

# What are the pros and cons of private equity in healthcare?

HEPL Master Thesis

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## Abstract

In recent years, private equity (PE) has become a significant element of the healthcare sector. PE firms acquire practices and form larger regional healthcare providers, which tend to become stakeholders that cannot pass unnoticed in the consolidated specialties. However, PE involvement in the healthcare sector has not yet been analyzed enough to generate safe results as far as the benefits for patients are concerned. Our study systematically reviews existing peer-reviewed literature and analyzes gray literature on PE involvement from the perspective of achieving public healthcare goals (efficiency of the healthcare system, quality of healthcare services, and universal access). Using the PRISMA method, we conducted a database search in recent empirical studies that discuss the consequences of PE involvement in the healthcare sector. Nineteen articles passed the eligibility criteria and were reviewed. Findings are mixed. Some researchers stand for PE involvement in healthcare as they pose potential benefits both in the economic performance of acquired providers and the quality of services. Others stand against PE involvement as they argue that profit-focused PE goals cannot align with the public healthcare goals, especially quality. Some researchers cannot conclude if PE benefits patients or not. We suggest that PE can contribute to achieving public healthcare goals under specific circumstances. Policymakers should consider the newly shaped economic environment in the healthcare sector and suggest policies that can incentivize PE firms to align their goals with public healthcare goals.

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# 1 Introduction

## 1.1 Background

Private Equity (PE) refers to capital assets that are not available for public exchange but are conducted by firms that invest discreetly and directly in public or private companies intending to gain profit, usually at medium-term but high return rate (Gondi et al., 2019). PE firms are entities that carry out the investing processes for their customers-investors.

During the early years of PE firms' development, decades of the 80s and early 90s, the healthcare sector was not attractive to PE firms. The main reason for that was the uncertainty caused by the complexity of legislative regulations (RG Marks et al., 2004) and other barriers, such as the operating environment and related business models that appeared more complex than in other industries. For instance, as Robbins et al. (2008) mention, many healthcare providers' services, such as acute care hospitals, skilled nursing, ambulatory surgery centers, and home care, have regulatory and reimbursement risk profiles that discouraged private equity investors.

Nowadays, by reviewing the annual reports of Bain & Company, a consulting firm, for the years 2018 and 2021, we can argue that the PE investment in healthcare prospered, which tends to reshape the healthcare market. This increase conforms with the boom of PE investment in general (Appelbaum et al., 2020; Murphy & Jain, 2018; Murphy & Jain, 2021). Nevertheless, this investment boom did not occur everywhere but across specific developed countries of some regions of the planet, such as America, Europe, and the Asia-Pacific region. On the contrary, in developing countries, such as Africa or the Middle East, PE investment in healthcare is scant.

More specifically, Bain & Company, in its annual reports about PE in healthcare, summarizes the trends of the market worldwide (America, Europe, and Asia-Pacific). They also review statistics from different stakeholders' perspectives (providers, taxpayers, biopharma, MedTech IT, etc.). In its annual report for 2018, which refers to results from 2017, a record since 2007 was achieved as far as the disclosed value of new PE investments in health care is concerned.

Thus, in the 2021 report, which refers to 2020 statistics, in health care, an 21% increase in the total absolute number of PE investments occurred, although the total disclosed value fell 17% due to the CoViD pandemic. According to Murphy & Jain (2021), this decline in disclosed value, the first since 2015, was due to a convergence of several factors. First, the coronavirus and subsequent lockdowns suppressed or disrupted deal activity in several sectors, particularly among potentially high-value deals. Second, PE firms preferred not to attempt a sale amid uncertainty and weaker market conditions, while some deals on order from 2019 did not complete the transaction.

According to traditional economic theories, the healthcare market does not operate as other 'regular' markets do; it is a very complicated and regulated market. This strict regulatory framework is needed to avoid market failures caused by the economic characteristics of healthcare markets, as healthcare is a susceptible sector, and a potential failure may cause fatal problems which affect both the economy and the society. It emphasizes safety and regulation and is driven by unpredictable demand as the incident of illness is not known from the beginning; it comprises subjective ancillary subsectors, such as pharmaceuticals, biotechnology, contracts and organizations, and medical technology (Results Healthcare, 2019); it concerns (a) many stakeholders who have adverse goals, such as patients, practitioners, pharmacists, governments, third-party-payers (insurers, employers, etc.) and society, (b) different procedures due to many specialties, and (c) diverse funding sources (public or private). To complete this complex environment, we must consider the nature of healthcare services, which is predominately humanitarian with a social sign but simultaneously marketable. Additionally, patients-users expect to use an efficient health system through the delivery of high-quality healthcare services. Government, which represents society in general, expects an increase in overall public health by applying its healthcare policy based on public healthcare goals such as quality, equality in access, and fair financing. For all the above reasons, a rigid regulatory frame is needed from an economic and quality perspective. As for the economy, to avoid market failures and as for quality to combine the aspects mentioned earlier to operate harmonically towards accomplishing the public health goals, i.e., universal access, quality in services, and overall good public health. For all these reasons, it is a very challenging field for PE investors. With this in mind, many healthcare

policymakers and professionals have argued either in favor or against PE firms' involvement in healthcare services. Therefore, limited and often contradictory independent research is available (Pradhan et al., 2014).

In other words, increased private equity investments in healthcare may lead to improved healthcare services provided or to the precisely opposite direction, i.e., expensive and exclusive health services provision. In addition to the primary objective of this thesis, which is to examine if PE in healthcare benefits patients, we will also investigate the rules and regulations required to realize the first and prevent the latter. In this thesis, the literature's empirical findings will be systematically reviewed to investigate if the existing applied regulatory framework for PE investments in the healthcare sector is adequate towards achieving the public healthcare goals considering the differences between reviewed countries.

In conclusion, PE investment in healthcare, in theory, has two potentially different dimensions. On the one side, it may benefit patients, and on the other side, it may negatively affect public health goals. PE investors act with some specific methods when investing in traditional markets. However, when investing in healthcare markets, they must align their methods with the unique economic environment. Nevertheless, stakeholders such as the government (society), patients, insurance organizations, and service providers expect to fulfill public healthcare goals (universal access, quality in services, etc.).

This research will review the existing peer-reviewed empirical literature in-depth and explore associated gray literature to identify the benefits of private equity in healthcare and potential drawbacks from the perspective of public healthcare goals. The aim is to examine whether PE can contribute to achieving public healthcare goals or not. It will also try to make policy recommendations on how PE investors should align with the different from their usual economic environment of investing.

## 1.2 Objective and Research Questions

This thesis aims to review existing theoretical and empirical literature to identify if PE involvement in the healthcare sector benefits patients as far as the public health goals are concerned.

The primary research question will be:

*Can private equity contribute to achieving the public healthcare goals?*

In way to answer this question, we will try to shape the theoretical framework of the research problem by examining and answering the following sub-questions:

- 1) When do private equity investments in health care theoretically benefit patients?
- 2) When do private equity investments in health care theoretically harm patients?
- 3) What rules & regulations are required to prevent the potential adverse effects of private equity investments in the healthcare sector?

## 1.3 Structure of Thesis

This thesis consists of five sections.

Following the introduction (section 1), the methodology used in this research is outlined in section 2. In section 3, the theoretical framework is presented to help us answer the three sub-questions of the research. Section 4 analyzes the results of the empirical and gray literature findings. Section 5 discusses the findings of the systematic review of the literature on the potential benefits and drawbacks determined from the theoretical approach. It also suggests policy recommendations as far as PE involvement in the healthcare sector is

concerned. Finally, the study's limitations are defined, and potential further research areas are suggested, and the results from the previous sections are concluded.



## 2 Methodology

This research systematically reviews the existing peer-reviewed literature and gray literature to investigate whether private equity contributes to achieving the public healthcare goals or not.

The following chapter outlines the methods used in this thesis to answer the research questions. Firstly, to answer the first two sub-questions, a theoretical framework is developed based on a theoretical literature review. Potential benefits and drawbacks of the involvement of PE in the healthcare sector are determined by reviewing existing literature. Secondly, the third sub-question is answered after the empirical literature review to propose policy recommendations on the topic. Finally, the discussion of the results of the empirical literature study answers the primary research question.

### 2.1 Theoretical framework

To understand the benefits and the drawbacks of PE involvement in the healthcare sector, a theoretical understanding, based on a theoretical literature review, is first required.

Through this framework, the theory of the research problem can be explored and understood. This approach seems essential as it lays the foundation of the empirical literature review towards answering the primary research question and achieving the objective of the thesis.

To shape the theoretical background of the thesis problem, we determine how the healthcare market and PE work. We have to understand the industrial organization of the healthcare market. Moreover, we have to learn how PE firms, as entities of PE investors, prefer to invest in the healthcare sector. Afterward, we discuss the potential benefits and drawbacks of PE involvement in this market by reviewing existing theoretical literature. As this thesis aims to examine the benefits of PE in healthcare from achieving public healthcare goals, we close the theoretical framework -presented in section 3- by outlining these goals in a theoretical way.

## 2.2 Literature Review

Understanding whether PE benefits patients or not, and under what preconditions PE benefits patients or not, a systematic review of the empirical literature will be conducted following the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) statement to answer the primary question. Empirical studies will be reviewed in this section of the study.

Using the PRISMA method, firstly, we will identify records through databases and other sources searching. Secondly, we will screen the records and exclude those not relevant to our study by comparing them with specified inclusion and exclusion criteria. At this stage of research, we will scan the abstracts of the articles.

Inclusion criteria are articles published after 2005, written in English, and referred to OECD countries. From the literature's preliminary search, which was conducted to propose the topic of our thesis, we found that PE involvement in healthcare flourished after 2007. Most articles were published after this year. To not exclude any relevant preliminary evidence, we choose 2005 as the base year for the research. Exclusion criteria are the following: (1) studies that do not refer to OECD countries, (2) studies that do not examine the PE investment in healthcare from healthcare goals, (3) studies that are not about quality, and (4) studies that do not analyze the benefits or drawbacks of PE in the healthcare sector.

Thirdly, full articles will be assessed for eligibility. Eligible articles refer to the PE investment in the healthcare sector (more specifically, in the subsector of healthcare providers) and from the perspective of achieving public healthcare goals. Both empirical and narrative studies are included as eligible. The results from the empirical studies will be discussed according to public healthcare goals.

The literature search will be conducted through searching in three relevant databases: PubMed, ScienceDirect, and Google Scholar. Further search will be done to EUR's database for relevant articles aligned with the Dutch context. As keywords, we will use private equity, healthcare, private equity investment in

healthcare, public healthcare goals, SDG-3, quality in healthcare, healthcare regulation, efficiency in healthcare, universal access in healthcare. An advanced search may be essential by combining two or more of the above keywords to make the search more precise.

The search will be conducted to seek all relevant articles on private equity in the healthcare sector. Articles that meet inclusion criteria will be reviewed and discussed to answer the primary question of the thesis.

### 3 Theoretical Framework

The following section will describe the theoretical concepts behind PE investment in healthcare and explain the potential benefits and problems of this involvement according to economic theory. This conceptual framework will be created by (i) describing the economic characteristics of the healthcare market in general (subsection 3.1), (ii) describing the engagement of PE in the healthcare sector (subsection 3.2), (iii) referring to the way that PE works traditionally (subsection 3.3), (iv) defining the potential benefits or drawbacks of PE investment in healthcare (subsection 3.4) and (v) addressing the public healthcare's goals (subsection 3.5).

#### 3.1 The healthcare market

The healthcare sector is, over time, one of the substantial components of each country's economy, while health expenditure has a significant role in most western economies. The healthcare sector includes several subsectors, such as ambulatory health care services, hospitals, nursing and residential care facilities, and insurance assistance. It also includes the pharmaceutical subsector (research, production, and distribution), the biotechnological subsector, and IT ancillary services.

While total spending on health care is significant, the industries that constitute the major components of this sector—hospital services, physician services, and health insurance—are each large in their own right. For instance, according to the US Bureau of Economic Analysis, in 2020, the US economy's healthcare and social assistance subsector absorbed \$10.23 trillion, i.e., 7.38 percent of US GDP, much more than other subsectors such as construction at 4.28 percent. Moreover, from the OECD Database (OECD, 2021), we observe that for 2019 Germany, the United Kingdom, the Netherlands, and Sweden spent for health (including both government and voluntary spending) as a percentage of their GDP, 11.7%, 10.3%, 10%, 10.9% respectively. Among OECD countries, Turkey spent the least, only 4.4% of GDP. The above economic results show

that the healthcare sector is one of the largest industries among OECD economies.

Keeping in mind that the functioning of this sector has tremendous implications for the well-being of the population, many economic researchers have tried to define its industrial organization (IO). Industrial organization is a field of microeconomics that focuses on individual, imperfectly competitive markets and seeks to understand the behavior of the firms that compose them and the resulting efficiency, i.e., performance, of those markets. The IO study analyzes operational factors that contribute to a firm's overall strategy and product placement; it involves studying different areas, from market power to product differentiation to industrial policy, that affect a firm's operations.

Dranove and Satterthwaite (2000) tried to compare the traditional markets with the healthcare market from an economic perspective. They posit that "Health care markets fail to satisfy the substantial list of requirements that must be met to be classified as perfectly competitive: large numbers of consumers and firms, free entry and exit, marketability of all goods and services including risk, symmetric information with zero search costs, and no increasing returns, externalities, or collusion." More precisely, they argue that the most significant aspects that differentiate the healthcare market are (1) the lack of symmetric information, (2) the presence of substantial search costs, and (3) the limited marketability of risk.

Illness is a random event, while it may threaten one's lifestyle, his ability to hold a job, and even his existence. The patient does not have the knowledge and the ability to choose the best suitable treatment. In contrast, the other part of the interaction, the healthcare provider, has this special medical knowledge. The patient depends on his healthcare provider's choice of treatment. That conflict is called "asymmetric information", which is a substantial healthcare market component. Asymmetric information also raises conflicts between patients and physicians called "agency problem". Agency problem may arise in a situation where one or more persons (the principal) engages another person (agent) to perform specific work on their behalf, which among other things, includes delegating authority to make decisions (Cerovic et al., 2012). In the absence of reliable, detailed sources of information about individual providers, the consumer-patient cannot shop among physicians with confidence that he

will select the one who offers the most preferred combination of expected outcome and price without incurring prohibitive search costs. On the other hand, physicians may use their knowledge and position on their own or their employers' -in PE-owned healthcare providers- interest by inducing unnecessary demand. The above reaction directly affects average quality, but it also indirectly fails to give physicians and other providers clear signals about what patients value. These unclear signals may, for example, cause physicians to systematically underproduce clinical quality, overproduce patient convenience, and ignore price competitiveness. As for the latter, an unclear reimbursement scheme for each treatment combined with the above-determined agency problem may result in failures in competing prices for healthcare services during the negotiating process conducted by payers-insurers and providers.

The individual who falls ill is at tremendous risk of losing much of his wealth, which creates a demand for insurance. In traditional competitive markets, insurance hedges the risk. However, the complexity and the large number of different products (treatments) in the healthcare market make full insurance and, consequently, minimization risk inapplicable. This problem of inadequate risk management creates another failure called "the marketability of risk". Insurers have to price insurance programs and negotiate costs with providers considering uncertain factors, such as the uncertainty of illness or the inefficacy of the treatment for every single among thousands of treatments.

Dranove and Satterthwaite (2000), by identifying the above-mentioned economic background of the healthcare market, empirically study the evolution of the industrial organization of the healthcare market. They acknowledge three regimes, which were applied at different points of time, that form this evolution. The regimes were (1) Independent physicians, and cost-based reimbursement for hospitals, (2) Hospital Prospective Payments System and regulated physicians, and (3) Managed care and contracted physicians. Each regime represents, for its time, a sensible response to market failure. Thus, each regime has predictable consequences for prices, costs, and quality. The first regime was the beginning of the healthcare system. Independent physicians performed medical procedures while hospitals were at the stage of expansion. The second regime follows, as, after establishing the first regime, there was a

demand to keep costs and prices at a reasonable rate. Governments start to regulate the market by applying reforms such as the Prospective Payments System (PPS). According to this system, the government began paying a prospectively set fee for each hospital admission. The fee varied according to the patient's illness and required treatment and was determined by the diagnosis-related group (DRG) into which the patient fit. The third regime consists of contracts between insurers and healthcare providers. Prices and discounts are negotiable between the parts, and patients choose the insurer that better fits their needs.

Further evolution of the third regime is the engagement of the private sector in the healthcare market. Implementing a reimbursement model like the third regime described above attracts private stakeholders to invest in healthcare provision as it creates a stable investment environment with a priori maximum priced outcomes. Negotiated prices are then a result of a procedure that involves quality and efficiency measures. For instance, a PE-owned provider invested in high-quality practicing may enshrine better prices on DRGs than competitors with lower quality standards.

Moreover, the private sector came to fill the gap of financing and liquidity of the healthcare sector. This gap was caused by the financial restrictions following public funding through taxes or social health insurance premiums or by a blockade of access to banking finance via loans. The first is about non-profit and for-profit providers, while the latter refers to for-profit providers and individual practices that usually become PE firms' targets. Private funding is held by individuals or groups of investors, such as physicians who manage their practices or a group of doctors who own a hospital. In recent times, a new form of private investment appeared called Private Equity (PE). The method and the reasons for this new type of funding to invest in the healthcare sector will be discussed in the subsequent subsections of this theoretical review.

Gaynor et al. (2015) further analyzed the third regime of Dranove's research, which is applied nowadays in most western economies. They tried to shape a multistage model focused on the different interactions between firms and how these interactions affect variables that directly impact welfare. These variables include provider quality, prices, treatment decisions, and insurer premiums. Their model for organizing the healthcare sector consists of four stages. We will

discuss their model as each interaction affects quality, one of the public healthcare goals addressed in the following subsection. First, providers (hospitals and physicians) make investments that determine the quality of their services. These investments may be affected by demand-side factors such as the amount of information on the quality provided to consumers and the amount of choice they are offered when they need medical care. Second, providers negotiate with insurers to determine insurers' provider networks and the prices paid to providers; this stage has substantial implications for consumers' welfare and costs. Third, insurers choose their premiums to maximize their objective functions, considering their characteristics and competing insurers' characteristics. Fourth, consumers observe each insurer's provider network and choose their insurers. Their model is applied to the US health system, though it applies to other countries whose health policy allows patients to choose their insurers freely. The final step of the model is the utilization of chosen providers, either through their insurers' networks or outside the network (through out-of-pocket payments). Each stage in their model addresses interactions between the fundamental players (stakeholders) of the healthcare sector. Moreover, as mentioned earlier, every interaction of each stage in their model impacts welfare as it affects the quality of care. In the first stage, providers invest in promoting the quality of their products to get higher outcomes. In the second stage, insurers try to contract with providers at the lowest prices and the highest possible quality, while providers use the outcome of the previous stage, i.e., the investment in quality, to negotiate higher prices and attract more insurers. In the third stage, the choice of high-quality providers allows insurers to determine higher premiums in insurance. Finally, patients choose among different insurers with the best provision and treatment in the fourth stage, affected by the quality of provided care. However, according to Gaynor et al. (2015), the game of quality gaining in the healthcare sector is not played the same way as traditional economic theory proposes. With prices determined mainly by regulators, such as governments, to keep prices low and consequently healthcare provision affordable for everyone who needs it, providers compete against each other in the field of quality. In other words, they try to provide higher quality products with the least possible cost to attract more insurers. Thus, the quality that substantially improves a patient's chance of survival will be valuable, and such benefits are likely to outweigh costs. Gaynor



et al. (2015) did not distinguish providers further and treat them in their work as a whole.

Having analyzed the economic size and the industrial organization of the healthcare sector, we can argue that the healthcare sector is so complicated and large enough to operate as a separate market. Compared to other traditional competitive markets in which classic economic theories are applied, the healthcare market's main distinctive feature is that it is a very complex market for investors and users-patients.

First, it consists of different subsectors. For example, the provision of healthcare services is the leading subsector. Pharmaceuticals and biotechnological production and distribution is another subsector.

Second, it affects more or less all the society in general, even those who have never used it. Moreover, good health is supposed to be an essential commodity for society's prosperity and the consecutive economic growth of each government; that is why strict regulation is applied to bridge the inequalities in access among different users.

The concept of regulation can be applied to state regulation and self-regulation by non-governmental actors and regulation by market mechanisms (Wendt et al., 2009). For instance, the path to practicing medicine is paved with an array of regulatory hurdles implemented by an assortment of bureaucracies, or the path to marketing a new drug is similarly cumbersome. However, this complex regulatory system engenders public confidence in physicians' competence through licensure requirements and in the safety and efficacy of prescription drugs through the approval process (Field, 2008).

The healthcare market consists of many and different stakeholders, while usually, the expectations of each stakeholder conflict with the expectations of another stakeholder (Dia Hassan, 2005). The fundamental stakeholder and primary user are patients, who expect to have their health restored at the least time possible. In most cases, insurance companies (stakeholder 2) or government (stakeholder 3) finance the expenses for this health restoration, the first through monthly payments of patients and the latter through taxpaying. Extra expenses that are not covered by the two ways mentioned above of financing burden patients themselves and are known as out-of-pocket

payments. Moreover, this is the point where inequalities in access occur as low- and middle-income patients may not afford these extra charges, which leads to an exclusion from a variety of healthcare treatments.

Another stakeholder is healthcare providers, such as hospitals, acute care, emergency units, nursing homes, and rehabilitation centers. These providers have to manage earnings through different sources and provide accurate qualitative healthcare services to fulfill their customers' needs. Healthcare providers are usually not-for-profit organizations that are part of each country's national health system. Public providers are funded by taxpayers (Beveridge model) or by social insurance contributions (Bismarck model). Most EU countries use a mixed model for funding healthcare providers to keep a minor level of affordability for their citizens towards universal access to healthcare. Moreover, private for-profit healthcare units operate complementarily to each national health system. Private healthcare providers gain earnings through insurers' contracts or individual patients.

### 3.2 The healthcare market and PE engagement

In recent years, another stakeholder appeared; private equity has got involved in the healthcare sector through PE firms that manage private or public for-profit healthcare providers as the healthcare sector has become attractive for PE due to reforms in the health systems of many countries. The economic environment has become more stable for investments. Bruch et al. (2020) determine the reasons why PE is interested in investing in healthcare. First, demand for healthcare services has historically been relatively stable through economic fluctuations. Second, many health care delivery markets are fragmented, presenting opportunities for private equity firms to acquire numerous hospitals or physician practices. Third, private equity fund managers may seek to profit from increasing the efficiency of care delivery.

Moreover, PE can be an essential source of otherwise unavailable capital for innovation, and it also represents a competitive force for change in established health services markets (Robbins et al., 2009). In other words, rising values and the recession-resistant nature of health care have driven investments in this

robust industry (Gondi & Song, 2019; Reddy, 2020). From another perspective, public equity's capital filled the liquidity gap mentioned above for practices that needed funds to exist and develop in a competitive environment and were excluded by bank funding or public debt markets.

However, a for-profit healthcare provider, which a PE firm manages, has an adverse goal due to PE investment's nature, i.e., profit and high returns to satisfy the investors. To fulfill their investors' goals while trying to provide high-quality and thus higher-priced, more profitable, healthcare services, PE firms may use management practices that may lead to higher charges for patients; low- and middle-income patients may not afford the extra out-of-pocket payments, and finally, they are excluded from the use of these services. On the other hand, if PE-managed hospitals try to keep costs low, the conflict to their main scope, which is to satisfy investors, may lead to the deterioration of healthcare services quality. The potential benefits and the problems of the above statements will be discussed in the following subsection of this section. In conclusion, the different goals of the primary stakeholders, patients, and PE, may create inequalities in access or deteriorations in quality.

Additionally, the government has the responsibility to monitor and regulate the healthcare market. This responsibility is nowadays more needed than a few decades before due to the involvement of the private sector. Thus, as a society representative, the government expects an efficient healthcare system with equal access, especially for low-income classes (Israel, 2016). That is where a debate begins because many issues regarding inequalities in access, quality of services, and labor matters, start to become visible (Herrera et al., 2014). More specifically, PE management strategies towards achieving their economic goals may deteriorate or increase service quality. Moreover, inequalities in access may occur due to the selection of patients that could give more revenues to the acquired practices or the implication of more profitable treatments. Labor matters may also occur as staffing levels could be redetermined due to cutting-cost strategies.

### 3.3 What is Private Equity, and how it works?

Private equity is a method of investing discreetly and directly in capital assets. For this purpose, there are unique firms whose scope is to gather capital from investors and invest them in public or private companies to increase their value and profit from selling it after some time, usually 3-7 years. In other words, private equity firms use capital from institutional investors to invest in private or public companies with the potential to return a profit (Gondi and Song, 2019). PE investors usually desire an annual return of around 20 percent or more (Robbins et al., 2008).

Sophisticated private equity investors in health services typically provide venture capital for early-stage companies, growth capital for mid-stage companies, and equity capital for buyouts of mid-stage and mature companies (Robbins et al., 2009). Thus, in their recent work, Appelbaum et al. (2020) argue that private equity firms invest their assets in consolidating small providers, loading them with debt, and rolling them up into large powerhouses with substantial market power before exiting with handsome returns.

Robbins et al. (2008) identify three types of private equity firms that are especially relevant to the health care services sector: (i) venture capital firms, (ii) growth capital/mid-market buyout firms, and (iii) buyout firms. These types are best distinguished by the size of the investments they make and by the stage of maturity of typical acquisition targets. These differences drive different risk and return expectations among types of investments. More specifically, venture capital firms focus on hazardous investments in start-up companies that usually do not have access to other types of funding. Growth capital/mid-market buyout firms target companies that have already demonstrated an ability to generate earnings from operations. The target companies in this group often need capital to grow or add a different operating platform to expand their overall business. Buyout firms invest in later-stage businesses.

During their involvement, PE firms take the management of the company and make it profitable, either by continuing and reinforcing several strategies that were already put in place before the takeover or by adding other management

strategies which mimic industry-wide trends, always to gain fast returns of the investment (Bos & Harrington, 2017). Moreover, by enhancing these management strategies, they try to create value for the acquired company. In the end, the PE firm performs a successful "exit" by selling the company at a higher price as it is now a stable and profitable company either to another investor or to the public (Wright et al., 2009).

The most common method used by PE firms to acquire a practice is "leveraged buyout" (LBO). LBO is a type of corporate reorganization and acquisition practice whereby private investors borrow a substantial amount of debt to acquire a firm by buying back its publicly held stock to go private (Kim & McCue, 2012). With this method, PE firms use less capital for the acquisition while the invested amount (capital and loans) is high enough to expand the acquired company and create value. This method is arguable, though, as a significant portion of the profits of the acquired company goes to the repayment of debts. Moreover, although leverage increases private equity returns due to smaller capital investment, it also reduces free cash flows. On the other hand, capital spending increases the quality of care by investing in infrastructure but decreases returns and value.

Fund managers identify segments of the industry to outcompete existing businesses or establish new business models that will supplant other service forms. These private equity-financed businesses may bring a sharper level of competition to the markets they enter, potentially benefiting the patients in terms of quality upgrades.

When we speak about a traditional economy, things are a bit apparent, and PE firms have an evident scope. However, in the healthcare market, which, as mentioned, is very complicated, PE firms' role as mainly profit-seeking companies established in an environment with social impact is primarily arguable.

### 3.4 Potential benefits and drawbacks of PE involvement in the healthcare sector

As already mentioned, PE firms commonly desire an annual return on their investment of at least 20 percent, while the most common method of investing in the healthcare sector is through LBOs. (Robbins et al., 2008). PE firms typically purchase an established group practice and acquire smaller practices to establish regional brands that can exercise greater bargaining power with insurers and medical suppliers (Gondi and Song, 2019). PE firms use several strategies to raise the value of acquired practices, such as reducing costs (often through layoffs) and improving efficiency by consolidating and internalizing previously outsourced processes. By implementing the latter strategy, they benefit from economies of scale. From the economic perspective, acquired healthcare providers should benefit from the purchase, as, over time, many pieces of research have proved this through evidence of other economic sectors. Bull (1989) reports that financial results improved after the buyouts were realized due to what he describes as "entrepreneurial management" by owner-managers. Opler (1992), utilizing data from 1985-1989, reported that in the case of 44 large LBOs, operating profit improved significantly two years after the buyouts. A portion of increased profits should be driven to strategies that affect quality, such as investments in infrastructure, staff training, and medical services' expansion in other specialties.

Researchers who stand for PE involvement in the healthcare sector argue that although the goal of PE differs, it cannot be achieved without investing in quality. As profits are directly associated with customers, reputation is vital to attract more customers (insurers and individual patients). Thus, reputation is gained through high-quality provided services. Moreover, an investment in quality may bring efficiency to the healthcare system. Offodile et al. (2021) cite that PE firms, through their profit-focused management, achieve efficiency via operational engineering, management discipline, and innovation. However, given that hospitals and academic medical centers, unlike private equity firms, use revenues from some insurers to subsidize care for low-income patients and fund medical education and research, private equity may have different implications for spending.

On the other hand, there are several concerns about PE involvement in a sector of the economy with a significant social impact. Gondi and Song (2019) systematically address these concerns. After the acquisition, the quality of services may deteriorate due to strategies focused on PE's primary scope. For instance, referrals in the management team of the acquired healthcare provider may cause problems with applied medical interventions. In their opinion, one key concern for quality is that keeping referrals within the practice may render referral patterns less responsive to patient needs or preferences. The need for generating returns may create pressure to (i) increase utilization, (ii) direct referrals internally to capture revenue from additional services, and (iii) rely on care delivered by unallied physicians via outsourcing of particular interventions that are not available in the acquired practice due to lack of infrastructure or specialties. Additionally, private equity-owned practices may also face pressure from investors to avoid providing low-profit services. All these tactics raise concerns about the potential disadvantages of PE investments in healthcare from the perspective of quality in services, which is also a public healthcare goal, as we will describe in the next section.

Other concerns include overcharging in billing and significant reliance on physician assistants in unsupervised settings, which raise questions about patient safety and low-value care. Bruch et al. (2020) posit that "increased charges following private equity acquisition provides insight into the strategic decisions made by fund managers or hospital leadership in response to new incentives hospitals face after an acquisition. Higher markups are associated with greater profitability". Moreover, increased charges may come along with reduced costs as a method to maximize profits. Though, lowering costs either through cutting expenses or through changes in staffing may raise concerns about the quality of services.

Among other findings, Gilreath et al. (2019) address another potential drawback in PE involvement: physicians' autonomy. Many concerns among physicians are raised about this issue. Bennett (2020) wonders if physicians who work for private equity can be trusted to do the right thing for patients. Lundy (2019) remains thoughtful about the incorporation of practices by PE firms and deposes his opinion about the pros and cons of such a strategy. He suggests

that doctors should be cautious in deciding which PE to sell their practice and at what percentage of ownership.

In addition to quality and costs, there is reason to a priori be concerned about access. After a private equity firm consolidates a fragmented market, it can use its market position to drive smaller independent practices out of business, potentially reducing the availability of physician services in a given geography. This standard strategy in competitive markets may potentially affect the accessibility of healthcare, especially in low-income citizens, which is contrary to one of the fundamental public healthcare goals, i.e., universal access.

From the above analysis, we can conclude that PE involvement in healthcare could be beneficial and controversial from a theoretical perspective. To maximize these benefits and minimize the drawbacks, policymakers and regulators of the healthcare sector should adapt the complex regulation system of healthcare to benefit both actors, but having in mind the public healthcare goals. In chapter 10 of the WHO handbook, "Strategizing national health in the 21st century: a handbook", Clarke analyzes the impact of laws and regulation in applying strategies in healthcare. Above other matters, he mentions that "governments regulate to protect members of the public from harm or the adverse effects of unconstrained business activities in the health system (and to address market failure and inefficiencies in the health system)". For instance, PE acquired providers might want to segment markets to concentrate on profitable market niches, such as patients with higher incomes.

Moreover, PE-owned providers may use management strategies, such as merging units or closing non-profitable acquired units, resulting in gaps in the coverage in certain areas. Under these circumstances, laws and other forms of regulation might be required to oblige (or incentivize) these providers to provide a broader range of services and allow service access regardless of patient income or geographic regions.

### 3.5 The public healthcare goals

Our thesis objective is to review existing literature for the benefits or drawbacks of PE investment in the healthcare industry as far as the public healthcare goals



are concerned. In this subsection, we will determine these public healthcare goals, which will be the basis for our research.

The traditional and fundamental goal of every healthcare system is the promotion of people's health. This general goal was the default idea when health policymakers started with basic sanitation issues in the 19th century and a subsequent part during the construction of Western welfare societies (Munthe, 2009). Since then, many supplementary goals were added to help achieve the basic one. World Health Organization (WHO), in its World Health Report for the year 2000 (WHO, 2000), acknowledges six health system themes, which are as follows: accessibility and responsiveness; quality; outcomes; accountability, transparency, and regulation; fairness and equity; and efficiency.

Murray and Frenk (1999) formulated the conceptual framework that underpins the WHO report. Their work categorizes public health goals into two main categories: (a) intrinsic and (b) instrumental goals. Intrinsic goals fulfill two main criteria to be categorized as such. Firstly, an intrinsic goal must be at least partially independent. That means that it is possible to raise the goal attainment while holding the level of all other intrinsic goals constant. Secondly, raising the level of attainment of an intrinsic goal is desirable. If a healthcare goal does not meet both the criteria mentioned above, it will likely be an instrumental goal. They acknowledge three fundamental goals for the health system: (1) improving health, (2) enhancing responsiveness to the expectations of the population, and (3) assuring fairness of financial contribution. They suggest that these intrinsic goals should be routinely monitored by all countries and form the primary basis for assessing health system performance in programs facilitated by WHO.

Improving health means both increasing the average health status and reducing health inequalities. Responsiveness includes two major components: (a) respect for persons (including dignity, confidentiality, and autonomy of individuals and families to decide about their health); and (b) client orientation (including prompt attention, access to social support networks during care, quality of basic amenities and choice of provider). Fairness of financial contribution means that every household pays a fair share of the country's total health bill (which may mean that impoverished households pay nothing at all), implying that everyone is protected from financial risks due to health care.

In September 2000, world leaders who participated in the annual general meeting adopted the United Nations Millennium Declaration, committing their nations to a new global partnership to reduce extreme poverty and setting out a series of time-bound targets - with a deadline of 2015 - that have become known as the Millennium Development Goals (MDGs). Among the eight MDGs, three referred to health issues (Reduce child mortality-goal 4; Improve maternal health-goal 5; Combat HIV/AIDS, malaria and other diseases-goal 6). By 2015, significant progress of each goal was achieved, as shown in The Millennium Development Goals Report 2015 (UN, 2015).

In 2015, a new agenda built on the MDGs were agreed upon by all 191 UN Member States. The United Nations Sustainable Development Goals (SDGs), as it is called, consists of 17 goals with 169 targets that all participating countries have agreed to try to achieve by the year 2030. Health has a central place in SDG 3: Ensure healthy lives and promote well-being for all ages, underpinned by 13 targets covering a broad spectrum of WHO's work. Among the targets, the most interesting for our review is SDG Target 3.8 (Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all). Almost all of the other 16 goals are directly related to health or will contribute to health indirectly. The new agenda aims to be relevant to all countries and tries to create a common framework to monitor specific indicators so as the cross-country analysis to be easier to conduct.

The Organization for Economic Co-operation and Development (OECD) accorded with the goals set by the UN and the WHO. In figure 1, the matrix shows the integration of these goals. The aim was to develop and report indicators for international comparisons of health care quality.

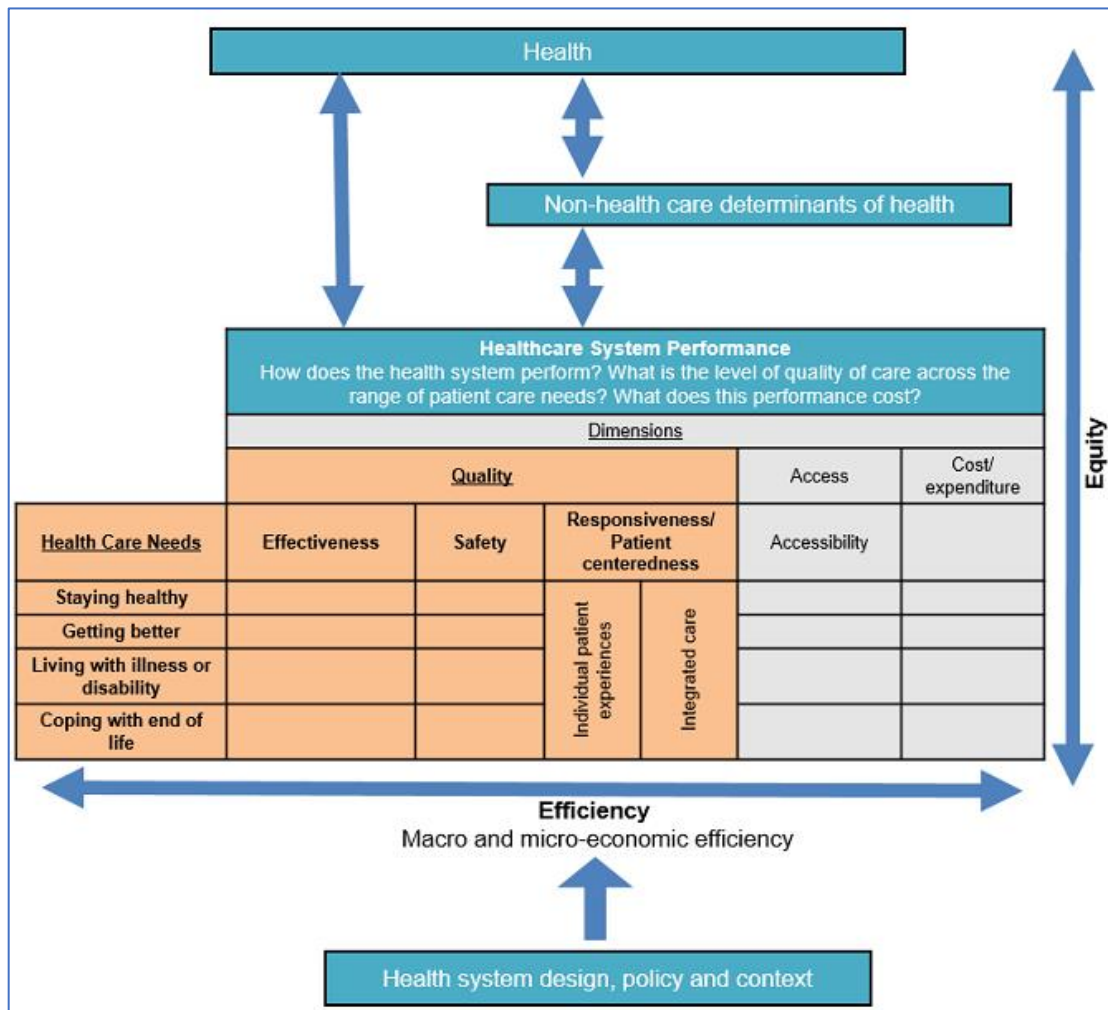


Figure 1 <https://www.oecd.org/els/health-systems/health-care-quality-framework.htm>

To sum up, public health goals that this thesis will discuss are: (a) the equality in access to the services, (b) quality in these provided healthcare services, and (c) affordability for every patient who needs these services. From the economic perspective, these three goals can be merged under the term “efficiency of the healthcare system”. As shown in the above figure, efficiency is the goal of health system design and policy-making and has both micro-and macro-economic impacts, i.e., it both affects patients as individuals and as a society in general. An economically efficient healthcare system usually invests in quality as a measurable and comparable indicator of patients’ satisfaction; so, efficiency becomes an important public healthcare goal. Ultimately, all these goals serve the one unique main goal: good health both individually and publicly. More specifically, these public goals will be used for (i) assessing the (potential)

benefits and drawbacks associated with PE investments in health care and (ii) formulating policy recommendations.

## 4 Results of the Literature Review

This section presents the results and analysis of the empirical studies review. In the first subsection, studies' characteristics are described and are analyzed on heterogeneity. In the following subsection, eligible studies are categorized by four parameters (by country, by type of healthcare provider, by healthcare goal, and by the conclusion results of the study). In the last subsection, the results are summarized.

### 4.1 Study Characteristics and Heterogeneity

Our study was conducted by identifying the literature records using the PRISMA method. We searched databases, such as PubMed, ScienceDirect, and Google Scholar. An additional search has been done to the Erasmus University of Rotterdam database using the library tool (sEURch). The findings of the search are shown on the flowchart below.

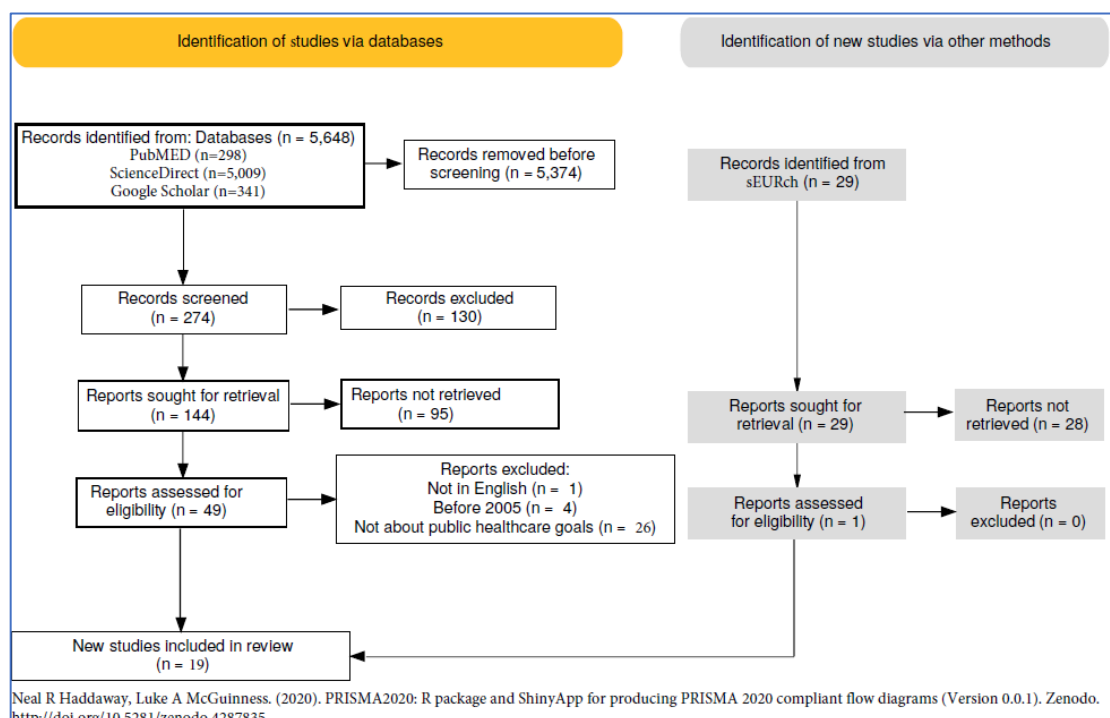


Figure 1 Flowchart visualizing the selection process of sources to be included in the literature review.

From a total of 5,648 records, we removed 5,374 as they were irrelevant to our study after a title screening; they did not match the scope of the study. For our search, we used keywords as in Appendix A. As the research strings gave very general results, we committed advanced search by combining the search strings. Finally, 49 studies were assessed for eligibility based on the full text. Inclusion and exclusion criteria were applied to check eligibility. At this stage, 1 article was excluded because it was written in a language other than English, four articles were excluded because they were published before 2005, and 26 articles were excluded because they did not refer to public healthcare goals. At last, from the database search, 18 studies were included in our literature review.

Additionally, a search was done in the EUR library for eligible articles via the library tool (sEURch). Among 29 records, one passed the eligibility assessment using the same inclusion and exclusion criteria as in the databases search. From the two parallel searches, a total of 19 studies were included in our review.

The included articles showed heterogeneity in terms of (1) the type of healthcare provider (nursing homes, acute care hospitals, short-term general hospitals, and different specialty practices); (2) the country (The United States of America, The Netherlands, United Kingdom, Germany, and Turkey); (3) the type of the study (narrative or empirical, explanatory or descriptive); (4) the period of each study (although most of them were conducted from 2003 and after, they have different periods); (5) the indicators that were used for the empirical analysis. The indicators are categorized into two categories: the financial performance indicators and the quality indicators. As for the third heterogeneity, we can further mention that empirical studies are based on discussing the statistical analysis of specific data, while narrative studies critique and summarize a body of literature about the thesis topic. The latter type is less preferred from a methodological viewpoint as it can leave the review open to bias by the author in the notation of search methods criteria for selection. On the other hand, empirical studies lack this bias. In our study, three articles are narrative reviews, as shown in the following table, and their findings will be used supplementary to other relative empirical reviews.

Financial performance indicators are helpful for our study because they measure the efficiency of a healthcare provider. Efficiency is one of the primary public healthcare goals described in this thesis's theoretical framework section.

Quality is among the intrinsic public healthcare goal, and it has a central position in our research. The third goal that was determined and checked in the relevant literature, as it is among the sustainable development goals of the United Nations, is universal access.

## 4.2 Results by category of studies

Table 1 shows the descriptive analysis of the articles that were reviewed in our study.

**Table 1: Descriptive Analysis of included articles**

no	Study and Country		Study type	Period of analysis	Healthcare Field	SDG-3 Goal			Result of the analysis		
	Author	Referred country				Quality	Efficiency	Universal Access	For	Against	Mixed
1	Bruch et al. (2020)	USA	Empirical	2005-2013	Acute care hospitals	✓	✓		✓		
2	Galetta et al. (2019)	USA	Narrative	-	Orthopedic practices-spine surgery	✓	✓		✓		
3	Bruch, Zeltzer & Song (2020)	USA	Empirical	2018	Acute care hospitals	✓					✓
4	Braun et al. (2020)	USA	Empirical	5-17-2020 to 2-7-2020	Nursing Homes	✓				✓	
5	Novice et al. (2020)	USA	Empirical, structured surveys	Feb-Apr 2019	Dermatology practices	✓				✓	
6	Winblad et al. (2017)	Sweden	Empirical	2010-2011	Nursing Homes	✓	✓				✓
7	Harrington et al. (2011)	USA	Empirical	2003-2008	Nursing Homes	✓				✓	
8	Pradhan & Weech-Maldonado (2011)	USA	Narrative	-	Nursing Homes	✓	✓				✓
9	Eren (2016)	Turkey	Narrative, structured surveys	Jan-Nov 2016	Private hospital sector			✓		✓	
10	Bos et al. (2020)	The Netherlands	Explanatory	2015-2017	Nursing Homes	✓		✓		✓	
11	Kirsch & Kapoor (2020)	USA	Narrative	-	Urology practices	✓	✓		✓		



<b>Descriptive Analysis of included articles (continuation)</b>											
no	Study and Country		Study type	Period of analysis	Healthcare Field	SDG-3 Goal			Result of the analysis		
	Author	Referred country				Quality	Efficiency	Universal Access	For	Against	Mixed
12	Huang & Bowblis (2019)	USA	Empirical	2005-2010	Nursing Homes	✓			✓		
13	Bos & Harrington (2017)	USA	Case study	2000-2012	Nursing Homes	✓	✓				✓
14	Offodile et al. (2021)	USA	Empirical	2003-2017	Short-term general hospitals	✓	✓				✓
15	Braun et al. (2021)	USA	Empirical	2012-2017	Dermatology practices	✓	✓				✓
16	Bouddiouan (2008)	UK, Germany	Master Thesis	-	for-profit hospitals	✓	✓		✓		
17	Pradhan et al. (2014)	USA, Florida	Empirical	2000-2007	Nursing Homes	✓	✓				✓
18	Mayock (2017)	USA	Empirical	2007-2015	General Hospitals	✓					✓
19	Gupta et al. (2020)	USA	Empirical	2000-2017	Nursing Homes	✓				✓	

Articles were defined by the referred country, the examined period, the type of the study, the healthcare field, the public healthcare goal they discussed, and the position for or against that the authors had.

#### 4.2.1 Results by country

We tried to find articles from as many countries as possible. Only articles that referred to OECD countries were eligible for review as we supposed that they could have comparable statistical indexes. From the research, not surprisingly, we found that the great majority of the reviewed studies refer to the United States of America. 15 out of 19 reviewed articles were about the US context (Bruch et al., 2020; Galetta et al., 2019; Bruch, Zeltzer & Song, 2020; Braun et al., 2020; Novice et al., 2020; Harrington et al., 2011; Pradhan & Weech-Maldonado, 2011; Kirsch & Kapoor, 2020; Huang & Bowblis, 2019; Bos & Harrington, 2017; Offodile et al., 2021; Braun et al., 2021; Pradhan et al., 2014; Mayock, 2017; Gupta et al., 2020).

One article was about the Netherlands (Bos et al., 2020), one article about Sweden (Winblad et al., 2017), one about Turkey (Eren, 2016), and one study was about the United Kingdom and Germany (Bouddiouan, 2008).

#### 4.2.2 Results by type of healthcare provider

We tried to find as many studies as possible from a broader sample of different healthcare providers in our search. By this approach, we are supposed to be able to generalize our results. However, there is very little evidence on PE investments and their impact on healthcare providers' performance from the perspective of public healthcare goals. Moreover, empirical research is even more scarce.

Among the eligible articles that were included in our research, nine of them referred to the nursing home (NH) industry (Braun et al., 2020; Winblad et al., 2017; Harrington et al., 2011; Pradhan & Weech-Maldonado, 2011; Bos et al.,

2020; Huang & Bowlis, 2019; Bos & Harrington, 2017; Pradhan et al., 2014, Gupta et al., 2020). The NH subsector of the healthcare sector is one of the most consolidated private equity investors, especially in the United States. That is one of the reasons why it is the most researched. According to Gupta et al. (2020), one advantage of focusing on nursing homes is a sophisticated, data-driven measure of overall facility quality, which does not exist in other healthcare subsectors. Moreover, it is a subsector with a promising future for profits as demographically, the aging population increases.

Four of the included articles refer to individual practices. Two of them are about dermatology practices (Novice et al., 2020; Braun et al., 2021), one article discusses the partnership of PE and urology (Kirsch & Kapoor, 2020), and one article refers to orthopedic practices and, more specifically to spine surgery (Galetta et al., 2019).

Finally, six out of nineteen articles refer to hospitals. Two of them are about acute care hospitals (Bruch et al., 2020; Bruch, Zeltzer & Song, 2020), one discusses the role of PE in the private hospital sector in general (Eren, 2016), two articles refer to general hospitals (Offodile et al., 2021; Mayock. 2017) and one article to for-profit hospitals, a part of which are PE-owned hospitals (Bouddiouan, 2008).

From the results, we can form three main categories of different types of healthcare providers. Nursing homes (NH) represent the majority of reports included in our study. The second category is practices in general, and the third is hospitals in general.

#### 4.2.3 Results by healthcare goal

From the theoretical part of this study, we determined three fundamental public goals concerning healthcare. The first is quality of care. Patients demand healthcare services of high quality. Most of the included studies analyze quality matters of care provision (Bruch et al., 2020; Galetta et al., 2019; Bruch, Zeltzer & Song, 2020; Braun et al., 2020; Novice et al., 2020; Winblad et al., 2017; Harrington et al., 2011; Pradhan & Weech-Maldonado, 2011; Bos et al., 2020;

Kirsch & Kapoor, 2020; Huang & Bowlblis, 2019; Bos & Harrington, 2017; Offodile et al., 2021; Braun et al., 2021; Bouddiouan, 2008; Pradhan et al., 2014; Mayock, 2017; Gupta et al., 2020).

Efficiency is one of the addressed public healthcare goals. The efficiency of a healthcare system includes economic performance. 10 out of 19 included articles analyze the problem from an economic perspective (Bruch et al., 2020; Galetta et al., 2019; Winblad et al., 2017; Pradhan & Weech-Maldonado, 2011; Kirsch & Kapoor, 2020; Bos & Harrington, 2017; Offodile et al., 2021; Braun et al., 2021; Bouddiouan, 2008; Pradhan et al., 2014). Some of the articles discuss both healthcare goals.

Finally, access to healthcare is a fundamental goal for each country. Universal access to healthcare is one of the sustainable development goals of the Agenda 2030 of the United Nations. This goal is crucial as its achievement or not affects the fulfillment of other goals of the UN Agenda. However, it is the less-discussed goal in our research. Only two of the included articles explicitly refer to this goal (Eren, 2016; Bos et al., 2020).

#### 4.2.4 Results by the conclusion of included studies

This categorization will help us find the number of studies that favor or stand against PE involvement in the healthcare sector. Some studies have mixed results. Those studies are categorized separately. In some studies, the authors do not conclude apparently to one specific position; we will categorize these studies in one of the three categories (for, against, mixed), considering the theoretical framework. As mentioned above, empirical reviews will be discussed, and other types of studies, such as narrative reviews, will supplement the discussion. Table 2 shows the results by the outcome as mentioned.

<b><u>Table 2: Results by the outcome</u></b>
<b><u>Studies in favor of PE investment in healthcare</u></b>
Bruch et al. (2020)
Galetta et al. (2019)
Kirsch & Kapoor (2020)
Huang & Bowblis (2019)
Bouddiouan (2008)
<b><u>Studies against PE investment in healthcare</u></b>
Braun et al. (2020)
Novice et al. (2020)
Harrington et al. (2011)
Eren (2016)
Bos et al. (2020)
Gupta et al. (2020)
<b><u>Studies with mixed results on the effects of PE investment in healthcare</u></b>
Bruch, Zeltzer & Song (2020)
Winblad et al. (2017)
Pradhan & Weech-Maldonado (2011)
Bos & Harrington (2017)
Offodile et al. (2021)
Braun et al. (2021)
Pradhan et al. (2014)
Mayock (2017)

### 4.3 Results of the Literature Review

In this subsection, we will analyze the results of each study and category. The results will be presented, firstly, according to each study's conclusion (for, against, mixed) and, secondly, according to the type of healthcare provider. This selection will help us compare the results and overcome the significant heterogeneity of our sample as most of the studies have more comparable characteristics for these two criteria.

#### 4.3.1 Studies that are in favor of the PE involvement in the healthcare sector

Five studies favor PE involvement in the healthcare sector (Bruch et al., 2020; Galetta et al., 2019; Kirsch & Kapoor, 2020; Huang & Bowblis, 2019; Bouddiouan, 2008). Each study discusses a different type of hospital; therefore, a further distinction of these results is inapplicable. All the studies that are in favor of PE involvement discuss the problem from a quality outcomes perspective, while four of them (Bruch et al., 2020; Galetta et al., 2019; Kirsch & Kapoor, 2020; Bouddiouan, 2008) also discuss the economic performance of PE-owned healthcare providers, which shows the effectiveness of the scheme. Though three studies are not peer-reviewed, their findings may be subject to selection bias from their authors. All the studies except one analyze the problem in the US context; i.e., Bouddiouan (2008) discusses the German and UK context. Table 3 summarizes the results of the studies that favor PE involvement in the healthcare sector.

<b>Table 3: Summary of Results of studies in favor of PE involvement</b>					
no	Author	SDG-3 Goal			Summary of Results
		Quality	Efficiency	Universal Access	
1	Bruch et al. (2020)	✓	✓		An increase in economic outcomes after the acquisition may lead to an increase in quality of care. Moreover, three quality indicators that were chosen show a significant increase in quality in PE-acquired hospitals.
2	Galetta et al. (2019)	✓	✓		Through alignment with a unique goal, both practices and PE work towards a healthcare environment that incentivizes providers and payers to provide high-quality and cost-effective care to fulfill patients' needs.

<b>(Continuation): Summary of Results of studies in favor of PE involvement</b>					
no	Author	SDG-3 Goal			Summary of Results
		Quality	Efficiency	Universal Access	
3	Kirsch & Kapoor (2020)	✓	✓		PE and urology practices partnership may potentially benefit practitioners and patients from the economic perspective. PE managerial strategies, access to networks, and the capital needed are some of these benefits. PE may incentivize to create a practice with a good reputation which is interpreted in high-quality performance.
4	Huang & Bowblis (2019)	✓			Rigorous empirical analysis of 17 quality indicators shows no significant differences in for-profit NHs and PE-owned NHs, which means that there is no evidence that quality deteriorates after the acquisition.
5	Bouddiouan (2008)	✓	✓		The case study of UK and German hospitals does not prove that PE involvement harms public healthcare goals.

Bruch et al. (2020) studied the impact of private equity acquisition of acute care hospitals in the United States between 2005 and 2017. They found that PE acquisition was associated with increases in economic performance indicators, such as annual net income, hospital charges, charge to cost ratios, and case mix index (ratio of Medicare discharges to total discharges; index of quality). As far as the quality of care in the post-acquisition years is concerned, they observed more significant improvements in the process quality measures among private equity–acquired hospitals relative to controls, which in their opinion may reflect better care for patients. However, they cannot conclude if these improvements occur due to the implementation of higher quality services or consistent with better adherence to compliance standards or efforts to maximize opportunities for quality bonuses under pay-for-performance contracts.

Galetta et al. (2019) studied the problem from a different but not irrelevant perspective. In their narrative review, they explained the two reimbursement

models of the US health system. The first model, called fee-for-service reimbursement, was one of the main factors for the uprising of healthcare costs during the past decades. This model depended on the quantity as insurers reimbursed healthcare providers for every single treatment, which incentivized them to overuse resources and, in some cases, subject patients to frivolous treatments and unnecessary interventions. The second model, called bundled payments, is more realistic as one payment, adjusted for regional variation and other factors, is assigned to all procedures and the ancillary services (e.g., diagnostic imaging, physical therapy, etc.), and potential complications that may occur throughout an episode of care. In the authors' opinion, this approach allows private equity to reduce costs while keeping the same quality level. This double benefit is achieved as providers are financially incentivized to improve outcomes, decrease the length of stay, and promote a multi-disciplinary approach to medical care. Another significant aspect addressed by the authors is that under certain preconditions, i.e., by using managerial strategies, such as efforts to reduce inefficient cost structures through consolidation, PE aligns with both practices and the public in a unique goal, which incentivizes providers and payers to give high-quality and cost-effective care in a continually improved healthcare environment for patients. With this approach, every stakeholder fulfills their goal; PE firms maximize their profits by reducing costs via a decrease in the length of stay; practices keep the quality standards at a high level to achieve this decrease of length of stay; and the public via reasonably priced treatments.

In their article, Kirsch & Kapoor (2020) tried to identify the benefits of PE consolidation in the urology sector. It is challenging for independent urologists to stand in a competitive market that consolidates little practices and regional leaders to big national healthcare platforms. On the other hand, they favor the partnership between PE and practitioners as there are several potential benefits for both counterparts. These benefits mainly refer to economic outcomes as practices can gain access to the capital needed to develop and integrate facility-based services and add new technology to provide comprehensive care to patients. Consolidated practices may benefit from the managerial expertise of PE firms to achieve their performance goals, while they may gain access to



networks such as suppliers, vendors, and partners. Besides the economic benefits, patients should benefit as well due to driving down costs for payers.

In their thorough analysis, including many different indicators, Huang & Bowlblis (2019) tried to answer the question that many researchers asked in previous researches; whether PE involvement is responsible for the deterioration of quality in healthcare provision. They used a sample of for-profit nursing homes (both PE-owned and non-PE) and focused on the quality of care provided to long-stay residents by analyzing 17 quality indicators. Their findings report that overall, there are no consistent differences between for-profit nursing homes owned and not owned by PE firms. Their rigorous statistical analysis, taking into account many different indicators, concluded that their results provide evidence that PE ownership does not deteriorate nursing home quality, contrary to the opinion that PE ownership theoretically can significantly lower nursing home quality and hurt vulnerable residents.

Zina Bouddiouan (2008), in her master thesis for Erasmus Universiteit Rotterdam, discussed more or less the same problem. Her work is not peer-reviewed, though we decided to include it in our analysis as it referred to countries different from the United States, and we thought it could extend our discussion. Moreover, we consider that as her thesis was included in the EUR library, it passed the eligibility criteria, and it was checked for the scientific context by the reading committee of the thesis. Bouddiouan (2008) studied comparative case studies of the public and private equity investment in healthcare in the United Kingdom and Germany and tried to interpret her findings to the Dutch context. She found that, although the case studies are highly constrained by data availability, outcomes from German and UK markets show that equity financing does not harm the performance of most of the analyzed indicators. However, she posits that public equity hospitals have a more stable performance than private equity ones. The author argues that potential adverse effects in performance, which inevitably would threaten the achievement of public goals, could be faced resulting from market and contract failures. She suggests that governments should regulate the healthcare market, especially as far as PE involvement is concerned, to minimize these failures. Moreover, she states that the financial performance of private equity hospitals

is highly volatile due to risky debt management and frequent change of ownership

#### *4.3.1.1 Potential Explanation of the Positive Findings*

Having analyzed the positive findings of studies that favor PE involvement in the healthcare sector, we will try to identify the potential explanations of these findings.

A potential explanation for the increase in economic performance discussed by Bruch et al. (2020) and Kirsch & Kapoor (2020) could be selecting patients according to the reimbursement of their treatment. The new management strategies could target “more profitable” patients, i.e., they need long-term inpatient care or many diagnosis procedures or costly surgery treatments. However, this approach may raise inequalities in access to care. Moreover, it may result from management strategies such as a cut of operational costs and increased charges. Thus, an increase in net income may be due to aggressive coding, i.e., better diagnosis screening leads to more expensive DRG categorization.

As for quality, a possible explanation for the increase could be the adherence to compliance standards or efforts to maximize opportunities for quality bonuses under pay-for-performance contracts. After the acquisition, quality may also increase as physicians can take advantage of PE firms' administrative expertise, responsible for management. Consequently, physicians retain the optimal components of their current practice patterns and overall dedication to patient care. In other words, they focus on practicing.

Strategies towards building a good reputation to maximize profits may lead to higher quality and better economic performance. For instance, Kirsch & Kapoor (2020) argue that PE can help independent urology practices grow and consolidate to implement best practices better, unleash new revenue opportunities, and compete in the marketplace more effectively.

Huang & Bowblis (2019) found that quality does not deteriorate post-acquisition. This finding could occur due to the hypothesis addressed by the authors that PE target economically stable NHs to acquire.

#### 4.3.2 Studies that are against PE involvement in the healthcare sector

Six studies stand against PE involvement in the healthcare sector (Braun et al., 2020; Novice et al., 2020; Harrington et al., 2011; Eren, 2016; Bos et al., 2020; Gupta et al., 2020). Among them, five studies discuss the impact of PE on quality (Braun et al., 2020; Novice et al., 2020; Harrington et al., 2011; Bos et al., 2020; Gupta et al., 2020), and two studies mention the third intrinsic public healthcare goal, the universal access (Eren, 2016; Bos et al., 2020). These two studies also refer to countries other than the United States. Eren (2016) refers to Turkey and Bos et al. (2020) to the Netherlands. Four out of six studies (Braun et al., 2020; Harrington et al., 2011; Bos et al., 2020; Gupta et al., 2020) provide evidence about the nursing home sector, one study is about dermatology practices (Novice et al., 2020) and one is about private sector hospitals in general (Eren, 2016). No study that stands against PE involvement discusses the matter from the economic perspective, which is evidence that PE increases the economic performance of acquired providers. Table 4 summarizes the results of the studies that stand against PE involvement in the healthcare sector.

<b>Table 4: Summary of Results of studies against PE involvement</b>					
no	Author	SDG-3 Goal			Summary of Results
		Quality	Efficiency	Universal Access	
1	Braun et al. (2020)	✓			PE-owned nursing homes of the study show a shortage of personal protection equipment for the COVID-19 pandemic due to cost-cutting strategies.
2	Novice et al. (2020)	✓			22% of residents of practices believe that PE strongly worsens healthcare quality, 46% believe that it somewhat worsens the quality, 17% believe that PE has no effect on the quality, and only 3% respond that it somewhat improves quality.
3	Harrington et al. (2011)	✓			The authors apportion their findings to potential changes in leadership, management, and employees after the purchase, resulting in more inferior quality of care.

<b>(continuation ) : Summary of Results of studies against PE involvement</b>					
no	Author	SDG-3 Goal			Summary of Results
		Quality	Efficiency	Universal Access	
4	Eren (2016)			✓	The neoliberal healthcare reforms that took place in the developing economy of Turkey in the 2000s made the healthcare sector attractive to PE, which leads to the appliance of economic strategies that prohibit citizens from accessing the healthcare system.
5	Bos et al. (2020)	✓		✓	Client ratings from the interviews conducted for the study indicate that PE-owned nursing homes in the Netherlands have lower results in all quality indicators, contrary to results of other for-profit nursing homes.
6	Gupta et al. (2020)	✓			The authors found that going to a PE-owned nursing home increases the chances of mortality by about 10% and has adverse effects on other health outcomes such as mobility and pain intensity. Also, they found a significant increase in the amount billed per stay by 19%. They also documented declines in nursing hours per patient and measures of compliance with Medicare’s standards of care, i.e., deficiencies.

Braun et al. (2020) studied the performance of PE-owned nursing homes in the US during the COVID-19 pandemic. They found that PE-owned nursing homes performed comparably on staffing levels, resident cases, and deaths with nursing homes of other types of ownership (for-profit, non-PE, non-for-profit, and governmental). However, there were shortages of personal protection equipment, such as N95 masks, gowns, eye protection, gloves, and sanitizers, which may have been, in the authors' opinion, a consequence of cost-cutting strategies.

Harrington et al. (2011) also studied the impact of ownership in nursing homes in the US on healthcare quality. Four quality outcomes were selected for their analysis using federal data: (1) registered nurse staffing levels; (2) total nurse staffing levels; (3) the total number of federal deficiencies (violations of federal quality standards); and (4) the number of severe federal deficiencies (where

harm or jeopardy to a resident occurred). The descriptive statistics from their study showed that total nurse staffing and deficiencies in the top 10 for-profit chains were worse than other ownership groups. According to the authors, the low staffing levels are a significant concern because low staffing, especially RN staffing, has been associated with more federal deficiencies and poorer resident outcomes. They apportioned these findings to potential leadership, management, and employee changes after the purchase, resulting in more inferior quality of care.

Bos et al. (2020) conducted the first study in the Netherlands after the reform in the nursing home sector that took place in 2015. They tried to identify the factors that demonstrated the rise of for-profit nursing homes in the Netherlands. Using quantitative and qualitative methods and conducting semi-structured in-depth interviews with different participants, they found that the expansion of for-profit nursing homes, including PE-owned, was driven by the changes in the regulatory framework, which up to 2015 prohibited for-profit engagement in the nursing home healthcare sector. Moreover, this expansion was a consequence of the inability of the non-profit sector to respond to increased and changing demand. Contrary to other previous research that refers to other countries, the authors found that for-profit nursing homes were more responsive to the increased demand for a “well-being” approach that focuses on well-being rather than the medical aspects of nursing home care. They cited that the elderly of today and their families are increasingly demanding as they ask for an environment that fits their previous lifestyle. Traditional non-profit nursing homes could not fulfill this demand. Thus, they found that client satisfaction is significantly higher at for-profit providers for all quality indicators. On the contrary, they raise concerns as far as accessibility is concerned as it is argued that for-profit organizations target a relatively affluent clientele. Finally, concerns that recently were converted to a subject of an investigation by Dutch authorities were raised as far as the strategy of for-profit nursing homes is concerned. They reduce labor costs by utilizing resources such as GPs and geriatric specialists from the current healthcare system. To conclude, Bos et al. (2020) suggest that consolidation of PE in the nursing

home sector could negatively affect the quality of care, following other similar studies.

Gupta et al. (2020) studied the effects of private equity ownership on patient welfare and spending at nursing homes. Through extensive empirical analysis, they found that going to a PE-owned nursing home increases the chances of mortality by about 10% and has adverse effects on other health outcomes such as mobility and pain intensity. They also found a significant increase in the amount billed per stay by 19%. They cite that a potential reason for this increase in mortality may be the increased probability of taking anti-psychotic medications by 50% when going to a PE-owned nursing home. This treatment is otherwise discouraged in the elderly due to its association with more significant mortality. Furthermore, at the facility level, they documented declines in nursing hours per patient and measures of compliance with Medicare's standards of care, i.e., deficiencies. This decline might positively correlate with increased mortality as the staff levels are crucial for the quality of care.

In a different empirical study, Novice et al. (2020) tried to investigate, through surveying, the opinion of dermatology practitioners. According to their findings, the respondents were against PE involvement in their specialty. More specifically, 65% were not open to working for PE-owned practices, and 70% responded that PE harmed their specialty. Their unwillingness to work for a PE-backed practice was correlated with negative perceptions of physician autonomy, quality of care, and long-term salary. As far as the quality of care is concerned, 22% of respondents answered that PE strongly worsens healthcare quality, 46% somewhat worsens, 17% responded that PE does not affect quality, and only 3% somewhat improves quality.

Eren (2016) conducted a different from what we have discussed so far study. He investigated the PE fund investments in the Turkish healthcare sector due to the healthcare reforms during the 2000s. Among their findings, there is one that fits our interest. They argue that both PE investments and the 2007-2008 global financial crisis intensified inequities in healthcare access. This public healthcare goal is the least analyzed in existing literature among the SDG-3 goals as addressed in the theoretical section of our study. According to the

author, after the reform, PE firms were attracted by the healthcare sector and intruded on it, applying their economic strategies, driving to an organizational change. One reason for growing the inequalities is extra-billing, which prohibits access to low- or middle-income classes

#### *4.3.2.1 Potential Explanation of the Negative Findings*

As mentioned earlier, no study posits that there are adverse effects in economic performance after the acquisition of practices. The negative findings refer to the other public healthcare goals, i.e., quality and universal access.

A potential explanation for the deterioration of quality could be leadership, management, and employee changes after the purchase, resulting in more inferior quality of care. According to Harrington et al. (2011), PE firms may have less management expertise than owners who specialize in nursing homes. PE companies may also be less concerned about quality if they believe their litigation risks are low. On the other hand, regulators may be giving PE companies greater scrutiny because of quality concerns, resulting in more deficiencies than for other facilities. Another possible reason could be the operational strategies implied by the new owners. For instance, Braun et al. (2020) apportion the shortage of materials during the CoViD pandemic to cost-cutting strategies. Moreover, as the primary goal of PE is to maximize profits in the shortest period, PE managers may introduce strategies focused on increases of charges and cutting of expenses. This cutting could be in terms of qualified staff or quality of materials. Staff levels are concerned to be among the primary indicators which affect the quality of healthcare. Moreover, low staff levels increase deficiencies. Deficiencies are another quality indicator that is used in many studies included in our research. Finally, physicians' autonomy which may suffer due to applied operational strategies, may become another factor of lower quality.

Inequities in access to health services may potentially increase due to the practices developed by private health care providers. Amid increasing competition, larger hospital groups differentiate their services based on patients' health care coverage and ability to pay. Another common strategy advanced by these larger chains has been to develop multiple hospital brand

marks, each owned by the same chain but serving patients with different purchasing power and health care coverage. These strategies oppose the intrinsic goal addressed by the SDG-3, universal access to healthcare.

#### 4.3.3 Studies with mixed results as for PE involvement in the healthcare sector

The authors of eight studies could not conclude whether PE benefits patients or not, driven by mixed results of their research (Bruch, Zeltzer & Song, 2020; Winblad et al., 2017; Pradhan & Weech-Maldonado, 2011; Bos & Harrington, 2017; Offodile et al., 2021; Braun et al., 2021; Pradhan et al., 2014; Mayock, 2017). All of the studies with mixed results discuss matters that match with the quality of care. Six out of eight also discuss the economic performance of PE-acquired healthcare providers, i.e., efficiency. All studies except one, i.e., (Winblad et al., 2017) about Sweden, refer to the US context. Four studies discuss the problem by analyzing nursing home data (Winblad et al., 2017; Pradhan & Weech-Maldonado, 2011; Bos & Harrington, 2017; Pradhan et al., 2014). One study is about acute care hospitals (Bruch, Zeltzer & Song, 2020), one study is about short-term general hospitals (Offodile et al., 2021), one is about dermatology practices (Braun et al., 2021), and one is about general hospitals (Mayock, 2017). Table 5 summarizes the results of the studies that have mixed results about PE involvement in the healthcare sector.

<b>Table 5: Summary of Results of studies with mixed results</b>					
no	Author	SDG-3 Goal			Summary of Results
		Quality	Efficiency	Universal Access	
1	Bruch, Zeltzer & Song (2020)	✓			The authors interrogate if their findings potentially affect the quality of care, but further comparison should be made aligned with the theoretical framework of our thesis.



<b>(continuation) Summary of Results of studies with mixed results</b>					
no	Author	SDG-3 Goal			Summary of Results
		Quality	Efficiency	Universal Access	
2	Winblad et al. (2017)	✓	✓		PE firms implement cutting-cost strategies while demonstrating the quality of their services. Towards this direction, they strive foremost for quality measures that are less costly to implement. On the other hand, higher staff levels are costly and are out of their strategic plan.
3	Pradhan & Weech-Maldonado (2011)	✓	✓		There is little literature available to support the proposition that PE nursing homes' performance both from the economic and quality perspective is higher than other for-profits NH.
4	Bos & Harrington (2017)	✓	✓		Mixed findings on quality indicators applied post-acquisition as results depend on PE strategies and company context.
5	Offodile et al. (2021)	✓	✓		The study's empirical results show no relative differences in quality measures between PE-acquired and non-acquired short-term general hospitals for the study period. On the other hand, economic performance seems to thrive after the acquisition.
6	Braun et al. (2021)	✓	✓		By explaining the theoretical framework of our study, we can posit that the analysis of indicators in this study may affect the quality and efficiency of healthcare—more details in the Results section of our thesis.
7	Pradhan et al. (2014)	✓	✓		The authors posit that lower RN staffing and higher deficiencies may deteriorate healthcare quality, though efficiency seems to be better due to financial performance uprise.
8	Mayock (2017)	✓			The researcher found mixed results for quality after an LBO. In patients' survey data, he found a decrease in the score point after LBO while analyzing two quality measures (30-day mortality rates, 30-days readmission rates) for three severe diagnoses (heart attack, heart failure, and pneumonia) that resulted in mixed findings.

Winblad et al. (2017) studied the differences in the quality of care provided by public and private nursing homes in Sweden in 2010 and 2011. According to the authors, the Swedish market for nursing home care is public and for-profit oriented, though 11% of the total market of nursing homes is PE-owned. Following Donabedian's distinction of quality indicators, they differentiated their analysis between structural and processual quality indicators. The Donabedian model of quality in healthcare is a conceptual model that provides a framework for examining health services and evaluating healthcare quality. According to the model, information about the quality of care can be drawn from three categories: "structure," "process," and "outcomes." Structure describes the context in which care is delivered, including hospital buildings, staff, financing, and equipment. Process denotes the transactions between patients and providers throughout the delivery of healthcare. Finally, outcomes refer to the effects of healthcare on the health status of patients and populations (Donabedian, 1988). Winblad et al. (2017) use 14 quality indicators (7 structural and seven processual). The results of their empirical analysis indicate that ownership does affect nursing home care quality in Sweden but that this relationship appears to vary across different quality measures. For structural quality measures, like staffing and facilities, differences were found in two cases: Employees per resident and Individual accommodation/kitchen, where publicly operated homes outperformed all categories of privately operated homes. However, the analysis also showed that privately operated care providers outperformed public ones on several processual quality measures, such as user participation, updated care plans, and medication review. Likewise, there are no statistically significant differences in quality levels of a structural or processual nature between nursing homes operated by for-profit firms and nursing homes operated by PE firms. According to the authors, "this ambiguous finding could be explained in part by the fact that, as private providers are exposed to market competition, they have strong incentives both to reduce costs and demonstrate that they provide high quality". They also note that private providers tend to strive foremost for quality measures that are less costly to implement. They also cite that the higher processual quality of privately

operated nursing homes in Sweden could be potentially explained in local governments' policies that incentivize private homes to introduce screening routines for risks such as fall injuries and pressure ulcers, which end up in fewer deficiencies.

Pradhan & Weech-Maldonado (2011) systematically reviewed existing literature to explore the relationship between PE ownership and nursing home performance. They found that little evidence is available concerning the matter of quality of care. Most studies use staffing levels and deficiencies as quality measures, as explained earlier. Moreover, the literature suggests that PE nursing homes in the US should have better performance than other for-profit nursing facilities from an economic perspective. They conclude that more research, especially at the national level, is required to validate this proposition.

Bos & Harrington (2017) studied the operation of a nursing home chain that a PE firm acquired. Their analysis consists of qualitative and quantitative data. They determined three different concepts for their analysis; corporate strategy, financial performance, and resident well-being. Among others, from the first concept, they examined the strategy of the PE firm in staffing levels, from the second the net income per patient day and from the third the deficiencies as a measure of care quality. To support the qualitative data, they also conducted interviews with interested parties. They found that staffing levels became significantly lower; net income per patient day outperformed in the post-purchase years, and deficiencies were comparable to the national average. The latter finding indicates that PE-owned companies did not improve the quality of care post-purchase. The authors conclude that their research shows mixed findings as they depend on PE applied strategies and company context.

Pradhan et al. (2014) studied the quality and financial performance of PE-owned nursing homes in Florida. He also used quality indicators based on the Donabedian model (structure, process, outcomes). Among others, for the structure, he used staffing ratios, especially counted registered nurses' levels; for the process, he used indicators such as restraints or pressure ulcer prevention; and for outcomes, he used pressure sores and deficiencies. He found that PE nursing homes have significantly worse registered nurses'

staffing while they report higher other nurses' staffing than the control group of nursing homes. Additionally, there is no difference in process or outcome variables between private equity nursing homes and the control group, except in case of deficiencies, where they perform significantly worse, and pressure sore prevention, where they report slightly better results. As far as the financial performance is concerned, private equity homes can deliver significantly better financial performance than the control group. He concludes that PE-owned nursing homes seem to deliver better financial performance while in quality measures, they are similar to control group nursing homes. However, lower staffing levels in registered nurses and significantly higher deficiencies cause concerns about service quality.

In another empirical study, Bruch, Zeltzer & Song (2020) found no significant differences between PE-owned acute care hospitals and other non-PE-owned hospitals in the USA in 2018, as far as the economic outcomes are concerned. As for the qualitative characteristics of their study, they found that most PE-owned hospitals were located in rural areas with a lower median household income. They also found that PE-owned hospitals had fewer full-time employees per occupied bed and a slightly lower patient experience score than compared non-PE-owned hospitals of their sample. However, as the quality matters were out of the scope of their study, they cannot conclude if their findings potentially affect the quality of care.

Offodile et al. (2021), in their recent study, analyzed the impact of leveraged buyouts performed by PE firms on short-term general hospitals in the US. They posit that PE acquisitions of hospitals are not random events and that PE firms are likely to acquire hospitals that can yield high profits. Among their findings, we can mention nurse staffing ratios comparable in 2003 for acquired and non-acquired hospitals, while in 2017, this ratio increased in both categories. Another significant measure for our study is net revenue per adjusted discharge which showed similar results for private equity-acquired and non-acquired hospitals in 2003 but was slightly lower for acquired hospitals in 2017. From the interpretation of their findings, the authors argue that PE-acquired hospitals during this period were noted to have better financial performance due to operating expenses per adjusted discharge, which declined compared to non-

acquired hospitals. The authors conclude that PE firms apply innovative profit motives to achieve efficiency resulting in stark inefficiencies in care delivery and uneven clinical outcomes.

Braun et al. (2021) recently researched the effects of PE in dermatology practices as far as prices, utilization, spending, and volume of patients are concerned. In their paper, they identify acquisitions of dermatology practices by PE firms during 2012-2017. They found that dermatologist prices for routine visits and the volume of patients seen per dermatologist increased modestly overtime after acquisition by private equity firms. According to the authors, this may suggest that private equity practices use their size in a single market to raise the prices paid to them by commercial health insurers while increasing the volume of patients seen per dermatologist, at least in part through increased employment of advanced practitioners. On the contrary, they found no statistically significant differential changes in private equity versus non-private equity practices in total spending, overall use of dermatology procedures per patient, or specific high-volume and profitable procedures.

Mayock (2017) tried to determine the impact that leveraged buyouts have on healthcare providers regarding the quality of care received. The findings have shown a decrease in the perceived quality of care by the hospital patients who received healthcare services in hospitals managed by a specific PE firm. He also studied two quality measures (30-day mortality rates and 30-day readmission rates) for three severe diagnoses (heart attack, heart failure, and pneumonia). His findings were mixed. For the first measure, quality of care seems to have decreased for heart failure and pneumonia episodes, while the death rate for heart attack was significantly decreased, meaning that PE-owned hospitals of his sample dealt sufficiently with this severe diagnosis. As for the second measure, the results indicate that readmission rates for all three diagnoses had decreased, suggesting that the hospitals could improve their quality of care and reduce the number of patients that needed to be readmitted. However, the author cannot conclude if the decreased readmissions were due to increased death rates or not.

#### 4.3.3.1 *Potential Explanation of mixed results*

Many researchers cannot conclude whether PE involvement has positive or negative effects on public healthcare goals. They posit that PE may benefit patients in some cases, while PE involvement may result in the opposite direction in other cases.

The common explanation for all results is that PE implements cutting-cost strategies or otherwise less costly quality measures. However, these strategies may benefit PE-owned practices from the economic perspective, i.e., increasing efficiency. On the other hand, some researchers argue that a potential increase in quality may result from better employee utilization. For instance, the change of nursing staff in a nursing home with less qualified nurses may deteriorate quality and increase deficiencies, while the employment of more qualified nurses may increase quality, but it costs more. Staff management may be a consequence of law implications as well. Following laws and regulations, some practices employ the least possible staff to keep labor costs as low as possible. Moreover, quality deterioration may increase the number of patients seen by practitioners. Though, investment in more educated physicians may outperform this deterioration. Economically, this strategy leads to extra charges for payers but also an increase in PE-owned practice revenues.

## 4.4 Results of the gray literature review

To help us create a more accurate perspective on the matter, we also decided to search gray literature. We used the same keywords for a Google search and excluded all the articles that referred to a scientific analysis of the topic. The remaining records were checked for eligibility using the same inclusion and exclusion criteria as in the peer-reviewed analysis. Though the results could be biased for selecting articles by the author and express the opinion of the authors

who write them, we did not consider them as significant elements of our study to answer the primary research question, but only supplementarily.

Ten articles passed the eligibility testing. (Hsu, Kohli, 2018; Shriji N. Patel, Groth, Sternberg, 2019; BMJ 2020; 370: m3490; Frank J. Lexa, 2020; Brown, O'Donnell, Casalino, 2020; Resneck, 2017; Kevin D'Mello, 2020; Douglas W. Lundy, 2019; Gondi & Song, 2019; Frances, 2019). The results are also ambiguous. Most of the authors are concerned about the potential benefits of PE investment in healthcare, raising matters of contradictory goals among the participants, i.e., PE investors, practitioners, and patients. More or less, they address the same matters concerning PE involvement, as peer-reviewed included studies determined.

Hsu & Kohli (2018) discuss the problem of autonomy of practitioners, who, in case of acquisition, may be pressured to use more profitable treatments due to inherent conflicts of interest between PE firms and practitioners. They also note the fear of bankruptcy that may incur and leave patients without proper care.

Shriji Patel et al. (2019) determine several benefits from PE involvement. Larger physician groups can represent opportunities for (1) better patient access, (2) strategically designed patient portals, (3) higher compliance with national standards, and (4) possibilities for improved patient satisfaction. Moreover, cost-cutting strategies, such as centralizing information technology systems and billing, can also benefit practices and clinicians. Improvements in workflow and resource use have the potential to enhance patient experiences. Market research, investments in brand awareness, and the hiring of professional management teams can elevate the business end of the practice.

Additionally, consolidation yields greater bargaining power, producing advantageous contracts with insurance companies and more competitive rates from the supply chain. Following these improvements, clinicians, freed of administrative duties, can focus on patient care or personal interests. However, the authors determine disadvantages, which are the following; (1) the potential for profits may supersede patient care. Providing the best possible care for the patient may get lost in the quest to increase efficiency and make practice more profitable; (2) external pressures may influence patient care decisions; (3)

Influential decisions, such as staffing levels and equipment purchases will be made by people who do not participate inpatient care. Management teams without specialty-specific experience can make erroneous judgments about the practice; (4) the pressure to boost profits can invite suspect business practices and improper financial relationships, for instance, the separation of clinician business and real estate. All the pros and cons analyzed by the authors have already been discussed in previous sections of our study.

Lexa (2020) discusses the PE involvement in healthcare during the CoViD-19. PE involvement is usually short-term, as analyzed earlier. In his opinion, with such a short investment horizon, it is unlikely that PE investors will be interested in whether the physician culture at a hospital is destroyed. It is also unlikely that much thought would be given to what happens to patients if a hospital goes bankrupt or is turned into commercial real estate for condominium development. A recent situation like that is discussed by Kevin D'Mello (2020). The author, occasioned by the chaotic, uncoordinated, and fundamentally not aligned with the needs of patients closure of a teaching hospital in the US, tried to underline the cons of PE involvement in healthcare. He argues that after the acquisition, profitable interventions are maximized, and low-profit are minimized. Thus, PE-owned hospitals are likely to invest less in charity care and population health, in contrast to the humanistic values of academic medicine.

As a result of this closure, concerns were also raised by the US Congress (BMJ 2020; 370: m3490), which asked for an investigation to look at four matters: (1) gaps in Medicare data that make it challenging to track private equity investments; (2) the business models used by private equity firms investing in healthcare; (3) the effect of private equity ownership on Medicare costs, patients, and providers; (4) and the extent of private equity investment in the Medicare Advantage programme. Results are due to release, expected in June 2021.

Brown et al. (2020) have conducted a survey collecting interviews from different stakeholders (PE investors, former owners, and practitioners) and analyzed gray literature to associate PE with the quality and cost of behavioral health care.



Respondents of all types agreed that PE had done much to improve access by increasing the availability of medication-assisted treatment for opioid addiction and fueling the proliferation of residential eating disorder programs. Moreover, PE firms bring business expertise and much-needed capital and may introduce standards of care that benefit patients. On the other hand, some physicians (and patients) might be uneasy about this “corporatization” of behavioral health care and the intense pressure on PE firms to generate short-term profits.

Resneck (2017), a dermatologist himself, expresses his concerns on the consolidation of PE with his specialty practices. He believes that several factors may result in the deterioration of quality. Specialists may lose their autonomy in choosing the appropriate interventions. Thus, the strategies of PE may result in bankruptcies leaving practitioners jobless and patients without care. Young dermatologists might work for lower salaries as well. He also wonders if in the future both dermatologists and patients have the opportunity of choice of their care, as the diversity of choices may suffer if most of the practices will be acquired, raising matters of access as well.

Lundy (2019), an orthopedic specialist, also writes down a few thoughts about PE engagement in his specialty's practices. He thinks that it is not easy for PE to get involved in the orthopedic sector as orthopedic surgeons tend to be independent and often invest in practice-based ancillary services that provide a broader base of revenue than professional services alone. However, Lundy (2019) suggests that it could be a good idea for practices that face liquidity problems, though these practitioners should be very careful on the terms of such a transaction. Finally, as for patients, he cannot conclude whether PE will benefit them as this depends on the strategy that each PE firm would imply.

Gondi & Song (2019) believe that the increase in PE investments in healthcare poses risks, including overutilization, practice instability, and patient safety concerns, though these investments may also benefit patients and bring more efficiency to a system burdened with waste. On the other hand, Frances (2019) comments on the opinion of Gondi & Song that there are several reasons for optimism as far as PE in healthcare is concerned. He posits that PE invests in sectors that grow up rapidly. Moreover, Frances (2019) argues that PE provides

the healthcare sector with so wanted capital for innovation. Finally, he says that PE focuses on strategies after investment that improve quality and minimize variability by using key performance indicators.

## 4.5 Summary of the Results

The results both from the peer-reviewed and gray literature review are ambiguous.

On the one hand, some favor the involvement of PE in the healthcare sector by emphasizing the benefits of improved healthcare services due to investment in up-to-date technology and practices (Frances, 2019). Moreover, they argue that patients can access higher quality health services at lower costs (Bruch et al., 2020; Saenz, 2019). Some PE firms use the strategy of acquiring many little practices to form a hospital chain. Building a critical mass creates many advantages that the firm can use to extract value, such as negotiating power with payers, purchasing power, and economies of scale. Thus, according to Achleitner et al. (2011) and Biesenger et al. (2020), the PE creates value through different mechanisms such as operational improvements and leverage. Bruch et al. (2020), in their research, favor the previous thesis. They argue that private equity–acquired hospitals demonstrated an increase in annual net income. They also compared the economic performance with quality measures, such as acute myocardial infarction, pneumonia, and heart failure. They observed more significant improvements in process quality measures among private equity–acquired hospitals relative to other hospitals, reflecting better patient care.

On the other hand, many researchers stand against PE investment in the healthcare sector. They cite that PE firms' scope contradicts healthcare philosophy, which is considered a commodity for universal access, while PE aims to profit. They argue that, inevitably, this may lead to quality deteriorations, such as increased mortality rate, declines in other measures of patient's well-being, operational changes, including declines in nursing staff and compliance with standards (Gupta et al., 2020). Thus, they say that private healthcare costs are going higher than costs in the public healthcare sector due to surprise bills

(Flood, 2019; Gustafsson et al., 2019; Cooper et al., 2020). Moreover, even more, die-hard against PE in healthcare researchers, such as D'Mello (2020), apportion hospitals' closure to PE firms' inaccurate management. Some analysts claim that consolidation of this investment model among hospitals, payers, and physician practices is expected to continue for decades to come due to the nature of a free market system (Gilreath et al., 2019).

To increase the rate-of-return for their customers-investors, PE firms are more likely to seek high profits than focus on the health services' social and humanitarian character. Patients' welfare, employees' well-being, and overall services' quality and availability are at stake and are expected to be impacted by the inflow of more private equity. Some primary research findings are worrying as mortality is arguably increased when compared against private equity participation (Gupta et al., 2020). Moreover, drug and treatment expenditures also rise in healthcare organizations due to increased private equity, increasing taxpayers' bills and patients' bills through out-of-pocket payments. On the contrary, mid-and long-term improved services, especially when treating either very mainstream or severe cases, are arguably a benefit generated by the increase of private equity.

## 5 Discussion

This section will discuss the research analysis presented in this report, present policy recommendations regarding private equity involvement in the healthcare sector, define the limitations of our study, and conclude on the main research question.

### 5.1 Discussion on the outcomes of the research

This thesis poses the following central research question: Can private equity contribute to achieving the public healthcare goals?

This research question aimed to understand how PE could impact the healthcare sector, specifically the healthcare providers' market. The answer was given through a theoretical framework, a systematic review of the empirical literature, and a review of gray literature.

From the review of the empirical studies, following the theoretical framework, we can outline the following direct and indirect benefits for patients that may derive from PE investment in the healthcare sector.

From the economic perspective, the benefits are primarily indirect. After the acquisition, PE firms usually bring entrepreneurial strategies in the acquired practices via operational engineering, management discipline, and innovation to create value and achieve efficiency. Investing in infrastructure, training of staff, consolidating other similar practices, internalizing previously outsourced processes are some of the management strategies that help PE firms to achieve their goal of cutting expenses and make their company more efficient. Indirectly, this approach benefits patients. Efficiency is one of the fundamental healthcare goals of the UN Agenda 2030 and derives from the economic sustainability prosperity of the healthcare system, part of which are PE-owned practices as well.

As far as quality of care is concerned, some researchers argue that PE cannot achieve its primary goal of high returns in a short-term period without investing

in quality. Investing in quality and finally in customers' satisfaction increases the fame of acquired providers and increases revenues and profits. Quality is the goal that is more discussed among the three addressed goals in the theoretical section because it is the most common, measurable, and comparable way to weigh the outcomes of clinical intervention. There are both quantitative and qualitative indicators to measure it. However, as there are many different quality indicators, comparing countries or even between different specialties sometimes becomes inapplicable.

Most of the researchers whose studies were included in this report and stand for PE involvement in the healthcare sector conclude that PE raises quality. They pose that economic performance, i.e., efficiency, has a positive correlation with quality. In other words, more efficient management gives better quality outcomes for the patients due to the organizational structure of the new practices; practitioners work absolutely on what they have studied to do, i.e., medicine, while the managerial part of the practice is left for those who expertise in it, i.e., referrals or managers positioned by the PE firm. However, outcomes could be compared only for nursing homes, as the included studies refer to almost the same quantitative indicators such as staffing levels and deficiencies. The other studies show significant heterogeneity, and thus we cannot compare their findings.

Unfortunately, as for the third public healthcare goal, universal access, no evidence derives from the reviewed literature, either positive or negative. This goal, as mentioned, is the less discussed.

PE involvement in the healthcare sector has disadvantages as well. Some of them affect practitioners while some others affect patients.

From the economic perspective, researchers who are against PE involvement argue that the goal of PE is contrary to public healthcare goals. PE's goal is to gain as high profits for the invested capital as possible in the shortest possible time, while public healthcare aims to provide every citizen in need with high-quality care services at the lowest possible cost. These two goals seem to be contradictory. The first has as a prerequisite the maximization of profits which

may occur via spending cuts or increasing billing costs. Both tactics oppose the above-mentioned public goal.

Other researches included in our study have empirically analyzed the quality of care after PE acquisition. The researchers used quality indicators, such as staffing levels and deficiencies, to measure whether PE involvement is responsible for quality deterioration. Their findings suggest that the scope of PE may negatively affect the quality of care in the terms that were analyzed in the theoretical section of our study. Some researchers who stand against PE involvement argue that cutting expenses to lower costs inevitably ends up in quality deterioration.

Some researchers have introduced the term autonomy of practitioners. They pose that PE referrals may apply high pressure to practitioners to forward more profitable treatments. This action violates the autonomy of the practitioners and may cause artificial demand for interventions that are not essential for the cure of the patients. These actions also indirectly impact the quality of care.

The findings from the review of the gray literature are also mixed. Some of the gray literature articles included in the study are written by practitioners who convey their opinion in consolidating their specialty by PE firms. Some of them express their concerns about autonomy in practicing their specialty, quality of the provided services, and patient safety. Most of the authors determine the positive outcomes in the economic spectrum of the consolidation, though as for the quality of care, they are more suspicious that even in case of increased economic performance after the acquisition, quality may deteriorate.

To summarize, concluding whether PE improves the quality of care or not is not an easy process. The majority of the researches included cannot come to an apparent conclusion. Researchers find ambiguous results mostly as far as quality outcomes are concerned. The research of the matter is somewhat complicated, as mentioned in the theoretical section of our study. Several factors are responsible for this complexity. Differences in the healthcare policies applied to each country, the variety of different health specialties who work separately, and the extent of different indicators used in empirical analyses make it difficult for researchers to study the problem comparably. However, as

deduced by the referred literature, there are also key features that are important determinants for positive or negative effects associated with PE investments in healthcare. For instance, staffing levels seem to be important in determining quality issues. Highly qualified nurses in a nursing home usually improve quality, as suggested by included literature so far. The number of deficiencies is also another crucial indicator of quality. From the economic perspective where efficiency as a goal is defined, indicators such as charge to cost ratio and net income may be potentially crucial measures to indicate PE involvement in the healthcare sector in terms of quality and access.

## 5.2 Policy Recommendations

As a consequence of the above discussion, we can be sure of one unique outcome; Regulation and monitoring are obligatory to assure the quality, safety, and effectiveness of services provided by PE-owned healthcare providers.

Policymakers have a legitimate interest in the evolving nature of the health care sector. Not only is the government one of the largest payers of health care in most countries, but it also plays a crucial role in regulating the industry and in ensuring that patients receive, at the very least, a minimum level of care. However, the foundation of good policy is laid upon independent research, and it is crucial to ensure that the regulatory framework is not rendered obsolete by organizational and environmental innovations.

Policymakers should try to adopt healthcare policies that incentivize the private sector and especially private equity, which are aggressive economic players in healthcare, to align its goals with the government's desired social outcomes. Access to essential medications should be of priority in policymaking as in most western societies; it is yet a vested right that should be protected. Moreover, policies that focus on reducing inefficiencies in the healthcare system should be determined, considering the new operating framework in the healthcare providers' market. A particular unique legal frame for all healthcare providers should be created, whose implementation would be monitored comparably by using systematically statistical indicators. Linkages with quality and

reimbursement, such as financial rewards and fines, should be institutionalized for PE-owned providers that conform or non-conform with laws and regulations. Quality, efficiency, and access indicators should be checked for conformity annually. It is also suggested that policies should incentivize PE investors by giving financial rewards to extend the period of ownership. Long-term ownership combined with financial incentives will bring prosperity, larger profits -as the company will pay off loans of LBO procedure- and, consequently, investment in reputation and quality. The latter is one of the desired healthcare goals.

Transparency is also one structural element of designing the legal framework mentioned above. The deliberately complex organizational structures constructed by private equity hinder regulators' ability to monitor quality and limit legal remedies available to aggrieved residents. Policymakers should consider this element as essential to implement good regulating policies.

Under these circumstances, PE involvement in the healthcare sector, which seems to be present for decades to come, will benefit patients and help achieve public healthcare goals.

### 5.3 Limitations of the study, Reliability, Validity, and Generalizability

This research is subject to several limitations.

First, most of the literature refers to US conditions, which are different from the other OECD countries. US healthcare system differs from other health systems of EU countries. The characteristic of all European healthcare systems is that health coverage is universal. All European healthcare systems aim to provide everyone with free access, equality and equity, and fairness. Despite their income, all European citizens get the least package of care when needed. Unlike Europe, the US citizens do not have publicly-funded insurance, with an exemption of some categories of citizens, such as native Americans, veterans, elderly via Medicare program and proved low-income citizens via Medicaid program. All the rest should pay individually for their insurance package. The



US healthcare sector is rather complicated with a significant portion of private interference, though well studied due to extended statistical accounts. On the other hand, limited literature on the topic refers to other OECD countries. Only three included studies are about other countries (The Netherlands, Turkey, and UK-Germany).

Second, there is no united framework in healthcare for every country, so it is not easy to find cross-country analysis. Cross-country analysis could help us compare the results in different countries and conclude with general results that could be applied to every healthcare system of the analyzed countries. However, even among EU countries, there are several differences in how their healthcare systems work. Healthcare is among the economic sectors that are not yet unified in the European Union, so there is no united EU healthcare policy.

As a consequence of the above two limitations, a generalization of the results, i.e., the potential implication in different countries, maybe a rather inappropriate approach. Researchers should be cautious when analyzing the pros and cons of PE involvement in the healthcare sector as the legislation, and regulatory framework may be different from country to country.

Third, although PE has been established and prosper in the healthcare sector for two decades now, there is little and controversial empirical evidence on the impact of this consolidation as far as the healthcare goals are concerned. This situation makes our research a bit difficult in terms of concluding to a crystal-clear opinion.

To minimize the above limitations and increase the reliability of our research, we tried to choose the empirical studies carefully and categorize them according to their similar findings. Firstly, studies that discuss the benefits of PE investment in healthcare were sorted together. Then, we checked the similar findings of each study and grouped them from each goal's perspective. For example, studies that discuss the benefit of PE in the quality of healthcare services were in the same group. Finally, we checked if the different empirical studies have similar results. Therefore, the study-specific contexts were taken into account, as well, in the analysis before concluding. The same method was

being used for the studies that stand against the PE investment in healthcare. It is important to include multiple sources for the literature review to increase the study's validity.

## 5.4 Conclusion

Although PE had almost “invaded” the healthcare sector during the two last decades, little literature analyzes this “invasion”. Existing literature is scarce and does not cover all the fields of this involvement as the healthcare sector is extensive. Among the healthcare providers’ fields consolidated by PE, the US nursing homes industry is the most discussed and analyzed. However, it is not easy to generalize these findings to other fields. Each field operates differently, and PE strategies may also differ. Thus, in most of the researches, findings are ambiguous. It is very characteristic that most researchers whose articles were reviewed in this report cannot conclude whether PE deteriorates quality or not. On the other hand, from the economic perspective, findings are more similar. Most included studies conclude that PE increases the efficiency of acquired practices, though it is unknown if this rise positively affects patients.

From the peer-reviewed and gray literature review, we can conclude that PE involvement in healthcare may benefit patients and contribute to achieving public healthcare goals. However, a strict regulation framework should prevent PE from applying management strategies that may harm patients by achieving investors’ goals against providing care services. Organizational activities in the healthcare sector should be monitored regularly by regulation organizations or governments to safeguard efficiency, quality, universal access, and affordability.

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## Appendix A

### **Keywords**

Private Equity

PE Ownership

Healthcare Goals

SDG-3

Quality

Efficiency

Universal Access

Benefits

### **ADVANCED SEARCH Keywords**

“Private Equity” AND “Healthcare Goals”

“Private Equity Ownership” AND “Quality” AND “Healthcare Goals”

“Private Equity” AND “Healthcare” AND “Quality”

“Private Equity” AND “Healthcare Efficiency”

“Private Equity” AND “Healthcare Quality”

“Private Equity” AND "Efficiency" AND "SDG-3"

“Private Equity AND "Quality" AND "SDG-3"

“Private Equity" AND "Benefit" AND "Healthcare” AND "SDG-3"