects the other. The study's purpose is to investigate whether a relationship exists between the independent variable and the dependent variable, and whether this relationship is positive, negative or not significant. As a result of the purpose of the study, the question of internal validity becomes less relevant, as the focus is not to demonstrate a causal relationship, and therefore the study is considered valid.

Moreover, in the study we have obtained quantitative data from secondary sources. The majority of the data is collected from publicly available and audited accounting figures and annual reports, and is therefore considered valid.

As far as generalization is concerned, the population in the study has undergone certain limitations, it is not possible to generalize the findings for every MC firm in Norway. However, since there are a limited number of MC firms in Norway and the sample size for the study includes a wide range of these firms, the results will nevertheless provide a representation of the industry as a whole.

3.6 Analysis Techniques

Based on the problem statement in this thesis, we use numerical quantitative data. The analysis of this thesis is based on a descriptive analysis, correlation- and regression analysis. We have performed the analyzes in the statistical program R.

Descriptive analysis

Descriptive statistics make it possible to explore and present an overview of all the variables used in the analysis. The average, standard deviation, minimum and maximum values for the variables are presented.

Correlation analysis

The correlation analysis is used to show how variables are related to each other. Such an analysis shows how strong co-variation there is between the independent variables and the dependent variable, profitability. The Pearson r correlation coefficient was employed for the correlation analysis. The results of the analysis are represented in the nature, direction and significance of the correlation of the variables.

Regression Analysis

The regression analysis is used to investigate the relationship for the independent variables, size, age, growth rate, productivity, location and lagged profitability on profitability. Multiple regression is suitable when analyzing the relationship between a dependent variable and two or more independent variables (Saunders et al., 2019, p. 618). Multiple regression is the method used to examine the effect between the dependent variable and independent variables. This approach is in accordance with previous studies, which dominantly used a multiple regression model to investigate profitability determinants such as (Vijayakumar, 2011; Ayele, 2012; Margaretha & Supartika, 2016).

Considering our research question, we use a multiple regression model that examines the relationship between several independent variables and a dependent variable, making the model subject to fixed or random effects. In the study, we are interested in capturing variations within each firm over time, rather than the variation between different firms. This makes the fixed effects method suitable for our investigation. A Hausman test in R was conducted to check our reasoning, as the test determines whether fixed or random effects are more

appropriate. The result from the Hausman test is shown in appendix A2, concluding that fixed effects are the most suitable method. By including fixed effects, unobservable firm specific factors that are taken into account for, which contributes to increasing the validity of the findings in the regression analysis.

Based on the identified independent variables, the model is as follows:

$$ROA_{i,t} = \beta_0 + \beta_1 Size_{i,t} + \beta_2 Age_{i,t} + \beta_3 Growth_{i,t}$$
$$+ \beta_4 Productivity_{i,t} + \beta_5 Location_{i,t} + \beta_6 Lagged\,Profitability_{i,t} + \varepsilon_{i,t}$$

Equation 3.1: Regression Model. In the regression model ROA is the return on assets the measurement for Profitability; Size is the variable Firm Size; Age is Firm Age; Growth is Year-to-year Growth rate; Employee productivity is Productivity; The municipal population of the firm's location is the variable Location; Lagged profitability is the profitability of the previous year. β0 is the y-intercept, ε represents the random error and i, t are for firm i on year t.

Table 3.1 below displays the dependent variable and the independent variables, with their associated measurements and scale.

Variables	Measurement	Scale
Dependent variable		
Profitability	$ROA = \dfrac{Net\,Income}{Total\,Assets}$	Ratio
Independent variable(s)		
Firm size	Log of Total Assets	Ratio
Firm age	Log of Year since established	Ratio
Growth rate	$GR = \dfrac{Sale\,t - Sale\,t-1}{Sale\,t-1}$	Ratio
Productivity	$Log\left(\dfrac{Value\,Added}{Number\,of\,Employees}\right)$	Ratio
Location	Log of municipality population to the location of the firm	Ratio
Lagged Profitability	$\dfrac{Operating\,Profit\,t-1}{Sale\,t-1}$	Ratio

Table 3.1: Variables and Measurements

3.7 Assumptions for Regression Analysis

The regression analysis will have greater validity if certain assumptions are met. If the assumptions are satisfied, the result will have greater statistical validity, which strengthens the reliability of the study (Poole & O'Farrell, 1971). Which also means, if the assumptions are not met, the reliability of the study may be weakened. The assumptions are normality of data, and the absence of multicollinearity, heteroscedasticity and autocorrelation.

Normality of Data

When using a linear regression model, it is required to have a linear relationship between the residuals and ensure that the residuals follow a normal distribution. Furthermore, the mean of the residuals must be concentrated around zero (Hair, Babin & Anderson, 2010, pp. 71-72). To test this assumption, we have used graphical methods in the form of Q-Q plot and histogram.

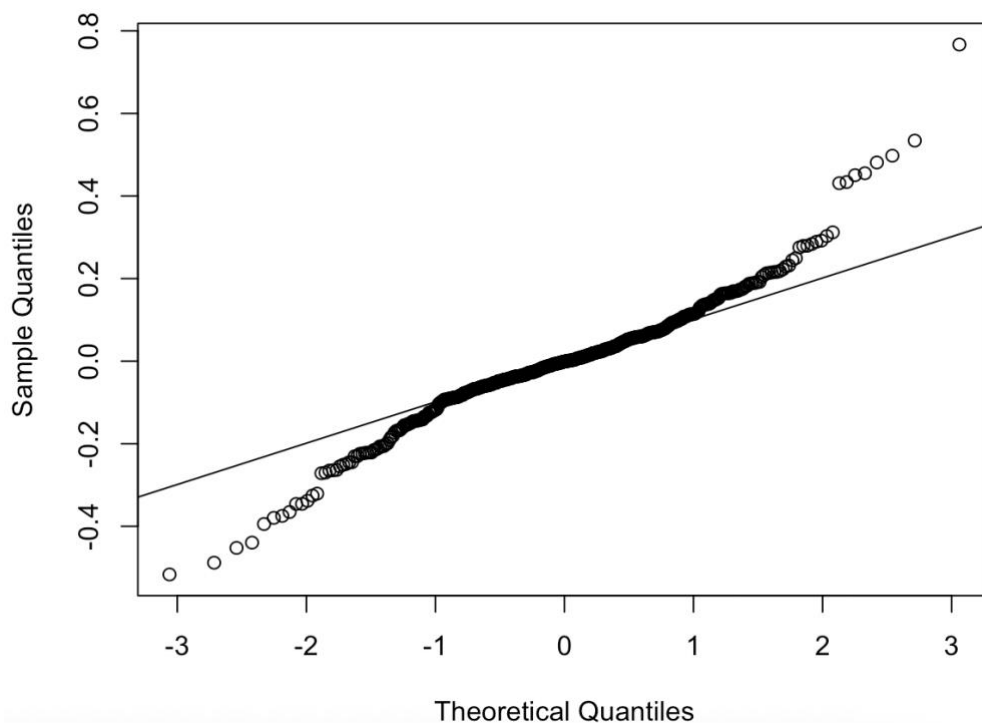*Figure 3.1: Q-Q plot*

In a Q-Q plot, the residuals are compared against a normal line. In figure 3.1, the residuals lie close to the line in the middle part, but have tails at both ends where they deviate from the line. This emerges from extreme observations, which is reasonable given that our data includes firms of different sizes and will experience a greater variability than firms of the same size.
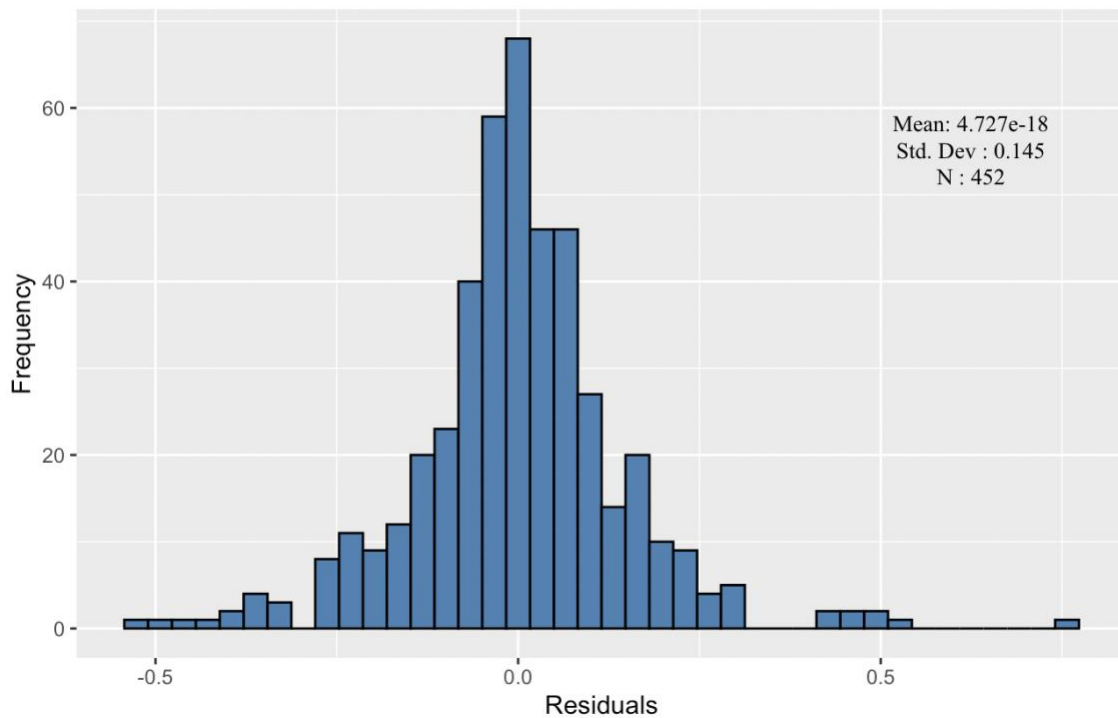
Figure 3.2: Histogram

From figure 3.2, the histogram illustrates a bell-shaped curve concentrated around zero, indicating that the data is normally distributed. Overall, based on our examination of the Q-Q plot and histogram, we can conclude that the normality assumption is accepted, proving some validity to the population parameter in the sample.

Multicollinearity

The test for multicollinearity is to ensure independent variables and a valid model. Multicollinearity occurs when two or more independent variables in a regression model are highly correlated with each other. When a perfect linear combination of two independent variables occurs, it is referred to as perfect multicollinearity. Imperfect multicollinearity is when two independent variables are highly correlated with each other. If there is multicollinearity, the dependent variable's variance will partially be explained by several explanatory variables, thereby prevent estimation of the coefficients, resulting in a misleading interpretation of the model (Hair et al., 2010, pp. 197-198).

To test the degree of multicollinearity in the regression model a VIF test has been carried out. If the VIF value is above 5, we can suspect multicollinearity, and with a value above 10 it is argued that the variables have a too high degree of correlation (Hair et al., 2010, p. 201).

VIF-Test for Multicollinearity	
Variables	VIF
Firm size	1.805
Firm age	1.294
Growth rate	1.151
Productivity	1.631
Location	1.274
Lagged Profitability	1.105

Table 3.2: VIF-test

From table 3.2, we observe that all the variables are significantly below the VIF value threshold, with the highest value being 1.805. Therefore, we can conclude that there is no high degree of correlation between the independent variables, and the assumption is fulfilled.

Homoscedasticity and Heteroskedasticity

Homoscedasticity is referred to when a regression model experiences constant variance in the error term. On the other hand, if the error term has varying variance, the model suffers heteroskedasticity. The assumption of homoscedasticity is important for t- and F-tests being in the regression model to be valid (Hair et al., 2010, pp. 73-74).

To investigate the assumption, we use White's test in R. The null hypothesis of White's test is that error terms have equal variance and are uncorrelated. If the p-value is greater than 0.05, the null hypothesis is rejected, indicating heteroscedasticity in the model.

Test for heteroskedasticity	
Test	P-value
Breush-Pagan test	146.75
Whites test	1.021e-07

Table 3.3: White's test

Table 3.3 shows a p-value lower than 0.05, the null hypothesis cannot be rejected, thus the model is subjected to heteroscedasticity. To account for this, we use robust estimation of the standard errors in the regression model.

Autocorrelation

When carrying out a longitudinal study, the degree of connection between the variables during the time period is investigated. In time series data, auto correlation can occur when the same error term is correlated over several time periods. Auto correlation can be a problem as trends and seasonal affects the observations over time (Hair et al., 2019, p. 182). To identify whether auto correlation appears in the dataset, we carry out a Durbin-Watson test. The Durbin-Watson test measures the correlation and the dependence of the variable's error term, and assesses the effect it has on the model. The test produces a value between 0 and 4, where a result closer to 2 indicates no autocorrelation. Results approaching 0 indicate a positive autocorrelation, while a result closer to 4 leans towards a negative autocorrelation.

The Durbin-Watson test gave a result of 1.959, which argues for nearly no autocorrelation in the model. The assumption regarding autocorrelation is fulfilled.

4. Empirical Results

In this chapter we will present our empirical result from the analysis presented in the previous chapter. These analyses serve as a means of answering our study questions and putting our hypotheses to the test. We will first present the descriptive statistics of our variables. The outcomes of the correlation and regression analyses will then be presented.

4.1 Descriptive Statistics

Table 4.1 is an overview of the mean, standard deviation, minimum and maximum values for all the variables in the study. Descriptive statistics provides the opportunity to examine trends in the sample. The dependent variable, measured by ROA, averages 13.8% along with mean growth of 21.8%, which is consistent with the statement mentioned earlier, the industry has experienced significant growth in recent years. At the same time, the high standard deviation of profitability suggests that it may be an unstable market (Caporale, Cerrato, & Zhang, 2017). The statistics for each independent variable will be analyzed in this part of the chapter.

Descriptive Statistics

Variables	Number of observations	Mean	Std.Dev.	Min	Max	Scale
Dependent variable						
ROA	452	0.138	0.202	-0.439	1.236	Ratio
Independent variable						
Firm size	452	9.656	1.165	6.540	13.550	Ratio
Firm age	452	2.375	6.636	0.000	3.258	Ratio
Growth rate	452	0.218	0.575	-0.529	3.963	Ratio
Productivity	452	7.521	0.526	5.071	9.441	Ratio
Location	452	0.124	1.284	9.204	13.456	Ratio
Lagged Profitability	452	0.094	0.141	-0.589	0.495	Ratio

Table 4.1: Descriptive Statistics

Firm size has a mean of 9,656, measured in the log of total assets, this corresponds to an average size of around NOK 35 million. As we can see in the table, there is a significant variation in the firm size, with minimum and maximum size being NOK 0,7 and 776 million. The spread provides confirmation that the data set contains a diverse selection of firms, which reduces the potential for random error and bias.

The second variable is firm age, measured in years since established. Table 4.1 displays the average firm age in the sample to be 11 years, the newest firm 0 years and the oldest 26 years. This confirms that the industry is young and still growing.

Growth rate, measured in year-to-year growth in sales, has an average value of 21.8%. The maximum growth rate is 396% and the minimum growth rate is -53%. The average positive growth indicates that demand for the services is high, while the high standard derivation can, as mentioned above, indicate an unstable market.

Productivity is measured by the value added per employee. On average the employee brings NOK 1,846,412 in value per year, with a standard deviation of NOK 1,692. There is a difference of 86% by the minimum and maximum productivity level.

The fifth variable is location, measured in the log of the municipality population to the location of the firm. A high number indicates a location in larger cities like Oslo and Bergen, while a low number are the more remote parts of Norway. The minimum and maximum are respectively 9,948 and 697,010.

Lagged profitability, measured in operating profit margin, has a mean of 9.4%. Lagged profitability has the lowest standard deviation of the variables, with a value of 0,141. This means that most of firms ' operating profit margin will be close to the average, indicating that most of the firms experience a stable margin from year to year.

4.2 Correlation Analysis

Table 4.2 displays the correlation between the dependent and independent variables, as well as the significant level. It is argued that there is high correlation between the variables if it is above 0.8. The highest value in the correlation matrix is 0.618, between ROA and lagged profitability, thus confirming the result from the VIF-test, the model is not affected by multicollinearity.

Correlation Matrix

	ROA	Firm size	Firm age	Growth rate	Productivity	Location	Lagged Profitability
ROA	1.000	0.115*	-0.071	0.159***	0.353***	0.173***	0.618***
Firm size		1.000	0.291***	-0.053	0.562***	0.417***	0.096*
Firm age			1.000	-0.321***	0.007	0.027	-0.128**
Growth rate				1.000	0.073	-0.042	-0.075
Productivity					1.000	0.235***	0.236***
Location						1.000	0.166***
Lagged Profitability							1.000

Signif. "***" = 0.001 "**" = 0.01 "*" = 0.05

Table 4.2: Correlation Matrix

Growth rate, productivity, location and lagged profitability have a strong significant level on ROA, where all have a positive correlation with respectively 0.159, 0.353, 0.173 and 0.618. This means that an increase in one of the independent variables co-varies with an increase in profitability. Interestingly, an increase in lagged profitability will have the largest increase in profitability. Because of the significance level of these four independent variables, they are possible explanatory variables for the dependent variable, ROA.

Firm size has a correlation coefficient of 0.115, with a significance level of 5%. Indicating that an increase in firm size may contribute to increased ROA. The relationship between firm size and profitability is not considered to be as strong as the independent variables described above.

Firm age has no significant relationship with profitability. Indicating that a change in firm age will not contribute to an increase or decrease in profitability.

4.3 Robust Fixed Effect Model

In the methodology chapter, we presented that a multiple regression model with fixed effects was suitable for this study. Further it was made clear that the assumptions must be fulfilled for the results from the regression model to be considered reliable and valid. In chapter 3.7 it was discovered that the model suffered from heteroskedasticity, which affects the reliability of the t-and F- tests. We will use robust estimation of the standard errors, with White's estimator, to take heteroskedasticity into account. This is done by including a more robust estimator of coefficients, standard deviations and p-values. The purpose of using this method is to adjust

for heteroskedasticity, and at the same time this will give more robust estimates and reduce uncertainty. Both the multiple regression model and a fixed effects model were carried out, and the results of these regression analyses can be found in appendix A3 and A4, respectively.

We have decided to only present the results from the regression model that has undergone the robust estimation of standard errors, as it produced the most robust and reliable results. This is considered an improvement from the methods commonly used in previous studies. The model is hereafter referred to as the robust fixed effects model (FE-robust model). The variables and numbers of observations remain unchanged. The FE-robust model recognized that the same firms are represented over a fixed number of years, resulting in the 58 groups shown in table 4.3.

Table 4.3 shows the results of the multiple regression model. Adjusted R^2 is 0.236, meaning that 23.6% of the profitability, measured in ROA, can be explained by the independent variables. Furthermore, we will present the variables' coefficient and significance.

Robust Fixed Effect Model

Model summary				
R-sqared	0.343			
Adj. R-sqared	0.236			
Observation	452			
Groups	58			

Variables	Coefficient	Std. Error	t value	Pr (>| t |)
Firm size	0.046	0.038	1.210	0.226
Firm age	0.055	0.046	1.182	0.237
Growth rate	0.049	0.020	2.537	0.012 *
Productivity	0.172	0.049	3.501	5.176e-04 ***
Location	-0.504	0.370	-1.361	0.173
Lagged Profitability	0.202	0.074	2.714	0.007 **

*Signif. "***" = 0.001 "**" = 0.01 "*" = 0.05*

Table 4.3: Robust Fixed Effect Model

Growth rate, productivity and lagged profitability has a positive and significant relationship with profitability. The results from table 4.3 tells us that an increase in growth rate by one percentage point will increase the profitability by 0.012 percentage point, when all other

independent variables are held constant. Also meaning an increase in productivity and lagged profitability by one percentage point will increase the profitability by 5.176e-04 and 0.007 percentage point, respectively. The variables have a strong significance level, indicating that the observed relationship between the independent variables and dependent variable is real, with a very small probability for coincidence.

Firm size and firm age have a positive coefficient, but are not significant. Indicating that there is no relationship of firm size and firm age on profitability. Location has a negative coefficient, but also has no statistically significant effect on profitability.

5. Discussion on Findings

The choice of model had a considerable impact on the outcomes. In the multiple regression model, the majority of the variables were significant. The model was upgraded by using the fixed effects method. The model was further improved, with taking account for the presence of heteroskedasticity, by using robust estimates of standard errors. As we solely presented the results from the FE-robust model, the focus continues on the empirical results from this model in the discussion. This is based on the fact that the FE-robust model has produced the most robust and reliable results, which is considered an improvement from methods commonly used in previous studies. In this chapter, we will discuss the findings from the analysis, hence how the result compares to established theory, previous studies and the hypotheses.

5.1 Firm Size

The results from our FE-robust model shows a positive coefficient between firm size and profitability among the firms in our sample. The relationship is found non-significant. Therefore, we fail to accept the alternative hypothesis H1 and lack sufficient evidence to suggest a relationship between firm size and profitability. The findings are consistent with the research by Kant (2018).

There may be a number of reasons why firm size and profitability do not have a stronger relationship in our analysis. As Barney (2013) and the RBV point out, one of these explanations is conceivable. He contends that while larger firms may benefit from advantages in resource development and acquisition, organizational complexity and bureaucracy may make it difficult for them to properly use such resources. In other words, he notes that there are both positive as well as negative effects that follow growing into a large firm. This is further supported by Dhawan (2001), whose findings suggest that smaller firms are more productive than larger ones. As earlier mentioned, productivity plays a significant factor for profitability in the consultant industry. As a result, this productivity effect can be stronger in this industry than in others. If so, it provides a reason for our findings showing an non-significant relationship between business size and profitability. RBV further emphasizes that larger firms may access resources like financial resources more easily. As already mentioned, the MC industry is not particularly capital intensive. Therefore, compared to capital-intensive firms, this effect might not be as significant in the consulting environment.

According to Kubr (2002), larger consulting firms frequently have higher personnel turnover than smaller firms. For any company, a high personnel turnover rate can be quite expensive. If this is the case, it may also help to explain why our data does not reveal a pronounced positive effect between size and profitability in the Norwegian MC market.

5.2 Firm Age

Firm age and profitability have a positive coefficient in our model, but the effect is not significant. We fail to accept the alternative hypothesis H2, finding insufficient evidence to support a relationship between firm age and profitability. A relationship has been found in certain research, both positive (Vijayakumar, 2011) and negative (Yazdanfar, 2013). Nevertheless, the majority of the research we have examined presents comparable non-significant results.

The result from our model does not provide strong enough evidence to support liabilities of "newness" and the organizational life cycle theory. Indicating that it is not necessarily more difficult for new firms to survive the firm's first years or that older firms experience lower performance in this industry.

According to RBV, older firms might have built up more expertise and better processes due to experience, which can be a valuable resource. At the same time, the resource also needs to meet Barney`s other criterias in order to give sustained competitive advantage (VRIN). One of these is that the resource must be rare. Porter (1985) makes the point that knowledge gained through experience flows more readily between firms in certain industries. If this is the case, the resources would then not be rare, and hence cannot give sustained competitive advantage. This is probably the case with management consulting firms, where there is a high rate of employee turnover and where workers frequently move between rival companies throughout the course of their careers (Kubr, 2002). According to Porter (1985), if such knowledge is present, any cost or efficiency advantage will simply result in reduced costs for the entire industry.

Meaning that the high labor mobility in the MC industry will not necessarily be an advantage for older firms in having contact with relevant customer segments, which Vijayakumar (2011) argues for. The high flow of experience and knowledge in the industry means that new and

established firms will be able to have equal access to knowledge and relevant customer segments.

Additionally, there may be a significant degree of partner labor mobility, where it is not uncommon for successful partners of MC firms to start their own consulting firms (Bruce Henderson left the MC firm Arthur D. Little to start BCG, and Bill Bain left BCG to start Bain & Company (Gallese, 1989; Hayes, 1992)). Customers in this field may be more devoted to a specific partner than to specific firms. That older firms might have a stable portfolio of customers, as Kant (2018) discusses, may therefore not be the case for the MC industry.

5.3 Growth rate

For the independent variable growth rate, the regression analysis yielded a positive coefficient that is significant at a 5% level. Thus, there is a significant positive relationship between growth rate and profitability. This provides sufficient evidence to reject the null hypothesis and accept the alternative hypothesis H3. This result corresponds to several of the studies such as (Singh & Whittington, 1968; Ayele, 2012; Kant 2018), and contradicts the study by (Margaretha & Supartink, 2016).

Ayele (2012) had corresponding results, the researcher investigated the growth of total assets. Ayele concluded that increased internal capacity positively affected profitability, which will not be a relevant explanation in this study, as we have sales as a measurement of growth, and since the MC industry capacity to deliver the service has a large focus on the human capital.

According to Greiner's theory (1972), the business environment in the industry and growth are closely linked, where firms in a rapidly growing industry tend to experience the "growth" phases quickly and more closely than slower-growing industries. Since this corresponds to the description of the industry, which has experienced significant growth and several new firms have established in recent years, a possible explanation from a theory perspective might be that growth has a positive impact on profitability as a result of firms experiencing multiple phases at once. The phases can include efficiency of operations and expansion into other markets. Margaretha and Supartinka (2016) suggested that their finding of lower profitability level is due to firms' investments, as a result of firms focusing less on current earnings than future gains. In contrast, our findings indicate that any investments to increase sales leads to higher immediate profitability levels.

As mentioned earlier, Singh and Whittington (1968) argued that the positive relationship between growth and profitability was due to improved employee motivation as a result of anticipated future gains. This could be a possible explanation in relation to MC firms, employees have a high number of hours during a week, at the same time surveys have shown that the employees are satisfied with life in the consulting industry, as a result of incentives for good salary and bonuses (Consultancy.uk, 2019). Thus, it can be argued that the employees are motivated to increase sales, which leads to a higher level of profitability.

5.4 Productivity

The regression analysis shows a positive relationship between productivity and profitability. The relationship is found to be strongly significant, providing sufficient evidence to accept the alternative hypothesis H5. The result is in agreement with previous studies (Salman & Yazdanfar, 2012; Yazdanfar, 2013; Margarita & Supartika, 2016; Kant, 2018).

Productivity has been identified by empirical study as a key factor in the explanation of profitability. Arguing that a high level of production with using available resources efficiently, will result in higher productivity. From a RBV perspective, the positive relationship indicates that firms manage to utilize their VRIN resources in a way that gives them an advantage to increase productivity, thus achieving higher profitability.

Furthermore, the strong results underline the importance of human capital as a key resource in the MC industry. Employees are capable of providing the firm and its clients with cutting-edge, original, and inventive solutions, which will have a positive relationship with profitability. Yazdanfar (2013) also argues that firms from a developed country have a productivity advantage, as a result of innovation and highly skilled employees using advanced technology.

5.5 Location

From our analysis, we find that location does not influence the profitability of the MC firms significantly. Therefore, we fail to accept the alternative hypothesis H5. The findings are in line with other studies, such as Henderson (1984) and Coombes et al. (1991).

As mentioned, Porter (1985) argues that customers with different geographical locations will have different preferences and willingness to pay. Nevertheless, he agrees that various geographic locations will have both benefits and drawbacks. Although a more central location might draw clients who have a higher willingness to pay, it will also probably result in higher rental costs. The effect of location on profitability might therefore vanish or even out. If there were a location that generated a competitive advantage, RBV argues that since a central office location is available for all companies (not a rare resource) it cannot generate sustained competitive advantage. For retail corporations, location might generate sustained competitive advantage, since certain store locations can be rare and scarce, where they have managed to sign long-term agreements.

The nature of consultant work may also speak for location to be less important, as they often travel between clients, and hence are not bound by location. The shift in use of digital meetings and remote work might also make location even less important for profitability, as they can substitute the resources of a central location.

5.6 Lagged Profitability

Regarding the relationship between lagged profitability and profitability, there was a significant positive relationship. This indicates a positive relationship between lagged profitability and profitability. Thus, providing sufficient evidence to accept the alternative hypothesis H6. Our results are consistent with conclusions from other researchers, Vijayakumar (2011), Salman & Yazdanfar (2012) and Yazdanfar (2013), and moreover contradicts with Margaretha & Supartika (2016).

The result confirms the statement that lagged and current profitability are related to each other. The MC industry is generally less prone than capital-intensive industries to make large investments in assets or capacity to generate profit. This can help to understand why the results of this study were in conflict with the result of Margaretha & Supartika (2016), as the researchers suggest firms improved profitability in the current year by learning from previous mistakes of taking out large loans and high interest expenses.

Moreover, firms with higher lagged profitability will have greater ability to acquire resources than other firms. Yazdanfar (2013) suggests that this may apply to resources such as increased access to liquidity, better relations with customers and increased market share. Additionally, we contend that MC firms will have a greater ability to acquire resources such as a good reputation and qualified employees. The aforementioned resources will fall under RBV's four criteria for being sustainable competitive advantages. The resources are valuable in attracting potential and retaining customers and offering them high-quality services. In the MC industry, lagged profitability will be a tool to generate resources and help with further development. In accordance with the RBV, this strengthens the firm's ability to retain its competitive advantage.

5.7 Summary of Tested Hypotheses

As previously mentioned, significant focus is placed on the FE-robust model. Given that the FE-robust model provided the most robust and reliable results, we deem it sufficient to summarize whether the alternative hypotheses were accepted or rejected from this model. In table 5.1 is a summary of tested hypotheses and the results.

Hypotheses	Result
Robust Fixed Effect Model	
The size of a firm positively influences profitability	Rejected
The age of a firm positively influences profitability.	Rejected
The growth rate of a firm positively influences profitability.	Accepted
The productivity of a firm positively influences profitability	Accepted
The location of a firm positively influences profitability	Rejected
The lagged profitability of a firm positively influences profitability	Accepted

Table 5.1: Summary of Tested Hypotheses

6. Conclusion

6.1 Conclusion of the Study

The purpose of the study is to identify and investigate factors influencing the profitability of management consulting firms operating in Norway, providing further empirical evidence in a research area where previous studies have been contradictory. To do this, we analyzed 59 management consulting firms using secondary data in the period 2014-2021. This study uses descriptive statistics, correlation analysis and several regression analyses to describe and investigate the relationship between firm size, firm age, growth rate, productivity, location and lagged profitability on profitability, measured in return on assets (ROA).

The result shows that growth rate, productivity and lagged productivity has a positive influence on MC firm's profitability. Meanwhile, firm size, firm age and location have a non-significant effect on profitability.

RBV can be used to explain why different industries and other contexts give contradictory results in previous studies, as the VRIN criteria are met differently depending on the context of the industry. In some industries firm size might be a valuable resource, while in other industries this might not be valuable. The same principle applies to firm age, which in other industries can hold value due to the additional resources it brings, such as stronger networks, reputation and experience. Location is also an example of a resource that in the MC industry is easy to copy, and hence does not meet the criteria of being rare. While in other industries such as the retail business, it might be a scarce and valuable resource. In other words, there seems to be little generalizable results that hold for all contexts. This argument also follows how Barney chose to end his paper, saying that "However, in the end, what becomes clear is that firms cannot expect to "purchase" sustained competitive advantages on open markets. Rather, such advantages must be found in the rare, imperfectly imitable, and non-substitutable resources already controlled by a firm" (1991, p.117).

Analyzing the industry from a resource perspective gives insight into which factors lead to different levels of sustainable competitive advantage, and further a broader understanding of the influence it has on profitability. From a RBV perspective, our findings can be interpreted as follows, a resource composition of high growth rate and productivity, with the tool of high lagged profitability, can help firms to achieve sustainable competitive advantage, as these

resources are argued to meet the criteria for being VRIN. Consequently, MC firms in Norway with a higher growth rate, productivity and lagged profitability are generally more profitable. It is not surprising that productivity is found to be the strongest determinant of profitability in the industry, as the human capital is a vital resource for performing the service and contributing to value creation.

6.2 Theoretical and Practical Contributions

The findings of the study are intended to fill a research gap on profitability determinants within an industry strongly driven by human capital. This study has contributed to providing further empirical evidence on profitability determinants in the MC industry, with special reference to Norway. This was done by investigating the relationship between firm structure and profitability, more specifically firm size, firm age, growth rate, productivity, location and lagged profitability. The theoretical contribution is how these factors influence profitability in relation to established theory and previous research on the subject. Previous research has contradictory findings, and by investigating in an unexplored context, the study has contributed to nuance and expansion of the existing knowledge of profitability determinants.

We would like to point out that our findings, regarding the relationship between firm structure and profitability, are as mentioned not generalizable to every industry context. Currently it seems to be safe to conclude that there are no universal profitability formulas working across industries: the study field is full of contradictory findings. On the other hand, the findings are generalizable to the MC industry in Norway, as there are a limited number of MC firms, and the selection in the study covers a large part and diversity of these firms.

In general, the practical contribution can be useful from a manager's perspective and MC firms in Norway, as it provides insight and greater understanding of how their firm structure influences their performance. The findings give information to managers that the firm will be able to achieve sustainable competitive advantage with efficient and effective utilization of the human capital resource. From the discussion, the high flow of experience and knowledge within the industry underlines the importance of being able to retain qualified and talented employees. In this context, managers should work towards a lower turnover rate of employees, in order to potentially increase profitability.

6.3 Recommendations for Future Research

It is recommended that future research examines profitability determinants related to the MC industry that are not covered in this study. There are several important variables that have been investigated in previous studies, such as industry affiliation and market share, which were not investigated in our study. Our model has an explanatory power of less than 75%, meaning that there are other relevant variables to consider as important profitability factors.

The effect of ownership structure may be a relevant factor to investigate for future research, as the degree of partnership and shareholding probably varies in the MC industry. The firms may pay different levels of dividends, which can have an influence on profitability, and have a relation to the pecking order theory.

Other questions that can be covered in further research are recommended to contain more qualitative aspects. Our study has pointed out the importance of human capital in the industry. Factors such as customer relations, customer and employee loyalty and quality of service can be factors influencing the employee's ability to generate value for the firms, and thus profitability.

It can also be interesting to investigate how different marketing strategies affect the profitability within the MC industry. This may include factors such as effectiveness of different advertising channels, pricing strategies, branding and reputation. These factors can have an influence on firms' market share and position, and have an impact on the profitability.

Overall, it is recommended to investigate factors obtained from surveys and interviews, in order to gain a deeper understanding from managers and employees' perspective, as well as increase the explanatory power of the model.

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Appendix

A.1 List of Firms in the Sample

#	Legal company name
1	MCKINSEY & COMPANY INC NORWAY
2	THE BOSTON CONSULTING GROUP NORDIC AB
3	BAIN & COMPANY NORWAY AS
4	BEARINGPOINT NORWAY AS
5	UNICONSULT AS
6	ADDOVATION AS
7	ARKWRIGHT CONSULTING AS
8	A-2 NORGE AS
9	PA CONSULTING GROUP AS
10	SPRINT CONSULTING AS
11	RAMBØLL MANAGEMENT CONSULTING AS
12	A T KEARNEY AS
13	AGENDA KAUPANG AS
14	TRANSCENDENT GROUP NORGE AS
15	ALPHA CORPORATE FINANCE AS
16	KARABIN AS
17	AIDER TECH AS
18	THEMA CONSULTING GROUP AS
19	MELBERG PARTNERS AS
20	KS-KONSULENT AS
21	NORDHAVEN CORPORATE FINANCE AS
22	CONSIDIUM CONSULTING GROUP AS
23	TELLMANN EXECUTIVE ADVISORS AS
24	DIFFER STRATEGY CONSULTING AS
25	IMPLEMENT CONSULTING GROUP AS
26	TECH DIRECT AS
27	EXCELLERATE AS
28	EBS CONSULTING AS
29	CONVERTO AS
30	KLOSSER INNOVASJON AS
31	VARDE HARTMARK AS
32	HAY GROUP AS

33	TEFT REKRUTTERING AS
34	STRATEMA AS
35	INFUTURE AS
36	EFAB AS
37	KUPA AS
38	WEIBULL AS
39	INTERTRUST (NORWAY) AS
40	INNOWIN AS
41	FORRETNINGSPARTNER AS
42	LENT AS
43	OAKLINS NORWAY AS
44	GREAT CONSULTING AS
45	BJØRNSON AS
46	CONCRETO AS
47	FREMTIDENS INDUSTRI AS
48	TPXIMPACT NORWAY AS
49	WERGELAND BEDRIFTSUTVIKLING AS
50	AQUATIQ CONSULT AS
51	AQUILA AS
52	ORINOR AS
53	NYE OG KLOKE HODER AS
54	KARABIN IMPELLO AS
55	FLOWIT AS
56	CELERO AS
57	KREATIV INDUSTRI AS
58	LEIF KIELSEN AS
59	STRETCH OPTIMIZE AS

A.2 Hausman-test

Hausman-test	
Chi-Sq	162.54
p-value	< 2.2e-16

A.3 Multiple Regression Model

Multiple Regression Model

Model summary

R-sqared	0.475			
Adj. R-sqared	0.468			
Observations	452			

Variables	Coefficient	Std. Error	t value	Pr (>| t |)
Firm size	-0.020	0.008	-2.538	0.012 *
Firm age	0.032	0.012	2.698	0.006 **
Growth rate	0.074	0.013	5.815	1.69e-08 ***
Productivity	0.095	0.017	5.641	3.00e-08 ***
Location	0.005	0.005	1.002	0.317
Lagged Profitability	0.852	0.052	16.404	< 2e-16 ***
Constant	-0.628	0.110	-5.689	2.32e-08 ***

*Signif. "***" = 0.001 "**" = 0.01 "*" = 0.05*

A.4 Fixed Effect Model

Fixed Effect Model

Model summary

R-sqared	0.343			
Adj. R-sqared	0.236			
Observation	452			
Groups	58			

Variables	Coefficient	Std. Error	t value	Pr (>| t |)
Firm size	0.046	0.018	2.385	0.018 *
Firm age	0.055	0.033	1.670	0.09
Growth rate	0.049	0.011	4.066	5.761e-05 ***
Productivity	0.172	0.022	7.459	5.782e-13 ***
Location	-0.504	0.320	-1.568	0.116
Lagged Profitability	0.202	0.068	2.925	0.004 **

*Signif. "***" = 0.001 "**" = 0.01 "*" = 0.05*