

Private equity ownership in the Swedish  
secondary healthcare sector and its impact  
on financial performance, availability and  
quality of care

MASTER'S THESIS

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## Private equity ownership in the Swedish secondary healthcare sector and its impact on financial performance, availability and quality of care

### ABSTRACT

As New Public Management reforms began to be implemented in Sweden in the 1990s, a greater degree of private involvement was introduced in the provision of services in the welfare sector, and some of the companies operating in the sector soon came to be acquired by private equity firms known for their aggressive strategies to increase profits.

This study examines the extent to which two major providers in the Swedish secondary care sector owned by private equity firms achieved better results in financial terms, quality of care, and availability of services compared to other forms of ownership. Among the other ownership types, we identified private companies that are not owned by private equity firms and public healthcare providers. Financial reports between 2007 and 2016 were used to assess profitability, while data from the patient survey *Nationell patientenkät* and lead times from the database *Väntetider i vården*, both managed by the Swedish Association of Local Authorities and Regions, between 2012 and 2016 were used as indicators of quality and availability, respectively.

Our findings suggest that, despite increases in net sales for both companies, only one of the two private equity-owned providers was able to increase its annual profits. The same provider also achieved better results for quality and availability. Thus, our study shows that financial performance is not necessarily negatively correlated with quality of care, contradicting public criticism that higher profit margins come at the expense of healthcare quality. The same observation also highlights that the same type of ownership with the same theoretical value creation strategies is not synonymous with similar outcomes.

Because of the differences between the two providers, no clear conclusions can be drawn about whether private equity-owned units perform better compared to units of other ownership types in terms of quality or availability, but there is evidence that private equity-owned providers do not necessarily achieve lower scores despite high financial pressure.

In the course of the study, we discovered that reporting systems for quality and availability parameters need to be improved to allow for future reliable investigations of ownership types and the value they create.

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**Keywords:** secondary care, quality of care, availability of care, privatization, private equity, New Public Management

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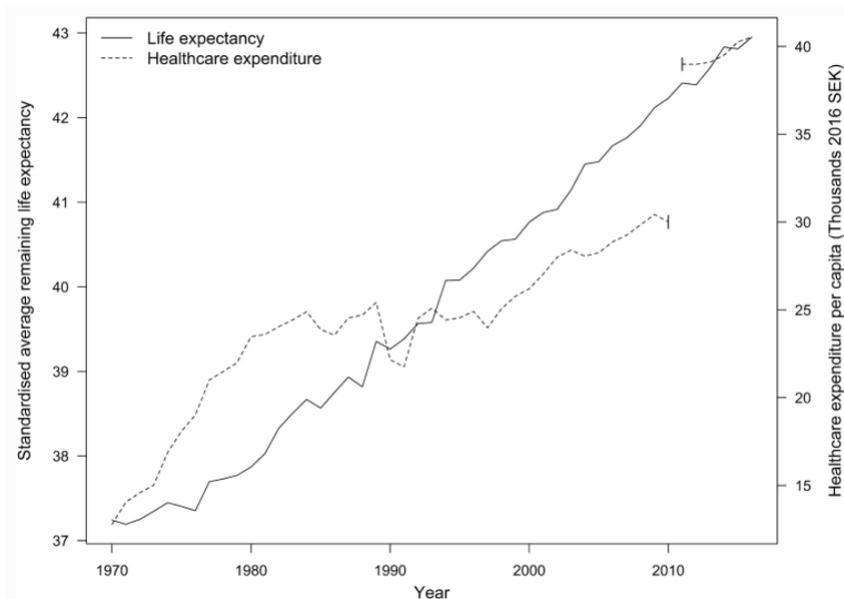
# 1

## Introduction

### 1.1 PREFACE

As Sweden in recent decades has gradually increased privatization and deregulation of welfare services, *private equity* (PE) firms have emerged as owners of some of the largest private providers within the secondary healthcare sector. As the welfare sector in Sweden is largely financed by tax revenues, there is a public interest in how the money is spent and what it goes

towards. This has been reflected not least in the extensive media scrutiny of recent years. The current pandemic has further highlighted that good access to quality healthcare is a cornerstone of the welfare society. However, managing a health system is far from easy and the challenges are manifold. One of the challenges in the case of Sweden has been to maintain cost-effectiveness. Indeed, maintaining healthcare provision has become increasingly costly. Due to demographic reasons and increasing life expectancy, the cost of maintaining high quality and accessible care is expected to continue to increase in the foreseeable future. As medical science advances and the pharmaceutical industry is able to offer increasingly advanced therapies and treatments, pressure on public finances and the welfare system is further intensified. The same trend can be seen in other OECD countries (Siverskog and Henriksson, 2019). This increase in expenditure, as shown in *Fig. 1.1*, creates a need for restructuring the healthcare system to ensure that the needs of citizens for healthcare services are also met in the future. Sweden has opted for, seen from an international perspective, a rather progressive model with a high degree of involvement of private providers in the publicly financed system. To some extent, this is based on ideological ideas that emphasize greater freedom of choice, but competition is also intended to stimulate improvements in cost-effectiveness, accessibility and quality. For primary care, there are several previous studies analyzing private involvement, and in particular the role of PE, in the health care system. In contrast, the coverage of quality and availability in private specialist care is poorer, and therefore this thesis aims to contribute with new knowledge on the situation as well as to identify future research opportunities.



**Figure 1.1:** Evolution of life expectancy and healthcare expenditure in Sweden  
 (Source: [Siverskog and Henriksson \(2019\)](#))

#### 1.1.1 A TREND TOWARDS PRIVATIZATION OF WELFARE SERVICES IN SWEDEN

Historically, the responsibility for running healthcare facilities in Sweden has rested almost entirely with the county councils. The taxpayers have been responsible for sustaining this model financially. As a consequence, the public sector has dominated both the financing and the operation of services ([Stolt and Winblad, 2009](#)). In recent years, the trend has been towards scarcer resource availability and longer lead times ([Karlsson and Lilja, 2012](#)). Due to changes in policy objectives and the fact that ideas derived from New Public Management (NPM) (explained in section 2.2) have got a foothold in Sweden, a shift towards county councils procuring increasingly more services from private providers has been taking place starting in the mid-90s. The private providers have promised better cost efficiency and promoted themselves as part of the solution to maintain Sweden’s healthcare offering at the high-

est standard. By implementing the reforms, the Swedish government weakened the virtual monopoly of the county councils as the only service providers and encouraged competition in the delivery of healthcare services.

At the beginning of the century, another type of private ownership made its entrance into the Swedish healthcare market, namely PE, explained in section 3.1.2 in more detail. PE is perceived as an aggressive ownership type in the sense that heavy pressure on management to generate profits belongs to their value-creating strategies (also outlined in section 3.1.2).

In 2018, 13.5% of healthcare services financed by regional councils were carried out by care providers owned by PE firms (Jordahl and Blix, 2021). An agreement guarantees that patients are covered by the same regulations and fees that apply to public care facilities.

This shift of welfare service provision from publicly to privately owned providers does not only apply to specialized healthcare but to many other parts of the welfare sector, including education, primary healthcare, and elderly care. In 2017, around 17% of the welfare services financed by the Swedish tax system were provided by the private sector, with specialized care being the area with the lowest relative degree of privatization of those mentioned above (Jordahl and Blix, 2021). Though, it is an area that is undergoing significant growth.

This thesis aims at investigating the impact that the entrance of PE ownership has had on financial performance, availability as well as perceived quality of secondary care providers.

## 1.2 PROBLEM STATEMENT

In the aftermath of the implementation of NPM-type reforms, the increased presence of PE ownership in the Swedish healthcare system has not come without public debate and occasional criticism. Defenders emphasize improved management and increased operational

performance, whereas critics argue that profit-seeking leads to deterioration of the quality. In general, right-wing politicians have pushed for change towards increased competition in the welfare sector, whereas left-wing politicians have been more skeptical and instead advocate maintaining the traditional model dominated by the public sector as practically the only provider of welfare services (Stolt and Winblad, 2009). Since PE ownership creates high controversies due to its aggressive strategies (see section 3.1), this thesis has a focus on the entry of this type of ownership.

While the Swedish tax-financed welfare sector is large and well-functioning in many aspects, it is expected to face major challenges due to rising demands and ongoing demographic changes, as previously highlighted (Jordahl and Blix, 2021). Achieving cost efficiency without sacrificing quality and equal access to services is important from a political point of view. Consequently, the incentives of the buyer (the public sector) and the supplier (the private providers) need to be aligned.

Despite the fact that healthcare is a dynamic domain where changes can be expected in the future, the previous research on the entrance of PE ownership in the specialized healthcare sector has been rather limited. By thoroughly evaluating PE ownership in the Swedish specialized care sector in comparison with other ownership models, our ambition is to contribute with findings that could be of value for the future development of the specialized healthcare system. Our focus thereby lies on what value-creating strategies PE-owned providers are capable of deploying and what impact the affiliated activities have on perceived quality, availability, and financial performance for patients and stakeholders, respectively.

To our knowledge, there is not much research published on the availability of services with respect to ownership types for specialist care in Sweden. Our study aims at closing this re-

search gap since no authors have comprehensively analyzed possible financial benefits, increased availability and perceived quality of services altogether.

### 1.3 RESEARCH QUESTIONS

Our aim is to contribute with clear and meaningful insights to the debate whether PE as an ownership model should be an appreciated phenomenon in specialized healthcare. We have identified three groups of ownership in Swedish specialized care (public, private PE-owned, and private non-PE-owned (including not-for-profit)) and will examine whether PE ownership has achieved superior financial performance during the recent years compared to other ownership types. In addition, the thesis will analyze if PE brings additional value to the system by increasing patient-perceived quality as well as objective availability, which in this case implies lead times for meeting a physician for the first time or undergoing treatment after having received a diagnosis. We aim to find an answer to the following research questions:

- Is there any variation in terms of quality, availability, and financial performance between PE-owned providers?
- Does the PE ownership model in Swedish specialized care contribute to improved financial performance compared to other ownership models?
- Do PE-owned providers in Swedish specialized care achieve superior quality and availability of services compared to providers of other ownership models?

The research questions aim at answering to which extent the entrance of PE ownership led to improved financial performance and quality of care, but neglects the underlying causes.

Analyses regarding aspects like supply chain management, standard operating procedures as well as human resource management, including employee satisfaction, will not be part of this study.

#### 1.4 HYPOTHESES

In order to better structure the research, a set of hypotheses is formulated based on the research questions described above. Through our study, we seek to confirm or reject these hypotheses on the basis of empirical results and relevant data.

- **Hypothesis 1:** In terms of financial performance, PE-owned secondary care providers demonstrated a higher growth rate compared to the other ownership types (research question 2).
- **Hypothesis 2:** In terms of financial performance, PE-owned secondary care providers increased their annual profits over the analyzed time period (research question 2).
- **Hypothesis 3:** In terms of financial performance, PE-owned secondary care providers achieved higher relative profitability compared to the other ownership types (research question 2).
- **Hypothesis 4:** In terms of financial performance, no considerable differences between secondary care providers within the PE ownership group could be found (research question 1).
- **Hypothesis 5:** In terms of patient-perceived quality, PE-owned secondary care providers achieved inferior results compared to the other ownership types (research question 3).

- **Hypothesis 6:** In terms of patient-perceived quality, there were considerable differences between secondary care providers within the PE ownership group (research question 1).
- **Hypothesis 7:** In terms of availability, PE-owned secondary care providers achieved superior results compared to the other ownership types (research question 3).
- **Hypothesis 8:** In terms of availability, there were considerable differences between secondary care providers within the PE ownership group (research question 1).

# 2

## Literature Review

This chapter aims at examining previous research made on private involvement within the public sector to provide a theoretical framework for the study of PE involvement in the Swedish secondary healthcare sector. Emphasis is placed on the longitudinal emergence of New Public Management as an influential paradigm in the modernization of the public sector and its service delivery.

## 2.1 PRIVATIZATION OF WELFARE SERVICES

During the 1980s, neoliberal ideas proclaimed the state provision of public services to be inefficient, resulting in a gradual implementation of market-oriented reforms in many welfare areas (Blomqvist and Winblad, 2019). According to Pollitt et al. (1999), privatization can be seen as the most fundamental type of management reform. It involves a direct change of ownership, which removes certain activities from the public sector altogether. One major element of the Swedish reforms was the gradual privatization of healthcare, mainly in primary care. Despite these changes, the idealism of universalism remained strong (Blomqvist and Winblad, 2019). This meant that, together with promoting competition and private involvement within the tax-financed system, the preservation of political values such as solidarity in financing and equal access remained strong. The result has been a new mix of public and private providers active within the Swedish healthcare system, where the financing largely remains public while provision is carried out by a diversity of public and private providers. Investigating the previous studies that have been carried out, it can be claimed that increased private involvement has weakened the universal aspects of the system in terms of equal access to care, which has become more uneven, while the actual accessibility has increased in some locations (Dahlgren, 2008; Fredriksson et al., 2013). How quality has been affected has proved difficult to evaluate (Rehnberg et al., 2010; Andersson and Rehnberg, 2014). The same goes for the evaluation of the implementation of the quasi-market itself in primary healthcare (Glenngård and Anell, 2017).

## 2.2 NEW PUBLIC MANAGEMENT

### 2.2.1 GENERALITIES

*New Public Management* (NPM) is a term coined in the late 1980s encapsulating a set of various new market-like management ideas for the public sector drawing on private sector performance criteria and practices (Hood, 1989, 1991; Lapsley, 2009). Hood (1991, 1995) identified seven key doctrines of NPM in two of the most cited articles within public management in modern time:

1. Unbundling of the public sector into corporatized units organized by product
2. More contract-based competitive provision, with internal markets and term contracts
3. Stress on private-sector styles of management practice
4. More stress on discipline and frugality in resource use
5. More emphasis on visible, hands-on top management
6. Explicit formal, measurable standards and measures of performance and success
7. Greater emphasis on output controls

Since his intention was not to try to define a normative model for NPM as a policy, the set of principles should be seen as reflections based on observations from the U.K. as an early adopter of NPM ideas during the 1980s.

NPM as an instrumental approach has since then been widely adopted internationally and has most commonly been referred to as a way for governments to deploy transformation of their public sectors to mimic private sector practices (Hood, 1991; Lapsley, 2009,

2017). Hood (1991) stated that NPM as a policy is to be considered politically neutral and is hence not exclusively to be attributed to neo-liberal governments. He refers to the fact that, from an international perspective, governments of different political ideologies have adopted NPM-type reforms and mentions Australia and New Zealand as examples. However, according to Lapsley (2017), the political context has come to play an important role in securing the conditions for the adoption of an NPM agenda, and the emergence of NPM is as of today most often depicted as a neo-liberal policy.

Proponents of NPM normally maintain a perspective that the private sector has to be seen as superior in comparison with the public sector and that, by following the NPM principles (the introduction of markets and performance management with citizens seen as customers), the elimination of public sector inefficiency can be accomplished (Lapsley, 2017).

#### 2.2.2 NEW PUBLIC MANAGEMENT REFORMS IN SWEDEN

Interestingly, in the case of Sweden, the Swedish Social Democratic Party already adopted NPM-type principles in the early twentieth century (Karlsson, 2017). They have since then constituted a way for the political leadership to demonstrate a willingness to reform and renew the public service delivery to make it more sensitive to citizens' needs (Lapsley, 2017; Pollitt et al., 1999). Reforms included private sector management practices as decentralization and a shift towards continuous measurement and quantification. The transition into a results-driven approach to the management of public services represented by the latter is, according to Lapsley (2017), perhaps the single most important dimension of NPM as a policy. Pollitt et al. (1999) compares the trajectories of public management reforms in Sweden, the U.K., the Netherlands, Finland, and France with the purpose of creating a framework serving

to analyze trends in the development of performance audits. Throughout the studied period, Sweden maintained the largest public sector (as a proportion of GDP) in the western world. Back then, [Pollitt et al. \(1999\)](#) characterized Sweden as a borderline case with radical rhetoric of management reforms but with actual achievements appearing more modest as compared to, for example, the U.K. and Australia. From an NPM point of view, Sweden has since then been taking on, from an international perspective, a rather aggressive reform implementation strategy ([Karlsson, 2017](#)).

Given the long-standing willingness of Sweden to embrace public sector reforms, as confirmed by [Pollitt et al. \(2000\)](#), and being one of the few examples of countries having a high emphasis on NPM with a political tradition from the left ([Hood, 1995](#)), Sweden could be described as an "adventurous modernizer" combining strong state solutions with strong market solutions. Seen from a Scandinavian perspective, [Knutsson et al. \(2017\)](#) suggest that Sweden and Finland have been in a better position of applying NPE-like reforms and have also done so more intensely compared to Denmark and Norway, where a somewhat flatter trajectory can be observed.

However, while the Social Democrats were behind the first Swedish wave of NPM principles in the post-World War II decades (before the expression NPM was coined), they hesitated to stretch the boundaries regarding marketization. The second wave of NPM reforms taking place during the early 1990s is instead often considered the starting point for the real transformation of the management of the Swedish welfare sector into a more market-oriented approach ([Lapsley, 2017](#); [Szebehely, 2011](#)), though it should not be understood as an emergence of something new but rather as an intensification of the already established gradual adoption of private-sector techniques ([Karlsson, 2017](#)). Several legislative amendments made

possible by the center-right government between 1991 and 1994 opened up for the introduction of markets or internal quasi-markets in the provision of public services, which drastically increased private involvement in the publicly funded welfare sector (Andersson and Rehnberg, 2014; Szebehely, 2011).

### 2.2.3 IMPLICATIONS FOR THE SWEDISH WELFARE SECTOR

Influenced by the ongoing trend of NPM, the last decades have been characterized by governmental regimes encouraging competition within the Swedish welfare sector leading to a drastic increase in the number of private providers (Stolt and Winblad, 2009). The introduction of private competition and freedom of choice has attracted widespread attention from both national and international researchers and policymakers. Some of the critics argue that one result of the privatization is the emergence of welfare quasi-private structures subject to increasing regulation and control (Andersson, 2017; Andersson and Björnson, 2016; Svanborg-Sjövall, 2014).

NPM can, according to Brunsson and Sahlin-Andersson (2000), be divided into two types of reforming ambitions: “marketization” and “corporatization”. Marketization is probably the best-known reforming ambition in the political and public debate and also the one that has endured the most criticism (Hall, 2013). The criticism in the public debate has often been condensed into tax money being taken from welfare and ending up in private pockets, which in turn, according to the critics, would lead to deterioration of the quality and equal access to services, thereby undermining accountability and trust in government (Edlund and Johansson Sevä, 2013; Hall, 2013). The universality of NPM, which is often one of the main arguments of the proponents, has also, from time to time, been questioned (Lapsley, 2017).

One of the healthcare-related NPM measures taken in recent years is the so-called *queue billion* that is paid out yearly to the county councils and regions in proportion to how successful they have been in fulfilling the availability goals (known as the *care guarantee*). In an effort to improve accessibility, the Swedish Association of Local Authorities and Regions (SALAR) and the Government both agreed to introduce a national care guarantee with effect from the end of the year 2005. In 2010 the guarantee was incorporated into *the Health and Medical Services Act* ([The Government of Sweden, 2020](#)). The overall goal of the care guarantee was to increase the availability of planned care and to minimize queues and waiting times ([Nordgren, 2012](#)). According to the care guarantee, a patient in need of healthcare is entitled to a consultation with a primary care physician within seven days, hereafter to a consultation with a specialist physician within 90 days and then to treatment beginning within 90 days, as described by [Hansson \(2014\)](#). However, the care guarantee only applies to first appointments.

Generally speaking, the effects of privatization and outsourcing in specialized healthcare are poorly analyzed, and sufficient comprehensive evaluations are missing. However, there is evidence that institutional factors, i.e. characteristics of different healthcare services and the interaction of these characteristics with regulations and contract conditions affect the outcome ([Andersson and Rehnberg, 2014](#)).

The question of whether better financial performance contributes to poorer quality of services has been investigated for other privatized welfare services in Sweden. [Stenbäck and Åström \(2018\)](#) came to the conclusion that the EBIT-margins of private (both primary and secondary) education providers are negatively correlated with the quality of education in their schools. Their findings contradict another study by [Jordahl and Heller-Sandgren \(2018\)](#),

who observed a positive correlation for the same conditions. A study about the quality of care between diverse types of privately owned (for-profit, PE and non-profit) and publicly owned nursing home care providers was carried out by [Winblad et al. \(2017\)](#). Results indicate that no significant quality differences were to be found between private and public ownership as well as between private providers with different types of ownership, and that ownership type as a consequence does not seem to be related to quality in this specific sector. Another finding from the same study was that a profit motive did not appear to be as important for determining quality in the Swedish case as in previous international research cases ([Winblad et al., 2017](#)). This might, according to the authors, be related to country-specific factors with regard to the public financing and stricter regulations.

As previously mentioned, the current research base regarding how private ownership in the specialist care sector affects quality and financial performance is limited. There are, however, a few earlier performed studies investigating the PE ownership model in the Swedish primary healthcare sector in regard to perceived quality and operational performance. As there are certain similarities between primary and secondary care, this research can contribute with some understanding and applicable insights, but it is still important to keep in mind that secondary care differs drastically from primary care in several important aspects as the care is usually provided in hospital settings and often based on specific measures.

[Glenngård and Anell \(2012\)](#) analyzed a sub-sample of the *Nationell patientenkät* (NPE) (lit. National Patient Survey) primary care data on behalf of *Vårdanalys* back in 2012. In their analysis, differences in patient-perceived quality between primary care practices were analyzed with respect to 13 different variables reflecting conditions among practices, including the size of operations, type of ownership, burden of care and socio-economic burden of listed

individuals, location, frequency of visits and proportion of visits made to physicians. Their findings suggest that perceived quality was lower in large cities and in locations with tough socio-economic conditions. Additionally, private centers were rated better than their public counterparts in terms of overall impression (without controlling for socio-economic conditions and the overall need for care). Continuity of visits to physicians was correlated with the type of owner, with individual private practices being associated with the highest perceived continuity. For the other questions, no statistically significant correlation between patient-perceived quality and type of owner could be detected, although there was a tendency for private practices to score higher on perceived utility. Private practices generally scored higher when information on average burden of care and socio-economic burden were excluded from the analyses. The main explanation for this difference, according to the authors, is likely to be that public centers are slightly over-represented in socio-economically stressed areas, rather than that average care burden differs between units. This relationship may also exist in specialized care. The size (as decided by the number of listed patients) of the health centers was negatively correlated with perceived quality. Also, the share of doctor appointments (as opposed to nurse appointments) was positively correlated with high perceived quality.

Also, in regards to the primary care sector, [Bergendorf and Gremillet \(2012\)](#) and [Karlsson and Lilja \(2012\)](#) investigated financial performance in relation to the quality of care for different ownership types, including PE. Both measured quality using the scores of subjective patient surveys and did not include hard quality parameters.

More specifically, [Bergendorf and Gremillet \(2012\)](#) analyzed changes in performance and quality before and after leveraged buyouts (LBOs) of healthcare providers performed by PE firms. Their research takes into account the location of primary healthcare units, assuming

that the socio-economic status of the population living close to a specific unit affects the results of the patient-perceived quality surveys.

Similarly, [Karlsson and Lilja \(2012\)](#) compared pre-and post-buyout financial results and possible changes in terms of quality of primary care health centers. Moreover, they analyzed results for the ownership types for a pre-defined time scope. Interviews with PE professionals were conducted in order to add an additional dimension to the understanding and interpretation of their findings.

However, both studies only covered a short period of time (between 2009 and 2011) and data is only collected and analyzed for a few years after the buyouts. Entire holding periods of PE firms (typically around 10 years, see section 3.1.2) could therefore not be assessed. The two studies concluded that private ownership, on average, outperforms public ownership in terms of financial growth and healthcare quality, even though differences between PE units are significant.

# 3

## Key Concepts

As a consequence of increased privatization and freedom of choice in the healthcare sector, a number of non-public care providers entered the market. To facilitate a better understanding of our results, we will in this chapter present an overview of the different types of ownership currently active in the Swedish specialty healthcare sector. In addition, the concept of PE is described in detail to provide a better understanding of their activities and objectives in

the healthcare sector. Finally, an overview of the Swedish healthcare system is given with an emphasis on specialized care.

### 3.1 PRIVATE OWNERSHIP TYPES WITHIN THE SWEDISH HEALTHCARE SYSTEM

#### 3.1.1 PRIVATE NON-PE OWNERSHIP

##### PUBLICLY TRADED CARE PROVIDERS

Some of the companies active in the Swedish healthcare sector are privately owned companies listed on the stock exchange, which means that they are traded publicly (which is in contrast to PE ownership, see section 3.1.2). Shareholders of these companies receive a contribution of generated profits in the form of dividends.

##### CO-OPERATIVE MODEL

Another ownership type is based on a co-operative principle. Independent entrepreneurs (healthcare professionals such as physicians, nurses, dentists, etc.) are responsible for managing their own units and profit generation, thus combining the individual freedom of running an individual clinic with the large group's efficiency and economic strength. The parent organization supports the owners or clinic managers in administrative matters and provides financial stability. In the case of the healthcare sector, the individual clinic managers are shareholders with voting rights, while simultaneously being employed within the group (Bergendorf and Gremillet, 2012).

### 3.1.2 PE OWNERSHIP

#### STRUCTURE AND FUNDING OF PE

Before explaining how PE impacts the Swedish healthcare system, a brief explanation of this ownership model and working practices will be outlined.

PE belongs to the class of alternative investment funds along with hedge funds and real estate funds. The capital is raised privately for the purpose of investments in non-listed private companies or public companies. PE firms, therefore, act as a financial intermediary between investors and a portfolio of unlisted companies, which distinguishes them from traditional financing involving the stock exchange, bank loans, or other specialized products (Chen, 2020; Karlsson and Lilja, 2012; Loos, 2006).

PE funds are run by so-called general partners having full liability. However, the majority of shares (typically around 99%) are held by limited partners that, as the name suggests, have limited liability. The remaining shares are held by general partners. Investors are institutional investors such as pension funds, banks or insurance companies, and wealthy individuals with long-term investment horizons (Chen, 2020; Karlsson and Lilja, 2012).

A division within the PE class can be made to distinguish between venture capital (VC) and leveraged buyouts (LBOs). The former refers to the financing of young companies with high growth potential, such as promising start-ups. Besides financial support, VC aims to increase the value of their assets by offering greater visibility, creating channels to other potential investors and providing support in the form of strategic decision-making advice to expand businesses further (Tykvová et al., 2012).

Regarding the LBO technique, PE funds acquire (parts of) mature companies that, in

their eyes, are undervalued or underperforming. The buyout is supported, i.e. leveraged, by a significant loan making up typically between 60% and 90% of the total transaction (Kaplan and Stromberg, 2009). This loan is added to the balance sheet of the acquired company because of tax benefits. A majority of PE activities are related to LBOs. Both the nature of the acquired companies and the fact that LBOs are marked by debt financing constitute the difference between VC and LBOs (Karlsson and Lilja, 2012; Tykvová et al., 2012). Because the involvement of PE in the healthcare sector is mostly marked by LBOs, this study does not focus on VC and uses the term LBO as a synonym for PE investments.

The involvement of PE firms is time-limited, with a holding period pre-defined before the acquisition. A typical holding period is 10 years in the case of VC and 2-6 years in the case of LBOs. Holding periods for LBOs extending over at least 10 years are not uncommon, according to Kaplan and Stromberg (2009). In fact, the time span varies in function of parameters such as the chosen industry, and different trends can be observed during the history of PE. Once shareholders of a PE fund have committed their capital at the beginning of the holding period, they are generally not authorized to withdraw or reinvest their money. This is another difference to hedge funds, where liquidity is higher. Even if PE firms are covered by investors' councils, their power is relatively insignificant (Barber and Goold, 2007; Tykvová et al., 2012).

A contractual condition for PE firms is to participate in the decision-making of the acquired portfolio companies by claiming board seats, veto rights and various contingent control (Karlsson and Lilja, 2012; Tykvová et al., 2012). The extent to which a PE firm's general partners are involved in a portfolio company depends not least on their level of operational expertise and experience (Barber and Goold, 2007).

What has not yet been explained, but is crucial to the understanding of PE, is how profits for investors are made in the PE fund. Cash is generated when the PE firm exits the acquired company at the end of the holding period rather than through ongoing dividends. More specifically, the exit consists of selling the portfolio company to another investor or through an initial public offering (IPO), where the company is listed on the stock exchange. In other words, the PE model is based on a buy-to-sell approach (Barber and Goold, 2007).

The general partners are compensated through annual management fees, their share of the fund's profits and monitoring fees paid by the portfolio companies (Kaplan and Stromberg, 2009).

As stated by Kaplan and Stromberg (2009), critics of the PE model argue that the tax advantages of LBOs are linked to the high level of debt. In addition, they argue that the overall economic value of PE is negative due to wage cuts and decreased employment rates, as have been observed in the U.S.

#### VALUE-CREATING STRATEGIES

The PE investment model has become very popular over the last two decades as it has outperformed other forms of investment. The generic value creation strategies are described below to provide a picture of how high returns on investment (ROI) for shareholders are generated. As mentioned earlier, PE firms adopt a buy-to-sell strategy. The objective is to increase the value of their assets as much as possible over a given period of time, which means that they have to come up with strategies that make the acquired companies attractive for a profitable exit. According to Kaplan and Stromberg (2009), PE firms apply financial, governance, and operational engineering to their portfolio companies in order to optimize operations and the

creation of monetary value.

**FINANCIAL ENGINEERING** As mentioned above, the entry of a PE firm into a company through an LBO entails a high level of debt for the portfolio company. In this way, PE firms seek to exert pressure on management to handle their financial resources prudently. Another way PE firms put pressure on portfolio company management is by ensuring that there are substantial incentives for the management team to perform well. The typical procedure is for the members of the management team to receive a large increase in equity through stock and options. Management is prevented from selling its equity or exercising options until the value of the portfolio company is proven through an exit transaction. This illiquidity reduces management's incentive to manipulate short-term performance. A disadvantage of this technique may be the inflexibility it implies for the portfolio company (Bergendorf and Gremillet, 2012; Kaplan and Stromberg, 2009).

**GOVERNANCE ENGINEERING** PE firms, as mentioned earlier, create attractive incentives for the management of their portfolio companies by offering stocks and options to a much greater extent compared to other ownership types. In the case of a non-PE-owned business unit, unlike in PE-owned companies, management would pay moderate attention to whether the business unit's profits were reasonable but not outstanding. According to Barber and Goold (2007), the incentives that PE firms create for portfolio company management will prevent this from happening. Governance engineering, however, refers primarily to the way in which PE investors control the boards of their portfolio companies. The main difference to be seen is a more active involvement from the owner side in the governance of the company than is the case with public companies. In addition, boards of PE portfolio companies

are typically smaller than in public companies and meet more frequently. PE investors are also more reluctant to replace management that does not perform in line with expectations (Kaplan and Stromberg, 2009).

**OPERATIONAL ENGINEERING** As already mentioned, PE firms are normally heavily involved in their portfolio companies and actively part-take in securing improvement of operations and procedures. It is common that PE funds own companies within a specific industry. Hiring experts in this field with the knowledge on how to induce cost-cutting initiatives and performance improvements is therefore a common strategy for PE firms (Barber and Goold, 2007; Bergendorf and Gremillet, 2012; Kaplan and Stromberg, 2009). Lastly, Barber and Goold (2007) notice that the high frequency of entries and exits generates knowledge in a relatively short period of time, which contributes to expertise on how to add value to the portfolio.

## 3.2 THE SWEDISH HEALTHCARE SYSTEM

### 3.2.1 GENERALITIES

Healthcare services in Sweden are primarily publicly funded, with little or no out of the pocket costs for the individual citizen, but offered through both public and private providers. Public healthcare is mainly managed and provided by the county councils and regions (see *Fig. 3.1*).

Healthcare services provided by privately held companies, both PE-owned and non-PE-owned, are to a large extent done so under contract with county councils. In the event of such a contract, the affiliated cost for the patient is the same for private and public healthcare

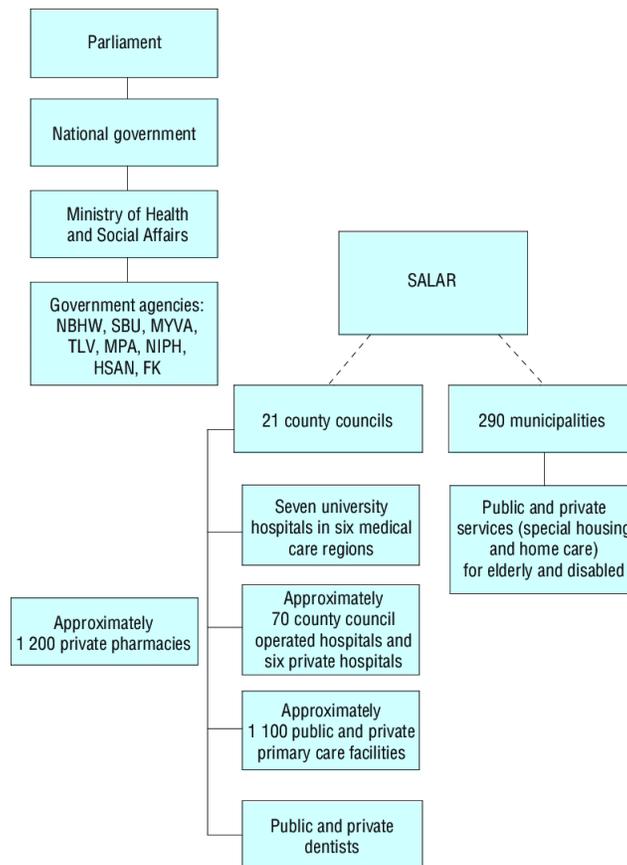


Figure 3.1: An overview of the Swedish healthcare system (Source: Anell et al. (2012))

(The Swedish Research Council, 2016). Services provided by a private company without contract with county councils are fully paid by the patient (Lindgren, 2014). Since the scope of this thesis is primarily limited to private providers operating under an agreement with the county councils or other public organizations, private providers operating outside the publicly funded system will not be described in further detail. The overall aim of this section is to provide an in-depth introduction to the institutional setting with a focus on secondary care.

### 3.2.2 STRUCTURE AND FUNDING

The structure of the Swedish healthcare system is complex and is to a large extent characterized by decentralization (Anell et al., 2012). A gradual shift of responsibility for the provision of primary and secondary healthcare services from the state to the county councils and regions as well as municipalities has taken place during the 20th century, resulting in them as of today being responsible for more than 70 percent of the funding (Lindgren, 2014). When the healthcare system as we know it today was developed after 1945, ideas about universalism, that welfare services should be accessible to all citizens on equal terms, played an important role. Private health insurance is still uncommon in Sweden, even though an increase in the proportion of the population holding insurance has been seen in recent years. This is something that distinguishes and has distinguished the Nordic countries from many other industrialized states (Anell, 2011; The Swedish Research Council, 2016).

The Swedish healthcare system is divided into three administrative levels (state, county councils or regions, and municipalities), all of which are governed by democratically elected representatives and collect taxes (The Swedish Research Council, 2016). The role of the state is to establish principles and guidelines as well as the overall political agenda for the healthcare sector. This is done through laws and regulations or through agreements with SALAR (Lindgren, 2014). The Ministry of Health and Social Affairs is responsible for fulfilling the goals of the Riksdag and the Government in health and medical care policy (The Swedish Research Council, 2016). In addition, the Ministry of Health and Social Affairs is responsible for preparing the part of the state budget that concerns, among other things, public health and healthcare. Sweden's 21 county councils or regions are in turn ultimately responsible for organizing healthcare so that all citizens have access to high-quality services (Lindgren,

2014). The municipalities are responsible for elderly care, care for people with physical and mental disabilities, support and service for people who have been treated and discharged from hospital care, and for school health services (The Swedish Research Council, 2016).

Swedish healthcare is largely financed through regional and municipal taxes, and both regions and municipalities receive subsidies from the state (Lindgren, 2014). Some of the state subsidies are general, others may only be used in areas specifically designated by the state.

The regions' revenues in 2018 were SEK 365 billion, of which just over 70% came from regional taxes (The Swedish Research Council, 2016). Government subsidies consisting of general government subsidies, subsidies for pharmaceutical benefits and special government subsidies, accounted for 20% of revenues in 2018. A small part of the regions' revenues, around 3.5%, consisted of patient fees (The Swedish Research Council, 2016).

In 2018, the regions produced services worth SEK 357 billion. Specialized somatic care costs the regions just over SEK 166 billion and primary care SEK 56 billion (The Swedish Research Council, 2016).

After the county councils and regions, privately owned companies are the largest providers in the healthcare sector. Private providers are primarily active in out-patient care (Anell, 2010). Most of those private care providers have agreements with the regions, which means that they receive the same compensation as public care providers and that patients pay the same fee regardless of whether the care provider is private or public (Lindgren, 2014).

### 3.2.3 PRIMARY HEALTHCARE

The first level of Swedish healthcare is primary care. According to *the Health and Medical Services Act*, primary care is defined as "[health and medical care activities where out-patient care is provided without delimitation in terms of diseases, age or patient groups]" (Johnson, 2017). Primary care is responsible for the provision of such basic medical treatment, nursing care, prevention and rehabilitation that does not require the medical and technical resources of hospitals. It is also in primary care that we find the largest share of privately owned providers (The Swedish Research Council, 2016).

### 3.2.4 SECONDARY HEALTHCARE

Secondary care refers to healthcare that requires more specialized measures than can be provided in primary care. The part of the specialized care that includes somatic care consists of short-term medical and surgical care, rehabilitation, geriatric care, etc. Secondary care is mainly offered at hospitals, but also in specialist clinics or health centers (Andersson and Rehnberg, 2014).

The first level of secondary care is county healthcare. In Sweden, there are approximately 70 county-operated hospitals. The county hospitals have the expertise and medical equipment that covers most disease areas. A large part of the hospitals' activities consists of in-patient care, which means that patients are admitted to ward for one or more days. In most cases, county hospitals also offer out-patient care (The Swedish Research Council, 2016).

The second level of secondary care is the regional care. A healthcare region consists of an association of county councils or regions that cooperate in the use of the healthcare region's secondary care resources. This level mainly consists of seven university hospitals that treat all

rare and complicated diseases and injuries, in addition to a comprehensive offering of health services to the population of the surrounding areas ([The Swedish Research Council, 2016](#)). The university hospitals work closely with the medical universities and colleges on education and research. Sweden is divided into six healthcare regions, and within each healthcare region, there is at least one university hospital. The county councils or regions that do not have their own university hospitals usually have agreements with nearby county councils or regions for highly specialized care ([Anell, 2010](#)).

# 4

## Methodology

### 4.1 RESEARCH DESIGN

The thesis deploys a deductive research approach, which enables a focused and hypothesis-driven research design. The hypotheses can be found in section 1.4. The data are purely quantitative.

In contrast to qualitative research designs or case studies, the quantitative nature of this study enables bigger sample sizes. All data for both financial performance, availability, and quality of care used in this thesis can be accessed publicly, which ensures replicability. This is a clear advantage to qualitative research designs as it enables advanced replicable comparative analysis.

As mentioned before, privatization of welfare services does not come without public debate. To guarantee a high degree of objectivity, a quantitative approach seems more appropriate and well-funded compared to a qualitative method.

#### 4.1.1 WHY SWEDEN IS CHOSEN AS THE BASIS FOR THIS STUDY

The healthcare sector has been at the forefront of the development of Sweden as an early adopter of public management reforms. This, in combination with Sweden, in general being considered to be an elaborate and well-functioning welfare state (Paulsson, 2017), motivates the choice of the Swedish healthcare sector as the basis for this investigation. Green-Pedersen (2002) noted that the adoption of market-like reforms in the healthcare sector has been considerably greater in Sweden compared with neighboring countries such as Denmark. According to Paulsson (2017), key components in the reform agenda in the early 1990s consisted of delegation of responsibility to lower-level organizational units, performance measurement, accrual accounting and budgeting, contracting out and internal markets. These components, combined with the fact that Sweden is one of the countries that have been the most permissive towards the entrance of PE-owned providers into the publicly funded healthcare system, make Sweden an interesting object to examine.

Another interesting aspect of the Swedish healthcare sector is the far-reaching political

and managerial decentralization. Management control has historically been largely focused on the vertical organizational structure, while the horizontal processes have been neglected (Paulsson, 2017). As a direct consequence of this, optimization of the activities has been primarily concentrated on the own organizational unit ("silo mentality") and not to the horizontal processes, which are important for the patients and their perception of the quality of care provided (Paulsson, 2017). In the Swedish specialized care sector, in which decentralization in the development of management control systems has been extensive, there may be a bigger absence of focus on horizontal processes, coordination and geographical equality in the service delivery compared to other countries, which reinforces the choice of Sweden for this analysis.

#### 4.2 DESCRIPTION AND CATEGORIZATION OF INCLUDED SECONDARY CARE PROVIDERS

In order to compare secondary care providers in terms of ownership, we first need to identify the individual providers that will be included and, in a second step, identify their ownership structure.

We base our selection of providers to be included on a market survey conducted by Capiro AB (2016). The report identifies a total of four major private healthcare providers in the Swedish secondary care sector based on net sales, namely *GHP Specialty Care AB* (referred to as GHP), *Capio AB* (referred to as Capio), *Aleris Group AB* (referred to as Aleris) and *Praktikertjänst AB* (referred to as Praktikertjänst). They have gradually gained patient shares since the inception of the NPM-type reforms in Sweden through buyouts of publicly owned units, acquisitions of other private providers, participation in public tenders as well as through organic expansion.

PRIVATE NON-PE-OWNED COMPANIES Praktikertjänst is run co-operatively, which means that an individual who wants to buy shares in the company must also be the head of operations for a care-providing unit within the group. Administration, quality systems and counseling are largely managed centrally (Praktikertjänst, 2021). In 2018, Praktikertjänst had a revenue of almost SEK 11 billion, more than 80 connected primary healthcare units, close to 200 connected specialty care units and around 9,200 employees. Until 2019, large parts of the specialty care operations were concentrated in the company Proliva AB, which was then acquired by Aleris. Praktikertjänst has participated in public procurement and operated, for example, Simrishamn hospital between the years 2014 and 2021 on behalf of Region Skåne (Region Skåne, 2014).

GHP is a publicly-traded provider of specialty outpatient and inpatient healthcare in the Nordic countries and under a tender agreement in the United Arab Emirates. The clinics focus on specific patient groups, which according to the company, leads to higher efficiency, quality and patient safety. The GHP Group currently operates 20 specialty care clinics in the Nordics and employs around 500 people. Agreements exist with several of the country's regions, including Stockholm, but it also provides private medical insurance care. Largest shareholders are Metroland BVBA (27, 04%), Martin Gren (11, 13%), and Johan Wachtmeister (7, 23%) (GHP, 2021).

PE-OWNED COMPANIES As mentioned previously, PE firms are intermediates between investors and companies. It means that they have become active in the Swedish healthcare system indirectly through buyouts of already existing healthcare providers. The definition of PE given in section 3.1.2 can be narrowed down to LBOs as VC focuses more on emerging start-ups.

The PE funds *Apax Europe Funds*, *Apax France Funds* and *Nordic Capital Fund VI* acquired the healthcare provider Capiro in 2006, resulting in a delisting of Capiro from the Nasdaq Stockholm Stock Exchange. The ownership of PE ended after nine years with an IPO, resulting in a re-listing of Capiro in June 2015 ([Capiro AB, 2015](#)). Since November 2018, Capiro is part of *Générale de Santé* – a major provider of healthcare services in Europe with a combined net sales of EUR 3,8 billion (2019) and approximately 36,000 employees. Capiro itself entered the Swedish healthcare sector in the 1990s. In addition to the presence on the Swedish market, the company operates health centers, specialist clinics and hospitals in Norway, Denmark, Germany, and France. One of their projects attracting public attention was when they in December 1999 took over S:t Görans Sjukhus AB from the Stockholm County Council. Capiro has since then rented the premises and operated the hospital on behalf of the county council ([Stockholm County Council, 2018](#)).

Aleris, another major private primary and specialty healthcare provider on the Nordic market, was in the hands of *EQT* between the years 2006 and 2010 and *Patricia Industries* between 2010 and 2019, both PE subdivisions of *Investor AB*. In 2019 the ownership switched to the partly Sweden-based PE firm *Triton* ([Investor AB, 2019, 2010](#); [EQT Group, 2021](#); [Pitch Book, 2021](#)).

Based on the above explanation of the entry and exit of different owners, *Fig. 4.1* was created to visualize when PE was the main ownership model for the four major players in the Swedish specialized care sector.

[Kaplan and Stromberg \(2009\)](#) indicate, by analyzing the previous evolution of this model, that there is evidence for cyclic ups and downs regarding LBOs. The authors noticed a global boom between 2005 and 2007. This trend was present in the Swedish healthcare sector as

well as by looking at the history of Capio and Aleris.

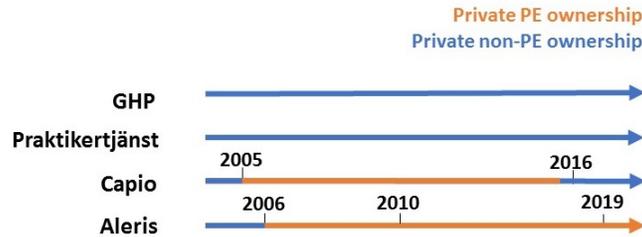


Figure 4.1: Ownership of private healthcare providers. Data extracted from: Triton (2019); Investor AB (2019); Capio AB (2015); Praktikertjänst (2021); GHP (2021)

#### 4.3 DATA COLLECTION

We have now identified the main actors active in the Swedish secondary healthcare sector (described in section 3.1). As a brief reminder, the private providers can be grouped into one of the following: *private PE*, *private non-PE*, and *private not-for-profit*. The majority of shares determines the ownership type in cases where several ownership types are represented in the same company.

As shown in *Fig.4.1*, the era of PE ownership for both Capio and Aleris started shortly before 2007 and ended, in the case of Capio, in 2016 (more details about ownership can be found in section 4.2). Financial performance data are considered within a specific time frame, namely between 2007 and 2016. The largest private healthcare providers active in the Swedish secondary healthcare sector can be classified as follows:

- *private PE* including Capio and Aleris

- *private non-PE* including GHP and Praktikertjänst
- *private not-for-profit* including Ersta hospital, Carlanderska hospital, and Sophiahemmet hospital
- *public* including all units owned and operated by the public sector (county councils and regions)

We chose not to consider data after 2016 for the simple reason that it will be impossible to monitor the extent to which the figures are still affected by the PE business engineering. For example, one could argue that even though Capio is currently non-PE-owned, their processes might still be influenced by the previous PE ownership. It would, therefore, not be possible to properly categorize Capio.

For the analysis of patient-perceived quality of care, all available data for the constituent parameters for units belonging to the PE, private non-PE and private not-for-profit group outlined above will be included for 2016. The same approach will apply to the analysis of availability between 2012 and 2016. The number of observations for each provider and parameter can be found in the tables in *Appendix B* for full transparency. It is important to note that a unit may have several sub-units reporting individually. Based on the average characteristics in terms of type of treatments offered, size, turnover, socio-economic and geographical location of the included private units, a public comparison group with a total of 15 included units with associated sub-units was developed. Units included range from medium-sized regional emergency hospitals to specialized clinics.

Due to the lack of data on quality of care and availability for the earlier time period, the time scope for the financial analysis overpasses the other two fields of interest. Nevertheless,

we assume for the conclusions that the entire tenure of PE ownership and the related financial results have a cumulative impact on perceived quality and availability of services. In other words, we argue that that availability and quality of care correlate with financial performance even if the analyzed time frame of the latter is wider.

The following two subsections reveal more in detail how the quantitative analyses have been conducted by explaining financial performance, quality of care and availability separately.

#### 4.4 FINANCIAL PERFORMANCE

The purpose of the analysis is to compare the change in financial performance over the specific time period between 2007 and 2016, which allows us to take the widest possible span of PE ownership into account. This allows us to examine the largest potential impact of this ownership model.

Our work does not compare the financial performance of private forms of ownership with the financial performance of public or private non-profit ownership. The reason for this choice is the fact that we see the absence of similar financial pressure in the case of public ownership as "unfair" and unrepresentative. Moreover, the reporting methods differ. There are no financial reports publicly available for the not-for-profit sector, which makes that comparison impossible.

To estimate the financial performance of a specific provider, the income statements and balance sheets of their secondary care units are summed to obtain an overview of each provider. Financial reports at the group level could not be included since the figures also represent activities that take place outside Sweden and/or involve primary or elderly care, which must

be excluded to respect the scope of this analysis. The aggregated financial reports for each company can be found in *Appendix A*.

The data related to financial performance for an individual unit can be extracted from the databases *Bisnode InfoTorg Företag* and *Orbis*. Two steps had to be taken to ensure that figures originate only from specialized care. As a first step, SNI codes were used. In our case, codes *86102*, *86103*, *86212*, *86221*, *8622*, *86905* and *86909* had to be retained, as suggested by [Grant Thornton \(2019\)](#). The data were then manually checked to ensure that no primary or elderly care activities remained in our sample. The following metrics are included in our analysis of the financial part:

**NET SALES** The net sales, i.e. the net revenue, is directly proportional to the number of patients and the cost for treatments. For treatments, providers are compensated by a flat-rate sum, which means that it is a good indicator for the overall volume of a provider's activities. Moreover, the net sales per employee is another parameter of interest when it comes to measuring efficiency in terms of employee efficiency.

**RESULT BEFORE APPROPRIATION** This indicator is obtained after subtracting total operating expenses, depreciation, interests, and taxes from the turnover. The result before appropriation is taken instead of the EBIT-margin because of the fact that the PE model is based on high leverages, which results in tax benefits (see section 3.1.2). Including interests and taxes presents a better measurement for our analysis. The result before appropriation does not take into account contributions from or to the group. Since some companies collect profits generated by the units at the group level, the net profit of the year (representing those group contributions) would fail to measure the actual performance of a specific unit. To measure

the profit relative to the net sales, the ratio *results before appropriation to net sales* is taken.

**MACHINERY AND EQUIPMENT** This part of a reporting unit's assets is of importance in this study as it concerns investments.

All the parameters are shown and analyzed for 2007 and 2016, i.e. at the beginning and the end of our studied period. By doing so, the evolution of each provider's performance can be discussed. Additionally, average figures for the entire holding period are shown to take eventual fluctuations into account.

Only descriptive statistics are used in this case since all the units are included and no randomized sample of units had to be generated.

#### 4.5 QUALITY OF SECONDARY CARE

*The Institute of Medicine* (IOM) stated in 1990 that "quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (Lohr, 1990). Developing a common definition of healthcare quality and what indicators to use for coherently measuring, evaluating and comparing quality across secondary care units of different ownership is a hard task. As briefly mentioned earlier, healthcare quality is multifaceted by nature, and there is currently no universal gold standard for what indicators to include in the assessment of objective quality in secondary care. Measuring quality in healthcare has also not been something prioritized in the past, which could also explain to some extent the lack of common standards (Carey and Burgess, 1999), although it is worth mentioning that initiatives

have been taken in recent years to reach an international consensus on how to measure the quality of care (Mumford et al., 2013). Rationalizing the theoretical concept of quality by translating it into a set of quality indicators requires a clear understanding of the purpose and context of measurement. For the purpose of evaluating quality in relation to ownership type, access to quality data that is uniform for all forms of ownership is required.

Reporting on the quality of specialized care in Sweden has developed rapidly in recent years. Among the initiatives taken to better monitor patient perceptions and make quality results from registers more accessible and comparable are the projects *Öppna jämförelser* (lit. Open comparisons) managed by *the National Board of Health and Welfare* and SALAR (The National Board of Health and Welfare, 2018), and *Vården i siffror* (lit. Healthcare in numbers) managed by SALAR (SALAR, 2020). Quality of specialized healthcare is by nature a broad and complex phenomenon, which means that there are obvious difficulties in measuring and assessing quality. For example, Campbell et al. (2001) analyzed patient-perceived primary care quality in the U.K. based on surveys including 13 parameters such as accessibility, trust, and likelihood of recommendation.

From a patient perspective, there are mainly two types of quality (Rehnberg et al., 2010). The first looks at the medical quality of the treatment's effects on the patient's health. It can be in the form of physician-reported measures or *Patient Reported Outcome Measures* (PROM). In some medical disciplines, this data can be retrieved from the many diagnosis-specific quality registers available. To a lesser extent, these registers are comprehensive for the private providers of specialized healthcare. The second dimension of quality is based on patients' own assessments and experiences of care quality and accessibility (*Patient Reported Experience Measures* (PREM)). A frequently occurring notion in the debate concern-

ing Swedish healthcare is that availability has not developed sufficiently (Anell, 2010, 2020). Improved access has therefore also been a clear goal of the Swedish care choice reform. The perceived quality can, in turn, be divided into two main dimensions: *technical quality*, i.e. what the patient gets out of the service, and *functional quality*, i.e. how the patient perceives what is performed (Karlsson and Lilja, 2012). In recent years, patient assessments have increasingly been identified as a valid tool (Campbell et al., 2001; Glenngård and Anell, 2012; Isaac et al., 2010) for evaluating healthcare quality. DiPrimio (1987) suggests that healthcare should be seen as a service industry and hence emphasizes client satisfaction as very important. Isaac et al. (2010) investigated objective measures of healthcare quality in 800 hospitals to patients' evaluations of quality and concluded that these were strongly correlated.

The patients' perceived quality of service in specialized in- and outpatient healthcare in Sweden has since 2014 been measured every other year by SALAR in the *Nationell patientenkät* (NPE) (lit. National Patient Survey) (SALAR, 2018). For each indicator included in NPE, several questions are asked to respondents, with different weightings applied depending on the importance of the question. The results of the weighted responses to the questions are then summarized with results varying from 0 to 100%. The surveys are distributed to randomly selected patients who have visited a physician or gone through treatment at Swedish secondary care units. Collected data can be derived down to the unit level. This method makes it possible to compare individual units as well as providers.

The overall availability performance in relation to the goals stipulated in the care guarantee (see section 2.2.3) for specialized care is measured by relatively simple objective indicators such as lead times for different types of appointments and procedures, with goal fulfillment (varying from 0 to 100%) reported to the national register *Väntetider i vården* (VIV) (lit.

Waiting times in healthcare) managed by SALAR (SALAR, 2017).

We will use a consolidated set of indicators obtained from the VIV data set between the years 2012 and 2016 for the empirical availability analysis (see section 4.6). For the empirical PREM quality analysis based on data from the outpatient NPE data set (the inpatient NPE data set from 2016 provide insufficient coverage), we will include all the seven weighted indicators reported, which are:

1. Proportion of positive responses about participation in their care from patients who visited an outpatient clinic (participation)
2. Proportion of positive responses about information and knowledge from patients who visited an outpatient clinic (information and knowledge)
3. Proportion of positive responses about continuity and coordination from patients who visited an outpatient clinic (continuity and coordination)
4. Proportion of positive responses about the healthcare professionals' ability to provide emotional support from patients who visited an outpatient clinic (emotional support)
5. Proportion of positive responses about respect and personal treatment from patients who visited an outpatient clinic (personal treatment)
6. Proportion of positive responses about availability from patients who visited an outpatient clinic (availability)
7. Proportion of positive responses about overall impression from patients who visited an outpatient clinic (overall impression)

In addition, we will calculate the overall impression for each ownership type based on these seven weighted indicators.

#### 4.6 AVAILABILITY

Availability analyses will, as previously mentioned, be conducted based on data from the VIV register published by SALAR (SALAR, 2020). SALAR continuously collects availability data for both public and private care providers to be included in its national waiting time database.

All available data for the group of PE, non-PE, and public providers during the period of 2007 to 2012 were included. Data for availability in private specialized healthcare were first published in 2012, and we will hence only present statistics between 2012 and 2016. Furthermore, Praktikertjänst, which was originally intended to be the non-PE-owned reference, did not report a sufficient amount of data for its units during this period (there is only data for 2013 and 2014 available) to be able to draw any definite conclusions (low predicted representativity), but will still be included in the analysis for benchmarking purposes. In general, it can be said that the proportion of units that report to the VIV register is very high (on average > 90% of participating units originally included in the public comparison group, lower for NPE) for public ownership, while it looks considerably worse for private ownership (far from census data). Unfortunately, we have not been able to obtain information on how many units every individual private care provider operated each year of the included time period, which implies that we cannot report any percentages regarding coverage in our data set except estimate that it is below 30 percent for Capio, Aleris, and Praktikertjänst for VIV and lesser for NPE (see *Appendix B* for the number of observations for each provider). The coverage

of the non-profit group is also low, and in addition, there are only a handful of entities with not-for-profit ownership operating in Swedish secondary care, which combined complicates the analysis and must be taken into account when interpreting our results.

Reported indicators for waiting times in specialized care will be grouped into four different aggregated parameters: *Completed first appointments within 90 days (all specialties except psychiatry)*, *Completed surgical procedures/measures within 90 days (all specialties except psychiatry)*, *Waiting 90 days or less for first appointment (all specialties except psychiatry)*, *Waiting 90 days or less for surgical procedure/measure (all specialties except psychiatry)*. Those indicators are part of the *care guarantee* that is mentioned in section 2.2.3.

Apart from the fact that quality and availability are interesting to analyze individually, there is also a potential connection between them that may be interesting to investigate further. Great emphasis from a political point of view has been to come to terms with the sometimes long waiting times prior to the first appointment in specialized healthcare. There is a risk that, in recent years, perceived quality has been de-prioritized by the providers in favor of increased availability (which means less time and effort spent on each patient). It would therefore also be interesting to look into if there is any correlation between increased availability and a deterioration in quality to be seen based on the register data.

#### 4.7 STATISTICAL ANALYSIS

Two statistical tools are used to further analyze the data on quality of care and availability, namely *t-tests* and *effect size (Cohen's d-value)*, which are described in more detail below. Both will help to facilitate the interpretation of our results.

To answer our first research question, Capio and Aleris are compared using the two tools for both quality and availability. Our third research question focuses on a comparison between PE and other forms of ownership. The data collected on Capio and Aleris are combined to create a single PE group. This PE group is compared to the other ownership types (Praktikertjänst (private non-PE), private not-for-profit and public) using the same tools as mentioned earlier.

Both *t-tests* and *effect size* require independent sampling, which makes it impossible to compare Capio with the PE group or Aleris with the PE group.

Therefore, the results include the following comparisons:

- Capio vs. Aleris
- PE (Capio & Aleris) vs. Praktikertjänst (private non-PE)
- PE (Capio & Aleris) vs. Private not-for-profit
- PE (Capio & Aleris) vs. Public

No tests are considered necessary for the evaluation of financial performance due to the nature of the data itself.

**T-TESTS** As suggested by [Bergendorf and Gremillet \(2012\)](#), t-tests enable us to reject or confirm hypotheses formulated to investigate whether specialized care quality and availability differ between providers. First, we need to find out with the help of *Levene's test* whether

variances in the data for each provider or group are equal or unequal to be able to conduct the appropriate type of t-test for each analysis. Since we identified that variances differ significantly, t-tests with unequal variances are selected. More specifically, we use a two-tailed t-test as described in SciPy (2008) for the analyzes. *Pandas* and *SciPy* toolboxes in *Python* are used to calculate t-values and p-values. The null-hypothesis stating that two providers have average (expected) means for a specific quality or availability parameter that do not significantly differ from each other, is accepted if  $p > .05$ . Otherwise, the alternative hypothesis, namely that a significant difference is present between two providers, is accepted ( $p < .05$ ).

Even though it may be problematic to use t-tests on non-normal data for small samples ( $n < 20$ ), t-tests are considered to be an acceptable statistical tool to use for large samples ( $n > 20$ ) regardless of the existence of normal distribution or not (Freund and Perles, 2007). Since all providers and groups (except private not-for-profit) include a sample size larger than 20, we consider t-tests to be a valid approach to conduct statistical testing in this case.

However, due to the fact that no census and/or no randomized samples are used for any of the providers or groups, the results from the significance testing will be purely considered as benchmarks, which implies that the emphasis will be on descriptive statistics.

**EFFECT SIZE** Another statistical tool used in this study is *Cohen's d-value*, as explained by Cohen (1998). This method helps to measure the strength of the relationship, i.e. the effect size, between two mean values of independent populations. The test is based on descriptive statistics and is used as a complement to statistical hypothesis testing.

The d-value can be calculated by the following formula:

$$d = \frac{\mu_1 - \mu_2}{s}$$

where  $\mu_{1,2}$  are the mean values of the two samples and  $s$  the pooled standard deviation. The pooled standard deviation is defined as follows:

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

with  $n_{1,2}$  and  $s_{1,2}$  standing, respectively, for the size and standard deviations of the two samples. Note that slightly different definitions can be found in the literature, which do not take into account differences in sample size. As this parameter varies greatly between providers, the above definition seems more appropriate.

The following convention, as suggested by [Sawilowsky \(2009\)](#), is used to classify the effect size:

Effect size	d
very small	0.01
small	0.2
medium	0.5
large	0.8
very large	1.2
huge	2

**Table 4.1:** Cohen's convention

#### 4.8 LIMITATIONS OF THE STUDY

The public debate on the involvement of PE in Swedish specialty care is far too complex and multifaceted to be summarized in a single thesis. Therefore, this section aims to provide some clarification on the scope and limitations of the present work. In fact, this thesis neglects several aspects that might affect both the quality of care and the financial performance of care units. Moreover, the research question delimits the broad debate on NPM in Sweden. Outlining the scope is necessary to understand the relevance of this study.

As far as the financial aspects are concerned, a direct comparison between public and private ownership is, in our view, not possible and therefore not feasible in this thesis. Privately owned providers generally tend to specialize their offer, whereas public hospitals offer treatments in a wider range of specialties.

Our analyses neglect confounding factors that could have influenced the results and could have had explanatory power, such as patients' age, ethnicity and socio-economic status, as well as the size of the specific care providing unit, as explained in [Glenngård and Anell \(2012\)](#). To control for these parameters, [Bergendorf and Gremillet \(2012\)](#) perform regression analyses for eight potential characteristics other than ownership that may partially explain the results, such as the location of the specific units (representing socio-economic conditions) when analyzing Swedish primary care. However, even if the controlling for an array of baseline variables is not included in our analyses, we will take previous findings into consideration when interpreting our results.

PREM parameters obtained through surveys serve as indicators for the analysis of health-care quality. A high rating may be biased by factors that are not relevant to the actual ap-

pointment or treatment or influenced by limited knowledge of the medical background.

As mentioned in section 4, previous literature suggests patient surveys to be a valid method of measuring quality of care. However, some soft and hard parameters that could potentially have been of interest to include such as increased life quality, long-term objective and subjective treatment outcomes, and mortality are missed due to the methods of NPE that systematic long-term monitoring (long-term physician-reported outcome registers or follow-up PREM surveys) could have provided. With the current method, we only get data on the perceived quality of an individual appointment or treatment that has taken place in recent time and do not obtain a long-term picture of the quality a specific care unit is capable of providing.

Some criticism has arisen as to whether only the inclusion of the first appointment or treatment is a good measure for evaluating availability in general. There is some evidence that the focus on fulfilling the care guarantee has led to longer queues for return visits, which affects the chronically and severely ill (Hansson, 2014). The Swedish Medical Association, for example, has criticized the outlining of the care guarantee and claims that it may to some extent conflict with medical ethics (Hansson, 2014). With that said, the availability data related to the first appointment or treatment is the most comprehensive available at present.

Another problem of this methodology is that patient survey and availability results are reported per unit, which means that a smaller unit contributes as much to the overall NPE or VIV score of a group as a bigger unit with more patients. Because the number of patients per unit cannot be obtained in most cases, a weighted score that takes this factor into account could not be calculated.

The university hospitals are an important player in the Swedish healthcare system that is not mentioned in our discussion. Besides standard procedures, they perform advanced and

costly treatments for patients suffering from severe diseases that smaller public and private units cannot perform. Therefore, a potential comparison in terms of financial performance, availability, and patient-perceived quality would be hard to conduct.

Two of the research questions aim at answering to which extent the entrance of PE led to better financial performance as well as availability and quality of care, respectively, but neglects the causes. In the context of this work, the results are analyzed without looking for the reasons why the figures varied over time. For example, if a particular provider increased its profit or availability, the reasons for this increase could be many (new operating procedures and practices, more efficient supply chain, etc.). However, estimating these factors is beyond the scope of this work. Including only patient- and unit-reported results neglects not only the causes but also other effects that can be correlated with our results, such as employee satisfaction. For example, as the number of activities carried out by a unit increases, it could be argued that healthcare professionals are subjected to more pressure, which may be reflected in employee satisfaction surveys and may not necessarily be reflected in PREM surveys or in the availability data. To analyze the full impact of PE with respect to all these potential effects and causes would not be feasible.

Lastly, the main drawback of this quantitative analysis is that better financial or quality performance is not necessarily a causality of the ownership. We assume in our results and discussion sections that there is a correlation. However, there is no guarantee that scores are a consequence of the ownership. Other independent factors might influence the results as well. In other words, better availability might not be caused by more efficient procedures implemented by management. For example, a smaller demand for a specific treatment could be a reason as well.

# 5

## Results

This chapter summarizes the results obtained by following the methodology described in the previous section. The hypotheses outlined in section 1.4 are rejected or confirmed on the basis of the results. Only selected data and findings that can be related to the scope of the thesis are presented and discussed further. Additional figures and data can be found in *Appendix A* and *B*.

## 5.1 FINANCIAL PERFORMANCE

*Tab. 5.1* shows the net sales and profit of the providers and ownership groups included in this study. For better visualization and further explanation, the values from this table are converted into graphs, which can be found at the end of this section. Complete results are available in *Appendix A*.

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	cum.
<b>Net sales [MSEK]</b>											
<b>Capio</b>	2277	3002	3764	4179	4904	5107	5298	5464	5825	6474	46220
<b>Aleris</b>	1202	1279	1453	1734	1912	2765	2883	2919	3083	3193	22428
<b>GHP</b>	306	371	422	456	474	476	518	542	604	674	4850
<b>Prakt.</b>	464	517	704	772	832	857	1050	1231	1346	1410	9191
<b>Profit (result before appropriation) [MSEK]</b>											
<b>Capio</b>	97	144	168	126	111	132	-93	-40	79	147	873
<b>Aleris</b>	97	-222	136	82	82	-45	-36	13	102	82	291
<b>GHP</b>	33	41	55	64	48	35	30	44	35	51	436
<b>Prakt.</b>	7	8	14	28	41	46	57	35	24	-5	254

**Table 5.1:** Financial results for the individual years between 2007 and 2016 as well as cumulative results for the entire period. Data extracted from Bisnode InfoTorg.

### 5.1.1 GROWTH IN NET SALES

The first graph reflects the aggregated financial performance of the specialized care units belonging to the PE-owned providers Capio and Aleris as well as to the non-PE-owned providers GHP and Praktikertjänst respectively. More specifically, *Fig. 5.1a* shows net sales for each provider as well as the ratio between net sales and the number of employees.

A first observation is that all providers managed to increase their net sales. As mentioned in section 4.4, this rise might not only originate from a higher number of treatments per-

formed since more effortful, i.e. costly, treatments that the providers are re-compensated for contribute to better figures as well.

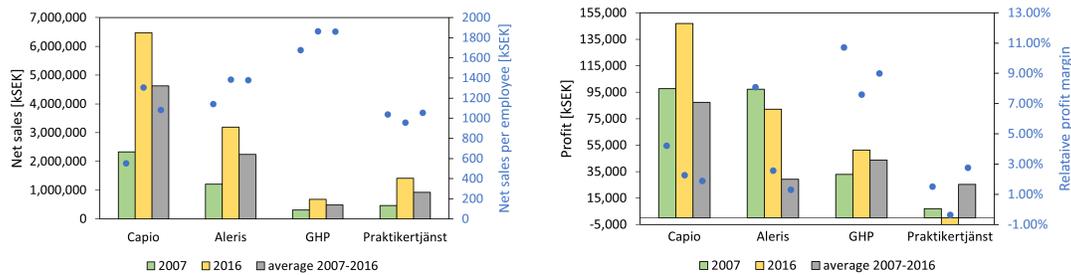
As a reminder, *hypothesis 1* is related to growth as measured using net sales as an indicator: *In terms of financial performance, PE-owned secondary care providers demonstrated a higher growth rate compared to the other ownership types.* Both Capio and Aleris, which are PE-owned, increased their annual income by 178% and 162%, respectively, from 2007 to 2016, yielding a total growth for the PE group of 174%. The combined growth of net sales for the non-PE group is 170% (120% and 204% for GHP and Praktikertjänst, respectively). The growth rate for the PE group is thus slightly superior to the non-PE group, but the hypothesis as formulated in this paper must be rejected because the growth rate is inferior compared to Praktikertjänst.

However, it should be noted that in absolute terms, PE outperforms the other forms of ownership by a lot. It can be deduced from *Fig. 5.1a* that the summed PE-owned entities increased their net sales by SEK 6.13 billion, compared to SEK 1.31 billion for GHP and Praktikertjänst together.

Another metric shown in *Fig. 5.1a* is the net sales per employee. It can be seen that the providers, with the exception of Praktikertjänst, managed to increase this ratio. Capio made the biggest leap by increasing the figure from kSEK 551 to kSEK 1306. The trend is similar but smaller for Aleris and GHP.

### 5.1.2 PROFITABILITY

*Fig. 5.1b* shows profit (defined as result before appropriation) together with the ratio of *net sales to results before appropriation* to visualize the profit relative to company size. As a matter



(a) Net sales (bars, left scale) and net sales per employee (blue dots, right scale)

(b) Profit (bars, left scale) and profit relative to net sales (blue dots, right scale)

**Figure 5.1:** Financial performance in terms of net sales and profit in 2007 and 2016 as well as average values for the entire period between 2007 and 2016

of fact, PE-owned providers generated the highest profits in absolute terms in 2007 and 2016, but not if the cumulative results are considered. GHP averaged MSEK 43.6 of profit per year, against MSEK 29.1 for Aleris.

*Hypothesis 2* is linked to the PE-owned companies' profits: *In terms of financial performance, PE-owned secondary care providers increased their annual profits over the analyzed time period.* This hypothesis must be rejected. Capio managed to increase profits by 50%, whereas the annual profits generated by Aleris decreased by  $-16\%$ .

*Hypothesis 3* relates again to profitability: *In terms of financial performance, PE-owned secondary care providers achieved higher relative profitability compared to the other ownership types* (see section 1.4). It can be stated that all the providers had smaller profit ratios in 2016 compared to 2012. Both PE-owned providers had values falling from 4.2% to 2.3% (Capio) and 8.1% to 2.6% (Aleris). For Praktikertjänst, the small profit margin dropped and eventually became negative. One should notice that GHP achieved the highest profit to net sales ratio among the four providers (10.7% dropping to 7.6%), thereby outperforming PE ownership (*hypothesis 3* can be rejected).

Due to the different trends in profitability between Capio and Aleris, *hypothesis 4* (In terms of financial performance, no considerable differences between secondary care providers within the PE ownership group could be seen) must be rejected.

The second graph shows the value of machinery and equipment for the same providers and years. This figure does not play a role in rejecting or accepting the hypothesis, but will be of use in the upcoming discussion. It can be noted that Aleris more than doubled the value (by 112%) (similar to Praktikertjänst). Rises are more moderate for Capio and even slightly negative for GHP (32% and  $-9\%$ ).

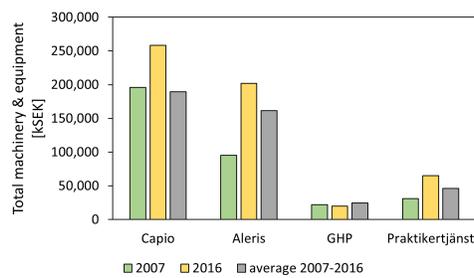
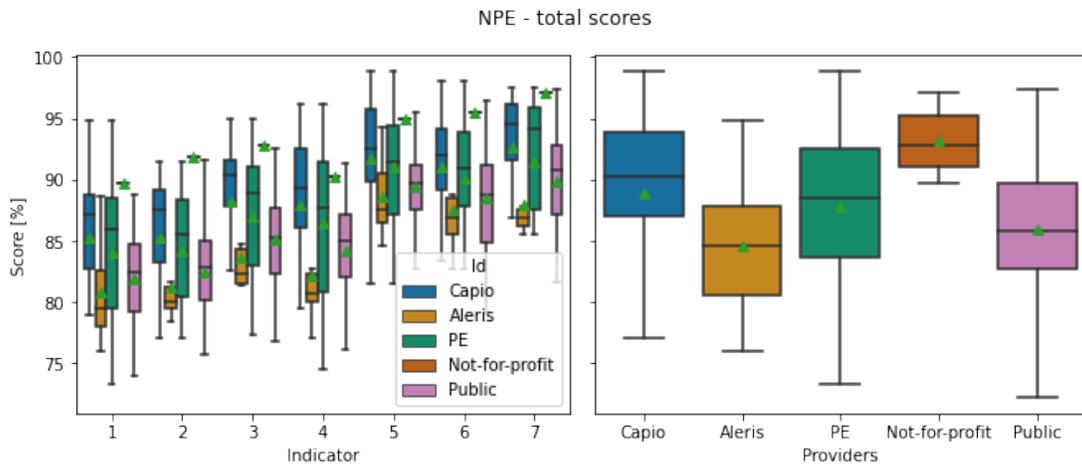


Figure 5.2: Machinery and equipment in 2007 and 2016 as well as average values for the entire period between 2007 and 2016

## 5.2 QUALITY OF CARE

This section presents the results of the 2016 NPE survey on secondary outpatient care sorted by ownership type. Two different plots are presented for better visualization and are described subsequently: *Fig. 5.3a* shows the results for each individual indicator, whereas *Fig. 5.3b* resumes the combined results for all seven indicators. Additional descriptive statistics can be found in *Tab. 5.2* as well as in *Appendix B*.



(a) Secondary care perceived quality scores 2016 by ownership type. Indicators:

1. = Participation,
2. = Information and knowledge,
3. = Continuity and coordination,
4. = Emotional support,
5. = Personal treatment,
6. = Availability,
7. = Overall impression

(b) Total secondary care perceived quality (1.-7.) 2016 by ownership type

**Figure 5.3:** Secondary care perceived quality by ownership type (data extracted from NPE)

#### CAPIO VS. ALERIS

As seen in *Fig. 5.3*, our analysis reveals that Capio significantly ( $p < .05$ ) outperformed Aleris in terms of mean score for *emotional support*, *overall impression*, and *cumulative score*. Taking Cohen's d-value into account, the effect size of the difference between mean values is medium to large.

#### PE VS. OTHER OWNERSHIP TYPES

PE outperformed the Public group on all indicators 1.-7. as well as for the cumulative mean score, with significance only for the total mean ( $p = 1.33^{-3} < .05$ ). On the cumulative level, the d-value indicates that the difference can be characterized as small to medium in effect size and thereby less expressed as for Capio compared to Aleris, as *Fig. 5.3* also illustrates.

PE was outperformed by Not-for-profit as the differences in mean scores for all the indicators are in favor of Not-for-profit. No t-tests or Cohen's d-value could be calculated (except for the total) since the sample size of only one unit is insufficient to perform these tests in the case of Not-for-profit. For the cumulative indicator, differences in mean scores (87.78% vs. 93.14%) are slightly more relevant, and, according to the d-value, the effect size is large.

With the help of these findings, the following hypotheses from section 1.4 can be tested:

- *Hypotheses 5: In terms of patient-perceived quality, PE-owned secondary care providers achieved inferior results compared to the other ownership types.*
- *Hypotheses 6: In terms of patient-perceived quality, there were considerable differences between secondary care providers within the PE ownership group.*

According to our results, *hypothesis 5* must be rejected since the PE group achieved superior results compared to the public group. *Hypothesis 6* is true as a direct consequence of the medium to large effect size when it comes to the difference in terms of cumulative scores (in favor of Capio).

Results from NPE						
		Capio	Aleris	PE(Capio & Aleris)	Not-for-profit	Public
Participation	mean[%] <sup>(1)</sup>	85.20	80.79	84.10	89.75	81.85
	std. <sup>(2)</sup>	7.26	4.57	6.87	N.A	3.70
	count <sup>(3)</sup>	18	6	24	1	55
	t-val. <sup>(4)</sup>	-1.73	1.73	-	N.A.	1.5
	p-val. <sup>(4)</sup>	0.10	0.10	-	N.A.	0.14
Information and knowledge	mean	85.24	81.16	84.22	91.89	82.43
	std.	6.44	3.41	6.04	N.A	4.32
	count	18	6	24	1	55
	t-val.	-1.97	1.97	-	N.A.	1.30
	p-val.	0.064	0.064	-	N.A.	0.19
Continuity and coordination	mean	88.17	83.67	87.05	92.80	85.07
	std.	6.29	3.21	5.95	N.A	3.80
	count	18	6	24	1	55
	t-val.	-2.27	2.27	-	N.A.	1.49
	p-val.	0.035	0.035	-	N.A.	0.14
Emotional support	mean	87.96	82.12	86.50	90.17	84.16
	std.	6.45	5.03	6.55	N.A	4.41
	count	18	6	24	1	55
	t-val.	-2.28	2.28	-	N.A.	1.59
	p-val.	0.043	0.043	-	N.A.	0.12
Personal treatment	mean	91.78	88.61	90.99	94.89	89.37
	std.	5.10	3.58	4.90	N.A	3.15
	count	18	6	24	1	55
	t-val.	-1.66	1.66	-	N.A.	1.48
	p-val.	0.12	0.12	-	N.A.	0.14

Results from NPE (continued)						
Availability	mean	91.01	87.50	90.13	95.44	88.50
	std.	5.54	3.93	5.33	N.A	4.00
	count	18	6	24	1	55
	t-val.	-1.69	1.69	-	N.A.	1.34
	p-val.	0.11	0.11	-	N.A.	0.18
Overall impression	mean	92.68	87.98	91.50	97.07	89.88
	std.	6.45	3.42	6.13	N.A	4.26
	count	18	6	24	1	55
	t-val.	-2.27	2.27	-	N.A.	1.17
	p-val.	0.036	0.036	-	N.A.	0.24
<b>Total</b>	mean	88.86	84.54	87.78	93.14	85, 89
	std.	6.72	4.83	6.56	2.76	5.01
	count	126	42	168	7	385
	t-val.	-4.50	4.50	-	4.62	3.32
	p-val.	$1.82e^{-5}$	$1.82e^{-5}$	-	$1.2e^{-3}$	$9.9e^{-4}$
	d-val. <sup>(5)</sup>	0.68	0.68	-	0.829	0.342

**Table 5.2:** Results from NPE

(1) calculated average of the sample

(2) standard deviation of the sample

(3) number of observations (reported units) extracted from the database

(4) t-test results

(5) Cohen's d-value

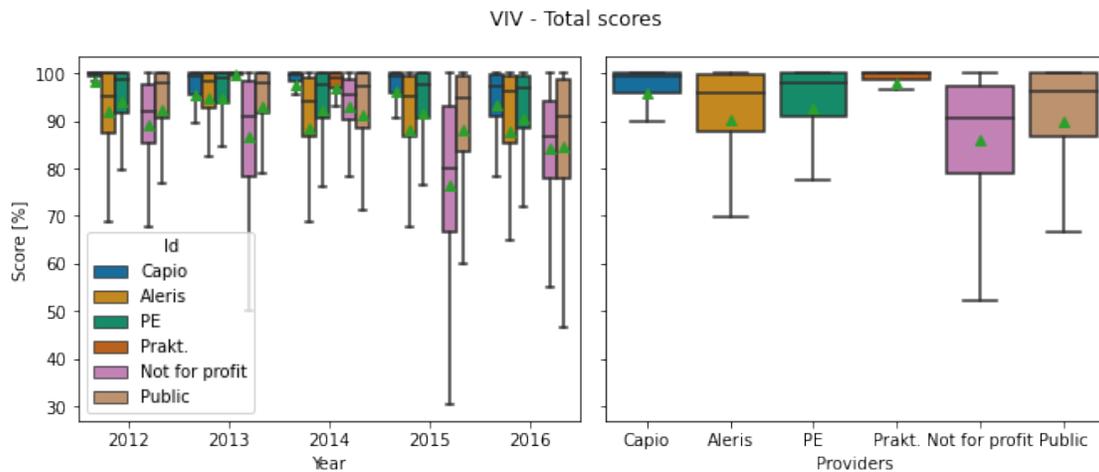
As a reminder of section 4.7, t-value, p-value and d-value are comparing: Aleris vs. Capiro (left side of the table); PE vs. Not-for-profit and PE vs. Public (right side of the table). For the right side, values in each column are therefore relative to PE.

### 5.3 AVAILABILITY

This section presents the results of VIV used to examine availability. Similar to the previous section, this section highlights relevant results using graphs of the cumulative scores for availability in the VIV database from 2012 to 2016 (Fig. 5.4) as well as for each of the four indicators that contribute to this overall result, namely *Completed first appointments within 90 days* (Fig. 5.5), *Completed surgical procedures/measures within 90 days* (Fig. 5.6), *Waiting 90 days or less for first appointment* (Fig. 5.7) and *Waiting 90 days or less for surgical procedure/measure* (Fig. 5.8).

As already stated in section 4, data for Praktikertjänst were only reported for *Completed first appointments within 90 days* (Fig. 5.5) and *Waiting 90 days or less for first appointment* (Fig. 5.7). Moreover, data for these indicators were only available for 2013 and 2014. Therefore, two tables are shown: the first table (Tab. 5.3) shows quantitative data averaged for 2012 to 2016 and excludes Praktikertjänst. The second table (Tab. 5.4) contains only figures for the two indicators reported by Praktikertjänst and for the period 2013 to 2014. By doing so, comparisons between scores for Praktikertjänst can be made under the same conditions as for other providers.

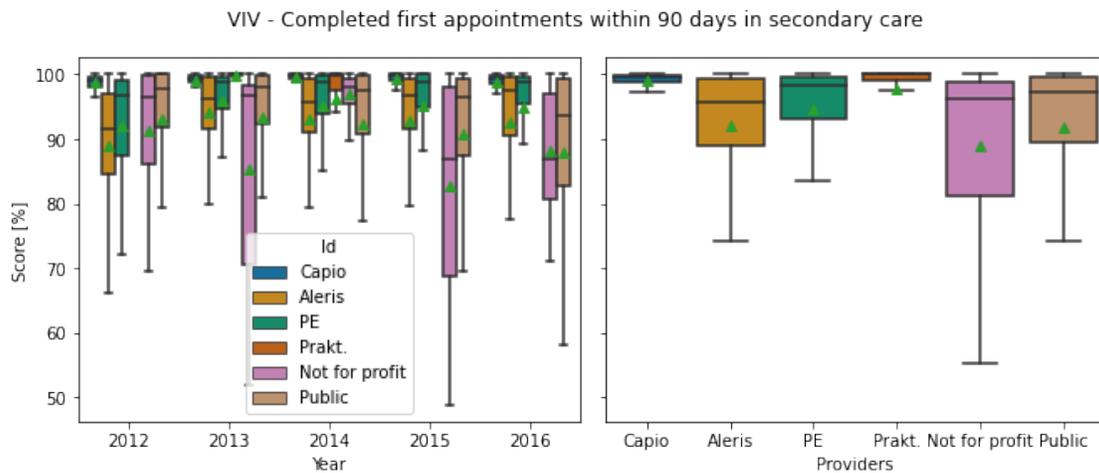
The first figure shows the cumulative scores for all the providers together and the four following figures display the individual indicators:



(a) Total secondary care availability scores for each year by ownership type

(b) Total secondary care availability for the period of 2012 to 2016 by ownership type

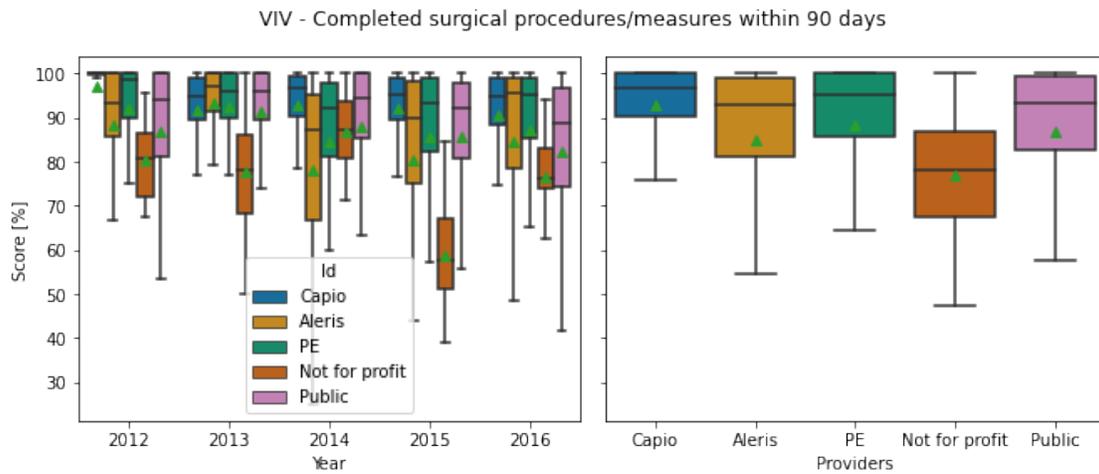
Figure 5.4: Total secondary care availability by ownership type (data extracted from VIV)



(a) Completed first appointments within 90 days in secondary care by year and ownership type

(b) Completed first appointments within 90 days in secondary care for the period of 2012 to 2016 (2013 to 2014 for Praktikertjänst) by ownership type

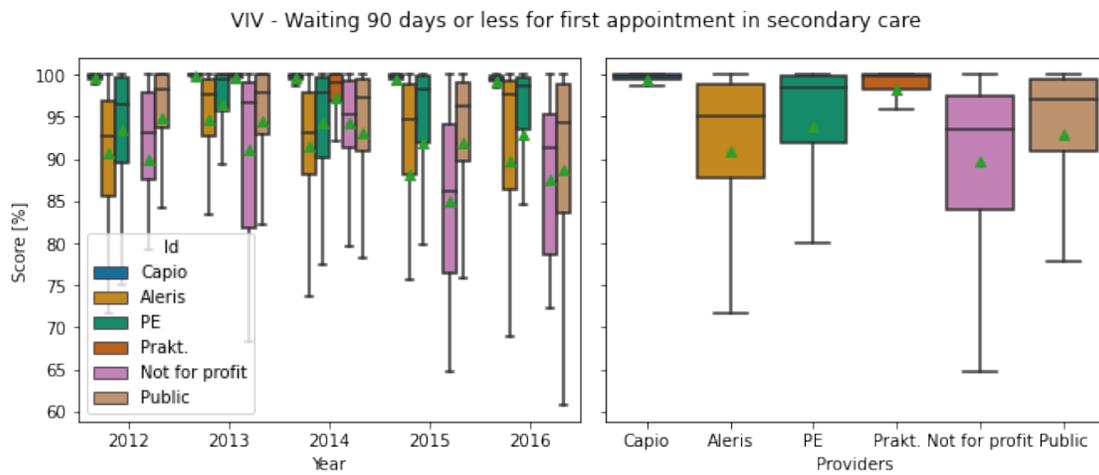
Figure 5.5: Completed first appointments within 90 days in secondary care for the period of 2012 to 2016 by ownership type (data extracted from VIV)



(a) Completed surgical procedures/measures within 90 days in secondary care by year and ownership type

(b) Completed surgical procedures/measures within 90 days in secondary care for the period of 2012 to 2016 by ownership type

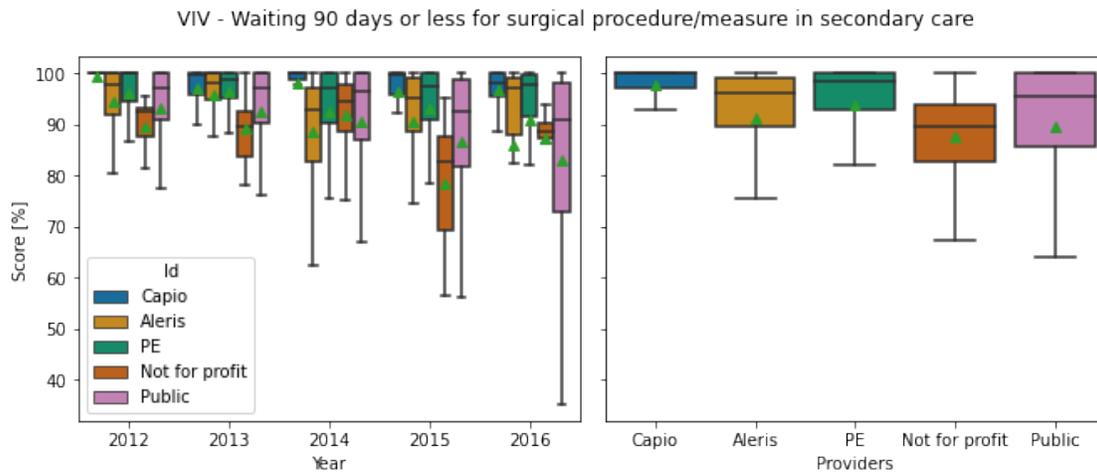
Figure 5.6: Completed surgical procedures/measures within 90 days in secondary care (data extracted from VIV)



(a) Waiting 90 days or less for first appointment in secondary care by year and ownership type

(b) Waiting 90 days or less for first appointment in secondary care for the period of 2012 to 2016 (2013 to 2014 for Praktikertjänst) by ownership type

Figure 5.7: Waiting 90 days or less for first appointment in secondary care (data extracted from VIV)



(a) Waiting 90 days or less for surgical procedure/measure in secondary care by year and ownership type

(b) Waiting 90 days or less for surgical procedure/measure in secondary care for the period of 2012 to 2016 by ownership type

Figure 5.8: Waiting 90 days or less for surgical procedure/measure in secondary care (data extracted from VIV)

#### CAPIO VS. ALERIS

As can be seen in *Fig. 5.4*, Capio outperformed Aleris in every single year if all four indicators are combined. For the entire time period, the mean scores are 97.31% for Capio and 90.19% for Aleris, as shown in *Tab. 5.3*. The difference between them is significant ( $p = 1.72e^{-96} < .05$ ) and the effect size is medium to large.

Looking more closely at the four indicators represented by *Fig. 5.5-5.8*, it can be seen that all the indicators are in favor of Capio and statistically significant, which is not surprising given that the cumulative score of the four indicators already revealed a significant difference.

As shown in *Tab. 5.3*, Capio has a rather low standard deviation, unlike Aleris.

## PE VS. OTHER OWNERSHIP TYPES

*Fig. 5.4* highlights that PE outperformed the Not-for-profit and Public groups for all parameters averaged over the time period analyzed (92.91% for PE vs. 90.41% for Not-for-profit with  $p = 4.05e^{-33}$  and 87.28% for Public with  $p = 1.21e^{-30}$  as *Tab. 5.3* reveals). The differences are statistically significant. This significance is also found when examining the four indicators separately: the scores for PE were higher without exception for each parameter when studying the average between 2012 and 2016, as displayed in *Fig. 5.5b, 5.6b, 5.7b, and 5.8b*. A few exceptions can be observed over the years, as is the case of *Completed surgical procedures/measurements within 90 days* in 2014 (*Fig. 5.6a*). The difference in mean values has small to medium effect size for PE vs. Not-for-Profit and small for PE vs. Public.

The situation is different when PE is compared to Praktikertjänst. By analyzing *Fig. 5.5, Fig. 5.7* and using data from *Tab. 5.4*, it can be deduced that Praktikertjänst significantly outperformed PE for both categories as well as for the total scores (95.46% vs. 98.03%). The difference is small to medium in effect size and statistically significant ( $p = 1.1e^{-8}$ ).

It is nevertheless worth mentioning that Capio had higher scores than Praktikertjänst for the two indicators individually and for the total where the difference was around 1.45%, as shown in *Tab. 5.4*. On the other hand, Aleris achieved lower values (around 4.71% for the cumulative mean).

Based on the results described so far, the following hypotheses from section 1.4 can be further investigated:

- *Hypothesis 7*: In terms of availability, PE-owned secondary care providers achieved superior results compared to the other ownership types (research question 3).

- *Hypothesis 8*: In terms of availability, there were considerable differences between secondary care providers within the PE ownership group (research question 1).

Due to higher availability for Praktikertjänst, *hypothesis 7* must be rejected. However, the analysis was limited because the data covered only two of four indicators over a two-year period.

Finally, *hypothesis 8* must be accepted since a significant difference between Capio and Aleris could be observed.

Results from VIV 2012 - 2016						
		Capio	Aleris	PE (Capio & Aleris)	Not-for-profit	Public
Completed first appointments	mean[%] <sup>(1)</sup>	99.09	92.14	94.53	89.04	91.70
	std. <sup>(2)</sup>	1.08	10.71	9.30	12.43	12.96
	count <sup>(3)</sup>	385	736	1121	337	7340
	t-val. <sup>(4)</sup>	-17.42	17.42	-	7.23	9.01
	p-val. <sup>(4)</sup>	$1.6e^{-57}$	$1.6e^{-57}$	-	$2.14e^{-12}$	$4.87e^{-19}$
Completed surgical procedures/measures	mean[%]	92.88	84.75	88.34	76.90	86.91
	std.	10.48	21.18	17.76	18.22	14.44
	count	384	487	871	143	6000
	t-val.	-7.39	7.39	-	8.47	2.20
	p-val.	$3.74e^{-13}$	$3.74e^{-13}$	-	$3.56e^{-15}$	0.02
Waiting for first appointment	mean[%]	99.52	90.96	93.81	89.69	92.83
	std.	1.09	13.63	11.85	11.03	11.23
	count	389	781	1170	348	7421
	t-val.	-17.42	17.42	-	5.91	2.63
	p-val.	$6.87e^{-58}$	$6.87e^{-58}$	-	$5.53e^{-9}$	$8e^{-4}$
Waiting for surgical procedure/measure	mean[%]	97.65	91.20	93.98	87.66	89.50
	std.	4.50	13.96	11.39	15.15	9.10
	count	455	601	1056	142	7002
	t-val.	-10.62	10.62	-	7.51	11.35
	p-val.	$1.17e^{-24}$	$1.17e^{-24}$	-	$1.72e^{-12}$	$7.96e^{-29}$
<b>Total</b>	mean[%]	97.31	90.19	92.91	87.28	90.41
	std.	6.24	14.95	12.84	14.42	12.85
	count	1613	2605	4218	970	27763
	t-val.	-21.45	21.45	-	12.29	11.57
	p-val.	$1.72e^{-96}$	$1.72e^{-96}$	-	$4.05e^{-33}$	$1.21e^{-30}$
	d-val. <sup>(5)</sup>	0.575	0.575	-	0.428	0.194

**Table 5.3:** Results from VIV 2012-2016 for all indicators

(1) mean of the sample

(2) standard deviation of the sample

(3) number of observations (reported units) extracted from the database

(4) t-test results

(5) Cohen's d-value

Results from VIV 2013 - 2014							
		Capio	Aleris	PE (Capio & Aleris)	Not-for-profit	Prakt.-tjänst	Public
Completed first appointments	mean[%] <sup>(1)</sup>	99.26	93.54	95.54	91.59	97.77	92.85
	std. <sup>(2)</sup>	0.88	9.42	8.09	12.43	9.45	11.24
	count <sup>(3)</sup>	154	287	441	143	198	3064
	t-val. <sup>(4)</sup>	-10.20	10.20	-	3.55	2.88	6.15
	p-val. <sup>(4)</sup>	$3.83e^{-21}$	$3.83e^{-21}$	-	0.0004	0.0041	$1.27e^{-9}$
Waiting for first appointment	mean[%]	99.70	93.12	95.38	92.83	98.27	93.84
	std.	0.53	7.87	7.10	8.00	4.56	9.82
	count	156	298	454	147	208	3092
	t-val.	-14.35	14.35	-	3.44	6.28	4.07
	p-val.	$5.31e^{-36}$	$5.31e^{-36}$	-	0.0006	$6.52e^{-10}$	$5.05e^{-5}$
<b>Total</b>	mean[%]	99.48	93.32	95.46	92.22	98.03	93.35
	std.	0.76	8.66	7.60	10.43	7.35	10.56
	count	310	585	895	290	406	6156
	t-val.	-17.06	17.06	-	4.88	5.77	7.32
	p-val.	$1.62e^{-53}$	$1.62e^{-53}$	-	$1.52e^{-6}$	$1.1e^{-8}$	$4.06e^{-13}$
	d-val. <sup>(5)</sup>	0.877	0.877	-	0.386	0.341	0.206

**Table 5.4:** Results from VIV 2013-2014 for only the two indicators reported by Praktikertjänst

(1) mean of the sample

(2) standard deviation of the sample

(3) number of observations (reported units) extracted from the database

(4) t-test results

(5) Cohen's d-value

As a reminder, values differ from the previous table since figures for 2013-2014 instead of 2012-2016 are presented to allow a comparison with Praktikertjänst.

# 6

## Discussion

This chapter reviews the results presented in the previous chapter. The discussion is structured in a step-by-step manner: to begin with, the results for Capiro and Aleris, i.e. the PE group, which is of interest for answering the first research question, are reviewed. Secondly, the results of the PE group compared with the results of the other ownership types in terms of financial performance of secondary care as well as quality and availability of services are

discussed.

## 6.1 COMPARISON BETWEEN PE PROVIDERS

Before comparing PE with the other forms of ownership, we discuss in this first section the results within the PE group, i.e. the differences between Capio and Aleris.

### CAPIO AND ALERIS HAVE SIMILAR FIGURES IN TERMS OF NET SALES

As shown in *Fig. 5.1a*, both PE-owned providers managed to increase their annual net sales considerably during the PE holding period. Aggressive growth strategies are key characteristics of PE ownership, given that the ultimate goal is to increase the value of the investments and thus hope for higher ROI at the exits.

### CAPIO ACHIEVED CONSIDERABLY HIGHER PROFITS THAN ALERIS

On the other hand, Aleris became less profitable at the end of the analyzed time period, as *Fig. 5.1b* indicates. Capio managed to increase its profits alongside the net sales, but the trend is the opposite for Aleris.

Our findings are reinforced by a statement given by Johan Forssell, the CEO of Investor AB, in 2019 when ownership of Aleris changed to Triton: ” [...] *Aleris has developed and strengthened its offering and achieved higher customer satisfaction. However, the financial performance has not been satisfactory.*” (Investor AB, 2019). A part of the explanation is the high level of investments. Even if these expenses are almost negligible regarding the net sales, they become relevant in comparison with the profits. In absolute terms, Aleris invested more than

any other provider in machinery and equipment between 2006 and 2017, thereby creating value that potentially did not pay off during the analyzed time period (see *Fig. 5.2*).

It can be argued that PE owners seek to return value to their partners by generating profits through exits rather than through ongoing dividends derived from the profits, which makes it difficult to measure whether the two arms of Investor AB that owned Aleris made a good deal or not, since buying and selling prices are not disclosed.

A potential reason why Capio managed to increase the profits drastically can be found by observing the increased net sales per employee. In other words, the increase in revenue is greater than the headcount required to do so, which can be a synonym for workforce optimization.

As our analyses indicate, PE ownership had similar effects in terms of growth, but the evolution of the profitability differs between Capio and Aleris to such an extent that financial performance cannot be generalized. In other words, the ownership type should not be considered as a synonym of similar profitability. Further discussions on profitability must therefore consider the two providers separately.

#### CAPIO IS SUPERIOR TO ALERIS IN TERMS OF QUALITY AND AVAILABILITY

When considering the results from the outpatient NPE quality analysis (see *Fig. 5.3*), they reveal that Aleris is outperformed by Capio on all indicators measured. Interestingly, the indicator where Capio performs the best is *Overall impression*, and it is also on this indicator that we see the biggest difference in mean score between Capio and Aleris. On *Availability*, we also see a not as big, but still considerable difference between the two providers. Here, the PREM results correlate well with the outcomes of the VIV analysis for both providers.

In terms of VIV scores for the period of 2012 to 2016, Capio outperforms Aleris. As shown in *Fig. 5.4*, this is true for all years included in the analysis. From year to year, the results for Capio and Aleris seem to fluctuate with a net drop in score from 2012 to 2016. This may indicate that management failed in establishing continuous improvement measures, but it is most probably due to a number of interacting internal and external factors.

As with the case of healthcare quality, it is important to bear in mind that there are data limitations. Our data set only contains data for the four-year period 2012 to 2016 and does not cover all units belonging to the different ownership groups. This is a limitation worth emphasizing in this context, as a longer time period and comprehensive coverage of units would result in a higher level of reliability.

## 6.2 PE COMPARED TO OTHER OWNERSHIP TYPES

### 6.2.1 EXPLANATION OF RESULTS FROM THE ANALYSIS OF FINANCIAL PERFORMANCE

As mentioned in *Chapter 4*, other private non-PE-owned healthcare providers are used as a reference to determine whether PE performs better in financial terms.

#### GROWTH OF NET SALES: PRAKTIKERTJÄNST ACHIEVED THE HIGHEST INCREASES

Not only the PE providers but all the providers in this study were able to grow their net sales, as shown in *Fig. 5.1a*. The higher net sales are almost entirely a direct result of higher reimbursement from the county councils and regions. This means that the number of activities performed increased during the chosen time window. Alongside this development, market concentration increased through acquisitions. For example, Aleris acquired units of another provider, Proxima, in 2011, which explains the increase in income between 2011 and 2012

(see *Tab. 5.1*) (Aleris Group, 2011). Not only the number of activities performed per unit, but also the number of units for each provider is part of the explanation.\*

Among the providers included in this study, one can see that PE-owned providers, which already had higher market shares than the other private companies at the beginning of their PE holding period, considerably increased the number of activities performed. In fact, the PE portfolio companies could almost triple their revenues.

GHP is the smallest provider in terms of net sales, which might be due to the high degree of specialization (as explained in section 4.2). The number of treatments and types of other activities performed by this provider is more limited compared to the bigger PE-owned providers, which have larger volumes and provide a wider range of services. Slower growth might therefore be a disadvantage of this specialization strategy.

#### PROFITABILITY: GHP OUTPERFORMS PE IN RELATIVE TERMS

In absolute terms of profit, the highest figures were achieved by Capiro. However, as discussed earlier, no real comparison between PE and non-PE can be made, as the results of Capiro and Aleris differ significantly. The two providers that were able to increase their profits in absolute terms are Capiro and GHP.

It would be interesting to analyze the profit relative to the net income, as shown in *Fig. 5.1a*, a bit further. The findings of the PE group (a shrinking ratio) also apply to the other providers. However, the highest profit ratios were achieved by GHP. As GHP is the most specialized provider in our study, our findings suggest that higher profits can be achieved by

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\*Unfortunately, the exact number of secondary care units or the number of patients treated in Sweden for each provider and group could not be obtained either from annual reports, financial statements (as some units report together), or the VIV/NPE registers (due to incomplete reporting). Therefore, the argument cannot be supported by any further evidence.

focusing on a small number of relatively advanced treatments, even if volumes are lower. The disadvantage of this model, of course, is the limited growth possibilities, as explained above. It is questionable whether the business model of GHP can achieve a similar level of profit in absolute terms as, for example, Capio. Nevertheless, it can be seen that the cumulative profits between 2007 and 2016 are higher for GHP compared to Aleris even in absolute terms, which shows that high volumes are not necessarily required to achieve higher profits in absolute terms. Factors such as the proportion of treatments provided in the context of publicly compensated healthcare versus insurance care obviously come into play here. Following the same logic, the cumulative profits for Praktikertjänst and Aleris between 2007 and 2016 are similar despite higher net sales for Aleris.

Examining the profits in *Tab. 5.1*, it can be seen that the values fluctuate considerably for both PE providers, while the values are more stable for the other providers. One possible explanation could be the large investments as a result of the more aggressive strategies. In the case of Aleris, the decrease in profits in 2008 is due to high expenses for the subordinate company *Aleris Sjukvård AB*. Generally speaking, it is difficult to track cash flows and expenses, which limits this section to rather descriptive analysis. The extent to which a particular provider increased its value or just its numbers could not be assessed within the scope of this study. However, it can be concluded that the financial results are not necessarily a direct consequence of the type of ownership, as there are significant differences between Capio and Aleris, and no trend can be seen that PE-owned providers exclusively achieved better results than the other types of ownership.

### 6.2.2 EXPLANATION OF RESULTS FROM SECONDARY CARE QUALITY ANALYSES

This section aims to further explain and theorize our findings from the quality analyzes. It is worth keeping in mind the importance of distinguishing between soft and hard parameters when measuring healthcare quality as well as the potential confounding factors based on the findings of other authors (see *Chapter 2*) that might have impacted the results since no adjustments for baseline characteristics have been made.

#### PE OWNERSHIP APPEARS TO OUTPERFORM PUBLIC OWNERSHIP

Examining the cumulative outpatient NPE scores for the period 2012 to 2016, it appears that PE outperforms public ownership. The higher mean score for the PE group is driven by Capio, while Aleris alone is outperformed by public ownership. It must, however, be mentioned that the number of reported observations is considerably smaller for the private groups (as seen in *Tab. 5.2*) compared to the public group and that there is a risk of our results hence not being fully representative.

As mentioned in *Chapter 2*, [Glenngård and Anell \(2012\)](#) found that private primary care practices generally scored higher when information on the average burden of care and the socio-economic burden was excluded from the analysis, probably because private providers are slightly over-represented in socioeconomically burdened areas. These analyses were not possible within the time frame of this study, but it could be that a similar relationship exists in secondary care that could affect both perceived quality and availability.

## NOT-FOR-PROFIT NON-PE OWNERSHIP APPEARS TO OUTPERFORM PE OWNERSHIP AND CAPIO

Since Praktikertjänst has not reported any data to the NPE secondary care register before 2018, the not-for-profit providers Ersta hospital, Carlanderska hospital, and Sophiahemmet hospital were chosen to represent the non-PE ownership type for this analysis. By examining *Fig. 5.3b*, it appears that non-PE ownership seems to outperform both PE ownership and Capiro. However, we do not consider ourselves capable of drawing this conclusion, partly due to the limited amount of data reported for the non-PE group and partly due to the considerably small number of units in the non-PE group.

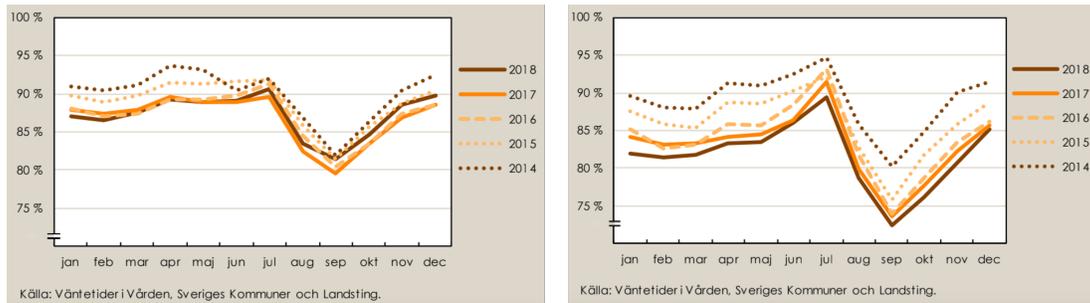
Another finding worth discussing is the relatively high standard deviation of the NPE scores, as presented in *Tab. 5.2*. The high standard deviations may be a direct consequence of the subjective nature of the patient surveys, as each individual patient has different expectations on aspects such as emotional support. Another reason may be that the units themselves differ significantly in terms of quality, even if they belong to the same company or ownership type. If the second explanation, or even a combination of both, is the cause of these substantial deviations, the findings would suggest that the specific care provider or its ownership type is not the main reason for high perceived quality, but rather factors within the units themselves, such as the people employed there. As our work aims to compare ownership types, answering this question is beyond the scope of this thesis, but it could serve as a reflection for future research.

### 6.2.3 EXPLANATIONS OF RESULTS FROM SECONDARY CARE AVAILABILITY ANALYZES

Availability has become an increasingly used indicator of healthcare quality [Andersson and Rehnberg \(2014\)](#). Not least, good availability has become an important political goal, as there has been criticism of insufficient availability in healthcare in the Swedish public debate in recent years.

*Fig. 6.1* shows national statistics published by the National Board of Health and Welfare on the average performance of all secondary care providers participating in the VIV register ([The National Board of Health and Welfare, 2019](#)). It is worth mentioning that the data presented represent the years 2014 to 2018, which does not exactly correspond to our window of investigation but should serve as an indicator of what the trend looks like. However, what can be seen in the graphs is a decrease in performance from 2014 to 2016 for both completed appointments and completed surgical procedures/measures. In addition, we can see that performance varies considerably throughout the year. In particular, we see a sharp decline from July to September, which we assume is due to a backlog of care accrued as a result of reduced activity during the summer months.

Our analysis shows that between 2012 and 2016, Capiro remains relatively stable in terms of appointments completed within 90 days, while we can see a relative decrease over the same period in terms of surgical procedures/measures completed. For Aleris, we observe a slight relative improvement in terms of completed appointments within 90 days and a relative decrease in terms of completed surgical procedures/measures for the same time period. For the public comparison group, we observe a relative decline in performance for both parameters from 2012 to 2016, and it is also, not surprisingly, within this group that we observe the most similarities with the national outcomes.



(a) Completed first appointments within 90 days in secondary care

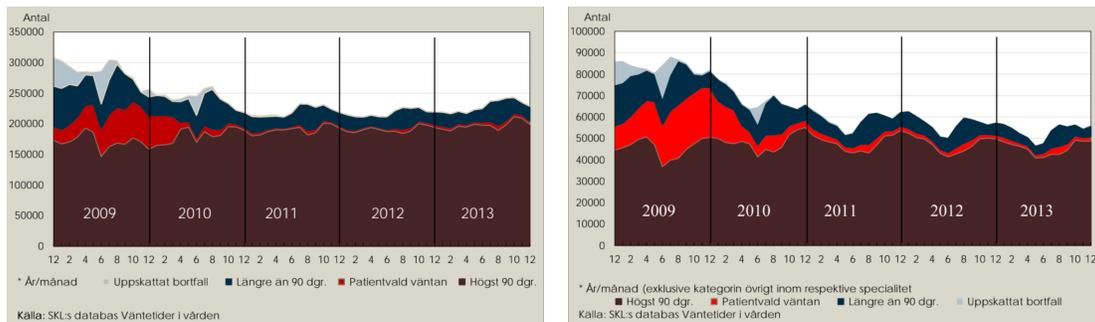
(b) Completed planned surgical procedures/measure within 90 days in secondary care

**Figure 6.1:** National statistics on the average performance of all participating providers in the VIV database for the years 2014 to 2018. Graphs originally published by [The National Board of Health and Welfare \(2019\)](#).

In *Fig. 6.2* national statistics published by the *National Board of Health and Welfare* are shown on the number of patients waiting for the first appointment or surgical procedure/measure ([The National Board of Health and Welfare, 2014](#)). Here, for both parameters, we see a fairly stable performance from 2012 to 2013 in terms of the actual number of patients waiting less than 90 days, a trend that is opposite to the results of our sample (with the exception of Capio in terms of *Waiting 90 days or less for first appointment*).

As in the discussion of NPE, standard deviations may be the result of differences in performance between units belonging to the same provider or group. However, *Fig. 6.2* reveals seasonal variations of over 10% for availability, most likely as a result of non-performed procedures and appointments due to a decline in activity during summer.

As for the cumulative VIV scores for the period 2012 to 2016, PE outperforms public ownership. Again, it turns out that Capio’s high performance is the contributing factor. Our study does not aim at investigating differences between providers within the PE group to identify underlying reasons for this, but it is an interesting finding to investigate further in



(a) Waiting 90 days or less for the first appointment in secondary care

(b) Waiting 90 days or less for surgical procedure/measure in secondary care

**Figure 6.2:** National statistics from VIV on the number of patients waiting for the first appointment or surgical procedure/measure for the years 2009 to 2013. Graphs originally published by [The National Board of Health and Welfare \(2014\)](#).

future research. If allowed to speculate, factors such as Capio having greater organizational flexibility, a stronger focus on productivity and standardization, and more effective management with a clear focus on growth may partly explain this result. Although it seems less likely, it may also be the case that the patient base differs significantly between the two providers and that more patients are referred to Aleris-owned units.

The mentioned in *Chapter 5*, Praktikertjänst only reports data on two out of four grouped parameters included in the analysis. In addition, data is only reported for the years 2013 to 2014 and originates from just two units with sub-units. Although these two units appear to perform better in terms of the two VIV parameters than both the PE group as a whole and Capio, we do not believe that the sample can be considered representative of Praktikertjänst in general.

The VIV analysis shows that Capio and Praktikertjänst have not only the highest mean values but also a distribution that seems to be narrower compared to the other ownership types, as shown in *Fig. 5.4-5.8* and the tables in *Appendix B*. One possible explanation could

be of a statistical nature caused by a lower number of counts (see *Tab. 5.3*), which reduces the risk of statistical outliers. Another underlying reason could be structural aspects. As we see it, availability is a parameter dependent on process optimization in the reporting. Therefore, a narrow distribution of the availability scores for a specific provider could indicate a presence of common standard operating procedures (SOPs) across the units. Regarding perceived quality, a comparison between the units of each provider is not part of this thesis but subject to future case studies.

### 6.3 THE REPORTING SYSTEM IS INSUFFICIENT TO YIELD A COMPLETE ANALYSIS

The variables that correlate with patient-perceived quality according to the results of NPE can be influenced to varying degrees by the units or the providers themselves. To some extent, this also applies to availability. Firstly, it should be pointed out that units can, of course, do a variety of things to improve the areas covered by the PREM parameters. Other variables, not least the interest of healthcare professionals, local management as well as group management in working on the issues and providing support for improvement work aimed at improving the patient perception of services provided (without necessarily any significant changes to the objective quality itself), are likely to be equally important as the variables included in our analysis.

One interesting finding of ours is that the extent to which different providers and their units participate and report to the NPE and VIV differs considerably. Public providers generally report at a significantly higher rate compared to private providers (both PE-owned and non-PE-owned). Whether the responsibility for this lies with SALAR as the register owner or with the providers is difficult to answer. Given that the results of NPE and VIV are often

referred to in quality reports as well as in marketing activities (GHP Specialty Care, 2020), it is in the companies' interest to perform well in these measurements. As a consequence, at least in the case of VIV that does not rely on patient surveys, there is a risk of companies deliberately manipulating results at the group as well as on the unit level by, for example, only reporting data from high-performing units. Given that, to our knowledge, there is no external and independent verification of the reported availability data, there is also a risk that the reported data does not correspond to reality.

The differences in reporting rates have made this analysis considerably more difficult as it has been difficult to obtain a sufficient sample for the private providers. This obviously affects the generalizability, representability, and validity of our study. It is also the reason why we have chosen to treat the data as we have done and why, for example, results from statistical tests have come to serve as benchmarks. The dream scenario, of course, would have been that the reporting rate from all providers would have been so high that we could claim to have a census. Then, performing statistical analyses would not have been necessary.

It should be in the interest of both SALAR and policymakers that reported data is complete and comprehensive for both public and private providers to allow for comparisons with high validity. In the light of the ongoing debate in society on NPM as well as the presence of for-profit providers in publicly funded healthcare, this should also apply to the general public.

# 7

## Conclusions

In this concluding section, we present the main conclusions and take-aways from our analyses and discussion. In addition, we outline potential implications of our findings as well as how care providers of different ownership types can benefit from the results. Finally, we present suggestions for future research.

## 7.1 THE DEBATE ON PRIVATE INVOLVEMENT AND PE OWNERSHIP IN THE SWEDISH SECONDARY HEALTHCARE SYSTEM

This thesis aims to investigate whether PE ownership in the Swedish secondary healthcare sector has had any advantages compared to other forms of ownership in terms of financial performance, perceived quality of care and access to services. Sweden as a country is considered progressive in an international perspective in terms of the implementation of NPM-type reforms despite a history as a social-democratic country with rather left-wing policies. In the context of privatization, PE funds acquired healthcare providers, which makes Sweden suitable for this study. To our knowledge, no similar analysis has been carried out before, despite the fact that secondary care is an important pillar of any welfare state's service provision, especially in the light of the impending corona pandemic and the fact that the population is becoming increasingly elderly and dependent on specialized care.

The results of this study suggest that it may be difficult to group providers by ownership type with respect to quality and availability in secondary care. Over the time period analyzed (2007 to 2016 for financial performance, 2012 to 2016 for availability, and 2016 for patient-perceived quality), Capio was able to considerably increase its annual profits for the secondary care division while achieving the highest scores in terms of quality and availability, while Aleris reduced its annual profits for the secondary care division and scored lower in terms of quality and availability. Although the two providers are comparable in terms of ownership structure, size of operations and service offering, our results indicate that the two providers achieved significantly different financial, quality and availability results despite both belonging to the PE group. This example also illustrates that higher profit levels do not

necessarily lead to a deterioration in quality. Ownership does not appear to be the most important factor in determining a firm's performance and ability to create value in the case of the Swedish secondary care sector.

#### KEY TAKEAWAYS IN RELATION TO OUR PREVIOUSLY STIPULATED HYPOTHESES

To conclude this thesis, the initial hypotheses from *section 1.4* are briefly reviewed:

- **Conclusion: Hypothesis 1 rejected**

In terms of growth rate, PE-owned providers achieved similarly high growth rates, indicating that their aggressive strategies aiming at increasing the size of their operations were working. However, in relative terms, Praktikertjänst was able to achieve a higher growth rate between 2007 and 2016, thus rejecting the hypotheses.

- **Conclusion: Hypothesis 2 partly rejected**

The trends within the PE group differ for Capio and Aleris as Capio increased its annual profits, while Aleris demonstrated lower profits in 2016 compared to 2007, which does not reflect the typical PE change process aimed at increasing the value of the portfolio.

- **Conclusion: Hypothesis 3 rejected**

The profit ratio (profit in relation to net sales) turned out to be inferior for the PE providers compared to GHP, a provider that focuses on fewer types of treatments, showing that a more specialized offer can lead to higher profitability. However, the volume is lower for GHP due to this specialization strategy.

- **Conclusion: Hypothesis 4 rejected**

This hypothesis is rejected as a direct consequence of *hypothesis 2*, since different trends were observed in the analysis of annual profits. It is therefore difficult to speak of PE as a group, which means that we must analyze providers more individually rather than by their form of ownership.

- **Conclusion: Hypothesis 5 partly rejected**

The PE-owned provider Capio on average outperformed publicly owned providers in terms of aggregated NPE scores for the period 2012 to 2016, but was outperformed by the few non-PE-owned units belonging to the not-for-profit group (due to the small sample size, we consider only the not-for-profit group as a benchmark). Aleris was outperformed by both Capio and Public. Driven by the results of Capio, PE outperformed Public but was outperformed by Not-for-profit (seen as a benchmark).

Consequently, our descriptive results for Capio and Aleris reveal that, despite the better overall performance of PE compared to Public, we cannot conclude that the PE ownership model serves as a universal explanatory factor to the differences observed in terms of patient-perceived quality.

- **Conclusion: Hypothesis 6 confirmed**

We were able to provide results that showed a significant difference in mean patient perceived quality scores between the two PE-owned providers Capio and Aleris, with Capio outperforming Aleris.

There may be differences in the ability to effectively implement and manage value creation mechanisms and activities between the two providers and their respective parent

PE firm that may serve in part as an explanation for this finding.

- **Conclusion: Hypothesis 7 partly confirmed**

Our descriptive results reveal that Capio and Aleris, as well as the combined PE group, outperformed both Public and Not-for-profit in terms of mean scores for aggregated availability scores over the 2012 to 2016 period. However, Capio, Aleris and the combined PE group were outperformed by the included units of Praktikertjänst (non-PE) when considering only the two parameters that they reported for the period 2013 to 2014.

We may consider factors such as private providers in general having greater organizational flexibility, a stronger focus on productivity and standardization, a more explicit strategic fit, and more efficient leadership with a clear focus on growth to partly explain this result.

- **Conclusion: Hypothesis 8 confirmed**

In terms of mean scores for availability, our analysis shows a significant difference between Capio and Aleris with Capio again outperforming Aleris.

Given the factors mentioned above, that may partly explain why private providers outperform public providers in terms of availability, it seems possible that Capio and its superordinate PE firm has been superior in realizing these factors in comparison with Aleris and its associated PE company.

Public criticism of PE involvement in the healthcare sector is often based on the perception that PE-owned healthcare providers provide a lower quality of care in order to increase financial performance. In terms of the validity of this claim, our thesis partially contradicts

this view. According to our descriptive findings, PE-owned healthcare providers have not on average provided inferior patient-perceived quality (or availability) of care compared to publicly owned providers, although there is significant variation within the PE ownership group. In addition, no negative relationship was found between quality and financial performance. We therefore argue that the frequent criticism of PE involvement, at least in secondary care, is to some extent unjustified. However, the fact remains that widespread criticism tends to influence policy-making, and incentives to continue investing in the sector may therefore be affected for the worse. Therefore, it is also important to address the aforementioned problems of uneven data reporting between public and private providers, thereby ensuring sufficient conditions for conducting future research with high validity. Only then will it be possible to really shed light on the actual situation and how Swedish secondary care should be organized and developed to ensure that resources are used in a way that maximizes quality and availability.

## 7.2 FURTHER RESEARCH

As already mentioned, this thesis covers only a small part of the broad topic of privatization in healthcare. Some of the following ideas may serve as further research ideas:

- The specialized healthcare system is still a dynamic environment. Our analysis covers the window between 2007 and 2016, but since then, there have been changes in ownership. Specifically, the PE firm Triton acquired Aleris and in 2019 completed a buyout of Proliva, a unit previously owned by Praktikertjänst. A pre- vs. post-buyout analysis could serve as a case study of a recent LBO.

- Other studies, including those of [Bergendorf and Gremillet \(2012\)](#) and [Karlsson and Lilja \(2012\)](#), analyze the Swedish primary care system. The present work focuses only on outpatient secondary care, independent of primary care. For an understanding of the entire healthcare sector, a combination of both primary care and secondary in- and outpatient care would provide a better picture of the influence that PE has had.
- The thesis uses PREM parameters as quality indicators. The use of hard parameters that take into account the long-term effects of a treatment would complement our study.
- PE firms have a limited holding period, which means that long-term effects and sustainable performance may not be the first priority of management. Another future research possibility would therefore be to study previous PE-owned companies after their IPO to understand whether the effects of PE ownership persist.

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# Aggregated Financial Reports

## Capio - Aggregated financial statement of specialist units [kSEK]

	2007-12	2008-12	2009-12	2010-12	2011-12	2012-12	2013-12	2014-12	2015-12	2016-12
Net sales	2328700	2982607	3744910	4141162	4876819	5098143	5290849	5462399	5823406	6471294
Change in inventories etc.	0	0	0	0	0	0	0	0	0	0
Work in progress	0	0	0	0	0	0	0	0	0	0
Other operating income	7054	20387	19485	38209	27535	9066	8138	2111	1713	3367
Total turnover	2277208	3002994	3764395	4179371	4904355	5107209	5298987	5464510	5825119	6474661
Raw materials & supplies (data doubts)	233735	340467	419677	456349	591759	238200	32097	48670	63214	79461
Merchandise	0	3397	34977	40449	44448	412	0	0	0	0
Other external costs	693761	919233	1077416	1213401	1430520	1106303	2145363	1930189	2093231	2366057
Personnel costs	1211212	1540748	1982771	2207137	2576294	1674647	473459	238705	259780	323615
Items affecting comparability	0	0	0	-3	0	0	0	0	0	0
Other operating expenses	0	226	2404	6426	447	940	15	25	38	67
Total operating expenses	2258676	3001091	3734015	4167986	4898538	5082547	5317854	5436485	5807152	6454071
Operating result before depreciation	138502	198920	247153	256606	260888	205082	-35410	-12030	55106	147577
Depreciation and amortisation	48813	62405	79701	104908	114638	70989	15765	8459	7662	8075
Operating result after depreciation (EBIT)	89689	136515	167452	151697	146249	134093	-51175	-20489	47444	139502
Result from investments in group/associated companies	65	-1280	805	51	0	1394	1214	18550	4167	9766
Interest income from group companies	966	2880	1161	385	1528	2552	5171	4056	1690	1011
External interest income	7598	14022	3468	2725	8000	4267	451	937	323	184
Other financial income	474	0	102	10	23	62	93	5	33691	82
Total financial income	9103	15622	5536	3172	9550	8275	6929	23548	39871	11043
Interest expenses of group companies	0	2916	1139	668	1308	6787	13521	10871	5748	2415
External interest expenses	1024	4815	3668	3598	5497	3099	2262	4181	1781	991
Total interest expenses	1024	7731	4807	4265	6805	9886	15783	15052	7529	3406
Other financial expenses	0	118	0	24100	37440	29	33596	28778	83	77
Total financial expenses	1024	7849	4807	28365	44245	9915	49379	43830	7612	3483
Financial items affecting comparability	0	0	0	0	0	0	0	0	0	0
Result after net financial items	97767	144285	168180	126501	111555	132456	-93626	-40771	79704	147057
Extraordinary income	0	0	0	0	0	0	0	0	0	0
Extraordinary expenses	0	0	0	0	0	0	0	0	0	0
Total extraordinary items	0	0	0	0	0	0	0	0	0	0
Result before appropriation	97767	144285	168180	126501	111555	132456	-93626	-40771	79704	147057
Group contribution	-14742	-56577	-56896	-126615	-18885	-60539	-1804	24089	-73895	-111953
Shareholder contribution	0	0	0	0	0	0	0	0	0	0
Disposal of financial statements	-20893	2382	-35693	27659	-23039	30740	77326	45939	16755	-11311
Profit before tax	62132	90090	75591	27545	69631	102657	-18104	29257	22564	23793
Taxes	35816	52069	39463	14614	50151	77077	764	1232	4597	3204
Minority interests	-7783	-36122	-5750	-1546	-13664	-918	0	0	0	0
Profit for the year	18532	1903	30380	11384	5817	24662	-18867	28025	17967	20590

**Financial report Capio (continued)**

	2007-12	2008-12	2009-12	2010-12	2011-12	2012-12	2013-12	2014-12	2015-12	2016-12
Balance sheet (kSEK)	0	0	0	0	0	0	0	0	0	0
Subscribed but not paid-up capital	0	0	0	0	0	0	0	0	0	0
Balance sheet R&D expenditure	14653	12153	2463	1828	354	0	0	0	0	0
Patents, licences	0	1187	12092	504	23155	20424	736	516	539	350
Goodwill	0	3330	8148	16001	73571	114545	104669	76072	39761	20376
Other intangible assets (amortizable)	7817	2947	3960	17383	4176	3278	12513	22413	31922	38016
Total intangible assets	22470	19617	26663	35716	101256	138247	117918	99001	72222	58742
Buildings & land	135	61	55	50	45	34	134	0	0	83
Machinery	80899	53874	45377	64345	46326	55548	54602	45394	52205	70483
Furniture	114952	112996	142780	139976	112907	112524	126726	123822	152481	187834
Total machinery & equipment	195851	166870	188157	204321	159233	168072	181328	169216	204686	258317
Other tangible fixed assets (not depreciable)	3443	5181	2843	323	3902	6621	97	0	0	0
Other tangible fixed assets (depreciable)	14612	11946	27621	43959	43654	46839	38804	46186	37038	21169
Total tangible fixed assets	214041	184058	218676	248654	246290	256433	251631	242680	266668	302939
Investments in group and associated companies	18654	332321	389184	353256	332226	403378	263014	290609	329755	347160
Receivables from group and associated companies	215038	107536	107519	107519	0	0	0	0	0	0
Loans to partners and related parties	0	0	0	0	0	0	0	0	0	0
Other financial fixed assets	872	769	2189	2330	3750	3705	4572	5262	5660	5716
Total financial fixed assets	234564	440626	498892	463105	335976	407083	267586	295871	335415	352876
Total non-current assets	471074	644301	744229	747475	683522	801763	637136	637552	674305	714556
Of which non-depreciable fixed assets	238007	445807	501735	463428	339878	413704	267683	295871	335415	352876
Work in progress	0	0	0	0	0	0	0	0	0	0
Other inventories	18591	21625	17203	19068	20890	22131	20380	24694	20859	22171
Total stocks	18591	21625	17203	19068	20890	22131	20380	24694	20859	22171
Trade receivables	372987	228698	293079	362354	285170	203695	264618	297705	305685	328437
Receivables from group and associated companies	225039	360467	308125	319883	650680	651688	673626	584166	512481	699316
Other current receivables	210791	136614	203817	334810	313608	324738	369370	429834	424654	468046
Total short-term receivables	808817	725779	805021	1017047	1249458	1180121	1307614	1311705	1242820	1495799
Total short-term investments	27602	13572	13572	1248	466	456	456	12331	0	0
Total cash/bank	29395	51400	56343	47454	57885	36531	71773	12206	17055	23243
Other current assets	0	0	0	0	0	0	0	0	0	0
Total current assets	884407	812376	892140	1084819	1328698	1239242	1400224	1360936	1280730	1541212
Total assets	1355479	1456678	1636369	1832297	2012222	2041002	2037362	1998488	1955036	2255768
Share capital	77309	75909	76009	76443	76345	76316	76366	76346	76346	76350
Share premium fund	592	0	0	592	0	0	0	0	0	0
Revaluation fund	0	900	900	0	0	0	0	0	0	0
Other tied equity	27036	15756	15756	18318	7035	5736	5716	5736	5756	1933
Total tied equity	104937	92565	92665	95353	83379	82052	82082	82082	82102	78283
Balance sheet result	116846	173361	259560	315775	355370	335406	290713	342439	342616	367767
Group contributions received/paid	-1040	-5330	-20335	-11972	-78201	-170842	0	0	0	0
Shareholder contributions received/paid	7000	92768	42407	41805	85186	123961	75650	1985	2300	-6000
Profit for the year	18532	1903	30380	11384	5817	24662	-18867	28025	17967	20590
Total unrestricted equity	141338	262702	312012	356993	368172	313187	347496	372449	362883	382357
Total equity	246275	355267	404677	452346	451551	395239	429578	454531	444985	460640
Total untaxed reserves	55796	49372	62703	48019	42453	42354	16915	9749	8016	7242
Total provisions	4060	2140	9930	4510	1250	4520	7647	5883	6905	8967
Bonds	0	0	0	0	0	0	0	0	0	0
Long-term liabilities to credit institutions	5406	8715	5653	14008	8200	6289	3527	3296	529	4384
Amounts owed to group and associated companies	0	5000	25706	7500	4500	4500	4500	4500	4500	0
Other long-term liabilities	128	4639	2032	1252	3887	2	1070	573	1103	1543
Total long-term liabilities	5534	18354	33391	22760	16587	10791	9097	8369	6132	5927
Current liabilities to credit institutions	1004	168	290	529	5922	6886	16206	6193	13547	21749
Trade payables	121020	126871	137115	141701	126828	231374	169512	163863	186159	238728
Amounts owed to group and associated companies	165612	383367	366229	423286	568036	695065	711660	669908	572888	753063
Other current liabilities	756176	521136	622034	739144	799595	654773	676747	679993	716405	759452
Total current liabilities	1043812	1031542	1125668	1304659	1500381	1588098	1574125	1519957	1488999	1772992
Total equity and liabilities	1355479	1456678	1636369	1832297	2012222	2041002	2037362	1998488	1955036	2255768
Notes and other information	0	0	0	0	0	0	0	0	0	0
Company bonds	12000	21600	23600	50600	48700	43700	35100	37200	37200	40700
Real estate mortgages	0	0	0	0	0	0	0	0	0	0
Other collateral	3000	11600	8600	0	0	11001	10406	10299	10451	5414
Total collateral	15000	33200	32200	50600	48700	54701	45506	47499	47651	46114
Conditional shareholder contribution	3792	5240	6240	6100	32612	57422	28120	26945	0	16445
Other contingent liabilities	0	600	600	0	630	2811	1022	0	0	0
Total contingent liabilities	3792	5840	6840	6100	33242	60233	29142	26945	0	16445
Dividends	11258	8192	6844	10431	3256	23322	2056	20312	3340	13106
Number of employees	4222	2882	3412	4102	4321	4474	4649	4756	4945	4954
Remuneration of Board of Directors and CEO	15609	19540	23729	26754	30001	28225	18302	24081	22695	26761
of which bonus	183	743	341	2608	2335	1575	662	3673	0	0
Remuneration to others	786378	1085532	1160419	1478496	1716743	1830719	1962137	2064543	2172445	2320829
of which performance-related pay	0	0	0	0	0	0	0	0	0	0
Social costs	369083	432543	515439	646347	758958	800791	877329	918443	988379	1074010
Severance pay agreements	0	0	0	0	0	0	0	0	0	0
Overdraft facility granted	3500	13900	19700	19600	23100	21100	20000	20000	30000	30500
Drawn down overdraft facility	816	5727	7700	448	2568	3215	14477	7464	12003	17752

## Aleris - Aggregated financial statement of specialist units [kSEK]

	2007-12	2008-12	2009-12	2010-12	2011-12	2012-12	2013-12	2014-12	2015-12	2016-12
Net sales	1202379	1279632	1453423	1734381	1912670	2765801	2883729	2919162	3083805	3193152
Change in inventories etc.	0	0	0	0	0	0	0	0	0	0
Work in progress	0	0	0	0	0	0	0	0	0	0
Other operating income	6273	55	146	49	4217	5671	3676	14053	3945	12807
Total turnover	1208652	1279687	1453569	1734430	1916887	2771472	2887405	2933215	3087750	3205959
Raw materials & supplies	38847	45700	59258	115631	0	0	0	0	0	0
Merchandise	0	0	0	0	0	0	0	0	0	0
Other external costs	391551	410477	521027	647674	848689	1263082	1334140	1356840	1378913	1430062
Personnel costs	614790	622678	658064	799777	885070	1364453	1433217	1441703	1467461	1539447
Items affecting comparability	0	0	0	0	0	0	0	0	0	0
Other operating expenses	0	354047	1272	890	115	1356	3101	1643	6427	910
Total operating expenses	1045188	1432902	1239621	1563972	1733874	2628891	2770458	2800186	2852801	2970419
Operating result before depreciation	163464	-153215	213950	170457	183013	142580	116946	133029	234948	235542
Depreciation and amortisation	66022	68937	77773	86326	93983	118967	138856	108608	120720	138085
Operating result after depreciation	97442	-222152	136177	84131	89030	23613	-21910	24421	114228	97457
Result from investments in group/associated companies	0	0	0	0	0	-36032	0	0	0	0
Interest income from group companies	1	0	0	1	787	3232	1283	658	0	370
External interest income	337	197	286	171	368	1010	49	58	109	165
Other financial income	0	152	0	85	44	77	49	28	1	0
Total financial income	338	349	286	257	1199	-31713	1381	744	110	535
Interest expenses of group companies	2	0	0	320	7572	36065	15721	12204	12283	15141
External interest expenses	491	309	215	1743	387	220	127	96	145	555
Total interest expenses	493	309	215	2063	7959	36285	15848	12300	12428	15696
Other financial expenses	8	118	61	58	83	121	38	8	220	128
Total financial expenses	501	427	276	2121	8042	36406	15886	12308	12648	15824
Financial items affecting comparability	0	0	0	0	0	0	0	0	0	0
Result after net financial items	97280	-222230	136188	82268	82187	-44506	-36414	12857	101688	82168
Extraordinary income	0	0	0	0	0	0	0	0	0	0
Extraordinary expenses	0	0	0	0	0	0	0	0	0	0
Total extraordinary items	0	0	0	0	0	0	0	0	0	0
Result before appropriation	97280	-222230	136188	82268	82187	-44506	-36414	12857	101688	82168
Group contribution	0	0	0	-17	0	0	0	-27483	115492	8196
Shareholder contribution	0	0	0	0	0	0	0	0	0	0
Disposal of financial statements	-2657	62104	-62357	-20370	73863	58096	0	-26833	-34899	15271
Profit before tax	94623	-160126	73831	61881	156050	13590	-36414	-41459	182281	105635
Taxes	35170	50672	18058	45957	42910	19465	2804	-449	49825	35271
Minority interests	0	0	0	0	0	0	0	0	0	0
Profit for the year	59454	-210798	55771	15924	113140	-5875	-39218	-41010	132456	70364



**GHP - Aggregated financial statement of specialist units [kSEK]**

	2007-12	2008-12	2009-12	2010-12	2011-12	2012-12	2013-12	2014-12	2015-12	2016-12
Net sales	306942	371970	422842	456026	474704	476818	518040	542870	604594	674924
Change in inventories etc.	32	-244	-38	17	-266	-268	34	50	-200	-290
Work in progress	0	0	0	0	0	0	0	0	0	0
Other operating income	4176	12166	13764	15870	17541	16472	16715	21576	16689	19045
Total turnover	311150	383892	436568	471913	491979	493022	534789	564496	621083	693679
Raw materials & supplies	49734	89325	81984	99737	105867	98239	104305	107050	105379	117468
Merchandise	91	15	0	0	0	5894	6209	6300	8323	11113
Other external costs	94118	84577	123032	124760	134861	131856	148835	147010	180393	193277
Personnel costs	127665	149291	161314	169848	190422	207860	231825	245729	276371	306323
Items affecting comparability	0	0	0	0	0	0	0	0	0	0
Other operating expenses	1	5187	402	43	19	1	97	283	54	410
Total operating expenses	271609	328395	366732	394388	431169	443850	491271	506372	570520	628591
Operating result before depreciation	39544	55495	69938	77527	60810	49172	43521	58123	50570	65085
Depreciation and amortisation	8190	11230	13244	13658	13930	14840	13970	13971	13549	13870
Operating result after depreciation	31354	44265	56594	63869	46880	34332	29551	44152	37021	51215
Result from investments in group/associated companies	204	0	0	0	0	0	0	-671	-2024	186
Interest income from group companies	0	0	0	221	554	683	506	196	35	78
External interest income	1105	2091	1152	942	1325	930	654	159	122	31
Other financial income	986	104	439	81	1	0	1	0	0	1
Total financial income	2295	2195	1591	1244	1880	1613	1161	-316	-1867	296
Interest expenses of group companies	0	176	248	180	146	56	1	57	45	27
External interest expenses	776	844	581	503	630	505	413	188	144	155
Total interest expenses	776	1020	829	683	776	561	414	245	189	182
Other financial expenses	0	4444	2744	212	3	0	50	0	10	0
Total financial expenses	776	5464	3573	895	779	561	464	245	199	182
Financial items affecting comparability	0	0	0	0	0	0	0	0	0	0
Result after net financial items	32873	40997	54613	64219	47979	35383	30248	43590	34953	51327
Extraordinary income	0	0	0	0	0	0	0	0	0	0
Extraordinary expenses	0	0	0	0	0	0	0	0	0	0
Total extraordinary items	0	0	0	0	0	0	0	0	0	0
Result before appropriation	32873	40997	54613	64219	47979	35383	30248	43590	34953	51327
Group contribution	0	0	0	0	0	0	0	-24268	-29306	-32608
Shareholder contribution	0	0	0	0	0	0	0	0	0	0
Disposal of financial statements	10805	-3746	-7577	-10284	-2482	-5650	-2810	565	4315	7531
Profit before tax	43678	37251	47036	53935	45497	29733	27438	19887	9962	26250
Taxes	12969	12470	13686	14809	13368	9171	8668	3478	3176	8776
Minority interests	0	0	0	0	0	0	0	0	0	0
Profit for the year	30709	24779	33349	39124	32129	20563	18767	16408	6785	17475

**Financial report GHP (continued)**

	2007-12	2008-12	2009-12	2010-12	2011-12	2012-12	2013-12	2014-12	2015-12	2016-12
Balance sheet (SEK)	0	0	0	0	0	0	0	0	0	0
Subscribed but not paid-up capital	0	0	0	0	0	0	0	0	0	0
Balance sheet R&D expenditure	0	0	0	0	697	993	552	110	0	0
Patents, licenses	0	0	0	327	25	0	0	0	0	2226
Goodwill	30767	31176	26148	21220	16385	11584	15870	12252	8552	4893
Other intangible assets (amortizable)	0	0	0	0	0	0	0	0	0	0
Total intangible assets	30767	31176	26148	21557	17107	12577	16422	12362	8552	7121
Buildings & land	0	0	0	0	0	0	0	0	0	0
Machinery	0	3	3	230	319	425	684	868	377	302
Furniture	21899	32074	25279	26432	26581	23561	23805	22414	20225	19648
Total machinery & equipment	21899	32077	25282	26662	26900	23986	24489	23282	20602	19950
Other tangible fixed assets (not depreciable)	220	220	328	220	220	220	220	220	220	539
Other tangible fixed assets (depreciable)	0	966	8560	9989	10325	8728	7156	5458	4578	11981
Total tangible fixed assets	22119	33263	34170	36871	37445	32934	31910	32518	29918	36915
Investments in group and associated companies	5108	66	66	6239	97	197	8785	11902	7997	6896
Receivables from group and associated companies	3955	3533	2744	0	6142	5142	5303	5445	5544	5808
Loans to partners and related parties	0	0	0	0	0	0	0	0	0	0
Other financial fixed assets	924	367	53	956	414	53	675	2023	2819	2959
Total financial fixed assets	9987	3966	2863	7195	6653	5392	14763	19370	16360	15663
Total non-current assets	62874	68405	63183	65623	61206	50903	63094	64251	54829	59699
Of which non-depreciable fixed assets	10207	4186	3191	7415	6873	5612	14983	19590	16580	16202
Work in progress	0	0	0	0	0	0	0	0	0	0
Other inventories	5197	4165	3673	4618	3887	3540	4967	4073	3531	3136
Total stocks	5197	4165	3673	4618	3887	3540	4967	4073	3531	3130
Trade receivables	42333	30801	34879	57490	43897	49230	50676	52373	51257	54197
Receivables from group and associated companies	4661	13588	27593	6574	68853	79276	90298	129470	150531	154834
Other current receivables	17361	15061	14771	15224	16655	25826	21216	24341	22928	36054
Total short-term receivables	64355	59450	77243	79288	129405	154332	162190	206184	224716	245085
Total short-term investments	0	19942	0	0	0	0	0	0	0	0
Total cash/bank	39758	38347	90604	74414	16027	18044	5905	7175	7466	8085
Other current assets	0	0	0	0	0	0	0	0	0	0
Total current assets	109312	121903	171521	158324	149318	175920	173061	217433	235714	256301
Total assets	172187	190308	234703	223944	210525	226823	236156	281683	290544	316000
Share capital	2954	2854	2974	3274	3274	3274	3374	3473	3473	3923
Share premium fund	413	413	593	0	0	0	0	0	0	0
Revaluation fund	0	0	0	413	0	0	0	0	0	0
Other tied equity	2780	2775	2775	2775	3188	3188	3202	3188	3188	3188
Total tied equity	6147	6042	6342	6462	6462	6462	6576	6661	6661	7111
Balance sheet result	32556	31839	45893	52174	49780	53640	63897	74681	105926	102812
Group contributions received/paid	-29206	-19160	-39636	-13644	-29932	-35320	-49636	0	0	0
Shareholder contributions received/paid	52749	54752	74797	18710	39734	47907	65711	26500	11124	27009
Profit for the year	30709	24779	33349	39124	32129	20563	18767	16408	6785	17475
Total unrestricted equity	86808	92210	114403	96364	91711	86790	98739	117589	123835	147296
Total equity	92955	98252	120745	102826	98173	93252	105315	124250	130496	154407
Total untaxed reserves	13390	15690	23267	33540	36022	41670	44479	45493	36020	39446
Total provisions	0	300	1124	991	1623	1993	3024	3561	3422	4113
Bonds	0	0	0	0	0	0	0	0	0	0
Long-term liabilities to credit institutions	6000	3600	2724	445	725	741	698	834	748	241
Amounts owed to group and associated companies	1200	14505	15698	19326	10824	9000	1000	0	0	0
Other long-term liabilities	4265	4265	14	782	0	0	2233	2000	0	0
Total long-term liabilities	11465	22370	18436	20553	11549	9741	3931	2834	748	241
Current liabilities to credit institutions	3638	4410	3956	587	253	429	348	452	264	142
Trade payables	16134	17102	19509	20597	15147	25328	28027	27846	28144	30587
Amounts owed to group and associated companies	11781	4763	15024	8035	8607	14071	8259	29941	43988	35222
Other current liabilities	22824	27425	32644	36817	39150	40340	42775	47307	47459	51840
Total current liabilities	54377	53700	71133	66036	63157	80168	79409	105546	119855	117791
Total equity and liabilities	172187	190308	234703	223944	210525	226823	236156	281683	290544	316000
Notes and other information	0	0	0	0	0	0	0	0	0	0
Company bonds	18500	21600	21600	21600	21600	10600	18600	20600	20600	7600
Real estate mortgages	0	0	0	0	0	0	0	0	0	0
Other collateral	0	0	570	2345	1690	1705	4801	2777	2730	7036
Total collateral	18500	21600	22170	23945	23290	12305	23401	23377	23330	14636
Conditional shareholder contribution	25749	28149	28749	28749	49523	47200	27562	158977	11370	29995
Other contingent liabilities	0	0	0	0	0	0	0	0	0	0
Total contingent liabilities	25749	28149	28749	28749	49523	47200	27562	158977	25044	38225
Dividends	22840	10945	8099	41083	24631	19578	26202	32620	24557	33821
Number of employees	183	205	219	229	246	251	268	301	340	362
Remuneration of Board of Directors and CEO	10526	11723	13491	12818	10401	13358	13096	18797	16291	13252
of which bonus	0	0	0	0	0	0	0	0	0	0
Remuneration to others	71491	82278	93583	97372	113975	119858	133968	141237	163139	163364
of which performance-related pay	0	0	0	0	0	0	0	0	0	0
Social costs	35865	41740	47651	49622	54062	59871	69168	71292	80377	85275
Severance pay agreements	0	0	0	0	0	0	0	0	0	0
Overdraft facility granted	5200	5200	5000	0	0	2500	4500	4500	4500	4500
Downward overdraft facility	3638	3210	2673	0	0	0	0	0	0	0

## Praktikertjänst - Aggregated financial statement of specialist units [kSEK]

	2007-12	2008-12	2009-12	2010-12	2011-12	2012-12	2013-12	2014-12	2015-12	2016-12
Net sales	464648	517639	704888	772983	832687	857737	1050609	1231731	1346847	1410804
Change in inventories etc.	0	0	0	0	0	0	0	0	0	0
Work in progress	0	0	0	0	0	0	0	0	0	0
Other operating income	3306	3774	5045	3839	3436	4963	6202	10602	12553	14199
Total turnover	467954	521413	709933	776822	836123	862700	1056811	1242333	1359400	1425003
Raw materials & supplies	124934	134601	165957	186176	208131	225104	290815	292834	309105	308487
Merchandise	0	0	0	0	0	0	0	0	78	118
Other external costs	91608	106039	133439	133910	129885	124978	132739	159640	188164	204562
Personnel costs	230019	259986	383569	414873	442703	453059	561119	734628	818270	888973
Items affecting comparability	-653	0	0	0	0	0	0	0	0	0
Other operating expenses	519	249	473	447	486	128	236	80	159	1478
Total operating expenses	446427	500875	683438	735406	781205	803269	984909	1187182	1315776	1403618
Operating result before depreciation	20222	20538	26494	41415	54919	59430	71902	55151	43623	21386
Depreciation and amortisation	12383	11979	12376	13077	13546	13413	14850	19411	19394	25766
Operating result after depreciation	7839	8559	14118	28338	41373	46017	57052	35740	24229	-4380
Result from investments in group/associated companies	-44	-24	-42	-45	-43	-50	-57	-61	-40	-19
Interest income from group companies	529	238	8	0	117	83	0	0	0	0
External interest income	485	631	96	17	216	229	275	114	43	129
Other financial income	0	0	0	0	0	0	0	0	0	0
Total financial income	970	845	62	-28	290	262	218	53	3	110
Interest expenses of group companies	1661	1192	488	307	253	445	591	586	403	834
External interest expenses	119	138	152	77	40	35	15	22	163	35
Total interest expenses	1780	1330	640	384	293	480	606	608	566	869
Other financial expenses	0	0	0	0	0	0	0	0	0	0
Total financial expenses	1780	1330	640	384	293	480	606	608	560	869
Financial items affecting comparability	0	0	0	0	0	0	0	0	0	0
Result after net financial items	7028	8075	13541	27927	41369	45799	56664	35185	23666	-5140
Extraordinary income	0	0	0	0	0	0	0	0	0	0
Extraordinary expenses	0	0	0	0	0	0	0	0	0	0
Total extraordinary items	0	0	0	0	0	0	0	0	0	0
Result before appropriation	7028	8075	13541	27927	41369	45799	56664	35185	23666	-5140
Group contribution	0	0	0	0	0	0	0	-29700	-23750	9350
Shareholder contribution	0	0	0	0	0	0	0	0	0	0
Disposal of financial statements	-3454	-2965	-2178	-2110	-1540	-1869	-4766	1005	4979	3345
Profit before tax	3574	5110	11363	25817	39829	43930	51898	6490	4895	7555
Taxes	1452	1856	3386	6780	10755	12394	12120	1654	1566	2064
Minority interests	0	0	0	0	0	0	0	0	0	0
Profit for the year	2122	3254	7977	19037	29075	31536	39778	4836	3329	5491

### Financial report Praktikertjänst (continued)

	2007-12	2008-12	2009-12	2010-12	2011-12	2012-12	2013-12	2014-12	2015-12	2016-12
Balance sheet (kSEK)	0	0	0	0	0	0	0	0	0	0
Subscribed but not paid-up capital	0	0	0	0	0	0	0	0	0	0
Balance sheet R&D expenditure	0	0	0	0	0	0	0	0	0	0
Patents, licences	0	0	0	0	0	0	0	0	0	0
Goodwill	201	106	12	0	488	850	1575	0	0	0
Other intangible assets (amortizable)	0	0	0	0	0	1094	1202	1236	1559	1377
Total intangible assets	201	106	12	0	488	1944	2777	1236	1559	1377
Buildings & land	0	0	0	0	0	0	0	13722	0	0
Machinery	174	0	0	0	0	0	0	0	0	0
Furniture	30883	32408	38099	43850	43835	56907	47224	55791	47365	64921
Total machinery & equipment	31057	32408	38099	43850	43835	56907	47224	55791	47365	64921
Other tangible fixed assets (not depreciable)	8277	276	0	0	0	0	531	1604	3278	4881
Other tangible fixed assets (depreciable)	351	6334	5030	3203	1252	241	14375	2809	33075	46593
Total tangible fixed assets	39685	39018	43129	47053	45087	57148	62130	73926	92006	116395
Investments in group and associated companies	0	0	0	0	1030	1030	2041	1030	0	0
Receivables from group and associated companies	0	0	0	0	0	0	0	0	0	0
Loans to partners and related parties	0	0	0	0	0	0	0	0	0	0
Other financial fixed assets	2647	2716	2954	3197	3537	2746	2182	2348	2759	3502
Total financial fixed assets	2647	2716	2954	3197	4567	3776	4223	3378	2759	3502
Total non-current assets	42533	41840	46095	50250	50142	62868	69130	78540	96324	121274
Of which non-depreciable fixed assets	10924	2992	2954	3197	4567	3776	4754	4982	6037	8383
Work in progress	0	0	0	0	0	0	0	0	0	0
Other inventories	1458	2447	2023	2322	1499	1810	1658	1450	1507	1178
Total stocks	1458	2447	2023	2322	1499	1810	1658	1450	1507	1178
Trade receivables	52811	57665	81607	81708	75786	92325	108729	101677	129597	106940
Receivables from group and associated companies	26762	12679	9551	10188	17650	17919	17548	10151	38640	35957
Other current receivables	26743	23450	30737	35275	37073	45064	49478	60773	61767	87583
Total short-term receivables	106316	93794	121895	127171	130509	155308	175755	172601	230004	230480
Total short-term investments	0	0	0	0	0	0	0	0	0	0
Total cash/bank	23397	30426	23559	15257	23166	26203	28890	23868	10436	18557
Other current assets	0	0	0	0	0	0	0	0	0	0
Total current assets	131171	126667	147477	144749	155174	183320	206304	197919	241947	250214
Total assets	173703	168507	193572	194999	205315	246188	275434	276458	338269	371488
Share capital	16350	19350	19350	19350	19350	19350	19350	19400	30400	30400
Share premium fund	0	0	0	0	0	0	0	0	0	0
Revaluation fund	0	0	0	0	0	0	0	0	0	0
Other tied equity	6010	6010	6010	6010	6010	6010	6010	6010	6060	6060
Total tied equity	22360	25360	25360	25360	25360	25360	25360	25410	36460	36460
Balance sheet result	15825	25343	16902	16083	14416	23065	21195	20560	32410	31895
Group contributions received/paid	2404	-6320	-3106	-13514	-18500	-29111	-32788	0	5	0
Shareholder contributions received/paid	0	0	0	0	-600	0	0	500	500	0
Profit for the year	2122	3254	7977	19037	29075	31536	39778	4836	3329	5491
Total unrestricted equity	20351	22277	21773	21606	24391	25490	28185	25896	36244	37386
Total equity	42711	47637	47133	46966	49751	50850	53545	51306	72704	73846
Total untaxed reserves	20675	23640	25818	26630	29469	31337	36103	35763	30784	27439
Total provisions	1081	1000	1000	1000	1000	1000	3100	1006	1750	2680
Bonds	0	0	0	0	0	0	0	0	0	0
Long-term liabilities to credit institutions	1046	990	864	300	0	0	0	0	0	0
Amounts owed to group and associated companies	0	0	0	0	0	0	0	800	650	100
Other long-term liabilities	0	0	0	1299	0	0	0	0	0	0
Total long-term liabilities	1046	990	864	1599	0	0	0	800	650	100
Current liabilities to credit institutions	0	0	0	0	0	0	0	0	0	0
Trade payables	23429	22632	26033	29688	34228	42170	43984	45373	45051	52008
Amounts owed to group and associated companies	34684	33149	26637	22878	18157	43040	42115	30922	65619	81026
Other current liabilities	50077	39460	66087	66238	72710	77791	96586	111288	121713	134390
Total current liabilities	108190	95241	118757	118804	125095	163001	182685	187583	232383	267424
Total equity and liabilities	173703	168507	193572	194999	205315	246188	275434	276458	338269	371488
Notes and other information	0	0	0	0	0	0	0	0	0	0
Company bonds	10000	10500	10500	2000	2000	2000	2000	2000	2000	300
Real estate mortgages	0	0	0	0	0	0	0	0	0	0
Other collateral	0	0	0	0	0	0	0	0	250	250
Total collateral	10000	10500	10500	2000	2000	2000	2000	2000	2250	550
Conditional shareholder contribution	0	600	600	600	0	0	0	500	1000	1550
Other contingent liabilities	613	1269	1500	1743	1552	2141	2067	1632	872	1046
Total contingent liabilities	613	1869	2100	2343	1552	2141	2067	2132	1872	2596
Dividends	3800	5900	5900	3800	5600	6000	8300	3600	4900	5700
Number of employees	447	475	687	708	756	765	879	1198	1330	1472
Remuneration of Board of Directors and CEO	4822	5474	7059	7348	7181	7492	7263	8367	6941	8441
of which bonus	253	369	611	832	451	1020	980	330	200	0
Remuneration to others	149310	173572	258456	267670	297951	298746	422767	395529	558030	628095
of which performance-related pay	0	0	0	0	0	0	289	0	0	0
Social costs	66780	73626	106518	119000	123689	126226	151907	204952	234320	257888
Severance pay agreements	0	0	0	0	0	0	0	0	0	0
Overdraft facility granted	1500	1500	1500	1500	1500	1500	1500	1500	1500	0
Drawn down overdraft facility	1046	490	464	0	0	0	0	0	0	0

# B

## Tables: Availability and Quality of Care

The following pages contain data used in our analyses of healthcare quality and availability as well as some additional figures. Specifically, VIV and NPE data for the individual providers and ownership groups are shown, as well as matrices with t-test results that allow comparison of the level of significance between different samples.

**Results VIV 2012-2016 per provider**

**PE (Cario&Aleris) - Results VIV 2012-2016**

	year	count	mean	std	min	25%	50%	75%	max
Completed first appointments	2012	250	91.96	9.58	52.43	87.50	96.58	98.90	100
	2013	220	95.81	6.32	68.89	94.52	98.88	99.61	100
	2014	221	95.28	9.54	0.00	93.81	98.80	99.82	100
	2015	215	95.15	10.53	14.29	94.98	98.82	100.00	100
	2016	215	94.84	9.51	46.15	95.45	98.80	99.61	100
Completed surgical procedures/measures	2012	180	92.17	14.30	0.00	89.95	98.48	100.00	100
	2013	166	92.54	9.65	55.32	89.91	95.78	100.00	100
	2014	187	84.43	20.65	0.00	81.25	92.31	98.00	100
	2015	174	85.52	20.49	0.00	82.08	93.31	99.13	100
	2016	164	87.34	19.27	0.00	85.16	95.32	98.83	100
Waiting for first appointment	2012	261	93.44	7.73	59.47	89.47	96.39	99.68	100
	2013	227	96.52	6.01	66.67	95.66	99.38	100.00	100
	2014	227	94.25	7.91	50.00	90.20	97.84	99.75	100
	2015	229	91.95	18.54	0.00	91.84	98.36	99.89	100
	2016	226	92.97	14.22	0.00	93.44	98.73	99.70	100
Waiting for surgical procedure/measure	2012	247	96.28	6.66	60.31	94.59	100.00	100.00	100
	2013	195	96.43	5.86	49.53	95.20	98.88	100.00	100
	2014	213	92.65	10.29	41.18	90.21	97.01	100.00	100
	2015	203	93.24	10.95	36.36	91.00	97.32	100.00	100
	2016	198	90.89	18.57	0.00	91.49	97.81	99.71	100

**Cario - Results VIV 2012-2016**

	year	count	mean	std	min	25%	50%	75%	max
Completed first appointments	2012	77	98.75	1.05	95.35	98.10	99.01	99.50	100
	2013	77	99.01	1.04	95.74	98.77	99.35	99.68	100
	2014	77	99.52	0.61	97.32	99.39	99.72	100.00	100
	2015	77	99.30	1.06	93.91	98.94	99.76	100.00	100
	2016	77	98.88	1.38	93.02	98.57	99.35	99.69	100
Completed surgical procedures/measures	2012	77	97.15	8.16	52.58	99.55	100.00	100.00	100
	2013	77	91.59	9.90	57.69	89.36	94.68	98.80	100
	2014	78	93.02	8.89	60.00	90.22	96.57	99.17	100
	2015	75	92.09	9.33	65.22	89.64	95.18	99.13	100
	2016	77	90.56	14.07	0.00	88.37	94.92	98.94	100
Waiting for first appointment	2012	78	99.61	0.59	96.15	99.47	99.77	100.00	100
	2013	78	99.85	0.29	98.36	99.80	100.00	100.00	100
	2014	78	99.55	0.67	96.24	99.43	99.76	100.00	100
	2015	78	99.37	1.86	84.29	99.45	99.82	100.00	100
	2016	77	99.21	1.22	91.43	99.23	99.55	99.79	100
Waiting for surgical procedure/measure	2012	91	99.58	1.70	88.86	100.00	100.00	100.00	100
	2013	91	97.10	4.68	73.53	95.88	99.76	100.00	100
	2014	91	98.25	4.03	80.00	98.89	100.00	100.00	100
	2015	91	96.61	6.18	66.67	95.94	99.61	100.00	100
	2016	91	96.73	4.12	81.94	95.39	98.25	100.00	100

### Aleris - Results VIV 2012-2016

	year	count	mean	std	min	25%	50%	75%	max
Completed first appointments	2012	173	88.94	10.13	52.43	84.54	91.52	96.97	100.00
	2013	143	94.08	7.25	68.89	91.46	96.30	99.56	100.00
	2014	144	93.00	11.18	0.00	91.06	95.59	99.25	100.00
	2015	138	92.83	12.55	14.29	91.43	96.80	99.36	100.00
	2016	138	92.58	11.22	46.15	90.55	97.45	99.48	100.00
Completed surgical procedures/measures	2012	103	88.46	16.64	0.00	85.62	93.39	100.00	100.00
	2013	89	93.36	9.41	55.32	91.18	96.88	100.00	100.00
	2014	109	78.27	24.22	0.00	66.67	87.18	95.24	100.00
	2015	99	80.55	24.85	0.00	74.88	89.69	98.32	100.00
	2016	87	84.49	22.61	0.00	78.39	95.36	98.77	100.00
Waiting for first appointment	2012	183	90.81	7.86	59.47	85.63	92.74	96.78	100.00
	2013	149	94.78	6.79	66.67	92.68	97.59	99.45	100.00
	2014	149	91.47	8.53	50.00	88.05	93.02	97.84	100.00
	2015	151	88.11	21.85	0.00	88.17	94.68	98.78	100.00
	2016	149	89.74	16.60	0.00	86.40	97.59	99.27	100.00
Waiting for surgical procedure/measure	2012	156	94.36	7.65	60.31	91.95	97.66	100.00	100.00
	2013	104	95.84	6.69	49.53	94.74	98.21	100.00	100.00
	2014	122	88.48	11.50	41.18	82.56	92.86	97.10	100.00
	2015	112	90.50	13.06	36.36	88.69	95.30	99.11	100.00
	2016	107	85.92	23.92	0.00	88.07	96.98	99.18	100.00

### Public - Results VIV 2012-2016

	year	count	mean	std	min	25%	50%	75%	max
Completed first appointments	2012	1684	93.15	11.27	9.52	91.71	97.82	100.00	100
	2013	1688	93.30	10.71	33.55	92.17	97.92	99.81	100
	2014	1376	92.32	11.85	28.08	90.67	97.56	99.77	100
	2015	1299	90.77	12.90	20.00	87.34	96.43	99.31	100
	2016	1293	88.02	15.03	23.26	82.70	93.62	99.18	100
Completed surgical procedures/measures	2012	1198	86.77	18.62	0.00	81.15	94.15	100.00	100
	2013	1263	91.28	13.85	0.00	89.47	95.86	100.00	100
	2014	1252	87.97	18.36	0.00	85.16	94.59	100.00	100
	2015	1167	85.84	18.01	0.00	80.83	91.95	97.77	100
	2016	1120	82.09	20.78	0.00	74.42	88.89	96.67	100
Waiting for first appointment	2012	1704	94.94	8.19	32.40	93.64	98.20	100.00	100
	2013	1702	94.53	8.58	32.95	92.83	97.79	100.00	100
	2014	1390	93.01	11.11	20.30	90.85	97.30	99.51	100
	2015	1312	91.85	12.21	14.26	89.73	96.35	99.04	100
	2016	1313	88.72	14.12	15.96	83.51	94.34	98.78	100
Waiting for surgical procedure/measure	2012	1492	93.14	10.44	6.25	90.94	97.00	100.00	100
	2013	1494	92.63	11.92	0.00	90.38	97.24	100.00	100
	2014	1426	90.66	13.63	0.00	86.82	96.34	100.00	100
	2015	1328	86.70	17.36	0.00	81.70	92.69	98.81	100
	2016	1262	83.14	19.31	0.00	72.91	90.98	98.08	100

## Not for profit - Results VIV 2012-2016

	year	count	mean	std	min	25%	50%	75%	max
<b>Completed first appointments</b>	<b>2012</b>	59.00	91.37	9.91	69.62	86.04	96.33	99.73	100.00
	<b>2013</b>	66.00	85.43	15.88	52.00	70.67	96.58	98.36	100.00
	<b>2014</b>	77.00	96.88	3.47	80.20	95.44	97.87	99.22	100.00
	<b>2015</b>	71.00	82.67	16.64	48.85	68.72	86.89	97.92	100.00
	<b>2016</b>	64.00	88.28	9.17	71.15	80.75	86.85	96.87	100.00
<b>Completed surgical procedures/measures</b>	<b>2012</b>	24.00	80.23	9.14	67.65	71.91	80.71	86.26	95.45
	<b>2013</b>	30.00	77.85	13.37	50.00	68.15	78.21	86.15	100.00
	<b>2014</b>	37.00	86.76	10.85	50.00	80.79	87.25	93.78	100.00
	<b>2015</b>	26.00	58.91	11.56	38.83	51.10	57.75	67.17	84.40
	<b>2016</b>	26.00	76.74	10.29	54.91	73.99	76.22	83.09	93.91
<b>Waiting for first appointment</b>	<b>2012</b>	65.00	89.92	17.06	0.00	87.46	93.03	97.92	100.00
	<b>2013</b>	69.00	91.14	9.95	68.38	81.89	96.75	99.10	100.00
	<b>2014</b>	78.00	94.34	5.41	79.65	91.33	95.37	99.18	100.00
	<b>2015</b>	71.00	84.89	10.35	64.79	76.36	86.10	94.06	100.00
	<b>2016</b>	65.00	87.64	8.79	72.25	78.56	91.28	95.20	100.00
<b>Waiting for surgical procedure/measure</b>	<b>2012</b>	24.00	89.71	5.46	79.50	87.71	92.39	93.08	95.47
	<b>2013</b>	30.00	89.14	6.81	78.07	83.53	89.71	92.47	100.00
	<b>2014</b>	36.00	91.92	7.84	71.43	88.66	94.66	97.94	100.00
	<b>2015</b>	26.00	78.48	12.29	56.60	69.38	82.82	87.54	95.25
	<b>2016</b>	26.00	87.38	5.33	76.05	87.25	88.48	90.10	93.83

## Results VIV 2013-2014 per provider

(adapted to same parameters as Praktikertjäst)

### PE (Cario&Aleris) - Results VIV 2013-2014

	year	count	mean	std	min	25%	50%	75%	max
Completed first appointments	2013	220	95.806654	6.322619	68.888889	94.524776	98.87909	99.609913	100
	2014	221	95.27517	9.544173	0	93.80531	98.795181	99.817518	100
Waiting for first appointment	2013	227	96.521046	6.007695	66.666667	95.663237	99.378882	100	100
	2014	227	94.248275	7.914175	50	90.200413	97.839506	99.747307	100

### Cario - Results VIV 2013-2014

	year	count	mean	std	min	25%	50%	75%	max
Completed first appointments	2013	77	99.009921	1.039538	95.744681	98.767606	99.346405	99.683544	100
	2014	77	99.523271	0.610655	97.315436	99.390244	99.722992	100	100
Waiting for first appointment	2013	78	99.853402	0.289364	98.360656	99.798312	100	100	100
	2014	78	99.553067	0.66718	96.240601	99.433741	99.759001	100	100

### Aleris - Results VIV 2013-2014

	year	count	mean	std	min	25%	50%	75%	max
Completed first appointments	2013	143	94.081817	7.246652	68.888889	91.455956	96.296296	99.564252	100
	2014	144	93.003616	11.18163	0	91.062254	95.59487	99.247886	100
Waiting for first appointment	2013	149	94.776592	6.793703	66.666667	92.682927	97.590361	99.453552	100
	2014	149	91.471269	8.533325	50	88.045375	93.023256	97.839506	100

### Praktikertjäst - Results VIV 2013-2014

	year	count	mean	std	min	25%	50%	75%	max
Completed first appointments	2013	87	99.677057	0.783818	95.833333	99.769395	100	100	100
	2014	111	96.288877	12.427154	0	97.580407	99.711538	100	100
Waiting for first appointment	2013	90	99.635629	0.916252	93.478261	99.685738	100	100	100
	2014	118	97.232792	5.801199	58.333333	96.786994	99.052777	100	100

### Public - Results VIV 2013-2014

	year	count	mean	std	min	25%	50%	75%	max
Completed first appointments	2013	1688	93.29977	10.714813	33.550489	92.174861	97.921651	99.806212	100
	2014	1376	92.320083	11.85095	28.0837	90.667044	97.560976	99.773499	100
Waiting for first appointment	2013	1702	94.527681	8.582035	32.947977	92.826435	97.789696	100	100
	2014	1390	93.009702	11.106857	20.300752	90.846539	97.300421	99.510766	100

### Not for profit - Results VIV 2013-2014

	year	count	mean	std	min	25%	50%	75%	max
Completed first appointments	2013	66	85.433943	15.884496	52	70.66895	96.580947	98.360656	100
	2014	77	96.877827	3.471024	80.19802	95.436023	97.87234	99.224806	100
Waiting for first appointment	2013	69	91.13514	9.95318	68.378651	81.888745	96.747967	99.104478	100
	2014	78	94.336798	5.405478	79.65368	91.334375	95.370966	99.176786	100

**Results NPE 2016 per provider**

**PE (Capio&Aleris) - Results NPE**

	year	count	mean	std	min	25%	50%	75%	max
Participation	2016	24	84.10	6.88	65.53	79.47	85.91	88.55	94.82
Information and knowledge	2016	24	84.22	6.04	64.93	80.38	85.58	88.36	91.51
Continuity and coordination	2016	24	87.05	5.96	68.76	83.02	88.87	91.04	95.00
Emotional support	2016	24	86.50	6.56	74.57	80.80	87.75	91.43	96.17
Personal treatment	2016	24	90.99	4.90	81.55	87.13	91.41	94.46	98.81
Availability	2016	24	91.51	6.13	69.87	87.57	94.12	95.85	97.56
Overall impression	2016	24	90.14	5.34	74.13	87.78	90.91	93.88	98.00

**Capio - Results NPE**

	year	count	mean	std	min	25%	50%	75%	max
Participation	2016	18	85.20	7.26	65.53	82.74	87.10	88.74	94.82
Information and knowledge	2016	18	85.24	6.45	64.93	83.25	87.55	89.17	91.51
Continuity and coordination	2016	18	88.18	6.29	68.76	87.86	90.32	91.52	95.00
Emotional support	2016	18	87.96	6.45	74.57	86.03	89.24	92.52	96.17
Personal treatment	2016	18	91.78	5.11	81.55	89.86	92.53	95.72	98.81
Availability	2016	18	91.02	5.54	74.13	89.17	92.02	94.19	98.00
Overall impression	2016	18	92.68	6.45	69.87	91.60	94.52	96.13	97.56

**Aleris - Results NPE**

	year	count	mean	std	min	25%	50%	75%	max
Participation	2016	6	80.80	4.57	75.99	78.05	79.52	82.55	88.64
Information and knowledge	2016	6	81.17	3.41	78.43	79.44	79.96	81.18	87.81
Continuity and coordination	2016	6	83.68	3.21	81.43	81.52	82.37	84.34	89.67
Emotional support	2016	6	82.12	5.04	77.01	80.00	80.75	82.27	91.68
Personal treatment	2016	6	88.62	3.59	84.53	86.49	87.61	90.57	94.29
Availability	2016	6	87.99	3.42	85.58	86.19	86.92	87.57	94.79
Overall impression	2016	6	87.51	3.94	82.75	85.56	86.89	88.53	94.33

**Public - Results NPE**

	year	count	mean	std	min	25%	50%	75%	max
Participation	2016	55	81.85	3.70	73.91	79.22	82.44	84.75	88.74
Information and knowledge	2016	55	82.44	4.32	70.52	80.18	82.82	84.97	91.58
Continuity and coordination	2016	55	85.08	3.81	76.81	82.29	85.27	87.72	92.57
Emotional support	2016	55	84.17	4.41	67.17	81.98	85.00	87.13	91.38
Personal treatment	2016	55	89.38	3.15	82.67	87.51	89.65	91.24	95.54
Availability	2016	55	88.50	4.00	79.24	84.85	88.78	91.20	96.41
Overall impression	2016	55	89.88	4.26	78.03	87.12	90.77	92.83	97.41

**Not-for-profit - Results NPE**

	year	count	mean	std	min	25%	50%	75%	max
Participation	2016	1	89.75	NaN	89.75	89.75	89.75	89.75	89.75
Information and knowledge	2016	1	91.89	NaN	91.89	91.89	91.89	91.89	91.89
Continuity and coordination	2016	1	92.81	NaN	92.81	92.81	92.81	92.81	92.81
Emotional support	2016	1	90.18	NaN	90.18	90.18	90.18	90.18	90.18
Personal treatment	2016	1	94.89	NaN	94.89	94.89	94.89	94.89	94.89
Availability	2016	1	95.44	NaN	95.44	95.44	95.44	95.44	95.44
Overall impression	2016	1	97.07	NaN	97.07	97.07	97.07	97.07	97.07

### t-tests for VIV 2012-2016 [t-value, p-value]

Note that the value is 0 if p-value < 1e-10. Aleris vs. PE and Capio vs. PE are not valid since samples are not independent

#### Completed first appointments

	Aleris	Capio	Not-for-profit	PE	Public
Aleris	[0.0, 1.0]	[-17.43, 0.0]	[3.83, 0.0001416426]	[-4.94, 8.649e-07]	[1.05, 0.2947923436]
Capio	[17.43, 0.0]	[0.0, 1.0]	[14.18, 0.0]	[16.1, 0.0]	[47.53, 0.0]
Not-for-profit	[-3.83, 0.0001416426]	[-14.18, 0.0]	[0.0, 1.0]	[-7.23, 0.0]	[-3.69, 0.000259836]
PE	[4.94, 8.649e-07]	[-16.1, 0.0]	[7.23, 0.0]	[0.0, 1.0]	[9.02, 0.0]
Public	[-1.05, 0.2947923436]	[-47.53, 0.0]	[3.69, 0.000259836]	[-9.02, 0.0]	[0.0, 1.0]

#### Completed surgical procedures/measures

	Aleris	Capio	Not-for-profit	PE	Public
Aleris	[0.0, 1.0]	[-7.4, 0.0]	[5.09, 6.084e-07]	[-3.16, 0.0016143247]	[-2.18, 0.0293193228]
Capio	[7.4, 0.0]	[0.0, 1.0]	[12.09, 0.0]	[5.65, 2.06e-08]	[10.22, 0.0]
Not-for-profit	[-5.09, 6.084e-07]	[-12.09, 0.0]	[0.0, 1.0]	[-8.47, 0.0]	[-8.13, 0.0]
PE	[3.16, 0.0016143247]	[-5.65, 2.06e-08]	[8.47, 0.0]	[0.0, 1.0]	[2.2, 0.0276786446]
Public	[2.18, 0.0293193228]	[-10.22, 0.0]	[8.13, 0.0]	[-2.2, 0.0276786446]	[0.0, 1.0]

#### Waiting for first appointment

	Aleris	Capio	Not-for-profit	PE	Public
Aleris	[0.0, 1.0]	[-17.42, 0.0]	[1.64, 0.1021821836]	[-4.75, 2.2e-06]	[-3.71, 0.0002212426]
Capio	[17.42, 0.0]	[0.0, 1.0]	[16.24, 0.0]	[16.26, 0.0]	[47.86, 0.0]
Not-for-profit	[-1.64, 0.1021821836]	[-16.24, 0.0]	[0.0, 1.0]	[-5.92, 5.5e-09]	[-5.1, 5.469e-07]
PE	[4.75, 2.2e-06]	[-16.26, 0.0]	[5.92, 5.5e-09]	[0.0, 1.0]	[2.63, 0.0085158116]
Public	[3.71, 0.0002212426]	[-47.86, 0.0]	[5.1, 5.469e-07]	[-2.63, 0.0085158116]	[0.0, 1.0]

#### Waiting for surgical procedure/measure

	Aleris	Capio	Not-for-profit	PE	Public
Aleris	[0.0, 1.0]	[-10.62, 0.0]	[3.71, 0.000243257]	[-4.16, 3.49712e-05]	[2.84, 0.0045729288]
Capio	[10.62, 0.0]	[0.0, 1.0]	[12.6, 0.0]	[8.97, 0.0]	[29.3, 0.0]
Not-for-profit	[-3.71, 0.000243257]	[-12.6, 0.0]	[0.0, 1.0]	[-7.51, 0.0]	[-2.34, 0.0205844436]
PE	[4.16, 3.49712e-05]	[-8.97, 0.0]	[7.51, 0.0]	[0.0, 1.0]	[11.35, 0.0]
Public	[-2.84, 0.0045729288]	[-29.3, 0.0]	[2.34, 0.0205844436]	[-11.35, 0.0]	[0.0, 1.0]

#### Total

	Aleris	Capio	Not-for-profit	PE	Public
Aleris	[0.0, 1.0]	[-21.46, 0.0]	[5.74, 1.1e-08]	[-7.7, 0.0]	[-0.73, 0.4638358785]
Capio	[21.46, 0.0]	[0.0, 1.0]	[22.73, 0.0]	[17.47, 0.0]	[38.74, 0.0]
Not-for-profit	[-5.74, 1.1e-08]	[-22.73, 0.0]	[0.0, 1.0]	[-12.3, 0.0]	[-7.42, 0.0]
PE	[7.7, 0.0]	[-17.47, 0.0]	[12.3, 0.0]	[0.0, 1.0]	[11.57, 0.0]
Public	[0.73, 0.4638358785]	[-38.74, 0.0]	[7.42, 0.0]	[-11.57, 0.0]	[0.0, 1.0]

### t-tests for VIV 2013-2014 [t-value, p-value]

Note that the value is 0 if p-value < 1e-10. Aleris vs. PE and Capiro vs. PE are not valid since samples are not independent

#### Completed first appointments

	Aleris	Capiro	Not-for-profit	PE	Praktikertjänst	Public
Aleris	[0.0, 1.0]	[-10.21, 0.0]	[1.65, 0.1006245669]	[-2.95, 0.0032753508]	[-4.86, 1.6807e-06]	[1.15, 0.2510769796]
Capiro	[10.21, 0.0]	[0.0, 1.0]	[7.36, 0.0]	[9.51, 0.0]	[2.2, 0.0286464291]	[29.74, 0.0]
Not-for-profit	[-1.65, 0.1006245669]	[-7.36, 0.0]	[0.0, 1.0]	[-3.56, 0.0004802047]	[-4.99, 1.1109e-06]	[-1.19, 0.234943174]
PE	[2.95, 0.0032753508]	[-9.51, 0.0]	[3.56, 0.0004802047]	[0.0, 1.0]	[-2.89, 0.0041201285]	[6.15, 1.3e-09]
Praktikertjänst	[4.86, 1.6807e-06]	[-2.2, 0.0286464291]	[4.99, 1.1109e-06]	[2.89, 0.0041201285]	[0.0, 1.0]	[7.01, 0.0]
Public	[-1.15, 0.2510769796]	[-29.74, 0.0]	[1.19, 0.234943174]	[-6.15, 1.3e-09]	[-7.01, 0.0]	[0.0, 1.0]

#### Waiting for first appointment

	Aleris	Capiro	Not-for-profit	PE	Praktikertjänst	Public
Aleris	[0.0, 1.0]	[-14.36, 0.0]	[0.36, 0.7182030931]	[-4.0, 7.14986e-05]	[-9.27, 0.0]	[-1.47, 0.1411761917]
Capiro	[14.36, 0.0]	[0.0, 1.0]	[10.38, 0.0]	[12.84, 0.0]	[4.48, 1.19853e-05]	[32.22, 0.0]
Not-for-profit	[-0.36, 0.7182030931]	[-10.38, 0.0]	[0.0, 1.0]	[-3.45, 0.0006760414]	[-7.43, 0.0]	[-1.48, 0.1409638775]
PE	[4.0, 7.14986e-05]	[-12.84, 0.0]	[3.45, 0.0006760414]	[0.0, 1.0]	[-6.28, 7e-10]	[4.08, 5.05939e-05]
Praktikertjänst	[9.27, 0.0]	[-4.48, 1.19853e-05]	[7.43, 0.0]	[6.28, 7e-10]	[0.0, 1.0]	[12.22, 0.0]
Public	[1.47, 0.1411761917]	[-32.22, 0.0]	[1.48, 0.1409638775]	[-4.08, 5.05939e-05]	[-12.22, 0.0]	[0.0, 1.0]

#### Total

	Aleris	Capiro	Not-for-profit	PE	Praktikertjänst	Public
Aleris	[0.0, 1.0]	[-17.06, 0.0]	[1.56, 0.1201036699]	[-4.85, 1.3769e-06]	[-9.19, 0.0]	[-0.07, 0.9452061938]
Capiro	[17.06, 0.0]	[0.0, 1.0]	[11.83, 0.0]	[15.61, 0.0]	[3.96, 8.93267e-05]	[43.34, 0.0]
Not-for-profit	[-1.56, 0.1201036699]	[-11.83, 0.0]	[0.0, 1.0]	[-4.88, 1.5283e-06]	[-8.14, 0.0]	[-1.8, 0.0722127832]
PE	[4.85, 1.3769e-06]	[-15.61, 0.0]	[4.88, 1.5283e-06]	[0.0, 1.0]	[-5.77, 1.1e-08]	[7.32, 0.0]
Praktikertjänst	[9.19, 0.0]	[-3.96, 8.93267e-05]	[8.14, 0.0]	[5.77, 1.1e-08]	[0.0, 1.0]	[12.01, 0.0]
Public	[0.07, 0.9452061938]	[-43.34, 0.0]	[1.8, 0.0722127832]	[-7.32, 0.0]	[-12.01, 0.0]	[0.0, 1.0]

### t-tests for NPE 2016 [t-value, p-value]

Note that the value is 0 if p-value<1e-10. Aleris vs. PE and Capio vs. PE are not valid since samples are not independent

Participation						
	Aleris	Capio	Not-for-profit	PE	Public	
Aleris	[0.0, 1.0]	[-1.74, 0.1040171518]	[nan, nan]	[-1.41, 0.1840356717]	[-0.55, 0.6061917671]	
Capio	[1.74, 0.1040171518]	[0.0, 1.0]	[nan, nan]	[0.5, 0.6220562921]	[1.88, 0.0749338679]	
Not-for-profit	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	
PE	[1.41, 0.1840356717]	[-0.5, 0.6220562921]	[nan, nan]	[0.0, 1.0]	[1.51, 0.142067444]	
Public	[0.55, 0.6061917671]	[-1.88, 0.0749338679]	[nan, nan]	[-1.51, 0.142067444]	[0.0, 1.0]	
Information and knowledge						
	Aleris	Capio	Not-for-profit	PE	Public	
Aleris	[0.0, 1.0]	[-1.98, 0.0646943252]	[nan, nan]	[-1.64, 0.1228239498]	[-0.84, 0.4290096461]	
Capio	[1.98, 0.0646943252]	[0.0, 1.0]	[nan, nan]	[0.52, 0.6059506041]	[1.72, 0.0986565702]	
Not-for-profit	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	
PE	[1.64, 0.1228239498]	[-0.52, 0.6059506041]	[nan, nan]	[0.0, 1.0]	[1.31, 0.1991266719]	
Public	[0.84, 0.4290096461]	[-1.72, 0.0986565702]	[nan, nan]	[-1.31, 0.1991266719]	[0.0, 1.0]	
Continuity and coordination						
	Aleris	Capio	Not-for-profit	PE	Public	
Aleris	[0.0, 1.0]	[-2.27, 0.0359282252]	[nan, nan]	[-1.89, 0.0788482918]	[-0.99, 0.3552111379]	
Capio	[2.27, 0.0359282252]	[0.0, 1.0]	[nan, nan]	[0.59, 0.5613401337]	[1.97, 0.0615197253]	
Not-for-profit	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	
PE	[1.89, 0.0788482918]	[-0.59, 0.5613401337]	[nan, nan]	[0.0, 1.0]	[1.5, 0.144620631]	
Public	[0.99, 0.3552111379]	[-1.97, 0.0615197253]	[nan, nan]	[-1.5, 0.144620631]	[0.0, 1.0]	
Emotional support						
	Aleris	Capio	Not-for-profit	PE	Public	
Aleris	[0.0, 1.0]	[-2.28, 0.0433247158]	[nan, nan]	[-1.78, 0.1053594878]	[-0.96, 0.3768317168]	
Capio	[2.28, 0.0433247158]	[0.0, 1.0]	[nan, nan]	[0.72, 0.4756051262]	[2.32, 0.0296576082]	
Not-for-profit	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	
PE	[1.78, 0.1053594878]	[-0.72, 0.4756051262]	[nan, nan]	[0.0, 1.0]	[1.59, 0.1208072374]	
Public	[0.96, 0.3768317168]	[-2.32, 0.0296576082]	[nan, nan]	[-1.59, 0.1208072374]	[0.0, 1.0]	
Personal treatment						
	Aleris	Capio	Not-for-profit	PE	Public	
Aleris	[0.0, 1.0]	[-1.67, 0.1200379689]	[nan, nan]	[-1.34, 0.2095639667]	[-0.5, 0.6377578444]	
Capio	[1.67, 0.1200379689]	[0.0, 1.0]	[nan, nan]	[0.51, 0.6165079103]	[1.89, 0.0729623099]	
Not-for-profit	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	
PE	[1.34, 0.2095639667]	[-0.51, 0.6165079103]	[nan, nan]	[0.0, 1.0]	[1.49, 0.1468791145]	
Public	[0.5, 0.6377578444]	[-1.89, 0.0729623099]	[nan, nan]	[-1.49, 0.1468791145]	[0.0, 1.0]	
Availability						
	Aleris	Capio	Not-for-profit	PE	Public	
Aleris	[0.0, 1.0]	[-1.69, 0.1156617683]	[nan, nan]	[-1.35, 0.2047628023]	[-0.59, 0.5785638828]	
Capio	[1.69, 0.1156617683]	[0.0, 1.0]	[nan, nan]	[0.52, 0.6092130699]	[1.78, 0.0884009635]	
Not-for-profit	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	
PE	[1.35, 0.2047628023]	[-0.52, 0.6092130699]	[nan, nan]	[0.0, 1.0]	[1.35, 0.1867758775]	
Public	[0.59, 0.5785638828]	[-1.78, 0.0884009635]	[nan, nan]	[-1.35, 0.1867758775]	[0.0, 1.0]	
Overall impression						
	Aleris	Capio	Not-for-profit	PE	Public	
Aleris	[0.0, 1.0]	[-2.27, 0.0365097906]	[nan, nan]	[-1.88, 0.0814297638]	[-1.25, 0.2513185755]	
Capio	[2.27, 0.0365097906]	[0.0, 1.0]	[nan, nan]	[0.6, 0.5553701711]	[1.72, 0.0993942429]	
Not-for-profit	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	[nan, nan]	
PE	[1.88, 0.0814297638]	[-0.6, 0.5553701711]	[nan, nan]	[0.0, 1.0]	[1.18, 0.2469052551]	
Public	[1.25, 0.2513185755]	[-1.72, 0.0993942429]	[nan, nan]	[-1.18, 0.2469052551]	[0.0, 1.0]	
Total						
	Aleris	Capio	Not-for-profit	PE	Public	
Aleris	[0.0, 1.0]	[-4.51, 1.82848e-05]	[-6.7, 1.36366e-05]	[-3.59, 0.000563501]	[-1.71, 0.094044467]	
Capio	[4.51, 1.82848e-05]	[0.0, 1.0]	[-3.56, 0.0047701809]	[1.37, 0.1707484066]	[4.55, 9.9127e-06]	
Not-for-profit	[6.7, 1.36366e-05]	[3.56, 0.0047701809]	[0.0, 1.0]	[4.62, 0.0012001317]	[6.75, 0.0003133995]	
PE	[3.59, 0.000563501]	[-1.37, 0.1707484066]	[-4.62, 0.0012001317]	[0.0, 1.0]	[3.33, 0.0009986796]	
Public	[1.71, 0.094044467]	[-4.55, 9.9127e-06]	[-6.75, 0.0003133995]	[-3.33, 0.0009986796]	[0.0, 1.0]	