THE PROVISION FOR RISKS AND CHARGES OF PUBLIC HEALTHCARE COMPANIES: AN ANALYSIS OF A NATIONAL CONTEXT

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Abstract

The increase in claims for compensation by patients to public healthcare companies highlights the key role of the provision for risks and charges. The resources set aside in the provision for risks determine the ability to cover losses or debts of determined nature, of certain or probable existence, of which, however, either the amount or the date of occurrence is undetermined. The research aims to identify the evolutionary trend of the provision of risk in national public healthcare companies. Moreover, it forecasts the future trend of provision for risks divided per the protection of civil liability towards third parties model. The research adopts a quantitative methodology to facilitate replicability and to investigate the trend of the provision for risks of a national public healthcare context, i.e., Italian public healthcare context. The research data set includes accounting information collected by websites of healthcare facilities in order to comprehend the evolutionary trend of the provision for risks. The results of the research describe a stable trend in the resources set aside in the provision for risks, a continuous decrease in the use of the provision for risks with a consequent increase in the fund itself, and a discontinuous trend in the percentage ratio between the annual provisions for the risk and the fund itself.

Keywords: Provision for Risks and Charges, Reserves, Public Healthcare Companies

Authors' individual contribution: Conceptualization — E.S.; Methodology — E.S.; Formal Analysis — A.R.; Writing — Original Draft — A.R.; Writing — Review & Editing — G.G.; Visualization — G.G.; Project Administration — A.S.

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1. INTRODUCTION

Beginning in the '80s, with the introduction of international reforms in the public sector, public organizations have started different processes to improve the results and the use of resources (Brignall & Modell, 2000; Kroll & Moynihan, 2015; Modell, 2001). Initially, the focus of these reforms was to improve the efficiency and effectiveness of the public sector with the use of management tools, taken from the private sector, to manage the results obtained (Hood, 1989, 1991). The aim of this use was to improve the quality of healthcare performance (Agostino & Arnaboldi, 2015; Crema & Verbano, 2015; Sardi et al., 2020a; Trinchero et al., 2019). Since the '00, the focus of public reforms has become primarily the relationship between the mission and the various stakeholders (Inamdar & Kaplan, 2002; Kaplan, 1999; Osborne, 2010). The mission states the justification of the existence

of an organization which, in the specific case of the public sector, is known as the ability to satisfy the needs of the stakeholder (Kaplan, 1999). For instance, if we consider public healthcare, its mission is to guarantee to all citizens, in conditions of equality, universal access to an equal dispensing of healthcare service (Borgonovi & Zangrandi, 2005; Sardi et al., 2020b). Even though public organizations have improved the management of resources and the results obtained, and still have to guarantee patient safety and care quality (Jankuj & Voracek, 2015; Sardi et al., 2020b), the health sector has continuously received a reduction in the government grant (Borgonovi & Compagni, 2013; Carletto et al., 2019; Francesconi & Guarini, 2018). In particular, the pandemic SARS-CoV-2 has put public health organizations in danger, as it has increased compensation claims from users of the national service. As so, in Italy, in 2020, 6.4% represented the compensation claims correlated to the requests for compensation due to the pandemic SARS-CoV-2 (D'Aurizio & D'Aria, 2021). For these reasons, more and more scholars and companies are starting studies to make the healthcare service of a nation more efficient and safe (Bonetti et al., 2016; Crema & Verbano, 2016, 2017; Trinchero et al., 2019) with particular attention to the provision for risk; in fact, this set aside reduces the available resources to use for healthcare services. Consequently, it becomes essential to study the evolutionary path of provision for risk in order to improve healthcare organization management (Sardi et al., 2020a).

On this matter, the paper presents scrupulous research on the provision for risks of public healthcare companies, to determine the variation of the sums reserved in the last 5 years (2016–2020) and to comprehend the possible evolution of this provision fundamental to cover the losses with the characteristics of nature determination, certain existence, amount or date of occurrence undetermined at the end of the financial year. The overall research question (*RQ*) is:

RQ: How could provision for risk evolve in national public health companies?

In order to answer the research question, the paper responds to other sub-questions:

Sub-question 1: What is the trend of provision for risks of the public healthcare companies?

Sub-question 2: What is the trend of reserves of the public healthcare companies grouped for the regional healthcare system?

Sub-question 3: What is the trend of the ratio between the annual reserves of the provision for risks and the provision for risk?

Sub-question 4: What are the reserves of the provision for risks divided per the model of protection of civil liability towards third parties?

The article is structured as follows. Section 2 describes the provision for the risks, focused on the function and its utility. It highlights the state of the art and it identifies in the literature a gap regarding the lack of scientific studies in the economics and management scope of the provision for risks and charges of public healthcare companies. Section 3 explains the methods and materials used to develop the research. Section 4 illustrates the various analyses carried out to answer the research question. Section 5 associates the research background with the results obtained by the study. Furthermore, it discusses the actual trend of provision for the risks and its future one, with an optical of business continuity, from the management of the health risk and users' safety. Lastly, Section 6 summarizes the future opportunities, implications, limitations, and contributions of the study.

2. RESEARCH BACKGROUND

Each company, during the accounting period, reserves resources in the provision for risks and charges to meet any liabilities that may arise in the future. The provision for risks and charges is an item present in the liabilities of the balance sheet. It includes "certain or probable liabilities of a specific nature, with an indeterminate date of occurrence or amount" (Organismo Italiano di Contabilità [OIC], 2016). "Provision for risks and charges is intended only to cover losses or debts of a determined nature, of certain or probable existence, of which, however, at the end of the financial year, either the amount or the date of occurrence is undetermined" (Article 2424 of the Civil Code, 1942).

The correct esteem of the provision for risks and charges is fundamental for all types of companies aimed to meet possible liabilities which could occur in future years. However, there is a particular sector where the correct determination of the provision for risks and charges is starting to assume a connotation more and more important: the public healthcare sector (Rizzi et al., 2021). Indeed, healthcare companies are facing a great challenge: the correct determination of provision for risks and charges. This provision has a key role in the activity of this sector as it should guarantee first, business continuity, and secondly, the patient's protection in the event of errors in the provision of healthcare services. The management of the SARS-CoV-2 pandemic has taken an increase in compensation requests from healthcare service users (D'Aurizio & D'Aria, 2021). This rise has concerned item B.II provision for risks which "represents liabilities of a specific nature and probable existence, the values of which are estimated. Therefore, these are potential liabilities related to situations already existing at the balance sheet date but characterized by a state of uncertainty whose outcome depends on whether or not one or more events occur in the future" (OIC, 2016). The item represents the sums used to compensate for potential damage (Rizzi et al., 2021).

One of the processes analyzed to diminish the errors and contain the litigation is the management of the clinic and sanitary risk. On one side, the aim is to contain the expenses to rationalize costs to pursue economic and financial goals. On the other side, the aim is to guarantee the quality and safety of care (Bizzarri et al., 2018). To manage the risks, it is necessary to analyze the different situations and afterwards put into practice monitoring and training activities (Buscemi, 2015). Even though the malpractice of medicine and defensive medicine have been common use for some time on, only in the last few years, the theme of the safety of the cure has taken some relevance (Bonetti et al., 2016; Brusoni et al., 2009; Brusoni & Trinchero, 2008; Crema & Verbano, 2016; Sardi et al., 2020a; Trinchero

et al., 2010). With the risk management activity, public healthcare companies can manage the risks of their activity, especially the ones related to clinical service. The management of clinical risk is one of the most important processes of public healthcare companies. Good management of this risk allows an improvement of the care's quality and users' safety. To guarantee these, it is necessary to know and analyze the risk and the healthcare as a whole (Bonetti et al., 2016; Canitano et al., 2011).

Despite various activities that aim to mitigate the risk, it is connatural to the existence of the firm itself (Ferrero, 1987). The risk that burdens each business is unavoidable and cannot be transferred. What can be transferred is the burden of risk that is the economic consequences, typically negative, that upon the occurrence of the harmful event they may be generated for the company and/or the operators. The transfer of the burden of the risk can occur "in the space" — namely to third economies, on a contractual basis — or "in time" — through self-insurance (Ferrero, 1987). Particularly for public healthcare companies, the transfer of the burden of risk "in the space", that is to third economies on a contractual basis, which occurs typically through the stipulation of insurance policies, while the "in time" transfer of the risks occurs through "self-insurance" (Perna, 2010; Sardi et al., 2020b). In a different case, the healthcare company reserves resources in the provision for risks and charges to cover losses or debts of a specific nature, of certain or probable existence, of which, however, at the end of the financial year, either the amount or the date of occurrence is undetermined. As so, it becomes essential to reserve the exact financial amount in the provision for risks and charges, which corresponds to the future event that could be fulfilled. The conditional time is a must as the future event, correlated to the degree of fulfilment and occurrence, could be a) probable, an occurrence deemed more likely that the opposite, b) possible, it depends on a circumstance that may or may not occur, and it is less likely than probable, or c) improbable, very low probabilities in the possibility of the realization (OIC, 2016). Furthermore, each healthcare company must comply with the accounting principles for the preparation of the financial statements determined by the relevant regulations. When the financial statement is drafted, the accounting principles that need to be followed need to ensure the uniformity of the indications provided by the civil and fiscal regulations and the ones issued by the legal economic authorities and professional associations. These accounting principles refer to both the base criteria for the accountability of the operations of management and of the specific problems related to the different balance sheet items (general principals or postulates), and, most at all, to the definition of the applicative principles and guidelines, for the filling of the financial statement.

The scheme of the provision for risks and charges of the healthcare companies is as follows:

- B.I — Provision for taxes, even deferred;
- B.II — Provision for risks;
- B.III — Provisions to be distributed;
- B.IV — Unused portions of contributions;
- B.V — Other provisions for charges and expenses;
- Total.

The items in the provision for risks and charges are explained in detail in Appendix, Table A.1.

From these considerations arise the need to determine the performance of the provision for risks of the public healthcare company and the amount reserved.

3. METHODOLOGY

The research adopts a quantitative methodology and supports studies that are primarily on numerical information (Wacker, 1998). This methodology allows the replicability and generalization of the study, which drastically decreases the influence of external situations. The results of a quantitative study are predictive of a series of events, coming from the verification of the research hypothesis, and sometimes know exactly how it generates and develops a certain phenomenon (Balnaves & Caputi, 2001).

As the literature suggests, the research has been developed in 4 phases.

1. *Definition of the study sample.* The study deepens the case "Italy". The study sample includes all the Italian public healthcare companies, so 106 companies are divided into 21 regional healthcare systems (Appendix, Table A.2).

2. *Data collection.* Data have been collected from accounting documents of the healthcare company, financial statements, and other official documents published on regional and companies' websites related to the period from 2016 to 2020.

Not all the present items in the financial statements which make up the provision for risks and charges have the same relevance to answering the research question. In fact, by analyzing the figures attributed to each item in the integrated note of each healthcare company, we can state that the item of interest for the study is the B.II provision for risks as it includes all the sums used to compensate in case of potential damage.

The data collected are from about 106 companies, however, some accounting documents could not be found as they were not published under the section "transparency" on their company's internet website. The data are presented in alphabetic order first per region and then for a healthcare company.

The data collected related to the companies under study are: a) the value of the provision for risks from 2016 to 2020 and b) the set-asides of the provision for risks from 2016 to 2020.

The data have been categorized, sorted, and classified on numerical scales to form a database.

3. *Data analysis.* It includes two techniques:

- Understanding the context: this analysis highlights the context of the Italian public healthcare companies, as the healthcare system varies in each nation.
- Cross case analysis: the statistical elaboration of the data, with the use of a series of extremely accurate parametric and inferential procedures, it has been possible for an objective comparison of the observed behavior, which, after it has been measured, it has become reproducible and reusable. This analysis investigates the provision for risks and their relative set aside in Italian public healthcare companies. It analysis:

– The trend of provision for risks from 2016 to 2020 of the Italian public healthcare companies, this analysis highlights the complete data of provision risk for all companies (see Appendix, Table A.3) and the variations of the annual provision and the 5 years analyzed (see Table 2).

– The trend of reserves of the Italian public healthcare companies grouped for the regional healthcare system from 2016 to 2020; in particular, this analysis highlights the variations of the annual reserves and of the 5 years analyzed (see Table 3).

– The trend of the ratio between the annual reserves of the provision for risks and the provision for risk (see Table 4).

– The reserves of the regional healthcare systems are based on the civil liability model towards third parties chosen between a) insurance, b) mixed e c) self-insurance (see Figure 1).

4. *Result representation.* The research has allowed to development of statistical models useful to explain the provision for risks' trends and their relative set aside (Wacker, 1998).

4. RESULTS

The following analysis has highlighted a great variability between the regions of the public healthcare system (Cicchetti & Gasbarrini, 2016). This analysis describes the main evolution of regulations and the characteristics of a complex healthcare system.

Law 833/78 established the National Health Service. A few years later, this system highlighted some problems, including the excessive use of public resources, which led to a reorganization of the national healthcare system. Legislative Decree 502/1992 named "Reorganization of the health regulations" introduced the process of companies. This reorganization led to an improvement in the management of public healthcare companies. The current structure of the Italian healthcare system has three different levels: the first concerns the central government, the second — the twenty-one regional governments, and lastly, the third — the local companies (ASL) together with the independent hospitals (IHS). Healthcare spending in the National Health Service grew in nominal terms, from 2010 to 2016, by an average of 0.7% per annum against an average annual inflation growth of 1.1% (Longo & Ricci, 2017). In 2020, however, the growth of Italian public spending on health, as a result of the SARS-CoV-2 pandemic, was 5.31% (AGENAS, 2022). In this context, Italian public healthcare companies have the objective of providing an increasingly qualitative service in the face of decreasing resources (Garlatti & Lombrano, 2017).

This context has led healthcare companies to seek better efficiency of processes. One of the processes that have been analyzed in recent years is the management of litigation and civil liability to third parties.

The organizational units of the Italian public healthcare companies that deal with the management of this process are normally the Simple or Complex Operational Unit (U.O.S. or U.O.C.) of Legal Affairs and Financial Economic Activities, appointed by the General Manager. The U.O.S. or the U.O.C. work in synergy to define and manage the Risk and Expense Fund. The purpose of the Fund is to protect the healthcare company from possible risks as pointed out in many documents of the companies (AUSL 4 Teramo, 2021).

For the management of litigation and the protection of civil liability towards third parties, the Italian regional systems adopt three main solutions (D'Aurizio & Dati, 2019). The study carried out by Tartaglia and Vannucci (2013) highlighted how the regions adopt different risk management models for the protection of civil liability toward the patient. The models can be chosen either by the company or by the region, defined "centralized". As recently confirmed by Rizzi et al. (2021) (see Table 1), the models of civil liability towards third parties, which the regions can choose, are the insurance model, the self-insurance model, or the mixed model. Understanding which is the best model to apply is very difficult because public health organizations are very complex realities and have discontinuous trends due to the various decisions of policymakers (Rizzi et al., 2021).

Table 1. Models of civil liability towards third parties of regional health systems

Region	*Insurance model*	*Direct model*	*Mixed model*
Abruzzo	X	X	
Alto Adige			X
Aosta Valley	X		
Apulia		X	X
Basilicata		X	
Calabria	X		
Campania	X	X	
Emilia Romagna		X	
Friuli Venezia Giulia			X
Lazio	X	X	
Liguria		X	
Lombardy	X		
Marche		X	X
Molise	X		
Piedmont			X
Sardinia		X	X
Sicily		X	
Trentino		X	
Tuscany		X	
Umbria			X
Veneto			X

Source: Rizzi et al. (2021).

The analysis of the context shows that claims for compensation and the average cost of compensation to patients are, also, constantly increasing, with the consequence of the abandonment of many insurance companies in ensuring the protection of civil liability towards third parties of public healthcare companies (D'Aurizio & Dati, 2019).

The risk fund of an Italian public healthcare company, therefore, takes a fundamental position in this area. The amounts of the reserves in the provision for risk, although they protect liabilities of a type, certain or probable nature, with an undetermined date of occurrence or amount, reduce the resources available to a company. The amounts reserves will be affected in subsequent accounting years.

Table 2. Provision for risks from 2016 to 2020 of Italian public healthcare companies

Year	*2016*	*2017*	*2018*	*2019*	*2020*
Total NHS	2.326.195.314	2.780.611.304	3.200.302.900	3.597.554.731	3.708.824.045
Provision for risks	2016–2020	2016–2017	2017–2018	2018–2019	2019–2020
% Δ NHS	59.44%	19.53%	15.09%	12.41%	3.09%

Source: Authors' elaboration.

The Italian legislation has led public healthcare companies to verify the adequacy of certain procedures, including administrative accounting procedures. One of the procedures was the "Reconnaissance of the litigation for the management of the deep risks and burdens" (Legislative Decree 118/2011) in application also of the implementations previewed from the various international reforms. The application of this requirement has led to the recognition of the key information to verify the adequacy of the value of the provision for risks and charges entered in the Balance Sheet concerning contingent liabilities arising from disputes.

The results of the analyses described above for the 106 Italian public healthcare companies divided into the 21 regional healthcare systems describe the development of the provision for risk and the provisions (expressed in euro) also based on the civil liability model chosen by the regional healthcare systems.

The first analysis shows that in the last 5 years (2016–2020) the total provision for risk items in the liability section of the Risk and Expense Fund of the Balance Sheet has increased constantly, but with very different amounts. The percentage increases were 19%, 15%, 12%, and 3%, respectively, but if we consider the last 5 years, the increase in the provision for risk is 59% (see Table 2). Several reasons push for this increase. For instance, healthcare companies generally pay serious claims after many years because the process is very long, which increases the medium claim cost (ANIA, 2022).

The second analysis shows that the total amounts reserves at the regional level are uneven, but the average of the amounts set aside at the National Health Service level over the last 5 years has been constant (see Table 3). The analysis describes, following the trends just described, how quotas reserves at the national level tend to be fairly linear year by year, while the use by the provision for risk is constantly decreasing.

The third analysis describes a discontinuous trend in the percentage ratio between the annual provision in the provision for risk and the provision for risk (see Table 4).

Table 3. Reserves on risks from 2016 to 2020

Region	*2016*	*2017*	*2018*	*2019*	*2020*
Abruzzo	26.923.712	75.160.844	42.304.713	37.883.597	43.048.366
Alto Adige	12.532.816	24.635.833	400.822	197.689	13.746.714
Aosta Valley	-	851.000	764.000	124.000	-
Apulia	27.723.964	38.053.304	23.873.747	23.273.418	31.190.857
Basilicata	13.630.560	21.650.350	12.090.526	10.359.135	14.774.452
Calabria	13.293.970	8.758.191	11.109.806	22.168.435	45.468.777
Campania	297.026.671	120.043.524	151.400.795	182.523.888	108.832.890
Emilia Romagna	48.949.300	38.337.294	19.460.676	25.675.239	70.775.086
Friuli Venezia Giulia	7.821.318	3.393.174	2.550.692	7.834.375	5.606.718
Lazio	92.289.703	137.994.633	231.299.843	160.523.040	127.578.883
Liguria	38.556.060	40.787.988	37.234.026	21.258.016	27.841.659
Lombardy	2.081.000	769.000	24.000	406.269	1.181.787
Marche	8.930.714	10.599.426	2.962.556	7.753.292	11.062.808
Molise	-	-	5.875.300	50.568.645	11.201.308
Piedmont	11.347.103	19.672.416	16.620.046	17.825.284	51.495.933
Sardinia	57.111.102	24.133.654	29.078.939	33.754.175	26.243.051
Sicily	47.447.510	78.440.491	51.004.134	54.289.906	35.356.345
Trentino	-3.721.858	15.614.919	-470.916	-21.129.229	8.844.943
Tuscany	12.092.468	35.209.364	13.681.575	7.395.973	12.909.548
Umbria	1.338.770	3.266.921	3.681.635	-3.700.968	15.015.828
Veneto	15.964.743	55.677.949	75.610.251	43.190.197	65.887.102
Total NHS	731.339.626	753.050.275	730.557.166	682.174.376	728.063.055
Period	2016–2020	2016–2017	2017–2018	2018–2019	2019–2020
% Δ NHS	-0.45%	2.97%	-2.99%	-6.62%	6.73%

Source: Authors' elaboration.

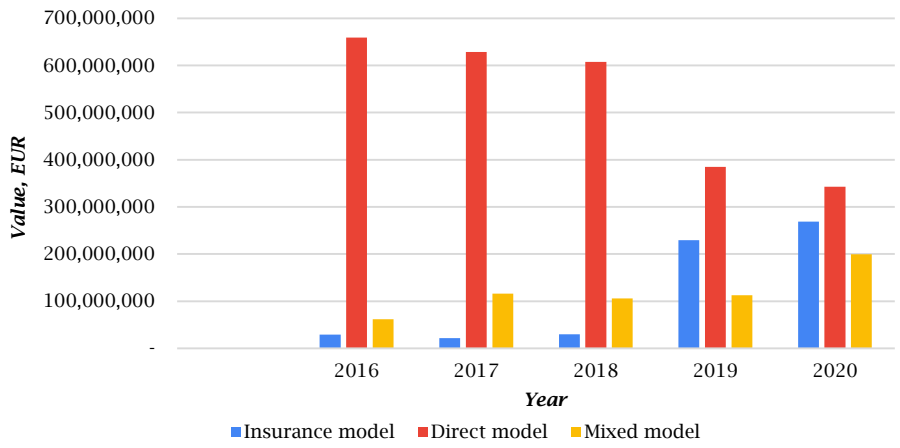
Table 4. The percentage ratio of the annual reserves on the provision for risks

Region	*2016*	*2017*	*2018*	*2019*	*2020*
Abruzzo	21%	48%	28%	25%	26%
Alto Adige	80%	62%	1%	1%	45%
Aosta Valley	-	26%	20%	3%	-
Apulia	39%	47%	21%	14%	17%
Basilicata	39%	41%	24%	22%	28%
Calabria	55%	38%	70%	80%	76%
Campania	54%	27%	33%	28%	20%
Emilia Romagna	24%	24%	13%	13%	31%
Friuli Venezia Giulia	35%	17%	16%	42%	25%
Lazio	22%	26%	27%	17%	13%
Liguria	45%	37%	30%	18%	24%
Lombardy	9%	3%	0%	2%	6%
Marche	8%	9%	3%	11%	17%
Molise	-	-	65%	90%	17%
Piedmont	14%	20%	18%	20%	39%
Sardinia	41%	21%	22%	20%	14%
Sicily	26%	20%	13%	14%	10%
Trentino	-5%	17%	-1%	-33%	13%
Tuscany	24%	40%	15%	9%	18%
Umbria	4%	10%	11%	-15%	42%
Veneto	28%	29%	28%	15%	22%

Source: Authors' elaboration.

The fourth analysis describes an increase in provisions related to the models of civil liability towards third parties. The analysis illustrates an increase in advance payments for the insurance and mixed model, while a decrease for the self-insurance model (see Figure 1).

Figure 1. Reserves of the provision for risks divided per the model of protection of civil liability towards third parties



Source: Authors' elaboration.

5. DISCUSSION

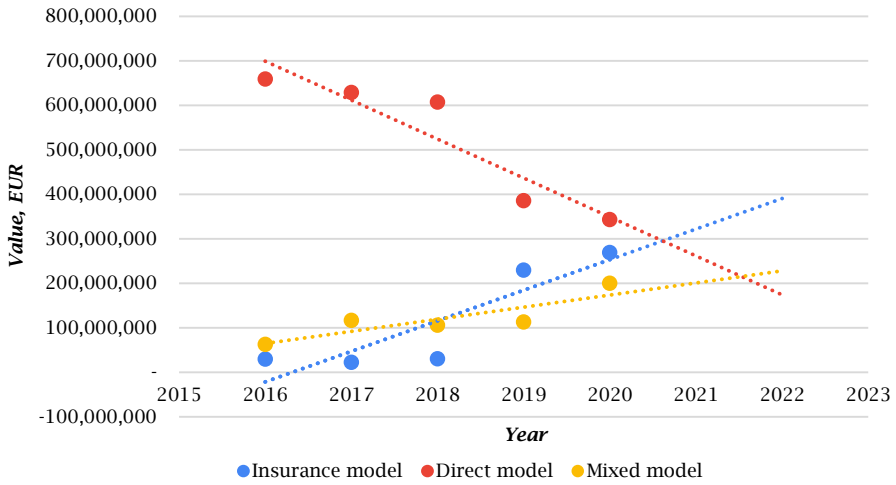
Since the '80s, public healthcare companies have started processes to improve the efficiency and effectiveness of the use of public resources. As pointed out by Hood (1991), this transition also took place thanks to the use of management tools used by the private sector (Hood, 1989, 1991). For example, tools for health risk management or insurance policies typical of private companies. In recent years, public healthcare companies, in addition to the use of these tools, have included in their governance tools useful to assess and manage the impact of their missions on their stakeholders (Inamdar & Kaplan, 2002; Kaplan, 1999; Osborne, 2010), i.e., guaranteeing all citizens, under equal conditions, universal access to the equitable provision of health care (Borgonovi & Zangrandi, 2005; Sardi et al., 2020b).

To meet the public needs identified in the public sector management reforms, public healthcare companies have initiated various procedures, including administrative accounting procedures. In the case study related to Italy, one of the processes started was that of "Reconnaissance of litigation for the management of the funds risks and burdens" in application also of the fulfillments previewed from the various international reforms. The application of Legislative Decree 118/2011 led to the discovery of the key information to verify the adequacy of the value of the provision for risks and charges entered in the Balance Sheet about contingent liabilities arising from litigation. OIC (2016) states that "risk funds represent liabilities of a determined nature and a probable existence, the values of which are estimated. They are, therefore, contingent liabilities linked to situations that already exist at the balance sheet date but are characterized by a state of uncertainty, the outcome of which depends on whether one or more events

occur in the future. […] Potential means a situation, condition, or case existing at the balance sheet date, which is characterized by a state of uncertainty, which may result in a loss (contingent liability) at the occurrence of one or more future events in a profit (potential activity)" (p. 4). The principle still goes to affirm that the "potentiality" is present at the date of drawing up the balance sheet, but its manifestation will happen in a future period (Marcello & Lucido, 2019). As for the remaining items that make up the provision for risks and charges, this case is characterized by a component of randomness that public healthcare companies must assess for the accounting of the values in the budget. So, we could say that the higher the number of potential liabilities over time, the greater the need for public resources.

The results of the analyses of the provisions show a linear trend. These results underline a constant decrease in the use of the provision for risks and a consequent increase in the Fund itself. At the same time, they describe a discontinuous trend in the percentage ratio between the annual provision for risks and the Fund itself. The results also show that over the years under review, there has also been an increase in the provision concerning the insurance model adopted. Where there is the insurance model and the mixed model for the civil liability towards third parties there is an increase, while where there is the self-insurance model there is a decrease.

Figure 2. Forecasting of provision for risks divided per the protection of civil liability towards third parties model



Source: Authors' elaboration.

The forecast of provision for risks by the models of civil liability towards third parties describes a decrease in the resources earmarked for the direct model, while an increase in resources for the insurance and mixed model (see Figure 2). This context could be subject to further changes in the future as about 35% of companies operating in the field of civil health liability, following a survey of 40 companies, stated that from 2020 they have introduced or will introduce specific exclusion clauses for risks arising from particular events such as pandemics (IVASS, 2021b). Such clauses could increase the provision relating to the mixed and self-insurance model and decrease the insurance model, thus reducing the resources available precisely to cope with the increased potential risks.

Future research will have to consider and integrate many aspects, including certainly the effects of the SARS-CoV-2 pandemic on claims. In addition, the results of the healthcare policies of the various countries will have to be analyzed. One of the challenges certainly will be to invest in staff and organizational structures-management able to evaluate and quantify in an increasingly timely degree the degree of risk, to avoid incorrect or excessively prudential estimates of possible future adverse events. At the same time, consistency in the application of accounting principles will be increasingly important to arrive at objectively comparable budgetary data. So, the transparency of the use of public resources, which should provide for the publication of data on all claims made in recent years for all healthcare establishments, verified as part of the exercise of the function of monitoring, prevention, and management of health risk: the risk management activities (Sardi et al., 2020a). Not least to understand how the prevention and management of healthcare risks can affect the safety of care and the provision of benefits and consequently the budgets of healthcare companies.

Understanding the degree of risk posed by health systems, therefore, lays the foundations for more qualitative management of public resources. The assessment of the adequacy of the funds, in addition to being part of the normal operations to be carried out at the end of each financial year, will become a strategic asset to ensure both the continuity of service and the actions to be taken to improve the delivery of health care. This consideration leads to a close synergy between health management and administrative management from a perspective of an "economic-managerial" connection.

6. CONCLUSION

The research fills a knowledge gap related to the performance of the provision for risks of a health system in a period of continuous reduction of public funding, as well as inflation growth.

The results describe in the last 5 years (2016–2020) a national health system in which the provision for risks item has increased constantly, but with very different amounts. At the same time, it highlights that the total amount reserved at the national level tends to be fairly linear, while the use by the provision for risks is constantly decreasing. The results also show a discontinuous trend in the percentage ratio between the annual provision in the provision for risks and the provision for risks, indicating a constantly changing system. Finally, the results describe an increase in provision in regions adopting the insurance model and the mixed model for third-party liability, while a decrease in regions adopting a self-insurance model.

The provision of the resources set aside in the provision for risks by civil liability to third parties model observes a decrease for the direct model, while an increase for the insurance and mixed model.

The main limitation of the study is the use of an exclusively quantitative methodology; it does not involve the use of observations and interviews with users and healthcare service operators. Another limitation includes the lack of accounting documents on healthcare facilities' websites. However, the use of this methodology has allowed for analyzing a large sample. The research analyzed all the Italian public healthcare companies included in the National Health Service favoring a greater understanding of the provisions for risks. This research could thus encourage new studies on provision criteria and models of third-party liability, as well as support comparisons with other countries with similar healthcare systems.

The contribution of the research is the deepening of a subject that is little studied, but of great importance for users of healthcare services and for companies themselves, especially in a historical period in which public resources are limited. The research highlights a constantly changing system. The implications of the study concern the possibility of a better determination of the level of risk of public healthcare companies and healthcare services based on the provisions of the provision for risks.

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APPENDIX

Table A.1. The items in the provision for risks and charges

Code liabilities	*Liabilities item*	*Description*
PBZ999	(B)	Provision for risks and charges
PBA000	(B.I)	Provisions for taxes, even deferred
PBA010	(B.II)	*Provision for risks:*
PBA020	(B.II.1)	Provision for risks for civil disputes and procedural charges
PBA030	(B.II.2)	Provision for risks for employee disputes
PBA040	(B.II.3)	Provision for risks associated with the purchase of health services from a private individual
PBA050	(B.II.4)	Provision for risks for direct coverage of risks (direct insurance)
PBA051	(B.II.5)	Provision for risks for insurance deductible
PBA052	(B.II.6)	Provision for interest on arrears
PBA060	(B.II.7)	Other provisions for risks
PBA070	(B.III)	*Funds to be distributed:*
PBA080	(B.III.1)	Indistinct FSR to be distributed
PBA080a	(B.III.1.a)	Indistinct FSR to be distributed — LEA
PBA080b	(B.III.1.b)	Indistinct FSR to be distributed — Centralized
PBA090	(B.III.2)	FSR bound to distribute
PBA100	(B.III.3)	Provision to cover previous deficits
PBA110	(B.III.4)	Current LEA additional healthcare funding provision
PBA120	(B.III.5)	Current extra LEA additional healthcare funding provision
PBA130	(B.III.6)	Funding for research
PBA140	(B.III.7)	Investment funding provision
PBA141	(B.III.8)	Current additional health funding fund (extra fund) — Additional resources from the regional budget as extra LEA coverage
PBA150	(B.IV)	*Unused fees contributions:*
PBA151	(B.IV.1)	Unused fees contributions by Region or Prov. Aut. for share F.S. indistinct aimed
PBA160	(B.IV.2)	Unused fees contributions by Region or Prov. Aut. for share F.S. bound
PBA170	(B.IV.3)	Unused fees contributions by public entities (extra provision)
PBA170a	(B.IV.3.a)	Unused fees contributions by public entities (extra provision) — Health perimeter
PBA170b	(B.IV.3.b)	Unused fees contributions by public entities (extra provision) — No health perimeter
PBA180	(B.IV.4)	Unused fees contributions for research
PBA190	(B.IV.5)	Unused fees contributions by private individuals
PBA200	(B.V)	*Other provisions for charges and expenses:*
PBA210	(B.V.1)	Supplementary pension provision
PBA220	(B.V.2)	Contract renewal provision
PBA230	(B.V.2.a)	Provision for contract renewal for employees
PBA240	(B.V.2.b)	Renewal provision for GP — PLS — MCA agreements
PBA250	(B.V.2.c)	Provision for renewal of Sumai Doctors conventions
PBA260	(B.V.3)	Other provisions for charges and expenses
Total provision for risks and charges		

Source: Article 2424 of the Civil Code, 1942.

Table A.2. The study sample

Region	*No. of companies*	*Description*
Abruzzo	4	Avezzano-Sulmona-L'Aquila,Lanciano-Vasto-Chieti, Pescara and Teramo
Basilicata	2	ASL Potenza and ASL Matera
Calabria	5	ASP Catanzaro, ASP Cosenza, ASP Crotone, ASP Reggio Calabria and ASP Vibo Valentia
Campania	7	ASL Avellino, ASL Benevento, ASL Caserta, ASL Naples Center, ASL North Naples, ASL South Naples, and ASL Salerno
Emilia Romagna	8	AUSL Bologna, AUSL Of Romagna, AUSL Ferrara, AUSL Imola, AUSL Modena, AUSL Parma, AUSL Piacenza and AUSL Reggio Emilia
Friuli Venezia Giulia	3	ASU Central Friuli, AS Western Friuli and ASU Giuliano Isontina
Lazio	10	Frosinone, Latin, Rieti, Rome 1, Rome 2, Rome 3, Rome 4, Rome 5, Rome 6, and Viterbo
Liguria	5	Chiavarese, Genoese, Imperiese, Savonese and Spezzino
Lombardia	8	ATS Bergamo, ATS Brescia, ATS Brianza, ATS Insubria, ATS Milan, ATS Mountain, ATS Pavia and ATS Val Padana
Marche	1	Asur
Molise	1	Asrem
Piemonte	12	AL, AT, BI, CN 1, CN 2, NO, ASL City of Turin, TO 3, TO 4, TO 5, VCO, and VC
Provincia Aut. di Bolzano	1	Azienda Sanitaria della P. A. di Bolzano
Provincia Aut. di Trento	1	Trento
Puglia	6	ASL BA, ASL BT, ASL BR, ASL FG, ASL LE and ASL TA
Sardegna	8	ASL Cagliari, ASP Del Medio Campidano, ASP Del Sulcis, ASP Della Gallura, ASP Dell'Ogliastra, ASP Di Nuoro, ASP Di Oristano and ASP Di Sassari
Sicilia	9	ASP Agrigento, ASP Caltanissetta, ASP Catania, ASP Enna, ASP Messina, ASP Palermo, ASP Ragusa, ASP Syracuse and ASP Trapani
Toscana	3	AUSL Tuscany Center, AUSL North West Tuscany, and AUSL South East Tuscany
Umbria	2	AUSL Umbria 1 and AUSL Umbria 2
Valle d'Aosta	1	AUSL Aosta Valley
Veneto	9	ULSS Berica, ULSS Dolomiti, ULSS Euganea, ULSS Marca Trevigiana, ULSS Polesana, ULSS Pedemontana, ULSS Scaligera, ULSS Serenissima and ULSS Veneto Orientale

Source: Authors' elaboration.

Table A.3. The complete data of provision risk for all companies (Part 1)

Region	*Healthcare companies*	*2016*	*2017*	*2018*	*2019*	*2020*
Abruzzo	Avezzano Sulmona L'Aquila	22.002.276	36.320.714	42.032.912	46.078.509	50.925.376
	Lanciano Vasto Chieti	26.484.234	34.041.715	33.466.069	37.392.577	41.445.207
	Pescara	36.530.382	46.340.058	39.825.342	45.573.170	48.013.625
	Teramo	40.933.615	40.702.929	36.414.209	23.047.107	23.535.513
Alto Adige	Alto Adige	15.630.567	39.849.729	39.651.728	27.984.753	30.858.039
Aosta Valley	AUSL Aosta Valley	-	3.285.000	3.917.000	3.615.000	-
Apulia	ASL BA	-	-	-	108.794.000	119.884.000
	ASL BR	28.032.556	39.631.331	38.980.445	40.630.676	35.999.049
	ASL BT	24.738.466	22.272.337	19.516.172	12.422.239	17.385.725
	ASL FO	-	-	37.791.160	-	-
	ASL LE	9.128.628	9.673.418	8.181.036	7.091.117	11.191.182
	ASL TA	8.783.883	9.448.011	10.413.877	-	-
Basilicata	Matera	10.830.635	17.068.571	20.935.696	23.716.221	23.819.579
	Potenza	23.759.856	35.976.876	28.800.015	24.447.428	28.374.795
Calabria	ASP Catanzaro	5.969.845	3.625.209	2.710.480	12.512.000	49.861.000
	ASP Cosenza	-	-	-	-	-
	ASP Crotone	8.331.210	4.807.490	2.107.067	4.322.859	9.666.689
	ASP Reggio Calabria	-	-	-	-	-
	ASP Vibo Valentia	9.890.075	14.831.471	11.071.437	10.785.440	-
Campania	ASL Avellino	50.435.480	51.913.765	54.033.299	56.323.301	62.436.830
	ASL Benevento	15.404.000	9.993.000	9.012.000	10.139.987	11.236.899
	ASL Caserta	80.550.061	94.991.777	96.712.539	100.822.990	105.386.225
	ASL Naples Center	229.365.000	59.906.000	-	-	-
	ASL North Naples	-	-	-	148.810.835	175.461.064
	ASL South Naples	98.196.000	126.499.000	171.567.000	199.270.000	-
	ASL Salerno	79.862.000	97.075.080	123.127.000	137.591.941	182.968.590
Emilia Rom.	AUSL Bologna	48.734.164	-	-	55.317.751	58.131.028
	AUSL Of Romagna	87.322.177	91.986.800	87.610.294	72.861.292	78.758.563
	AUSL Ferrara	7.931.047	7.987.621	7.640.837	6.170.071	11.003.064
	AUSL Imola	6.793.400	4.564.375	4.639.169	4.870.598	5.690.954
	AUSL Modena	15.255.652	18.185.921	17.056.845	16.729.222	20.070.031
	AUSL Parma	3.506.500	4.568.169	4.602.354	4.683.219	14.322.256
	AUSL Piacenza	12.340.678	13.079.241	11.836.414	16.806.794	19.315.621
	AUSL Reggio Emilia	18.858.984	22.682.921	19.358.652	16.971.117	23.037.179
Friuli V. G.	AS Western Friuli	3.037.194	3.569.689	3.862.740	6.899.735	7.080.616
	ASU Central Friuli	14.877.979	11.612.372	7.193.273	5.881.497	5.327.620
	ASU Giuliano Isontina	4.529.972	4.700.937	5.221.903	5.999.935	9.922.011
Lazio	Frosinone	60.392.000	39.664.000	14.202.000	39.321.000	50.459.398
	Latine	82.196.178	86.346.289	86.167.726	82.364.870	87.407.005
	Rieti	16.799.041	24.134.571	29.613.739	29.206.723	29.981.917
	Rome 1	-	-	205.401.381	236.324.093	247.638.086
	Rome 2	158.364.309	201.888.793	290.669.288	340.800.263	360.480.011
	Rome 3	-	56.017.000	60.844.830	61.052.737	65.839.810
	Rome 4	11.368.999	14.426.716	15.698.160	15.909.294	14.538.661
	Rome 5	46.357.040	53.276.128	62.669.042	71.329.103	78.501.945
	Rome 6	45.406.000	53.473.000	80.624.376	69.729.958	78.308.683
	Viterbo	-	-	-	-	-
Liguria	Chiavarese	2.268.294	2.633.753	4.530.686	4.167.299	4.165.797
	Genoese	12.976.437	20.086.783	12.924.767	14.786.604	11.585.548
	Imperiese	3.849.580	5.294.363	9.751.622	8.160.510	-
	Savonese	63.126.745	76.584.835	90.846.384	82.596.752	87.953.174
	Spezzino	3.845.305	6.275.745	7.749.151	8.493.925	11.094.668
Lombardy	ATS Bergamo	5.146.000	4.958.000	3.107.000	2.605.739	2.442.458
	ATS Brescia	1.789.000	1.696.000	1.103.000	1.098.146	1.090.556
	ATS Brianza	2.635.000	3.119.000	2.504.000	2.466.602	2.616.256
	ATS Insubria	-	1.627.000	1.566.000	1.126.534	2.068.670
	ATS Milan	8.268.000	7.646.000	6.931.000	6.159.318	5.802.557
	ATS Mountain	672.000	687.000	661.000	643.232	471.419
	ATS Pavia	3.525.000	3.407.000	3.342.000	3.101.092	2.882.511
	ATS Val Padana	1.554.000	1.759.000	1.634.000	1.514.094	1.572.288
Marche	Asur	113.920.026	117.733.059	85.775.445	69.511.645	66.483.569
Molise	Asrem	-	-	9.032.991	55.918.865	64.224.843
Piedmont	AL	14.730.674	16.605.207	10.899.145	8.782.228	15.655.530
	AT	3.322.667	6.046.899	1.406.312	2.235.918	1.743.500
	BI	4.092.428	4.304.964	4.942.686	5.330.568	6.005.818
	ASL City of Turin	-	9.939.928	14.648.702	15.900.252	16.578.517
	CN 1	3.634.422	5.514.519	3.667.053	3.697.280	4.457.891
	CN 2	5.165.734	4.935.270	4.367.161	4.359.504	6.044.766
	NO	6.438.895	6.991.596	6.539.738	4.741.766	14.408.917
	TO 3	-	-	4.198.103	4.585.614	7.041.018
	TO 4	17.430.763	17.511.419	16.992.106	17.264.148	27.663.562
	TO 5	7.042.233	8.388.142	8.497.985	8.425.598	10.697.550
	VC	13.373.946	8.486.226	7.743.421	6.301.616	4.383.304
	VCO	8.391.400	9.090.492	8.757.861	8.098.264	17.519.656

Table A.3. The complete data of provision risk for all companies (Part 2)

Region	*Healthcare companies*	*2016*	*2017*	*2018*	*2019*	*2020*
Sardinia	ASL Cagliari	47.327.723	113.980.265	131.077.443	165.997.602	186.002.439
	ASL Gallura	4.910.743	-	-	-	-
	ASL Medium Campidano	-	-	-	-	-
	ASL Nuoro	6.199.015	-	-	-	-
	ASL Ogliastra	1.303.994	-	-	-	-
	ASL Oristano	32.057.607	-	-	-	-
	ASL Sassari	38.245.681	-	-	-	-
	ASL Sulcis	10.339.027	-	-	-	-
Sicily	ASP Agrigento	25.582.909	32.305.938	34.195.883	28.407.337	28.027.663
	ASP Caltanissetta	36.658.097	48.445.953	53.958.852	-	-
	ASP Catania	37.683.135	45.524.558	48.466.212	61.395.187	60.391.217
	ASP Enna	19.192.680	18.176.553	-	17.314.309	18.702.041
	ASP Messina	-	122.077.114	124.314.969	131.532.778	134.594.062
	ASP Palermo	-	58.930.000	63.007.000	60.524.659	57.382.081
	ASP Ragusa	13.981.089	15.318.197	17.764.239	18.722.849	18.487.274
	ASP Syracuse	19.068.461	21.253.130	25.414.477	29.880.760	35.553.332
	ASP Trapani	33.682.434	37.049.779	35.681.556	32.081.090	-
Trentino	Trento	78.481.968	94.029.175	91.596.593	63.944.974	66.192.595
Tuscany	AUSL Tuscany Center	44.798.571	64.259.488	68.806.950	44.997.936	42.703.275
	AUSL North West Tuscany	-	16.253.034	15.056.381	26.955.842	28.647.724
	AUSL South East Tuscany	6.653.749	6.466.483	6.603.193	6.375.335	-
Umbria	AUSL Umbria 1	9.655.757	8.498.590	8.660.523	7.416.933	12.158.063
	AUSL Umbria 2	27.966.499	25.636.589	23.740.140	17.921.047	23.730.271
Veneto	ULSS Berica	-	28.443.165	36.948.555	35.125.761	38.369.054
	ULSS Dolomiti	11.643.035	20.667.801	17.572.747	17.505.823	14.105.455
	ULSS Euganea	27.582.918	28.795.565	34.141.863	40.232.111	42.634.762
	ULSS Marca Trevigiana	-	40.544.970	64.613.123	57.091.715	57.211.339
	ULSS Pedemontana	1.107.732	15.220.797	23.368.293	29.388.772	31.086.459
	ULSS Polesana	-	16.542.744	17.860.178	14.855.984	15.395.629
	ULSS Scaligera	-	21.806.446	26.110.426	32.903.135	37.188.806
	ULSS Serenissima	-	-	30.908.768	39.669.760	41.560.030
	ULSS Eastern Veneto	15.943.858	18.644.746	21.135.711	24.638.497	27.782.285

Source: Authors' elaboration.