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**Earnings management in hospitals: A systematic review**



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# **Earnings management in hospitals: A systematic review**

Dissertação

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Orientação:

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2023

**Earnings management in hospitals: A systematic review**

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## RESUMO

A Gestão de Resultados (GR) ocorre, quando os gestores pretendem defraudar os *stakeholders* em relação ao desempenho económico subjacente ou influenciar os *outcomes* das empresas ou organizações. A GR pode ser subdividida em dois tipos: Gestão Real de Resultados (GRR), que consiste na gestão de resultados através da manipulação de atividades empresariais normais para alterar os resultados reportados ou Gestão de Resultados através de Acréscimos (GRA), em que os gestores utilizam o seu julgamento para obscurecer o verdadeiro desempenho das suas empresas. Ambos os tipos de manipulação permite aos gestores das empresas ou organizações atingirem os seus objetivos. Estas práticas além de serem consideradas imorais e não éticas, também culminam numa perda de qualidade dos dados financeiros e, por isso, têm vindo a levantar problemas na contabilidade. Desta forma, este tópico é um tema de estudo com grande relevância académica. A GR em sido detetado e reportado na literatura principalmente em entidades privadas. No entanto, estas práticas também têm sido detetadas em instituições de saúde, mais especificamente em hospitais, tanto com fins lucrativos como sem fins lucrativos. No estudo de GR em hospitais, é importante reconhecer que as instituições de saúde públicas e privadas têm objetivos completamente diferentes. A principal diferença entre estas centra-se no facto das instituições de saúde privadas terem como objetivo maximizar o valor para os seus stakeholders, enquanto as instituições de saúde públicas têm como objetivo prestar cuidados de saúde de elevada qualidade à população, tendo por isso um carácter mais social

A presente dissertação é uma Revisão Sistemática da Literatura (RSL) sobre práticas de GR em hospitais com o objetivo de identificar os estudos disponíveis sobre este tema, as metodologias que os autores utilizam para detetar estas práticas e as principais conclusões que já disponíveis atualmente sobre este assunto. Para além disso, o objetivo é também identificar lacunas existentes na literatura que possam conduzir a novas investigações futuras. A presente RSL que segue a metodologia de Denyer and Tranfield (2009) que possui cinco processos principais: Planeamento do SLR; Delimitação dos estudos; Seleção e Avaliação; Análise e Síntese; e Resultados. A metodologia da RSL tem-se vindo a mostrar mais vantajosa do que a Revisão de Literatura Tradicional (RLT). Em termos metodológicos, a principal diferença entre estes dois tipos de revisão é que a RSL utiliza uma metodologia sistemática e consistente e, por isso, todo o processo de seleção e análise dos artigos é mais científico do que numa RLT.

Além disso, o principal objetivo da RSL é produzir um resumo equilibrado e imparcial da literatura existente sobre uma determinada questão ou tópico de investigação. Inicialmente foi realizado um *scoping study* para melhor entender o tema, como também para encontrar termos, que são cruciais para construir as cadeias de pesquisa utilizadas neste tipo de revisão. Neste estudo, foram utilizadas três bases de dados: *Business Source Complete*, *Web of Science* e *Scopus*. O portal B-ON também foi incluído, porque permite pesquisar e aceder a artigos científicos compilados a partir de outras bases de dados. Nesta RSL foram produzidas 25 cadeias de pesquisa, através das palavras-chave encontradas na literatura e os conectores booleanos, no entanto foram mantidas apenas 7, uma vez que as restantes produziram um número de resultados irrelevante. O número total de resultados foi de 176 artigos, em que 112 eram duplicados e 64 seguiram para a seleção com os critérios de exclusão. Destes 64 artigos, 36 artigos foram excluídos e 28 seguiram para a seleção com os critérios de inclusão. Na amostra final, foram incluídos 17 estudos sobre EM em hospitais. Os artigos incluídos são estudos realizados em três continentes diferentes (Ásia, Europa e América do Norte) e sete países diferentes (Inglaterra, Países Baixos, Grécia, Itália, Taiwan, Coreia do Sul e Estados Unidos da América). Estes resultados mostram que a GR em hospitais tem sido prevalente ao longo do tempo e a nível internacional.

Através desta SLR foi possível retirar algumas conclusões sobre a literatura incluída na amostra final sobre GR em hospitais. A principal conclusão retirada, que é unânime em todos os artigos da amostra final, é a prevalência da utilização das práticas de GR em hospitais. Além disso, concluiu-se que existe uma grande falta de estudos sobre este tema específico, uma vez que num total de 176 resultados, apenas 17 artigos foram incluídos. Para além disso, foi possível perceber que o tipo de sistema de saúde e a sua regulação são fatores que se relacionam e influenciam diretamente as práticas de EM nos hospitais. Algumas lacunas foram encontradas na literatura e estão relacionadas com a teoria, o tipo de hospitais, as metodologias utilizadas e as consequências que as práticas de GR têm nas operações dos hospitais. Relativamente às lacunas, foi possível compreender que: revela-se fundamental investir em estudos que comparem estas práticas em dois contextos diferentes, hospitais públicos e privados; poucos estudos explicam as consequências e impactos que este tipo de práticas tem nas operações e funcionamento dos hospitais; existem também poucos estudos que baseados numa teoria que ajude a desenvolver o estudo empírico; as metodologias utilizadas para a medição de GR não

estão adequadas ao contexto hospitalar, e por isso, seria uma vantagem o desenvolvimento de um modelo de medição de GR específico para hospitais que se tomasse em consideração as políticas do país em que está inserido, o sistema de saúde e a sua regulação.

Ao longo do desenvolvimento desta SLR foi possível identificar algumas limitações. A primeira é a falta de estudos sobre este tema específico, uma vez que as conclusões retiradas foram baseadas numa amostra final de 17 artigos. A segunda é a inclusão de estudos escritos apenas em dois idiomas, Português e Inglês. Possivelmente, em futuras revisões, a inclusão de artigos escritos em outras línguas, como Espanhol e Francês podem aumentar a amostra final de estudos. A terceira limitação identificada é a ausência de uma análise qualitativa dos estudos. Apesar de existirem os critérios de exclusão e inclusão, que auxiliam na seleção criteriosa dos artigos, estes não são suficientes para avaliar a qualidade dos artigos.

**Palavras-chave:** Gestão de resultados; Manipulação de resultados; Hospitais; Acréscimos Discricionários, Revisão Sistemática da Literatura

## **ABSTRACT**

Earnings management (EM) occurs when managers actively try to mislead their stakeholders about the underlying economic performance of their firms. This subject has been reported in the literature, but mainly in private companies. Although on a smaller scale, EM has also been detected in health institutions, more specifically in hospitals, both non-profit and for-profit. This dissertation reviews this topic using a Systematic Literature Review (SLR) approach with the aim of identifying gaps that could lead to new future research. This SLR covers a final sample of 17 studies, which includes evidence from three different continents (Asia, Europe and North America), and seven different countries (England, Netherlands, Greece, Italy, Taiwan, South Korea and United States of America). The main conclusion is that there is still a lack of studies about this specific topic. However, there is already evidence to suggest that the type of healthcare system and the existing regulation are important factors influencing the EM practices in hospitals and their motives.

**Keywords:** Earnings management; Earnings manipulation; Hospitals; Discretionary Accruals; Systematic Literature Review

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## **ABBREVIATIONS LIST**

AEM – Accruals Earnings Management

ASLs - Aziende Sanitarie Locali

B-ON – Biblioteca do conhecimento Online

CEO – Chief Executive Officer

DA – Discretionary Accruals

DRGs - Diagnostics Related Groups

EC - European Commission

ECB - European Central Bank

EM – Earnings Management

FT - Foundation Trust

GAAP - Generally Accepted Accounting Principles

IMF – International Monetary Fund

LR – Literature Review

NHI – National Health Insurance

NHS – National Health System

NIC – National Insurance Contributions

REM – Real Earnings Management

SHI – Social Health Insurance

SLR – Systematic Literature Rev

## **1. INTRODUCTION**

Chapter one consists of an introduction that explains what EM is, why it is used in companies and organizations and what its consequences are. After that, there is a brief explanation of EM specifically in hospitals, which is the main topic of this dissertation.

### **1.1 Earnings management**

The financial statement's purpose is to present information about companies or organizations, so that internal and external stakeholders can understand their performance (Strakova, 2020). This is why financial statements are an important tool for decision-making (Dokas et al., 2021). Yet sometimes opportunities arise to influence and misrepresent financial information (Strakova, 2020). These practices are designated as Earnings Management or Earnings manipulation (EM) and are utilized by managers to hide the real situation of companies (Callao et al., 2021; Huang & Liu, 2011). There are several definitions of EM in the literature and researchers have no consensus (Beneish, 2001). However, the most accepted in the literature is from Healy and Wahlen (1999). According to Healy and Wahlen (1999) "Earnings management occurs when the managers use their judgment in financial reporting and in structuring of transactions, in order to manipulate/alter reporting and thus mislead some of the stakeholders about the underlying economic performance or to influence the contractual outcomes that depend on reported accounting figures" (Healy & Wahlen, 1999: 4). Therefore, according to these authors, though discretionary power, information within the financial statements is manipulated in an intentional way so that managers can pursue their personal goals (Healy & Wahlen, 1999; Ibrahim et al., 2019; Strakova, 2021). It is important to note, there are various opportunistic motives that lead managers to manipulate financial reporting (Healy & Wahlen, 1999). Consequently, financial data loses quality (Akers et al., 2007). These practices are considered immoral and not ethical (Akers et al., 2007) and, because of that, have been raising problems in accounting, thus being a topic of study with great academic relevance (Ali & Kamardin, 2018) and one of the most pertinent topics in accounting research (Vladu & Cuzdriorean, 2014). EM practices has been studied, especially in private sector (Bisogno & Donatella, 2021).

EM can be subdivided into two types: Real Earnings Management (REM), which consists of managing results by manipulating normal corporate activities to alter reported earnings (Ali & Kamardin, 2018) or Accrual Earnings Management (AEM), in which managers use their judgement to obscure the true performance of their companies

(Sellami, 2015; Strakova, 2020). Both techniques allow managers to achieve their goals (Ali & Kamardin, 2018). Most importantly, AEM has no effect on operations and cash flows because it deals with accounting principles and choices. REM practices, however, impact cash flows and cause long-term consequences. Moreover, AEM is more easily detectable than REM, because AEM is more susceptible to scrutiny by regulators (Gunny, 2010).

## **1.2 Earnings management in the hospital industry**

EM practices have also been detected in healthcare institutions, more specifically in hospitals. It is important to acknowledge that private and public health institutions have different goals (Leone & Van Horn, 2005; Eldenburg et al., 2017). The main difference between them is that private health institutions aim to maximize value to its stakeholders (Eldenburg et al., 2017; Huang & Liu, 2011), whereas public health institutions aim to provide high quality healthcare to the population, therefore having more social character (Eldenburg et al., 2017; Leone & Van Horn, 2005). Most importantly, non-profit hospitals can not only depend on subsidies and donations; they also need the revenue that is generated from the health services they provide to sustain their operations (Balakrishnan et al., 2010). Furthermore, nonprofits face challenges in obtaining external capital to support their charitable endeavors, adding to the pressure to secure necessary funding for their missions (Beck et al., 2021). On the other hand, in many countries, non-profit organizations receive substantial economic advantages through federal, state, and local tax exemptions, as well as access to tax-exempt municipal bonds (Eldenburg et al., 2011). In return, these organizations are expected by regulators and constituents to provide community benefits as part of their charitable missions (Leone & Van Horn, 2005; Eldenburg et al., 2011; Vansant, 2016).

In the end, although profit is not the main objective of non-profit hospitals, they also have incentives to engage in EM practices just like their for-profit counterparts do. Hence, it is not surprising that the previous literature already shows that, in general, hospitals try to avoid reporting financial losses through earnings manipulation (Leone & Van Horn, 2005). Similarly, some studies show that these entities also resort to these practices when the value of earnings is higher than the value that is normally reported, which is important to avoid scrutiny by regulators and third-party payers (Eldenburg et al., 2011).

Considering that EM practices are immoral and unethical, and provoke consequences in hospital's accounting, this dissertation aims to produce a Systematic Literature Review (SLR) to better understand what is already known about this topic.

This dissertation will then present four more chapters. Chapter 2 includes a literature review to better understand the existing studies on the subject that stand out in the literature. Chapter 3 explains the methodologies used and specifies all the processes required to carry out this SLR. Chapter 4 presents the results obtained in this SRL, as well as the descriptive analysis of the selected articles. Chapter 5 revolves around a discussion about the main points associated with EM that were identified in the articles of the final sample. Finally, chapter 6 presents our main conclusions, future research and limitations.

## **2. LITERATURE REVIEW**

EM, in the healthcare sector has been a growing research topic (Ibrahim et al., 2019). Furthermore, it is also a subject that has been studied from different perspectives and strategies, according with the different goals that hospital's managers have (Malkogianni & Cohen, 2022). Blanchard et al. (1986) and Eldenburg and Soderstrom (1996) are two studies, with a similar structure/methodology which discovered hospitals manipulated projected data to align with the incentives. Leone and Van Horn (2005) and Ballantine et al. (2007) had the aim to investigate whether hospitals report small earnings or surpluses close to breakeven. The first author discovered that third-party settlements and the allocation of doubtful accounts are employed to report minor surpluses (Leone & Van Horn, 2005). The second study had results which revealed that hospitals adjust their accruals in order to fulfill legal obligations to report earnings at the break-even point (Ballantine et al., 2007).

With a different methodology, Eldenburg et al. (2011) showed that non-profit hospital's administrators utilized expenditures associated with non-operating and non-revenue-generating activities, and asset management as a way of manipulating their financial performance. In Dutch hospitals, Boterenbrood (2014) found evidence that hospitals smooth their income by managing their revenues, because banks utilize their financial reports to decide funding for each hospital. Taking in account the charitable care of hospitals, Vansant (2016) investigated California state hospitals and concluded that non-profit managers anticipate the scrutiny associated with earnings and use discretionary accruals to report higher or lower earnings according with the charity care levels. In the for-profit healthcare sector, Dong (2016) presented results that demonstrate health service

providers utilized accruals to avoid financial hardship, more specifically the escalation of labor expenses. Heese (2018) found that for-profit hospitals in the state of California use three tools of manipulation: REM, AEM and overbilling. The author also concluded that hospital's managers chose between these three forms of manipulation based on the constraints associated with each one of them (Heese, 2018). In the non-profit sector, Ibrahim et al. (2019) investigated if in the state-funded Italian Local healthcare trusts (ALSs) EM practices occurred. The authors concluded that ALSs used discretionary accruals, provisions and non-operating expenses to report small positive deviations from break-even. One of the most recent studies in the literature about EM in hospitals is from Anagnostopoulou and Stavropoulou (2021). The author's study focused on hospitals in England, and they discovered that these hospitals used discretionary accruals to increase their income. The aim was to improve the financial performance of hospitals in order to apply for Foundation Trust (FT) status, which granted financial advantages to these institutions (Allen et al., 2012). The authors concluded that significant institutional events can motivate EM practices (Anagnostopoulou & Stavropoulou, 2021).

As mentioned previously, EM practices have been detected and reported in the literature throughout the years and are prevalent in hospitals (Anagnostopoulou & Stavropoulou, 2021; Boterenbrood, 2014; Eldenburg et al., 2011; Heese, 2018; Ibrahim et al., 2019; Dong, 2016; Vansant, 2016). EM practices are not considered financial fraud because they do not violate accounting principles (Ali & Kamardin, 2018). However, these practices have a negative impact on the quality of financial reporting. Thus, EM practices are an important indicator of the quality of financial reporting (Ali & Kamardin, 2018). Furthermore, EM practices highlight the existence of immoral and unethical practices in companies and organizations, including health institutions (Dong, 2016). Hence, the investigation of these practices is very important academically (Ali & Kamardin, 2018), especially in hospitals.

Drawing on the above arguments, the main aim of this dissertation is to carry out a SLR about EM practices in hospitals to identify the available studies on the subject of managing results in hospitals, the methods that are used to substantiate these practices and the main conclusions that are already available today on this subject. Additionally, it is expected that this RSL allows identifying gaps in the existing knowledge that can be explored in future research.

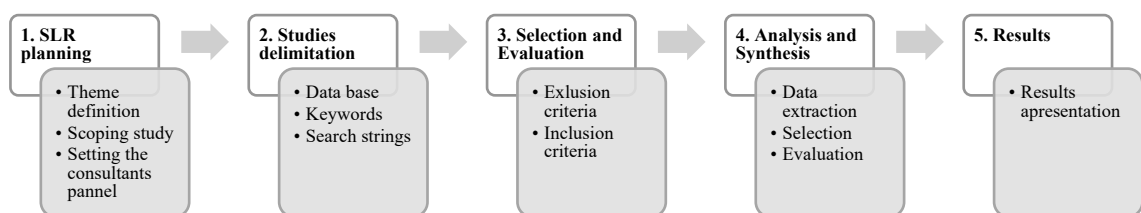
The following chapter explains the methodologies applied in this SLR, the main differences between a Literature Review (LR) and a SLR and how all the steps were realized.

### 3. METHODOLOGIES

Literature Reviews (LR) result from scientific research that is produced through previous studies. Besides being very useful, LR also allow the scientific advancement. However, in the last decade, a new LR methodology has been developed, the SLR (Lame, 2019), which has been considered the gold standard of reviews (Davis et al., 2014). According to Tranfield and Denyer (2009) the SLR is a particular method that, in addition to allocating the current studies, it also selects and evaluates the quality and magnitude of each study. Its main aim is to reach concrete conclusions about a specified investigation question or topic (Tranfield & Denyer, 2009). As such, SLR offers a broader and more accurate level of knowledge than a more traditional LR (Pati & Lorusso, 2018). Methodologically speaking, the main difference between the two is that the SLR employs a systematic and consistent methodology (Pati & Lorusso, 2018) and, consequently, the entire process is more scientific (Lame, 2019; Nightingale, 2009). Additionally, the principal aim of the SLR is to produce a balanced and unbiased summary of the existing literature about a specified investigation question or topic (Lame, 2019; Nightingale, 2009). Another important aspect of this specific methodology is that it applies empirical research concepts so that the review process is as transparent and replicable as possible (Lame, 2019).

The present dissertation is a SLR that follows Tranfield and Denyer (2009) methodologies which have five main processes: SLR planning; Studies delimitation; Selection and Evaluation; Analysis and Synthesis; and Results. These are represented in Figure 3.1.

**Figure 3.1 – RSL steps (Altered from Denyer and Tranfield (2009))**



### **3.1 SLR planning**

The elaboration of this dissertation started with the theme definition, which is Earnings Management (EM) in hospitals. The first step was to do a scoping study, which furthered the researcher's understanding of the theme and allowed mapping some of the literature that exists in this field. A panel of reviewers is also used, which includes the supervisor, Professor Luis Coelho, who is an associate professor at the school of Economics in the University of Algarve. Professor Coelho is also the Associate Dean and the Director of the MSc in Finance and a member of the Centre for Advanced Studies in Management and Economics from the University of Évora and an associated member of the Research Centre for Tourism, Sustainability and Well-being from the University of the Algarve. Luís holds a first degree in Economics, and an MSc in Corporate Finance from the The School of Economics - University of Algarve. He also holds an MRes in Management from the Management School of the Cranfield University and a PhD in Management from The Business School - University of Edinburgh.

### **3.2 Studies delimitation**

Studies delimitation is a step that can be divided into three processes: selection of the databases; selection of keywords and the definition of search strings.

#### **3.2.1 Database selection**

Three databases are used in this study: Business Source Complete, Web of Science and Scopus. The B-ON portal is also included because it allows searching and accessing scientific articles that are compiled from other different data base. All searches were undertaken with no temporal delimiters. However, language filters were used to select only studies that were written in English and Portuguese, which are the languages that the researcher understands.

#### **3.2.2 Keywords**

Considering that this SLR focuses on EM in hospitals, the main search keywords are “Earnings management” and “hospital”. However, it was important to find alternative keywords that would expand the search field and, consequently, maximize the number of (relevant) scientific articles that could be found in the initial search. Table 3.1 and Table 3.2 summarize the keywords used in this study, many of which were identified with the help of the scoping study:

**Table 3.1 - Chart with alternative keywords to EM**

| <b>Keywords</b>         | <b>Justification</b>  |
|-------------------------|---|
| Earnings management     | Alternative keywords to EM or keywords which designate similar processes to or related to earnings management |
| Earnings manipulation   |   |
| Accounting manipulation |   |
| Creative accounting     |   |
| Revenue manipulation    |   |
| Profit manipulation     |   |
| Income smoothing        |   |

Source: Own elaboration

**Table 3.2 - Chart with alternative keywords to hospitals**

| <b>Keywords</b>      | <b>Justification</b>              |
|----------------------|-----------------------------------|
| Hospital*            | Alternative keywords to hospital. |
| Non-profit hospital* |                                   |
| For-profit hospital* |                                   |
| Hospital industry    |                                   |

Source: Own elaboration

### 3.2.3 Search strings establishment

The SLR is a very demanding method, particularly when establishing the search strings as they need to be strategic and objective. In fact, it is crucial that the search strategy is well defined, so that the results capture all the relevant studies and very few irrelevant ones (Nightingale, 2009). Hence, this work uses Boolean operators to combine the keywords into the search strings that were used in this SLR. Initially, there were 25 search strings with all the keywords combined; however only seven produced relevant results<sup>1</sup>. These are as follows, in Table 3.3:

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<sup>1</sup> 1. "Earnings management" AND hospita\*; 2. "Earnings management" AND hospita\* industry; 3. "Earnings management" AND (non-profit hospita\* OR for-profit hospita\*); 4. "Earnings management" AND healthcare; 5. "Earnings manipulation" AND hospita\*; 6. "Earnings manipulation" AND hospita\* industry; 7. "Earnings manipulation" AND (non-profit hospita\* OR for-profit hospita\*); 8. "Earnings manipulation" AND healthcare; 9. "Accounting manipulation" AND hospita\*; 10. "Accounting manipulation" AND hospita\* industry; 11. "Accounting manipulation" AND (non-profit hospita\* OR for-profit hospita\*); 12. "Accounting manipulation" AND healthcare; 13. Accounting manipulation AND hospita\*; 14. "Profit manipulation" AND hospita\*; 15. "Profit manipulation" AND hospita\* industry; 16. "Profit manipulation" AND (non-profit hospita\* OR for-profit hospita\*); 17. "Profit manipulation" AND healthcare; 18. "Income smoothing" AND hospita\*; 19. "Income smoothing" AND hospita\* industry; 20. "Income smoothing" AND (non-profit hospita\* OR for-profit hospita\*); 21. "Income smoothing" AND

**Table 3.3 - Selected search strings in this SLR**

| Search strings  |
|---|
| 1. “Earnings management” AND hospita*                                     |
| 2. “Earnings management” AND hospita* industry                            |
| 3. “Earnings management” AND (non-profit hospita* OR for-profit hospita*) |
| 4. “Earnings management” AND healthcare                                   |
| 5. Accounting manipulation AND hospita*                                   |
| 6. “Income smoothing” AND hospita*  |
| 7. “Revenue manipulation” AND hospita*                                    |

Source: Own elaboration

### **3.3 Selection and Evaluation**

To ensure that the SLR is as transparent as possible, it is necessary to pre-set selection criteria (Nightingale, 2009; Snyder, 2019; Tranfield et al., 2003). These allow evaluate the relevance the identified studies, eliminating the irrelevant ones. Also, pre-setting these criteria allows reducing the researcher’s bias, facilitating future updates (Lame, 2019).

The first step in this process is to eliminate duplicate articles. Then, articles are confronted with the exclusion criteria, which require reading their title and abstract. The exclusion criteria used in this work and their rationale are summarized in Table 3.4:

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healthcare; 22. “Revenue manipulation” AND hospita\*; 23. “Revenue manipulation” AND hospita\* industry; 24. “Revenue manipulation” AND hospita\* industry; 25. “Revenue manipulation” AND healthcare

**Table 3.4 - Exclusion criteria applied this SLR**

| <b>Exclusion criteria</b>  | <b>Justification</b>   |
|--|--|
| 1. Studies published in non-scientific journals  | This criterion guarantees the scientific rigor that is characteristic of an SLR.   |
| 2. Studies about Earnings management that are not centered in hospitals or similar institutions.                               | Hospital and similar institutions are the focus of this work   |
| 3. Studies that are centered in hospitals or similar institutions or health sector but are not related to earnings management. | This criterion excludes scientific articles that are centered in hospitals or similar institutions but are not related to earnings management. |

Source: own elaboration

After applying the exclusion criteria, inclusion criteria were also applied. These require the articles to be read in full and are only applied to the papers that pass the exclusion criteria. The inclusion criteria used in this RSL are specified in Table 3.5:

**Table 3.5 – Inclusion criteria applied in this SLR (Source: Own elaboration)**

| <b>Inclusion criteria</b>   | <b>Justification</b>   |
|---|--|
| <b>Criterion 1</b> – Articles written in English or Portuguese                    | The researcher only commands the English and Portuguese language.  |
| <b>Criterion 2</b> – Scientific articles with peer view                           | This criterion guarantees that only scientific articles with peer view are included in the final sample of articles. |
| <b>Criterion 3</b> – Studies that are centered in public or/and private hospitals | This criterion guarantees that the final sample only encompasses articles focusing on hospitals.                     |
| <b>Criterion 4</b> – Studies in which the main variable under study is EM         | This criterion guarantees that the final sample considers papers that with EM practices.                             |

Source: Own elaboration

As Tranfield and Denyer (2009) refer, only the articles that pass both the exclusion and inclusion criteria are included in a SLR.

The next chapter presents the results obtained in this RSL, as well as the descriptive analysis of the selected articles.

## 4. RESULTS

### 4.1 Defining the final sample

The table (Table 4.1) below summarizes the results obtained with the search strings and the different databases. The search string that produced the most results was number 1 (55 results; 31,25% of the total). This was expected since it is the main search string. The search strings that produced fewer results is number 6 (only 7 papers).

**Table 4.1 – Number of results per search string in each database**

| Search strings  | WoS | Scopus | BSC | B-ON | Total |
|---|-----|--------|-----|------|-------|
| 1. "Earnings management" AND hospita*                                     | 19  | 15     | 9   | 12   | 55    |
| 2. "Earnings management" AND hospita* industry                            | 4   | 4      | 0   | 1    | 9     |
| 3. "Earnings management" AND (non-profit hospita* OR for-profit hospita*) | 8   | 3      | 4   | 5    | 20    |
| 4. "Earnings management" AND healthcare                                   | 10  | 7      | 6   | 7    | 30    |
| 5. Accounting manipulation AND hospita*                                   | 12  | 6      | 1   | 28   | 47    |
| 6. "Income smoothing" AND hospita*  | 2   | 2      | 1   | 2    | 7     |
| 7. "Revenue manipulation" AND hospita*                                    | 2   | 2      | 2   | 2    | 8     |
| Total   |     |        |     |      | 176   |

Source: Own elaboration

In the next step, 112 duplicate articles are eliminated. Hence, this work applies the exclusion criteria to 64 articles. At this stage, 36 articles were excluded as follows in Table 4.2:

**Table 4.2 – Number of articles excluded by exclusion criteria**

| Exclusion criteria  | Excluded articles |
|---|-------------------|
| <b>Criterion 1</b> – Studies published in non-scientific journals   | 5                 |
| <b>Criterion 2</b> – Studies about Earnings Management that are not centered in hospitals or similar institutions                               | 4                 |
| <b>Criterion 3</b> – Studies that are centered in hospitals or similar institutions or health sector but are not related to Earnings Management | 27                |

Source: Own elaboration

The 28 remaining articles were accessed using the inclusion criteria. This led to the elimination of 11 papers due to the following issues, as shown in Table 4.3:

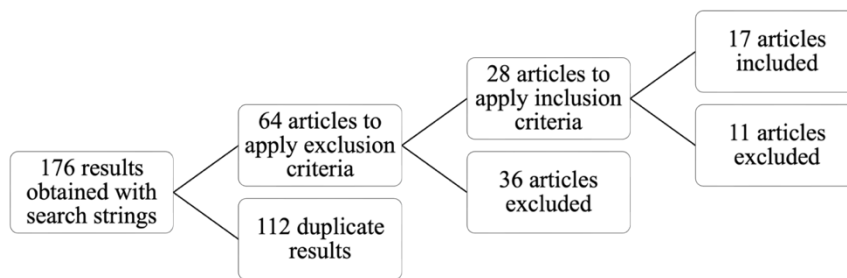
**Table 4.3 – Number of articles excluded by inclusion criteria**

| Inclusion criteria  | Excluded articles |
|---|-------------------|
| <b>Criterion 1</b> – Studies that are centered in public or/and private hospitals | 5                 |
| <b>Criterion 2</b> – Studies in which the main variable under study is EM         | 6                 |

Source: Own elaboration

In the end, this work identifies 17 articles (Annex A), all of which are include in the final review. Figure 4.1 summarizes all the steps in this SLR, as well as the number of duplicated articles, the number of excluded articles and number of included articles.

**Figure 4.1 - Article selection process**



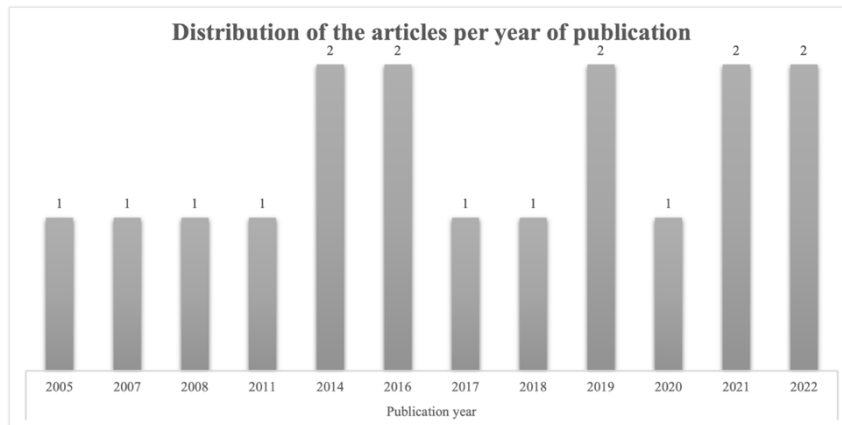
Source: Own elaboration

## 4.2 Descriptive analysis of the selected articles

### 4.2.1 Distribution of the articles per year of publication

The chart below shows the distribution of the selected articles according to their year of publication. As can be seen, the relevant literature started to be published in 2005. Interestingly, in 2006, 2009, 2010, 2012, 2013, 2015 there were not any publications of scientific articles about the selected theme. Since 2016 there has been a publication every year about EM in hospitals, which could mean that this topic is gaining importance for researchers.

**Figure 4.2 - Distribution of the articles per year of publication**

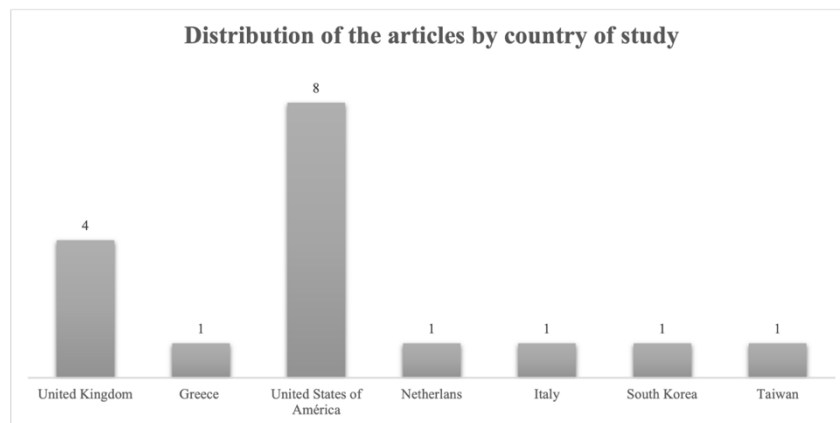


Source: Own elaboration

#### 4.2.2 Distribution of the articles by country of study

The final sample includes articles from three different continents: Europe (7), North America (8) and Asia (2). Most of the studies use US data but there is enough evidence to conclude that EM has been studied in countries with different healthcare systems.

**Figure 4.3 – Distribution of the articles by country of study**



Source: Own elaboration

#### 4.2.3 Publication Journals

In this SLR 14 different scientific journals were identified. The journals with the most published articles were Public Money and management (3) and Advances in Accounting (2). The others identified have only one publication (See Annex C)

## **5. DISCUSSION**

This chapter revolves around a discussion about the main points associated with EM that were identified in the articles of the final sample.

### **5.1 Methodologies**

There are several methodologies to test for the presence of EM. However, the most used are the estimation of DA, as a proxy to AEM or the estimation of REM, as a proxy to REM. Two models were identified to estimate DA: the Dechow and Dichev (2002) model and the Jones (1991) model. The Jones (1991) model was the most utilized in the estimation of DA (Cannon et al., 2022; Heese, 2018; Leone & Van Horn, 2005; Malkogianni & Cohen, 2022; Vansant, 2016). Chiefly, the Leone & Van Horn (2005) study is the most cited article in those papers considered in this SLR sample. It focuses on the analysis of accounts which are most prone to EM: 1) discretionary third-party doubtful accounts and 2) allowance for doubtful accounts (Leone & Van Horn, 2005). Several studies followed their methodologies (Beck et al., 2021; Greenwood et al., 2017; Heese, 2018; Vansant, 2016).

Other studies apply alternative methodologies. For instance, Boterenbrood (2014) examines income smoothing practices in nonprofit hospitals in the Netherlands, focusing on a particular aspect of the funding system and the financial reporting obligations. The variable explored in this study is the “recognition of the realized revenue corrections”, a specific discretionary line item in the income statement. The author used this approach since he believes DA is a “noisy” variable and questions the veracity of results obtained in previous studies (Boterenbrood, 2014). On the other hand, Vansant (2016) develops an own model (i.e., the CCE model) to estimate the extent to which nonprofit hospitals report abnormal charity care. This model was latter replicated by Beck et al. (2021). Finally, Eldenburg et al. (2011), instead of calculating DA, analyze both core and non-core activities, since they anticipate that managers strategize regarding non-core activities as a mean to manipulate income. This methodology is also followed by Ibrahim et al. (2019).

### **5.2 Healthcare System, Regulation and Incentives associated with EM**

Each country has its own healthcare system and regulations and, as a result, hospitals in different countries could have different incentives and motives to practice EM (Eldenburg et al., 2017). Therefore this subchapter characterizes the type of healthcare system and its regulation of the countries identified in the final sample of articles.

### 5.2.1 England

The National Health Service (NHS) in England was established in 1948 and offers preventive medicine, primary care, and hospital services to individuals who are considered "ordinarily resident" in England (Boyle, 2011). The funding primarily comes from the government through general taxation and National Insurance Contributions (NICs) (Boyle, 2011). These services are predominantly free of charge at the point of use (Boyle, 2011).

As reported in the literature, the NHS English hospital funds have the obligation to achieve financial balance (Ballantine et al., 2007). A CEO's dismissal could occur if the NHS English hospital funds fail to comply with this requirement (Ballantine et al., 2007). Hence, there are incentives and motivations to use DA to hide poor financial performance in the English NHS (Ballantine et al., 2007). On the one hand, the NHS English hospital funds that report deficits greater than 0,5% of revenue will suffer from additional monitorization and have the obligation to design a recuperation plan (Ballantine et al., 2007). On the other hand, if surpluses are reported, it is expected that the funds use that money to improve their healthcare services or to return the money to the local economy, by creating new healthcare services (Ballantine et al., 2007).

Ellwood (2008) focused on a specific case study, a hospital that was built under a PFI contract, which is basically a form of private financing. The author's methodologies were based on analyzing balance sheets and financial reports. The results showed that NHS managers use the nuances of the modified GAAP to create a reality that does not reflect the real financial position of their hospitals. With these type of accounting practices, NHS managers achieve financial balance, concealing deficits and financial responsibilities. Ballantine et al. (2007) reach a similar conclusion since they find a direct relation between DA and reported earnings that are close to zero. According to the authors, the use of DA to manipulate reported earnings is encouraged by rigorous financial goals and penalties associated with failure to comply with the requirements, and to avoid intervention, by regulators.

Greenwood et al. (2017) report that DA can also be used to reduce the variation in reported performance. In particular, performance was increased when there was a deficit, and decreased when there was a surplus. According to (Greenwood et al., 2017), the intention was to protect future performance and avoid future intervention. Anagnostopoulou & Stavropoulou (2021) developed an investigation in a time of major

differences in political reforms. The new political reforms enhanced competitiveness in the healthcare sector, decentralized decision-making, and granted greater autonomy to proficient hospital senior managers, all with the primary goal of improving overall efficiency. The FT statute came into existence, enabling hospitals to enjoy increased financial independence, reduced centralized oversight, and a stronger emphasis on local governance (Allen et al., 2012). The major difference between NHS funds and FT funds, is that FTs do not have the obligation to achieve financial balance. Anagnostopoulou and Stavropoulou (2021) conclude that hospitals funds increase income by DA manipulation since these would allow present a positive financial situation, which is critical to be eligible for the FT status.

### **5.3.2 Greece**

Greece's healthcare system is a combination between the public and the private sector and is controlled by the central government. The NHS in Greece is financed through three contributors: the State budget, Social Health Insurance (SHI) funds and the private sector. A large selection of healthcare services is available, including emergency pre-hospital care, primary and ambulatory care, and also inpatient healthcare. These services are delivered through rural surgeries, health centers, and public hospitals (Economou et al., 2017). Malkogianni and Cohen (2022) is the only paper that looks at public Greek hospitals and find that they manipulate earnings when they are positive *or* negative. In fact, managers use DA to adjust net income to zero (or to report a small surplus). This strategy of DA manipulation guarantees the continuation of donations and subsidies and the fulfilment of the financial targets imposed by authorities. The authors also pointed that extraordinary accounts like unexpected costs or revenues contribute to the decrease or increase of earnings, depending on the financial target (Malkogianni & Cohen, 2022).

### **5.3.4 USA**

The healthcare delivery system in the United States distinguishes itself from those of other developed nations in three prominent aspects: its dependence on diverse private funding sources, its narrower population coverage, and its significantly higher costs (Camillo, 2016). In the healthcare system of the USA, healthcare services are acquired from providers by public and private payers. The regulation in the US healthcare system can be set by various entities, like public or private entities, or even federal, state or local

governments. This shows that the health system in USA is deficient in terms of organization and coordination between the different entities involved (Rice et al., 2013).

In the US, non-profit hospitals are usually governed by universities, communities and religious organizations. Profit is an important part of their management since they cannot rely only on government subsidies or donor's support. Overall, nonprofit hospitals must be profitable, and for this reason there are incentives to focus on financial performance Eldenburg et al. (2011). Leone and Horn (2005) investigate the role of earnings in non-profit and conclude that their CEOs reduce reporting expenses by maneuvering earnings towards zero. Furthermore, to avoid reporting losses, non-profit hospitals with earnings just below zero, manipulate earnings to a just above zero benchmark. This leads Leone and Van Horn (2005) to present their zero-profit hypothesis, which was tested by subsequent authors.

Eldenburg et al. (2011) look at a sample of non-profit hospitals in California to explore whether they manage real activities to achieve a reported net income of zero. They show that hospitals which had achieved a reported income around zero managed expenditures through the manipulation of non-operating and non-revenue generating activities. Furthermore, asset dispositions are also manipulated by the hospitals, to prevent reporting large positive net incomes. Eldenburg et al. (2011) also consider the effects of pay-for-performance incentives. They find that hospitals which have more incentives to manipulate earnings upward present larger decreases in expenditures of non-revenue generating and non-operating activities. Vansant (2016) had the aim to understand how the relationship between institutional pressures and managerial incentives could influence the financial reporting behavior of non-profit hospitals. The author found that when charity-care is favorable, nonprofit managers are more inclined to opt for discretionary accrual decisions that increase reported earnings and utilize discretionary accruals to shift earnings from relatively modest levels to relatively higher levels Vansant (2016). Beck et al. (2021) delves into the exploration of accounting discretion employed by nonprofits to establish their creditworthiness before issuing tax-exempt debt. Not surprisingly, their results show that such hospitals use discretion to alter costs from bad debt expense to community benefits before entering the bond market.

Cannon et al. (2022) investigate the difference of EM in for-profit and non-profit hospitals. The authors came to the conclusion that non-profit hospitals engage EM through accruals manipulation, less than for-profit hospitals. This is because, according

to the authors, the goal of for-profit hospitals is to use EM to report consistent earnings through time and reduce earnings variation. As such, when earnings are negative, for-profits resort to EM practices to increase income, and when earnings are higher than usual.

Heese (2018) investigated hospitals that engage on EM through overbilling, to improve financial performances of for-profit hospitals. The author focuses on three distinct DRGs families: 1) 'general respiratory ailments' (DRG family 79); 2) 'circulatory system disorders' (DRG family 144), and 3) 'diabetes and metabolic disorders' (DRG family 296). The results of the study suggest that hospital's managers use three different tools to manipulate earnings: AEM, REM and overbilling. In fact, hospital's managers seem to choose between them according with the constraints associated with each type of manipulation. For instance, when hospitals have a financial hardship, overbilling is least limited. If REM or AEM are constrained, then hospitals use overbilling instead of manipulating financial information. In a similar way, Koreff et al. (2020) look at the issue of financial reporting aggressiveness in the healthcare industry regarding discretionary revenue and the allowance. The results are aligned with the sentinel effect theory, since they show that increased government scrutiny is related to reduced financial reporting aggressiveness within the healthcare sector. Finally, Dong (2016) realized a study which indicates that hospitals in USA employ strategies for managing their earnings that fall within the scope of generally accepted accounting principles (GAAP). The results of the study suggest that various economic variables have influence EM practices, like hospital size, profitability, asset liquidity, operating efficiency, labor cost and the type of ownership. Moreover, the author finds that hospitals with higher profits, current ratio, working capital, days of outstanding patient receivables present more manipulation of DA. Otherwise, hospitals with a larger asset size, financial leverage, asset turnover, days of cash of hand and fixed asset age show to engage less in DA manipulation. Another important conclusion is that non-profit hospitals display a greater likelihood of employing earnings management techniques than public hospitals do.

#### **5.3.4 Netherlands**

The healthcare system in the Netherlands today can be described as a hybrid model, incorporating elements from the Bismarckian tradition of social health insurance (Kroneman et al., 2016). In Netherlands, hospitals are typically non-profit establishments primarily funded through a compulsory health insurance system. This insurance is offered

by private, mainly for-profit insurance companies, which are obligated by law to provide coverage to all residents of the country for basic medical treatment expenses (Boterenbrood, 2014). The Dutch government implements measures to regulate healthcare costs by imposing limits on aggregate spending by hospitals (Boterenbrood, 2014).

Boterenbrood (2014) identifies potential incentives for income smoothing in Netherland's hospitals. The first is associated with the cost of debt since the Dutch banks look at the financial statements from hospitals when making funding decisions. A stable and consistent income, reported in the financial statements, could result in lower interest rates or other advantageous borrowing conditions for these hospitals. The second one is related with the political cost hypothesis studied by Watts et al. (1978). This theory postulates that if there is a high risk of a company facing a costly political intervention, managers tend to postpone current profits to a later period. The third incentive emerges from the aspiration to guarantee a stronger position during budget negotiations with health insurance companies. The last incentive is associated with the CEO's turnover. In fact, Brickley and Van Horn (2002) and Eldenburg and Krishnan (2008) found that there is a negative relationship between the turnover of CEOs and the financial performance of their hospitals. Using a sample of 69 Dutch hospitals, Boterenbrood (2014) shows that Dutch hospitals smooth their income due to the incentives mentioned previously identified by Boterenbrood (2014).

### **5.3.5 Italy**

Italy's healthcare system is organized on a regional basis and operates under the SSN (i.e., the Servizio Sanitario Nazionale, SSN), which offers comprehensive coverage with minimal charges at the point of service. The fundamental principles and aims of the healthcare system are established by the Ministry of Health. Besides that, the Ministry of Health also determines the health services guaranteed nationwide and allocates national funds to the different regions (Ferre et al., 2014). The responsibility for organizing and providing healthcare services lies with the regions. Locally, geographically based health authorities known as Aziende Sanitarie Locali or local health authorities (ASLs), handle public health, community health services, and primary care directly. They also oversee secondary and specialized care, either through public hospitals or accredited private providers (Ferre et al., 2014).

Ibrahim et al. (2019) tested if ASLs use EM practices. As explained in the article, legislators made it obligatory for balanced budgets to be maintained in 2012, and subsequently, since 2014, this requirement has been elevated to a constitutional level. Now, if ASLs report losses, the local government must cover them with government taxes. On the other hand, if ASLs report profits, funding for the following year could be reduced. Yet, at the same time, ASLs managers could earn a bonus if their institution has a positive performance. Results suggest that ASLs manipulate their reported earnings to achieve a zero-profit annual result, with managers showing a reference to manipulate earnings downward. Ibrahim et al. (2019) conclude that, in Italy, the mandate for balanced budgets encourages the practice of earnings management to decrease reported earnings.

### **5.3.6 Republic of Korea**

In the Republic of Korea, healthcare is financed by a National Health Insurance (NHI). The NHI provides coverage for approximately 97% of the population, while the remaining 3% is catered to by the Medical Aid Program, a tax-funded initiative designed to guarantee healthcare access for low-income citizens. There is a contrast role between the public and private sector in the health system: the public sector is dominant in the financing, while the private sector is the dominant when it comes to healthcare delivery (Kwon, 2015). Lee et al. (2014) study EM practices in this context. They find one of the motivations for engaging in such practices are donations. Donors are highly motivated to contribute to organizations with higher reported earnings, since it is evidence that their charitable purposes are being effectively realized. Another factor that could also influence EM practices is hospital's ownership. For instance, for-profit hospital's managers are mainly interested in reporting a positive financial performance to get bonuses. Public hospital managers, however, may feel motivated to manipulate earnings negatively in the pursuit of public interests and to steer clear of criticism from interested parties due to excessive profit-seeking. Hospital size may also play a role here, with Lee et al. (2014) claiming that larger hospitals are inclined to disclose reduced earnings to avoid unwelcome attention from stakeholders.

### **5.3.7 Taiwan**

Taiwan has a NHI since 1995. Its creation had the aim to increase health insurance coverage in the population and control healthcare spending (Wu et al., 2010). The single-payer NHI system, in essence, follows a model wherein the government assumes complete responsibility for administering the insurance program. This includes setting

rates, collecting premiums, defining standards for service quality and fees, as well as covering the costs of medical services (Wu et al., 2010). Nonetheless, the rapid escalation of healthcare expenditures coupled with a low-premium policy has led to significant financial deficits within this insurance program. Due the financial problems, the government implemented actions to achieve macro-efficiency (Huang & Liu, 2011).

According to Wen et al. (2019) the implementation of the NHI in Taiwan increased managerial motives to manipulate financial information through REM. For instance, the report of deficits due to the remarkably low insurance premiums, which are heavily influenced by politicians, may prompt the government to conduct a more stringent evaluation of the tax-exempt status of the nonprofit hospital sector, particularly when hospital profits exceed a certain threshold. These factors mentioned could exacerbate the practices of REM by Taiwanese hospitals to achieve earnings benchmark (Wen et al., 2019). Wen et al. (2019) investigate whether non-profit hospitals in Taiwan engage in EM. The results show that earnings exhibit a discontinuous and non-normal distribution around zero. Furthermore, there is evidence that hospitals rely on non-revenue-generating expenses and core operating spending as the main components to achieve their accounting performance targets. The authors also point out that the different ownership types of non-profit hospitals could vary the extent of REM. In contrast to their public and religious counterparts, private and non-religious private hospitals adopt a more assertive approach in handling both core-operating and non-revenue-generating expenses. The author believes that these hospitals do not rely on non-operating expenses to practice REM, probably because this type of expense is considered insignificant to achieve the goal of manipulating results. Instead, not-for-profit hospitals tend to prioritize essential operating expenses to achieve their earnings benchmarks (Wen et al., 2019).

#### **5.4 Theory**

There is an interesting aspect about the articles included in this RSL. Only four out of seventeen are based on any given theory (Greenwood et al., 2017; Koreff et al., 2020; Malkogianni & Cohen, 2022; Vansant, 2016). In particular, three are based on the agency theory (Greenwood et al., 2017; Malkogianni & Cohen, 2022; Vansant, 2016) and one draws on the sentinel effect (Koreff et al., 2020).

The agency theory specifies that problems may arise when parties have different goals (Jensen & Meckling, 1976; Ross, 1973). In the healthcare context, there is a shared view that EM occurs as a response to the stakeholders' interests (Vansant, 2016), and

because of the pressure created by the stakeholders (Ballantine et al., 2007). More specifically, in a hospital context, an agency problem could occur when the administration of the hospital (agents) and the stakeholders (principals) have conflicting interests (Malkogianni & Cohen, 2022). The sentinel effect suggests that, when institutions realize an increased oversight or surveillance, it positively effects their behavior (Koreff et al., 2020). In effect, several studies suggest that higher government oversight can lead to an increased compliance (Howard, 1998; Lindley et al., 2014).

With the analysis carried out on the theory presented in each study, it is possible to state that there is a lack of theory implied in the studies in the final sample. As Johnston (2014) refers, there is a very important relationship between theory and research, more specifically in management research. Moreover, the author highlights that in order to evolve in the investigation of a given topic, the relationship between theory and research must be present in the researcher's approach (Johnston, 2014). It can therefore be assumed that this is one of the gaps in the literature on EM in hospitals.

### **5.5. Consequences of EM in hospitals**

All the included articles report the same conclusion, that EM occurs in hospitals. However, only four studies mention some of the consequences that EM practices could have in hospitals (Anagnostopoulou & Stavropoulou, 2021; Ballantine et al., 2007; Ellwood, 2008). Ballantine et al. (2007) refer that the manipulation of DA creates a dysfunctional behavior in the management of the hospitals, in order to escape from responsibilities. Anagnostopoulou and Stavropoulou (2021) discuss that the manipulation of DA to present a better financial situation in the English hospital funds can lead to a negative financial performance in the future. Moreover, Ellwood (2008) reports that in addition to EM practices leading to poor quality financial reporting, they can also have consequences for hospital operations, such as cutting resources in different services and departments. This factor could be also considered a gap found in the literature about EM in hospitals.

## **6. CONCLUSION**

This dissertation is a SLR about EM in hospitals, with the main objective to identify the existing literature on this topic and the research gaps that still remain. This Chapter presents our main conclusions, future research and limitations.

### **6.1 Main conclusions**

Despite this SLR presenting a small final sample, the main conclusion is that EM practices in hospitals are pervasive (Anagnostopoulou & Stavropoulou, 2021; Ballantine et al., 2007; Beck et al., 2021; Boterenbrood, 2014; Cannon et al., 2022; L. G. Eldenburg et al., 2011; Ellwood, 2008; Greenwood et al., 2017; Heese, 2018; Ibrahim et al., 2019; Koreff et al., 2020; Lee et al., 2014; Leone & Van Horn, 2005; Malkogianni & Cohen, 2022; Dong, 2016; Vansant, 2016; Wen et al., 2019). Additionally, such practices have been detected in different countries with different healthcare systems and contexts, which means that they are present in hospitals worldwide. Furthermore, this work suggests a relationship between three essential variables and EM: the type of healthcare system, its regulation, and the incentives for the implementation of such practices (Annex D). For instance, in the English NHS, there is an obligation to achieve financial balance, and because of that, hospital managers manipulate earnings to artificially improve financial performance (Anagnostopoulou & Stavropoulou, 2021; Ballantine et al., 2007; Ellwood, 2008; Greenwood et al., 2017), avoid being dismissed, suffer penalties and additional regulation (Ballantine et al., 2007; Ellwood, 2008; Greenwood et al., 2017) and to apply for the FT status (Anagnostopoulou & Stavropoulou, 2021). In the Greek NHS state-owned hospitals manipulate DA to fulfill the financial targets imposed by the authorities and regulators and guarantee the continuation of donations and subsidies (Malkogianni & Cohen, 2022). The Italian NHS mandates balanced budgets, which leads to the manipulation of the hospital's books to achieve a zero-profit annual result and avoid funding reduction (Ibrahim et al., 2019). In the NHI of Republic of Korea, hospitals engage in EM practices mainly to maintain donations (Lee et al., 2014). In a similar context, the incentives associated with EM practices in Taiwan are to avoid reporting deficits and to maintain, or apply for, a tax-exempt status (Wen et al., 2019). In the US healthcare system, there are various incentives to use EM practices in hospitals: pressure by the stakeholders (Beck et al., 2021; Eldenburg et al., 2011; Koreff et al., 2020; Leone & Van Horn, 2005); pay-for-performance incentives (Eldenburg et al., 2011); maintain charity care levels as expected (Vansant, 2016) maintain or apply for the tax-exempt

status (Beck et al., 2021; Leone & Van Horn, 2005) or reduce earnings variation and improve financial performance (Dong, 2016; Heese, 2018).

Despite the main conclusions obtained with this SLR, there is still room for more research, as explained in the next subchapter.

## **6.2 Future Research**

This SLR suggests a number of paths to further develop the existing knowledge. The first relates to the lack of studies that compare EM in for-profit and non-profit hospitals. Most of the studies are centered in public, state-owned or non-profit hospitals. In fact, only two studies reviewed in this work look at the difference between EM practices in hospitals in private and public/non-profit hospitals (Cannon et al., 2022; Dong, 2016). It is very important to study EM practices in these different contexts, since for-profit and non-profit institutions have completely different goals. Future studies should try to compare EM practices in these alternative settings. There is also a gap in the way theory helps develop the empirical studies in this literature. Only four out of seventeen studies in the final sample have an explicit underlying theory. Hence, future studies could try to develop a strong and customized theory base that could help develop the empirical analysis in this important topic. There is also a lack of understanding on how EM practices impact the function and operations of hospitals. For instance, Ellwood (2008) argues that such practices may lead to cuts in services or departments, even though the institution seems to have a healthy financial position. Yet, we do not know much about this important topic, which merits further research. Another topic relates to how we measure EM. In fact, there are different methodologies for doing this, but most are not designed for the specific case of hospitals. As a result, we could benefit from a new model that closes this gap, facilitating the comparison of results across studies from different countries and health system contexts. Finally, although EM is not considered an accounting fraud, detecting such practices could be a powerful tool to discover actual accounting frauds that have legal implications (Dong, 2016). Therefore, this is a topic that should be studied further, to gain a better understanding of the reasons and motivations that hospitals have for practicing EM. Only in this way, will it be possible to build strategies, policies and health reforms that improve hospital's management and reinforce the control and regulation of these institutions.

### **6.3 Limitations**

Regarding the limitations of this SLR, the first is the limited literature about the topic of interest. This might be attributed to the fact that uncovering EM practices in hospitals could have legal and policy implications, as discussed in various articles (Anagnostopoulou & Stavropoulou, 2021; Ballantine et al., 2007; Beck et al., 2021; Heese, 2018; Ibrahim et al., 2019; Koreff et al., 2020; Leone & Van Horn, 2005; Malkogianni & Cohen, 2022; Dong, 2016; Vansant, 2016). The second limitation is related to the language in which the covered articles are written. In this SLR, only articles written in English or Portuguese were considered. In future investigations, SLRs should try to encompass articles in other languages such as Spanish or French to broaden the article pool. The third and final limitation of this study revolves around the quality of the articles. Despite applying exclusion and inclusion criteria to ensure article quality, future research should undertake a meticulous analysis of article quality.

## 7. Bibliography

- Akers, M., Giacomino, D., & Gissel, J. L. (2007). Earnings Management and Its Implications. In *Permalink. Reprinted from The CPA Journal* (Vol. 77, Issue 8). [www.larry-adams.com/university](http://www.larry-adams.com/university)
- Ali, B., & Kamardin, H. (2018). Real Earnings Management: A Review of Literature and Future Research. *Asian Journal of Finance & Accounting*, 10(1). <https://doi.org/10.5296/ajfa.v10i1.13282>
- Allen, P., Keen, J., Wright, J., Dempster, P., Townsend, J., Hutchings, A., Street, A., & Verzulli, R. (2012). Investigating the governance of autonomous public hospitals in England: Multi-site case study of NHS foundation trusts. *Journal of Health Services Research and Policy*, 17(2). <https://doi.org/10.1258/jhsrp.2011.011046>
- Anagnostopoulou, S. C., & Stavropoulou, C. (2021). Earnings management in public healthcare organizations: the case of the English NHS hospitals. *Public Money and Management*. <https://doi.org/10.1080/09540962.2020.1866854>
- Balakrishnan, R., Eldenburg, L., Krishnan, R., & Soderstrom, N. (2010). The Influence of Institutional Constraints on Outsourcing. *Journal of Accounting Research*, 48(4). <https://doi.org/10.1111/j.1475-679X.2010.00381.x>
- Ballantine, J., Forker, J., & Greenwood, M. (2007). EARNINGS MANAGEMENT IN ENGLISH NHS HOSPITAL TRUSTS. In *Financial Accountability & Management* (Vol. 23, Issue 4). <https://doi.org/10.1111/j.1468-0408.2007.00436.x>
- Beneish, M. D. (2001). Earnings management: A perspective. *Managerial Finance*, 27(12). <https://doi.org/10.1108/03074350110767411>
- Beck, A., Gilstrap, C., Rippey, J., & Vansant, B. (2021). Strategic reporting by nonprofit hospitals: an examination of bad debt and charity care. *Review of Accounting Studies*, 26(3). <https://doi.org/10.1007/s11142-021-09624-6>
- Bisogno, M., & Donatella, P. (2021). Earnings management in public-sector organizations: a structured literature review. In *Journal of Public Budgeting, Accounting and Financial Management* (Vol. 34, Issue 6, pp. 1–25). Emerald Group Holdings Ltd. <https://doi.org/10.1108/JPBAFM-03-2021-0035>
- Blanchard, G., Chow, C., & Noreen, E. (1986). Information asymmetry, incentive schemes, and information biasing: The case of hospital budgeting under rate regulation. *The Accounting Review*, 61(1).
- Boterenbrood, R. (2014). Income smoothing by Dutch hospitals. *Journal of Accounting and Public Policy*, 33(5). <https://doi.org/10.1016/j.jaccpubpol.2014.06.005>
- Boyle, S. (2011). United Kingdom (England): Health system review. *Health Systems in Transition*, 13(1).
- Brickley, J. A., & Van Horn, R. L. (2002). Managerial incentives in nonprofit organizations: Evidence from hospitals. *Journal of Law and Economics*, 45(1 I). <https://doi.org/10.1086/339493>
- Callao, S., I. Jarne, J., & Wroblewski, D. (2021). A Systematic Approach to the Motivations for Earnings Management: A Literature Review. *International Journal*

- of Emerging Trends in Social Sciences*, 10(1).  
<https://doi.org/10.20448/2001.101.1.20>
- Camillo, C. A. (2016). The US Healthcare System: Complex and Unequal. *Global Social Welfare*, 3(3). <https://doi.org/10.1007/s40609-016-0075-z>
- Cannon, J. N., Lamboy-Ruiz, M. A., & Watanabe, O. V. (2022). Ownership type and earnings management in U.S. hospitals. *Advances in Accounting*, 58. <https://doi.org/10.1016/j.adiac.2022.100612>
- Davis, J., Mengersen, K., Bennett, S., & Mazerolle, L. (2014). Viewing systematic reviews and meta-analysis in social research through different lenses. *SpringerPlus*, 3(1). <https://doi.org/10.1186/2193-1801-3-511>
- Dechow, P. M., & Dichev, I. D. (2002). The quality of accruals and earnings: The role of accrual estimation errors. *Accounting Review*, 77(SUPPL.). <https://doi.org/10.2308/accr.2002.77.s-1.35>
- Dokas, I., Leontidis, C., Eriotis, N., & Hazakis, K. (2021). Earnings Management. An overview of the relative literature. *Bulletin of Applied Economics*. <https://doi.org/10.47260/bae/823>
- Economou, C., Kaitelidou, D., Karanikolos, M., & Maresso, A. (2017). Greece: Health System Review. In *Health systems in transition* (Vol. 19, Issue 5).
- Eldenburg, L. G., Gunny, K. A., Hee, K. W., & Soderstrom, N. (2011). Earnings management using real activities: Evidence from nonprofit hospitals. *Accounting Review*, 86(5). <https://doi.org/10.2308/accr-10095>
- Eldenburg, L. G., Krishnan, H. A., & Krishnan, R. (2017). Management Accounting and Control in the Hospital Industry: A Review. *Journal of Governmental & Nonprofit Accounting*, 6(1). <https://doi.org/10.2308/ogna-51922>
- Eldenburg, L. G., & Krishnan, R. (2008). The influence of ownership on accounting information expenditures. *Contemporary Accounting Research*, 25(3). <https://doi.org/10.1506/car.25.3.4>
- Eldenburg, L., & Soderstrom, N. (1996). Accounting system management by hospitals operating in a changing regulatory environment. *Accounting Review*, 71(1).
- Ellwood, S. (2008). Accounting for public hospitals: A case study of modified GAAP. *Abacus*, 44(4). <https://doi.org/10.1111/j.1467-6281.2008.00269.x>
- Ferre, F., de Belvis, A. G. iulio, Valerio, L., Longhi, S., Lazzari, A., Fattore, G., Ricciardi, W., & Maresso, A. (2014). Italy: health system review. In *Health systems in transition* (Vol. 16, Issue 4).
- Greenwood, M. J., Baylis, R. M., & Tao, L. (2017). Regulatory incentives and financial reporting quality in public healthcare organisations. *Accounting and Business Research*, 47(7). <https://doi.org/10.1080/00014788.2017.1343116>
- Gunny, K. A. (2010). The relation between earnings management using real activities manipulation and future performance: Evidence from meeting earnings benchmarks. *Contemporary Accounting Research*, 27(3). <https://doi.org/10.1111/j.1911-3846.2010.01029.x>

- Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. In *Accounting Horizons* (Vol. 13, Issue 4). <https://doi.org/10.2308/acch.1999.13.4.365>
- Heese, J. (2018). The Role of Overbilling in Hospitals' Earnings Management Decisions. *European Accounting Review*, 27(5), 875–900. <https://doi.org/10.1080/09638180.2017.1383168>
- Howard, R. C. (1998). The sentinel effect in an outpatient managed care setting. *Professional Psychology: Research and Practice*, 29(3). <https://doi.org/10.1037/0735-7028.29.3.262>
- Huang, D.-T., & Liu, Z.-C. (2011). The relationships among governance and earnings management: An empirical study on non-profit hospitals in Taiwan. *African Journal of Business Management*, 5(14), 5468–5476. <https://doi.org/10.5897/AJBM10.566>
- Ibrahim, S., Noikokyris, E., Fabiano, G., & Favato, G. (2019). Manipulation of profits in Italian publicly-funded healthcare trusts. *Public Money and Management*, 39(6), 428–435. <https://doi.org/10.1080/09540962.2019.1578539>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4). [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Johnston, A. (2014). Rigour in research: Theory in the research approach. *European Business Review*, 26(3). <https://doi.org/10.1108/EBR-09-2013-0115>
- Jones, J. J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research*, 29(2). <https://doi.org/10.2307/2491047>
- Koreff, J., Robb, S. W. G., & Trompeter, G. M. (2020). The sentinel effect and financial reporting aggressiveness in the healthcare industry. *Accounting Horizons*, 34(1). <https://doi.org/10.2308/acch-52636>
- Kroneman, M., Boerma, W., van den Berg, M., Groenewegen, P., de Jong, J., & van Ginneken, E. (2016). Netherlands: Health System Review. In *Health systems in transition* (Vol. 18, Issue 2).
- Kwon, S. (2015). Asia Pacific Observatory on Public Health Systems and Policies. In *Korea Health System Review Health Systems in Transition* (Vol. 5, Issue 4).
- Lame, G. (2019). Systematic literature reviews: An introduction. *Proceedings of the International Conference on Engineering Design, ICED, 2019-August*. <https://doi.org/10.1017/dsi.2019.169>
- Lee, K. Y., Mesia, R., & Griffin, T. (2014). Motivational factors affecting earnings management of not-for-profit hospitals in South Korea. *Research Journal of Business Management*, 8(1). <https://doi.org/10.3923/rjbm.2014.1.27>
- Leone, A. J., & Van Horn, R. L. (2005). How do nonprofit hospitals manage earnings? *Journal of Health Economics*, 24(4), 815–837. <https://doi.org/10.1016/j.jhealeco.2005.01.006>
- Lindley, S., Deisell Martinez, M. B. A., & Sumter, R. (2014). Sentinel Effect in OR and IR. In *International Journal of Business* (Vol. 4, Issue 2). [www.ijbhtnet.com](http://www.ijbhtnet.com)

- Malkogianni, I., & Cohen, S. (2022). Earnings management in public hospitals: The case of Greek state-owned hospitals. *Public Money & Management*, 1–10. <https://doi.org/10.1080/09540962.2022.2071005>
- Nathan Dong, G. (2016). *EARNINGS MANAGEMENT IN U.S. HOSPITALS*. *Journal of health and human services administration*. 2016 Summer; 39(1): 41-71. PMID: 27483974. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3254448](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3254448)
- Nightingale, A. (2009). A guide to systematic literature reviews. In *Surgery* (Vol. 27, Issue 9). <https://doi.org/10.1016/j.mpsur.2009.07.005>
- Pati, D., & Lorusso, L. N. (2018). How to Write a Systematic Review of the Literature. *Health Environments Research and Design Journal*, 11(1). <https://doi.org/10.1177/1937586717747384>
- Rice, T., Rosenau, P., Unruh, L. Y., Barnes, A. J., Saltman, R. B., & van Gineken, E. (2013). United States of America: health system review. In *Health systems in transition* (Vol. 15, Issue 3).
- Ross, S. A. (1973). The economic theory of agency: The Principal's Problem. In *American Economic Review* 63. 134-39 (Vol. 63, Issue 2). [https://www.researchgate.net/publication/4721698\\_The\\_Economic\\_Theory\\_of\\_Agency\\_The\\_Principal%27s\\_Problem](https://www.researchgate.net/publication/4721698_The_Economic_Theory_of_Agency_The_Principal%27s_Problem)
- Sellami, M. (2015). Incentives and Constraints of Real Earnings Management: The Literature Review. *International Journal of Finance and Accounting*, 2015(4), 206–213. <https://doi.org/10.5923/j.ijfa.20150404.02>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Strakova, L. (2020). Earnings management in global background. *SHS Web of Conferences*, 74, 01032. <https://doi.org/10.1051/shsconf/20207401032>
- Strakova, L. (2021). Motives and techniques of earnings management used in a global environment. *SHS Web of Conferences*, 92, 02060. <https://doi.org/10.1051/shsconf/20219202060>
- Tranfield, D., & Denyer, D. (2009). Producing a Systematic Review. *The Sage Handbook of Organizational Research Methods*, 671–689.
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. In *British Journal of Management* (Vol. 14, Issue 3). <https://doi.org/10.1111/1467-8551.00375>
- Vansant, B. (2016). Institutional Pressures to Provide Social Benefits and the Earnings Management Behavior of Nonprofits: Evidence from the U.S. Hospital Industry. *Contemporary Accounting Research*, 33(4), 1576–1600. <https://doi.org/10.1111/1911-3846.12215>
- Vladu, A. B., & Cuzdriorean, D. D. (2014). Detecting Earnings Management: Insights from the Last Decade Leading Journals Published Research. *Procedia Economics and Finance*, 15. [https://doi.org/10.1016/s2212-5671\(14\)00542-5](https://doi.org/10.1016/s2212-5671(14)00542-5)

- Watts, R. L., Zimmerman, J. L., & Ross Watts, S. L. (1978). Towards a Positive Theory of the Determination of Accounting Standards Towards a Positive Theory of the Determination of Accounting. *Source: The Accounting Review THE ACCOUNTING REVIEW*, 53(1). <https://www.jstor.org/stable/245729>
- Wen, Y. C., Huang, P., Shen, H. C., & Zhang, Y. (2019). The role of organizational forms in nonprofit firms' real earnings management: Evidence from nonprofit hospitals in Taiwan. *Advances in Accounting*, 46. <https://doi.org/10.1016/j.adiac.2019.04.003>
- Wu, T. Y., Majeed, A., & Kuo, K. N. (2010). An overview of the healthcare system in Taiwan. *London Journal of Primary Care*, 2. <https://doi.org/10.1080/17571472.2010.11493315>

## 8. Annex

### Annex A – List of the articles included in the final sample

| Number | Name of the article   | Reference                               |
|--------|---|---|
| 1      | Accounting for public hospitals: A case study of modified GAAP  | Ellwood (2008)                          |
| 2      | EARNINGS MANAGEMENT IN ENGLISH NHS HOSPITAL TRUSTS  | Ballantine et al. (2007)                |
| 3      | Earnings management in public healthcare organizations: the case of the English NHS hospitals   | Anagnostopoulou and Stavropoulou (2021) |
| 4      | Earnings management in public hospitals: The case of Greek state-owned hospitals  | Malkogianni and Cohen (2022)            |
| 5      | Earnings management in U.S. hospitals   | Dong (2016)                             |
| 6      | Earnings management using real activities: Evidence from nonprofit hospitals  | Eldenburg <i>et al.</i> (2011)          |
| 7      | How do nonprofit hospitals manage earnings?   | Leone and Van Horn (2005)               |
| 8      | Income smoothing by Dutch hospitals   | Boterenbrood (2014)                     |
| 9      | Institutional Pressures to Provide Social Benefits and the Earnings Management Behavior of Nonprofits: Evidence from the U.S. Hospital Industry | Vansant (2016)                          |
| 10     | Manipulation of profits in Italian publicly-funded healthcare trusts  | Ibrahim <i>et al.</i> (2019)            |
| 11     | Motivational factors affecting earnings management of not-for-profit hospitals in South Korea   | Lee et al. (2014)                       |

|    |  |                           |
|----|--|---------------------------|
| 12 | Ownership type and earnings management in U.S. hospitals   | Cannon et al. (2022)      |
| 13 | Regulatory incentives and financial reporting quality in public healthcare organizations                                   | Greenwood et al. (2017)   |
| 14 | Strategic reporting by nonprofit hospitals: an examination of bad debt and charity care                                    | Beck <i>et al.</i> (2021) |
| 15 | The role of organizational forms in nonprofit firms' real earnings management: Evidence from nonprofit hospitals in Taiwan | Wen <i>et al.</i> (2019)  |
| 16 | The Role of Overbilling in Hospitals' Earnings Management Decisions  | Heese (2018)              |
| 17 | The sentinel effect and financial reporting aggressiveness in the healthcare industry                                      | Koreff et al. (2020)      |

### Annex B – Summary of the articles

| Authors, year  | Country | Hospital Type      | Objectives  | Main conclusions   | Limitations |
|----------------|---------|--------------------|---|--|-------------|
| Ellwood (2008) | England | NHS hospital funds | To investigate how accounting is applied in UK hospital trusts through a specific case study. In addition, it highlights how accounting can alter a financial representation of the organization which can deviate from its actual reality and underlines the potential consequences of | To achieve financial balance, managers use modified GAAP to hide deficits and financial liabilities. NHS hospital trusts may appear to have a healthy financial situation, |             |

|   |         |                    |   |   |  |
|---|---------|--------------------|---|---|--|
|   |         |                    | accounting manipulations in the long term.  | but cuts in human resources and services may arise.   |  |
| Ballantine et al. (2007)                | England | NHS hospital funds | Test if English NHS funds engage in EM to achieve financial goals.  | Existence of a direct relation between DA and the reported earnings close to zero. DA is utilized to manipulate reported earnings. The main reason is because of rigorous financial goals and penalties associated with failure to comply with the requirements, and to avoid intervention. |  |
| Anagnostopoulou and Stavropoulou (2021) | England | NHS hospital funds | To investigate whether English NHS hospitals manipulate results upwards in order to present a favorable financial position and qualify for FT status. | Hospitals funds increase their income through the use of DA manipulation. The goal was to present a positive financial situation  | The study involves estimating DA, but without testing for the presence of REM, due |

|                              |        |   |  |   |   |
|------------------------------|--------|---|--|---|---|
|                              |        |   |  | to be eligible to the FT status.  | to a lack of information.   |
| Dong (2016)                  | USA    | Non-profit hospitals, public hospitals and for-profit hospitals | This paper investigates the practices used by hospitals to manipulate their financial results, while respecting the limits of generally accepted accounting principles (GAAP).                 | Hospitals in USA engage in EM practices within the bounds of generally accepted accounting principles (GAAP).   | The study focuses only on hospitals that claim reimbursement from the federal government for treating Medicare patients. This may not be representative of all US hospitals. The study does not explore the motivations or mechanisms behind these practices. |
| Malkogianni and Cohen (2022) | Greece | Public hospitals  | To test the existence of EM in Greek public hospitals by analyzing and measuring DA. To evaluate the impact that costs, donations, subsidies and the financial situation have on EM practices. | Greek hospitals manipulate results in two different situations: when results are positive or negative. Hospital managers use AD to adjust the net result to | The EM proxy was calculated using the most widely used DA measurement model in the literature, the Jones model (1991).  |

|                           |     |                      |  |  |  |
|---------------------------|-----|----------------------|--|--|--|
|                           |     |                      |  | zero or to report a small surplus to ensure the continuation of donations and subsidies.   | However, alternative methods for calculating DA may already exist. The study was carried out during a period of financial crisis, which may have an impact on the results.   |
| Eldenburger et al. (2011) | USA | Non-profit hospitals | Examine whether managers manipulate net income into a benchmark of zero, through REM and identify areas where this practice is taking place. | Hospitals that obtained a declared income of around zero managed expenses by manipulating non-operational and non-revenue-generating activities. In addition, hospitals also manipulated the disposal of assets to avoid declaring large positive net incomes. | The analysis is based on assumptions regarding the reference thresholds of net income levels, which have a reference range. However, due to the absence of explicit contracts, the accuracy of the cash widths is compromised by |

|                           |     |                      |  |  |  |
|---------------------------|-----|----------------------|--|--|--|
|                           |     |                      |  | Hospitals that have more incentive to manipulate results upwards show greater reductions in expenses from non-revenue-generating and non-operating activities  | measurement errors. There are therefore challenges in accurately distinguishing between effective management practices and EM practices. |
| Leone and Van Horn (2005) | USA | Non-profit hospitals | Examine both DA and voluntary expenditures on charity care in nonprofit hospitals. | CEOs reduce reported expenses by manipulating results to zero, which is consistent with the zero profits hypothesis developed by the authors. To avoid losses, hospitals with profits slightly below zero manipulate profits to a value slightly above zero. |  |

|                     |             |                      |   |   |  |
|---------------------|-------------|----------------------|---|---|--|
| Boterenbrood (2014) | Netherlands | Non-profit hospitals | Test the existence of income smoothing in Dutch hospitals.  | Dutch hospitals smooth their income, due to the incentives.   | The variable used in this study, recognition of the realized revenue corrections, may not be applicable in other contexts, as it might not exist due to differences in healthcare systems and financing in each country. |
| Vansant (2016)      | USA         | Non-profit hospitals | To investigate how institutional pressures to offer social benefits relate to the manipulation of DA in non-profit organizations. | When charitable care is favorable, the managers of non-profit organizations are more inclined to: use DA to increase declared profits, or use DA to change profits from relatively modest levels to relatively higher levels. | It only examines non-profit hospitals.   |

|                       |                   |                      |  |  |  |
|-----------------------|-------------------|----------------------|--|--|--|
| Ibrahim et al. (2019) | Italy             | ASLs                 | Examine whether EM practices are present in the financial reports of the ASLs. Determine the level of manipulation when the performance of ASLs exceeds or falls below the point where the annual result is equal to zero (balance between expenses and income). | ASLs manipulate small positive deviations to achieve a zero-profit annual result. ASLs managers have a preference to manipulate earnings downward.   |  |
| Lee et al. (2014)     | Republic of Korea | Non-profit hospitals | To analyze whether non-profit hospitals in South Korea practice opportunistic management like for-profit hospitals.  | Non-profit hospitals in South Korea also practice results management, just like for-profit organizations. In addition, these hospitals also use EM practices to reduce profits, with the aim of maintaining and increasing donation revenues, as well as securing additional government subsidies. |  |

|                         |     |   |   |   |  |
|-------------------------|-----|---|---|---|--|
| Cannon et al.<br>(2022) | USA | Non-profit hospitals and for-profit hospitals | Comparing the behavior of for-profit and non-profit hospitals in terms of managing results based on accrual accounting and real activities. | Non-profit hospitals use fewer GR practices, through the manipulation of DA, than for-profit hospitals. The aim of for-profit hospitals is to use GR practices to report consistent results over time and reduce variation in results. For-profit hospitals resort to manipulations to increase income when earnings are negative, and to decrease income when earnings are high. | The examination of earnings management over a short period of time did not account for potential temporary alterations in state regulatory conditions or resource allocation for healthcare program oversight and enforcement. the Additionally, this article did not investigate the theory behind the optimal surplus levels for non-profit hospitals compared to their for-profit counterparts. |
|-------------------------|-----|---|---|---|--|

|                         |         |                      |   |  |   |
|-------------------------|---------|----------------------|---|--|---|
| Greenwood et al. (2017) | England | NHS hospitals funds  | To investigate how the quality of financial information varies according to regulatory incentives when public entities have significant management autonomy and work under risk-based regulation. | AEM was used to reduce variation in reported performance, to avoid future intervention. Performance was increased when there was a deficit and decreased when there was a surplus. |   |
| Beck et al. (2021)      | USA     | Non-profit hospitals | Analyze whether non-profit organizations use accounting discretion (DA) to demonstrate creditworthiness before issuing tax-exempt debt.   | Non-profit hospitals use DA to alter costs from bad debt expense to community benefits before entering the bond market.  | The study is based on a sample from one state in the US (California), which prevents the results from being generalized to regulatory environments in other states. |
| Wen et al. (2019)       | Taiwan  | Non-profit hospitals | It explores whether there are significant variations in EMR, taking into account the type of public hospital and analyzes   | Hospitals focus on non-revenue generating expenses and core  |   |

|                      |     |                      |  |  |  |
|----------------------|-----|----------------------|--|--|--|
|                      |     |                      | the strategies that hospitals use to achieve benchmarks through EMR practices.           | operating expenses as the main factors in achieving their accounting performance targets. The degree of EMR varies according to the different types of ownership of non-profit hospitals.                              |  |
| Heese (2018)         | USA | For-profit hospitals | Investigate the impact of overbilling on hospitals' decisions regarding in EM practices. | Hospital managers use three different instruments to manipulate results: AEM, REM and overbilling. They choose between these three instruments according to the constraints associated with each type of manipulation. |  |
| Koreff et al. (2020) | USA | Healthcare providers | To investigate how supervision influences the level of aggressiveness in                 | Increased government supervision is associated   |  |

|  |  |                       |   |  |  |
|--|--|-----------------------|---|--|--|
|  |  | (including hospitals) | the reporting of financial reports by public companies, in a sector subject to extensive government regulation and control. | with a decrease in the aggressiveness of financial reporting in the healthcare sector, as the sentinel effect theory states. |  |
|--|--|-----------------------|---|--|--|

### **Annex C – Number of selected articles by publication journal**

|   |           |
|---|-----------|
| Abacus  | 1         |
| Financial Accountability & Management             | 1         |
| Public money and management                       | 3         |
| Journal of Health & Human Services Administration | 1         |
| Accounting Review                                 | 1         |
| Journal of Health Economics                       | 1         |
| Journal of Accounting and Public Policy           | 1         |
| Contemporary Accounting Research                  | 1         |
| Research Journal of Business Management           | 1         |
| Advances in Accounting                            | 2         |
| Accounting and Business Research                  | 1         |
| Review of Accounting studies                      | 1         |
| European Accounting Review                        | 1         |
| Accounting Horizons                               | 1         |
| <b>Total</b>                                      | <b>17</b> |

#### Annex D – The incentives and reasons for the use of EM practices by hospitals

| Country     | Healthcare system        | Motives/Incentives   | Articles   |
|-------------|--------------------------|--|--|
| England     | English NHS              | <ul style="list-style-type: none"> <li>- Obligation to achieve financial balance;</li> <li>- Hide deficits and surplus;</li> <li>- Avoid CEOs dismissal, penalties and additional regulation;</li> <li>- Eligibility to apply for the FT status.</li> </ul>  | Ballantine et al. (2007); Ellwood (2008); Greenwood et al. (2017); Anagnostopoulou and Stavropoulou (2021)                                     |
| Greece      | Greek NHS                | <ul style="list-style-type: none"> <li>- Guarantee continuation of donation and subsidies.</li> </ul>  | Malkogianni and Cohen (2022)   |
| USA         | Private health insurance | <ul style="list-style-type: none"> <li>- Pressure made by the stakeholders (Bondholders, the community, regulators, potential donors and CEOs market);</li> <li>- Pay-for-performance incentives;</li> <li>- Maintain Charity care levels as expected;</li> <li>- Maintain or apply for the tax-exempt status;</li> <li>- Report consistent earnings, reduce earnings variation and improve financial performance, in the case of for-profit hospitals.</li> </ul> | Leone and Van Horn (2005); Eldenburg et al. 2011; Vansant (2016); Heese (2018); Koreff et al. (2020); Beck et al. (2021); Cannon et al. (2022) |
| Netherlands | SHI                      | <ul style="list-style-type: none"> <li>- Lower interest rates and advantageous borrowing conditions;</li> <li>- Expensive political intervention;</li> </ul>   | Boterenbrood (2014)  |

|                   |             |  |                       |
|-------------------|-------------|--|-----------------------|
|                   |             | <ul style="list-style-type: none"> <li>- Obtain a stronger position during budget negotiations;</li> <li>- CEOs dismissal</li> </ul>         |                       |
| Italy             | Italian NHS | <ul style="list-style-type: none"> <li>- Obligatory balanced budgets;</li> <li>- Avoid funding reduction.</li> </ul>                         | Ibrahim et al. (2019) |
| Republic of Korea | NHI         | <ul style="list-style-type: none"> <li>- Maintain donations;</li> <li>- Hospital's ownership type;</li> </ul>                                | Lee et al. (2014)     |
| Taiwan            | NHI         | <ul style="list-style-type: none"> <li>- Avoid the reporting of deficits;</li> <li>- Maintain or apply for the Tax-exempt status.</li> </ul> | Wen et al. (2019)     |