The Austrian Health Care System –
Introduction of a New Reporting System for Hospitals

Mag. Magdalena Kuntner, Mag. Barbara Schallmeiner

Abstract

The Austrian health care system is characterised by a high density of health care facilities. In 2010, a total of 266 hospitals were available for inpatient care. Total annual health care expenditure amounts to approximately EUR 30.3 billion, which is 11 % of the gross domestic product. The major funders of the Austrian health care system include the social health insurance funds and the Federal Government. In 2009, a majority of the expenditure on hospitals was borne by these two parties. In order to ensure an efficient allocation of resources, the Federal Ministry of Health established a reporting system for hospitals in 2010 with the aim of supporting decision-making processes on the federal and provincial level and particularly providing reliable data for effective decisions in connection with the ongoing health care reform debate. The reporting system consists of five components which give an overview of the structure and the maturity of the hospitals' assets and capital, the composition of equity, revenues, receipts and expenditures and the origin and composition of allowances. The aim of the paper is to describe the individual components of the reporting system in detail and to outline their informative value and their decision usefulness. Based on this description, the paper identifies items which are of major importance for the hospitals' capital and cost structure and proposes possible decision-useful management ratios.

1. Introduction

In Austria, health care traditionally shows a strong emphasis on hospital care. In 2010, a total of 266 hospitals[1] with about 64,300 beds were available for inpatient care. The density of hospital beds per 1,000 inhabitants was around 7.65. With regard to the number of inpatient stays Austria has by far the highest admission rate: 27.9 inpatient stays per 100 inhabitants were registered in 2007, with the European Union (EU) average being 17.2 inpatient stays per 100 inhabitants. The average length of stay (LOS) was 5.7 days in 2007, with the EU average being 6.1 days. Of the hospitals, about 130 are publicly or privately-owned non-profit hospitals subsidised by provincial health funds and 44 are financed via the private hospitals financing fund. These hospitals ("fund hospitals") are largely funded using

[1] In Austria, hospitals can be generally classified into publicly-owned non-profit hospitals, privately-owned non-profit hospitals and privately-owned profit-oriented hospitals according to ownership type and purpose. About 175 of the hospitals are assigned to acute care and about 90 to long-term care and rehabilitation.

the Austrian diagnosis-related groups (DRG) system. The remaining 90 hospitals with about 11,600 beds – mainly rehabilitation centres and emergency hospitals – are not funded using the DRG system. Total annual health care expenditure, which consists of the current health expenditure of about EUR 28.6 billion and investments in the health care sector of about EUR 1.73 billion, amounted to approximately EUR 30.3 billion in 2009. This corresponds to 11 % of the Austrian gross domestic product (GDP), which positions Austria third among all EU Member States. On average, health expenditure annually increased by 5.3 % between 1990 and 2009.[2]

The framework prerequisites for hospital planning are incorporated in the Austrian Health Care Structure Plan, which is agreed upon at federal level. The organisation and financing of the healthcare system are governed by intra-state agreements between the Federal and provincial governments in accordance with § 15a B-VG (Austrian Constitutional Law). According to the Constitutional Law, almost all areas of the health care system are the responsibility of the Federal Government, with the hospital sector being the most important exception: The responsibility for the Austrian hospital system is shared between the Federal Government and the nine provincial governments. While the Federal Government is only responsible for enacting basic law – the Federal Ministry of Health is in charge of framework legislation and the overall health policy and functions as facilitator between the different players in the health care system and as a supervisory authority for the enforcement of the laws on health care provision –, many competencies are delegated to the provinces or to the social security institutions[3]. The provincial governments handle the legislation governing implementation as well as execution of the legislation. The provinces are in charge of ensuring the availability of inpatient care for their inhabitants as well as offering health promotion and prevention services. Hence, the competence for planning the public hospitals and for maintaining their infrastructure is delegated to the provincial governments. The provinces have to establish the structure of inpatient acute care in quantitative and qualitative terms.[4] This fragmentation of competencies in the hospital sector has long been considered as one of the most important structural problem in the Austrian health care system.[5]

[2] See Federal Ministry of Health (2010b), 13; Statistics Austria, Health Expenditure in Austria, http://www.statistik.at/web_en/statistics/health/health_care/health_services/index.html.

[3] In Austria, there are 22 social security institutions with the Main Association of Austrian Social Security Institutions (HVB) as their umbrella organisation.

[4] See Hofmarcher/Rack (2006), 31 and 39-40; Federal Ministry of Health (2010a), 8; Federal Ministry of Health (2010b), 6.

[5] See Hofmarcher/Rack (2006), 65-66; Kranebitter (2007), 105.

According to agreements between the Federal Government and the provinces, the provinces are supported in the provision of health care by provincial health funds[6] at provincial level. Furthermore, hospital operating entities – most of which have private law status – have been established in the provinces. The management of the provincial hospitals has been outsourced to these hospital operating entities. The hospital operating entities now function as the hospital service providers, with the provincial health funds as their clients. In most cases, the respective province is the majority owner. In this way, the separation of the previously integrated areas of service provision and payment has been largely implemented.[7]

When it comes to the aspect of hospital financing, there are two main questions to be answered: The first question, “Who pays how much?” deals with the provision of resources and the second question, “How is the money distributed?” deals with the process of distribution of resources.[8]

Financing of the Austrian health care system is pluralistic and primarily achieved by a combination of income-based social insurance contributions, public income generated through taxes and private payments in the form of direct cost-sharing (co-payments) and indirect cost-sharing (services whose costs were fully borne by the insured) as well as private health insurance premiums. The major funders of the Austrian health care system include the social security institutions whose revenues come from legally regulated compulsory insurance[9] and the Federal Government.[10] In 2009, a majority of the expenditure on hospitals was borne by these two parties.[11] However, the Federal Government und social security institutions have little influence on the decisions concerning the construction of new hospitals or the operation and configuration of existing ones.[12]

The distribution of the public funds to the individual provinces and the provincial health funds in those provinces is based on set proportional allocations. The provinces and provincial health funds can allocate the resources to various “pots” (budget allocations), with the “pot” for funding of inpatient hospital care being by far the largest position. There is also the option to dedicate resources separately for outpatient hospital care, for structural

[6] The agreement in accordance with § 15a Austrian Constitutional Law provides for a provincial health fund being set up in every Austrian province. The provincial health funds are public law funds and separate legal entities. Their tasks include ensuring the correct distribution of the resources available in line with the regulations in force.

[7] See Hofmarcher/Rack (2006), 40 and 56-57.

[8] See Federal Ministry of Health (2010a), 8.

[9] Compulsory insurance is based on membership of an occupational group or place of residence. Thus, there is no competition between health insurance funds.

[10] See Federal Ministry of Health (2010a), 9; Federal Ministry of Health (2010b), 18.

[11] See Statistics Austria, Health Expenditure in Austria, http://www.statistik.at/web_en/statistics/health/health_care/health_services/index.html.

[12] See Rössler (2010), 6.

measures or for investment grants.[13] The following figure shows the financing structure of hospitals which are financed by provincial health funds in Austria:

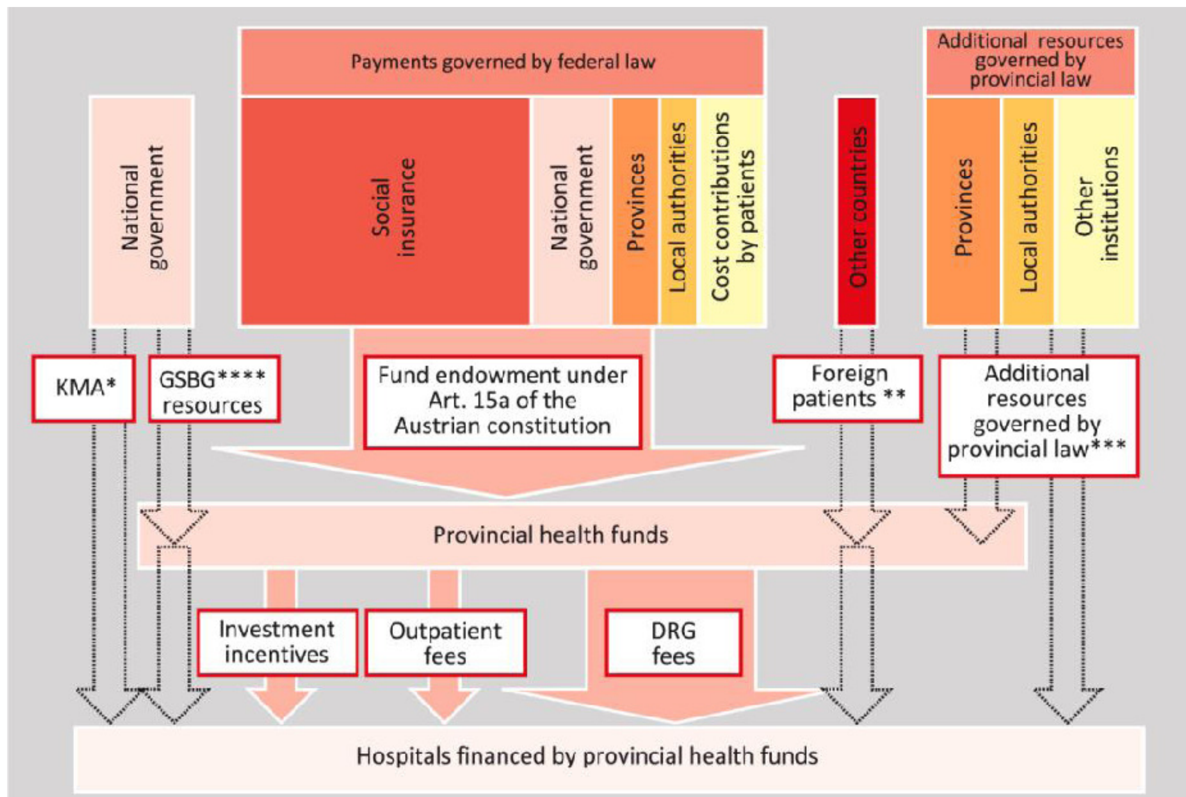

Fig. 1: Financing structure of hospitals which are financed by provincial health funds
Source: Federal Ministry of Health (2010a), 10.

- * **Additional funding of the university hospitals: Flat-rate cost reimbursement by the Federal Government to the relevant hospital funding bodies for additional expenditure on research and teaching.**
- ** **Procedure for foreign patients: Hospitals charge the provincial health fund; the invoice is forwarded to the regional health insurance fund, then forwarded to the HVB, then forwarded to foreign insurers. The foreign payment is then transferred from the HVB to the regional insurance fund and then forwarded to the provincial health fund and payment is then transferred to the hospital.**
- *** **In some provinces, cover for operational losses is also handled entirely or in part via the funds.**
- **** **Austrian law relating to health and social insurance benefits.**

The circumstance that the Federal Government is responsible for the framework legislation and the overall health policy, but many competencies are delegated to the provinces, led to current debates on a health care reform. In order to ensure an efficient allocation of resources, the Federal Ministry of Health established a reporting system for hospitals in 2010 with the aim of supporting decision-making processes on the federal and provincial level and particularly providing reliable data for effective decisions in connection with the reform debate. The reporting system consists of five components which give an overview of the structure and the maturity of the hospitals' assets and capital, the

[13] See Federal Ministry of Health (2010a), 9.

composition of equity, revenues, receipts and expenditure and the origin and composition of allowances. The aim of the paper is to describe the individual components of the reporting system in detail and to outline their informative value and their decision usefulness. Based on this description, the paper identifies items which are of major importance for the hospitals' capital and cost structure and proposes possible decision-useful management ratios.

The paper is structured as follows: Chapter 2 gives a short overview of the possible forms of remuneration for hospital services and describes the Austrian remuneration system which is applicable for all publicly or privately-owned non-profit hospitals subsidised by provincial health funds. Since 2010, these hospitals have to submit a standardised annual report to the governor and to the Federal Ministry of Health as part of a recently developed reporting system. Chapter 3 describes the reporting system by illustrating both the individual components of the reporting system and their aim and purpose. Decision-useful management ratios which can be calculated on the basis of the annual reports prepared by the hospitals are identified in chapter 4. The paper concludes with a summary in chapter 5.

2. Remuneration Systems

2.1. Options for the distribution of resources

In principle, there are various forms of remuneration for hospital services. A simple form would be a flat rate to be charged for every day in hospital – regardless of the kind of disease which led to the hospitalisation and what kind of treatments were necessary. The advantage of this form of allocation of resources is that it is easy to administer. However, the disadvantage of this form of remuneration is that the actual expenditure is not taken into account in the reimbursement for individual cases. Beyond that, an extension of the stay in hospital automatically leads to additional income, which might create an incentive to prolong hospital stays beyond what is medically necessary for purely economic reasons.[14]

The opposite of this remuneration system is payment for individual procedures (a so-called fee-for-service model), where every measure required for treating a patient's illness is charged for individually. The advantage of this model is that it is a solely expense-related remuneration system. However, this model is associated with high administrative expenses and the temptation of providing procedures that might not be medically essential.[15]

As an alternative, case-based reimbursement systems oriented to expense or procedure and diagnosis were originally developed in the US. These systems which at least partially combine the advantages of the two remuneration systems mentioned above while simultaneously almost entirely avoiding their disadvantages have become the prevailing remuneration systems for hospital financing in many countries. The basic idea of such

[14] See Federal Ministry of Health (2010a), 11.
[15] See Federal Ministry of Health (2010a), 12.

systems is to identify the output of the hospital as classes of patients, each class receiving a similar bundle of goods and services in the diagnosis and treatment of the patient's illness. As a result, hospitals are refunded on a per-case basis depending on diagnoses and treatments rather than on the individual services in order to enforce cost awareness and subsequently an economical use of financial means.[16] Hence, it is no longer the individual expense that counts but the typical expense associated with a hospital stay within the group to which the patient is assigned that is reimbursed on a flat-rate basis.[17] Many countries have implemented these case-based reimbursement systems under the name of "DRG systems" for national, regional and institutional budgeting of hospital expenditure and for internal hospital management.[18]

2.2. The Austrian DRG System

Until 1996, in Austria reimbursement was based on a performance-independent flat rate charged for every day in hospital. Thus, every inpatient stay in hospital was paid for on the basis of the number of days of hospital care (i.e., the number of calendar days spent in hospital), disregarding the disease the patient suffered from and the treatments the patient underwent.[19] This resulted in increased inpatients' LOS, capacity enlargements and finally in increasing cost structures.[20]

In 1996, the Federal Government together with the provincial governments, the local governments and the national health insurance institutions decided on a reform of the Austrian hospital financing system. As a result of this reform, a performance-oriented reimbursement system, based on a system of credit points per diagnosis and treatment, was introduced on January 1st, 1997.[21] From then on, the publicly or privately-owned non-profit hospitals subsidised by the government and the hospitals financed via the private hospitals financing fund are largely funded using this new financing method. Hospitals that are not fund hospitals such as rehabilitation centres still are predominantly financed on a per day basis.[22]

The Austrian DRG system which has been adapted to meet the Austrian framework conditions is actually a "Procedure and Diagnosis-related Groups System" (PDRG), since, in addition to diagnosis, the procedures provided are a primary criterion for allocation to case groups.[23] It allows billing on the basis of actual services rendered in the public hospitals and differentiates between two financing areas: the nationally uniform DRG core area and the

---

[16] See Fetter (1991), 6-9; Schaffhauser-Linzatti et al. (2009), 294.
[17] See Federal Ministry of Health (2010a), 12.
[18] See Rodrigues (1989), 152-155; Lüngen/Lauterbach (2000), 1288-1295.
[19] See Federal Ministry of Health (2010a), 15.
[20] See Schaffhauser-Linzatti et al. (2009), 294-295.
[21] See Sommersguter-Reichmann (2000), 309.
[22] See Hofmarcher et al. (2005), 344.
[23] See Federal Ministry of Health (2010a), 16.

DRG fund control area, which can be varied by the individual provinces. In the core area of the Austrian DRG system, the basis for the awarding of credit points for an inpatient stay are procedure- and diagnosis-oriented case groups, including all special scoring rules. A nation-wide uniform number of credit points are allocated to performance-oriented diagnosis-related groups. Originally, the number of credit points per case was determined on the basis of the costs of the procedures calculated for some 500,000 patients in 20 reference hospitals from all over Austria. The core area of the DRG system has been continuously updated since 1997 and is subject to annual revisions. The fund control area of the Austrian DRG system can be modified by the individual provinces and enables them to take structural criteria like hospital type, personnel and quality of accommodation into account in order to meet each province's needs.[24]

The objectives targeted via the introduction of the Austrian DRG system comprise a reduction of inpatient admissions in favour of day hospital and outpatient treatment, inpatients' LOS, considerable inefficiencies regarding waste of resources, unnecessary multiple treatments and cost increases as well as an increase in transparency of costs and procedures and an optimisation of the use of resources. Furthermore, the DRG system shall provide a set of instruments which is standardised across the whole of Austria and which is easy to administer for planning and regulatory measures in the field of health policy.[25] Literature has shown that due to the application of the Austrian DRG system the cost increase could be reduced from 10 % to 2-4 % each year and that the inpatients' LOS steadily decreased from about 10 days in 1996 to 7.5 days in 2003.[26]

3. Introduction of a new reporting system for hospitals

3.1. Aim of the new reporting system

In Austria, the health expenditure increased from 1999 to 2009 by EUR 10.3 billion to EUR 30.3 billion in 2009 – this corresponds to an increase by 34 %. Hospital care is mainly provided by publicly funded hospitals; about 75 % of the bed capacity and 85 % of all hospital employees are concentrated in hospitals which are subsidised by the government.[27] In order to ensure an efficient allocation of resources, the Federal Ministry of Health established a nation-wide uniform reporting system for hospitals which are subsidised by provincial health funds in 2010 with the aim of generating reliable data as a basis for the hospitals' cost accounting, for decision-making processes concerning health care in the

[24] See Hofmarcher/Rack (2006), 178-181; Federal Ministry of Health (2010a), 16-17; Federal Ministry of Health (2010c), 12-19.

[25] See Schaffhauser-Linzatti et al. (2009), 298; Federal Ministry of Health (2010a), 14-15.

[26] See Rauner/Schaffhauser-Linzatti (2001); Rauner/Schaffhauser-Linzatti (2002); Theurl/Winner (2005).

[27] See Hofmarcher et al. (2002), 7.

Federal and Provincial Governments as well as for international statistical surveys.[28] In particular, the new reporting system shall provide financiers with reliable and transparent information about the hospitals' investing and financing activities and their liquidity and allow for comparability between hospitals on an aggregated level.[29]

The hospitals' obligation to set up a reporting system is laid down in § 7 Krankenanstalten-Rechnungsabschluss-Berichtsverordnung (KRBV – Regulation concerning the hospitals' statement of accounts and reporting system). According to this Regulation, each hospital subsidised by provincial health funds has to submit a standardised annual report to the governor and to the Federal Ministry of Health. The annual report shall be based on the hospital's annual statement of accounts.[30] The Regulation also specifies the reporting levels and the reporting structure, the five components of the annual report (statement of assets and capital, statement of equity, statement of receipts and expenditures, statement of revenues and statement of allowances) and their functions, the reporting deadline, etc.

3.2. Reporting levels and reporting structure[31]

The reporting system distinguishes between annual reports to be prepared on the hospital level (i.e., for each hospital) and annual reports to be prepared on the management level, which includes the hospital operating entities, joint services and external divisions.

3.2.1. Hospital level

The hospital level is the primary reporting level. Thus, each hospital has to prepare an annual report consisting of the five components on the basis of its annual statement of accounts. These five components altogether represent the "hospital annual report". The structure of the hospital annual report is shown in figure 2:

[28] See Federal Ministry of Health, Berichtswesen über den Rechnungsabschluss, http://www.bmg.gv.at/home/Schwerpunkte/Gesundheitssystem_Qualitaetssicherung/Dokumentation/Berichtswesen_ueber_den_Rechnungsabschluss_der_Krankenanstalten.

[29] See Federal Ministry of Health (2010d), 10.

[30] According to the Kostenrechnungsverordnung für landesfondsfinanzierte Krankenanstalten (cost accounting regulation for hospitals funded by provincial health funds) each hospital has to prepare an annual statement of accounts which at least has to consist of the balance sheet and the income statement.

[31] See Federal Ministry of Health (2010d), section B.IV.

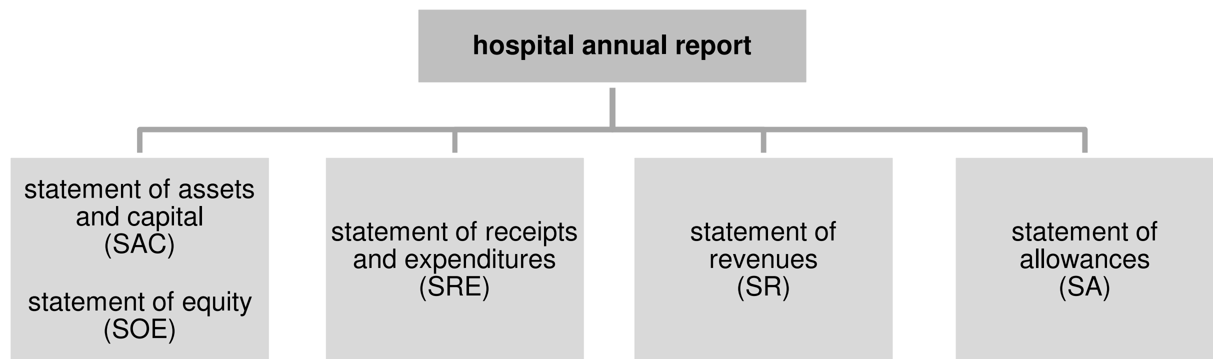

Fig. 2: Components of the hospital annual report

3.2.2. Management level

As already mentioned above, hospital operating entities – most of which have private law status – have been established in the provinces. The management of the provincial hospitals has been outsourced to these hospital operating entities. The hospital operating entities now function as the hospital service providers, with the provincial health funds as their clients. In these cases, the hospital operating entities are also obliged to prepare consolidated or summarised annual reports consisting of the five components on the basis of their (consolidated) annual statement of accounts.

In some cases joint services like IT-services, accounting, legal services and facility management are provided by central departments for all hospitals funded by a hospital operating entity. If so, a separate annual report which comprises all the services of the central department and consists of the five components has to be prepared. The data for the respective annual report have to be derived from the hospital operating entity's accounting system.

In addition, in some cases external services which are managed by the hospital operating entity and which are not directly or indirectly associated with the duties and responsibilities of hospitals are provided. Typical examples for such external services are the operation of nursing homes or rehabilitation centres. If the respective data can be derived from the hospital operating entity's accounting system, a separate annual report comprising the external services has to be prepared. The annual report has to consist of the statement of assets and capital, the statement of equity and the statement of receipts and expenditures.

Hence, the "consolidated or summarised annual report" of a hospital operating entity comprises the hospital annual reports of the hospitals funded by the respective hospital operating entity as well as the annual reports of the hospital operating entity's central departments (joint services) and external divisions (external services). The compound reporting structure of the hospital operating entities is shown in figure 3:

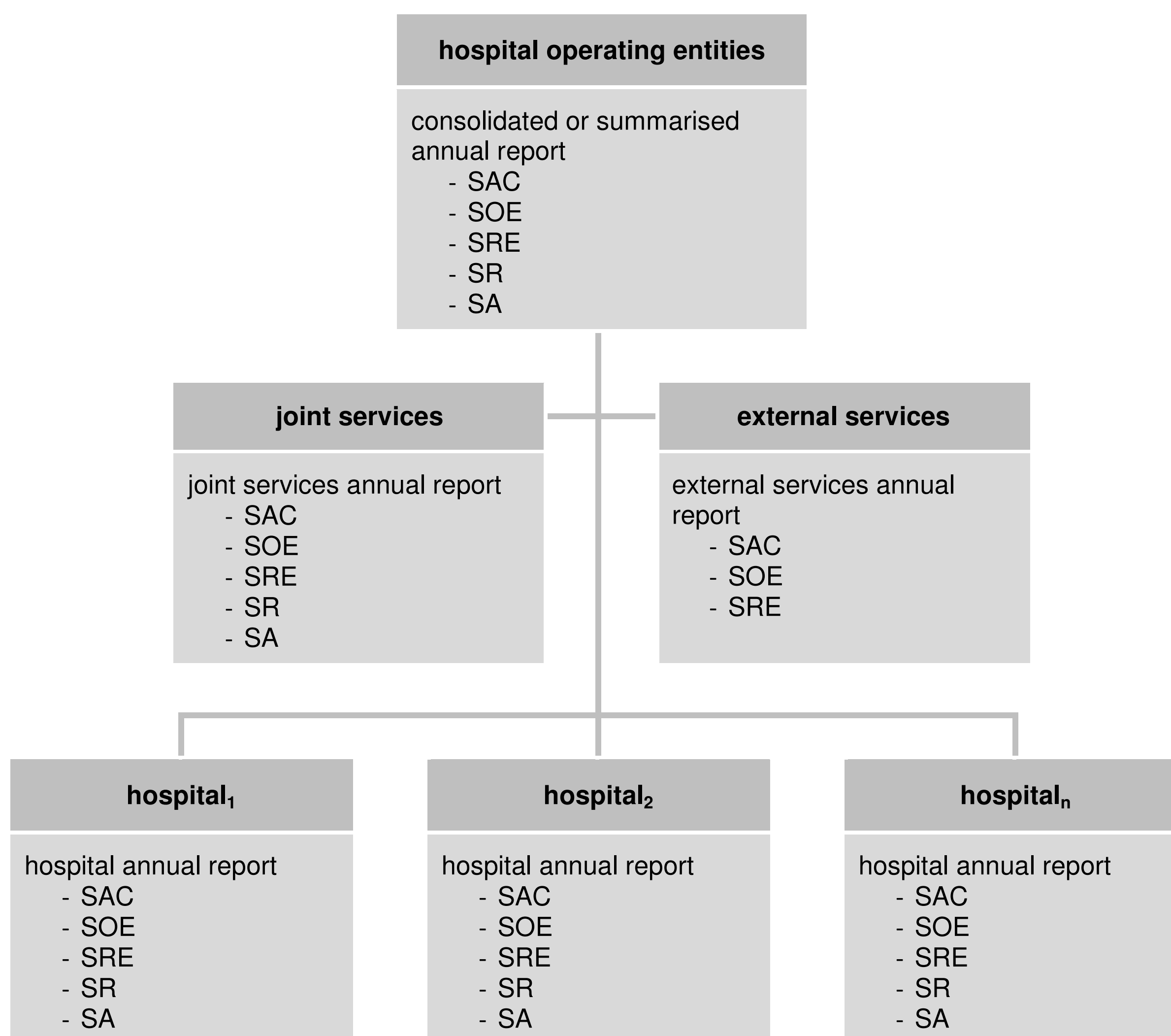

Fig. 3: Compound reporting structure of the hospital operating entities

3.3. Components of the reporting system[32]

3.3.1. Statement of assets and capital (SAC)[33]

The statement of assets and capital shows the composition and maturity of the hospital's assets, liabilities and equity. The purpose of the statement of assets and capital is to give an overview of both the structure of the hospital's assets and capital and the changes of these parameters. Therefore, the aim is to provide significant, transparent information about the hospital's assets (current, non-current and total assets), investment and disinvestment as well as equity and liabilities (current liabilities, non-current liabilities, equity capital in the broadest sense, mezzanine capital) and – by giving comparative figures in respect of the previous reporting period – to provide information about the development of these parameters. The statement of assets and capital shall also inform about the hospital's sources and allocation of funds and any existing over-indebtedness.

[32] The following remarks refer to the annual report of an individual hospital, but are also valid for the annual reports concerning joint or external services and the consolidated or summarised annual report of the hospital operating entity.

[33] See Federal Ministry of Health (2010d), section C.III.1.

The data shown in the statement of assets and capital shall be derived from the hospital's balance sheet. In principle, the structuring of the positions in the statement of assets and capital is based on the structure of the balance sheet according to the Austrian Unternehmensgesetzbuch (UGB – Austrian Entrepreneurial Code). However, in some cases additional line items, headings and subtotals have been included to take the unique characteristics of hospitals into consideration. The first part of the statement of assets and capital illustrates the components of the assets and the second part shows the components of the liabilities and equity. The assets are divided into non-current assets (these include, amongst others, intangible assets, properties, buildings, technical equipment and financial assets) and current assets (these include, amongst others, inventories, trade receivables, other receivables and cash and bank balances). Unlike in the balance sheet, the liabilities are also structured by their maturity. The current liabilities include current provisions, current loans and borrowings, trade accounts payable, other current liabilities and accruals. The non-current liabilities include, amongst others, non-current provisions, debenture loans, non-current liabilities to banks and other long-term liabilities. The statement of assets and capital also shows the origin of "other receivables" and "other non-current liabilities" by requiring information about the source of these positions (i.e., Federal Government, provincial government, local government, hospital operating entity or provincial health funds).

As already mentioned above, the relevant data shall be provided for both the current reporting period (RY) and the preceding reporting period (PY) in order to show the change (C) between these two reporting periods. The statement of assets and capital is structured as follows (see table 1):

statement of assets and capital (SAC)				
(1)	**assets**	**RY**	**PY**	**C**
A01	formation and expansion expenses			
A02	intangible assets			
A03	properties, rights equivalent to real property			
A04	buildings, including buildings on third party land			
A05	technical equipment and machinery			
A06	other property, plant and equipment			
A07	payments on account, tangible assets in course of construction			
A08	financial assets			
A09	**non-current assets (A02+A03+A04+A05+A06+A07+A08)**			
A10	inventories			
A11	trade receivables (total)			

A12	*thereof provincial health funds*			
A13	other receivables (total)			
A14	*thereof Federal Government*			
A15	*thereof provincial government*			
A16	*thereof local government*			
A17	*thereof hospital operating entity*			
A18	*thereof provincial health funds*			
A19	other current assets and accruals			
A20	cash at bank and in hand and investments			
A21	**current assets (A10+A11+A13+A19+A20)**			
A22	**total assets (A01+A09+A21)**			

(2)	**equity and liabilities**	**RY**	**PY**	**C**
C01	current provisions			
C02	current loans and borrowings			
C03	trade accounts payable, other current liabilities and accruals			
C04	**current liabilities (C01+C02+C03)**			
C05	provisions for termination benefits, pensions and similar obligations			
C06	other non-current provisions			
C07	debenture loans			
C08	non-current liabilities to banks			
C09	other non-current liabilities (total)			
C10	*thereof Federal Government*			
C11	*thereof provincial government*			
C12	*thereof local government*			
C13	*thereof hospital operating entity*			
C14	**non-current liabilities (C05+C06+C07+C08+C09)**			
C15	**total liabilities (C04+C14)**			
C16	**equity capital in the broadest sense and mezzanine capital (A22-C15)**			
C17	**total equity and liabilities (C15+C16)**			
C18	contingent liabilities			

Tab. 1: Statement of assets and capital (SAC)

3.3.2. Statement of equity (SOE)[34]

The statement of equity highlights the structure and the composition of the hospital's equity (i.e., equity capital in the broadest sense and mezzanine capital). Hence, the purpose of this statement is to illustrate the funding of the hospital via equity capital and mezzanine capital.

The data shown in the statement of equity shall be primarily derived from the hospital's balance sheet. The statement of equity starts with the position "equity capital in the broadest sense and mezzanine capital". This position can be defined as the difference between the hospital's total capital and capital which qualifies as liabilities. Changes in the hospital's equity between two reporting dates reflect the increase or decrease in its net assets during the period. Because of the information provided in the statement of equity, stakeholders can gain insights into how the hospital's total equity is divided into mezzanine capital (i.e., capital which contains characteristics of both debt and equity like shareholder loans), investment allowances, untaxed reserves, net profit or loss, retained earnings, capital reserves and subscribed capital. As a subtotal, position EQ08 "equity" shows the equity which has been provided to the hospital by the owners for an unlimited period at the reporting date. For hospitals which are not under the legal form of a capital company, the statement of equity closes with this position. Hospitals which are under the legal form of a capital company, in addition, have to state the positions capital reserves, retained earnings, profit or loss and subscribed capital.

Like in the statement of assets and capital, the relevant data shall be provided for both the current reporting period (RY) and the preceding reporting period (PY) in order to show the change (C) between these two reporting periods. The statement of equity is structured as follows (see table 2):

statement of equity (SOE)					
			RY	**PY**	**C**
EQ01		**equity capital in the broadest sense and mezzanine capital**			
EQ02	**-**	**mezzanine capital**			
EQ03	**=**	**equity capital in the broadest sense (EQ01-EQ02)**			
EQ04	-	investment allowances to property, plant and equipment, consumed			
EQ05	-	investment allowances to property, plant and equipment, available			
EQ06	**=**	**equity capital according to § 23 URG[35] (EQ03-EQ04-EQ05)**			
EQ07	-	untaxed reserves			

[34] See Federal Ministry of Health (2010d), section C.III.2.
[35] Unternehmensreorganisationsgesetz (Austrian Business Reorganisation Law).

EQ08	=	**equity (EQ06-EQ07)**			
EQ09	-	capital reserves			
EQ10	-	retained earnings			
EQ11	+/-	profit or loss			
EQ12	**=**	**subscribed capital (EQ08-EQ09-EQ10+/-EQ11)**			

Tab. 2: Statement of equity (SOE)

3.3.3. Statement of receipts and expenditures (SRE)[36]

The statement of receipts and expenditures shows the receipts the hospital generated during the reporting period as well as the expenditures incurred during that period. For the purpose of this statement, receipts are defined as any income which has a positive effect on the hospital's cash funds. On the opposite, expenditures are defined as any expenses having a negative effect on the hospital's cash funds. The aim of the statement of receipts and expenditures is to inform about both the sources and the use of income and about the ability of the hospital to cover its expenditures. For this purpose, the hospital's receipts and expenditures are categorised into receipts and expenditures relating to operating activities, allowances and grants, investing activities and financing activities.

The data shown in the statement of receipts and expenditures shall be primarily derived from the hospital's balance sheet and income statement as well as from the hospital's accounting records. The first part of the statement of receipts and expenditures shows the hospital's receipts structured by their origin (i.e., operating activities, allowances and grants, investing activities and financing activities). The "receipts from operating activities" primarily consist of the hospital's revenues. The individual components of revenue have to be shown as thereof remarks (i.e., thereof acute inpatient revenues, outpatient revenues and other revenues). All revenues from operating activities which are not directly attributable to patient care have to be classified as "other revenues". The "receipts from investing activities" primarily include "proceeds from disinvestment" and "allowances for investment". The "receipts from financing activities" consist, amongst others, of the items "acquisition of interest-bearing liabilities", "interest income and similar income" and "payments of associates". The bottom line of the first part of the statement of receipts and expenditures shows the hospital's "total receipts".

The second part of the statement of receipts and expenditures shows the hospital's expenditures structured by their origin (i.e., operating activities, investing activities, financing activities and others). The "expenditures from operating activities" primarily consist of "raw materials and consumables used" and "personnel expenditures". When it comes to personnel expenditures, any effects from the allocation to or the release of personnel provisions (e.g.,

[36] See Federal Ministry of Health (2010d), section C.III.3.

provisions for termination benefits, pensions and similar obligations) have to be eliminated. The subtotal “expenditures from investing activities” is divided into investment in tangible assets, fixed assets and financial assets. The “expenditures from financing activities” comprise, amongst others, the “amortisation of interest-bearing liabilities” and “interest expenditures and similar expenditures”. The bottom line of the second part of the statement of receipts and expenditures shows the hospital’s “total expenditures”. The balance of “total receipts” and “total expenditures” is the final result of the statement of receipts and expenditures.

Like in the statement of assets and capital and in the statement of equity, the relevant data shall be provided for both the current reporting period (RY) and the preceding reporting period (PY) in order to show the change (C) between these two reporting periods. The statement of receipts and expenditures is structured as follows (see table 3):

statement of receipts and expenditures (SRE)					
(1)	**receipts**		**RY**	**PY**	**C**
RC01	+	revenues (total)			
RC02	*thereof acute inpatient revenues*				
RC03	*thereof outpatient revenues*				
RC04	*thereof other revenues*				
RC05	+	compensation for additional clinical costs			
RC06	+	other receipts from operating activities			
RC07	=	receipts from operating activities without revenues from the allocation of management costs (RC01+RC05+RC06)			
RC08	+	revenues from the allocation of management costs			
RC09	**=**	**receipts from operating activities (RC07+RC08)**			
RC10	**=**	**preliminary profit or loss (RC09-EX11)**			
RC11	+	allowances for operational losses			
RC12	+	other operating allowances			
RC13	+	GSBG[37]-grant			
RC14	-	allowances and grants forwarded			
RC15	**=**	**current receipts form allowances and grants (RC11+RC12+RC13-RC14)**			
RC16	**=**	**total current receipts (RC09+RC15)**			
RC17	**=**	**current profit or loss (RC16-EX15)**			

[37] Gesundheits- und Sozialbereich-Beihilfengesetz (law on grants in the health care and social field).

RC18	+	proceeds from disinvestment			
RC19	+	allowances for investment			
RC20	+	compensation for additional clinical costs			
RC21	-	allowances for investment forwarded			
RC22	**=**	**receipts from investing activities (RC18+RC19+RC20-RC21)**			
RC23	**=**	**total receipts before financing activities (RC16+RC22)**			
RC24	**=**	**profit or loss before financing activities (RC23-EX20)**			
RC25	+	acquisition of interest-bearing liabilities			
RC26	+	issue of mezzanine capital			
RC27	+	interest income and similar income			
RC28	+	interest and annuity grants			
RC29	+	payments of associates			
RC30	**=**	**receipts from financing activities (RC25+RC26+RC27+RC28+RC29)**			
RC31	**=**	**total receipts (RC23+EC30)**			

(2)	**expenditures**		**RY**	**PY**	**C**
EX01	+	raw materials and consumables used			
EX02	+	personnel expenditures (excl. changes in personnel provisions)			
EX03	-	allowances according to FLAF[38]			
EX04	+	expenditures for low-value assets			
EX05	+	rent for immovable property			
EX06	+	other expenditures from operating activities			
EX07	-	change in inventories of finished goods and of work in progress			
EX08	-	internally produced and capitalised assets			
EX09	=	expenditures from operating activities without expenditures from the allocation of management costs (EX01+EX02-EX03+EX04+EX05+EX06-EX07-EX08)			
EX10	+	expenditures from the allocation of management costs			
EX11	**=**	**expenditures from operating activities (EX09+EX10)**			
EX12	+	non-deductable input VAT			
EX13	+	other taxes			
EX14	**=**	**total other expenditures (EX12+EX13)**			
EX15	**=**	**total current expenditures (EX11+EX14)**			

[38] Familienlastenausgleichsfonds (family assistance fund).

EX16	+	investment in intangible assets			
EX17	+	investment in fixed assets			
EX18	+	investment in financial assets			
EX19	**=**	**expenditures from investing activities (EX16+EX17+EX18)**			
EX20	**=**	**total expenditures without expenditures from financing activities (EX15+EX19)**			
EX21	+	amortisation of interest-bearing liabilities			
EX22	+	amortisation of mezzanine capital			
EX23	+	interest expenditures and similar expenditures			
EX24	+	repayments to associates			
EX25	**=**	**expenditures from financing activities (EX21+EX22+EX23+EX24)**			
EX26	**=**	**total expenditures (EX20+EX25)**			

(3)		**receipts/expenditures**	**RY**	**PY**	**C**
RC31	+	total receipts			
EX26	-	total expenditures			
NT01	**=**	**net total (RC31-EX26)**			

Tab. 3: Statement of receipts and expenditures (SRE)

3.3.4. Statement of revenues (SR)[39]

The statement of revenues shows the origin of the revenues which have been generated by the hospital during the reporting period. For the purpose of this statement, revenue is defined as any income which is typical for the ordinary operation of the hospital. Hence, the statement of revenues only includes revenues which are directly attributable to patient care. The purpose of this statement is to provide transparency in terms of the hospital's revenues via itemising revenue by its origin and its source of funding. Hence, in the column "thereof provincial health funds for domestic patients" the provincial health funds' portion of funding for domestic patients is indicated for each item of revenue.

The data shown in the statement of revenues shall be primarily derived from the hospital's income statement and from the hospital's accounting records. The hospital's revenues are structured by their origin (i.e., acute inpatient revenues, outpatient revenues and other revenues). Typically, the position "total acute inpatient revenues" accounts for the major part of a hospital's revenues. Since the new reporting system is mandatory for Austrian hospitals which are subsidised by provincial health funds, the refund of DRG-fees makes up the greatest part of acute inpatient revenues. Other acute inpatient revenues to be separately

[39] See Federal Ministry of Health (2010d), section C.III.4.

shown in the statement of revenues include revenues from health care fees which are refunded by social security institutions as reimbursement for inpatient services and fees for "special class" services.

The statement of revenues is structured as follows (see table 4):

statement of revenues (SR)			
		total	thereof provincial health funds for domestic patients
	acute inpatient revenues		
RE01	refund of DRG-fees		
RE02	DRG-fees		
RE03	refund of health care fees		
RE04	official health care fees		
RE05	fees for "special class" services		
RE06	fees to cover costs (§ 27a KAKuG[40])		
RE07	other inpatient revenues		
RE08	**total acute inpatient revenues (RE01+RE02+ RE03+RE04+RE05+RE06+RE07)**		
	outpatient revenues		
RE09	performance-based compensation		
RE10	compensation based on duration of stay		
RE11	other outpatient revenues		
RE12	**total outpatient revenues (RE09+RE10+RE11)**		
	other revenues		
RE13	revenues from other health care services		
RE14	accompanying persons (§ 27 KAKuG)		
RE15	revenues relating to nursing homes, rehabilitation centres, convalescent homes		
RE16	**total other revenues (RE13+RE14+RE15)**		
RE17	**total revenues (RE08+RE12+RE16)**		
RE18	**compensation for additional (operating) clinical expenditure**		
RE19	**other operating revenues**		

Tab. 4: Statement of revenues (SR)

[40] Bundesgesetz über Krankenanstalten und Kuranstalten (Austrian Federal Act on hospitals and convalescent homes).

3.3.5. Statement of allowances (SA)[41]

The statement of allowances shows the allowances granted to the hospital structured by their type and the respective financier (i.e., the provincial health funds, the provincial government(s), local government(s), the hospital operating entity or others). The purpose of the statement of allowances is to make transparent all allowances granted to the hospital during the reporting period, no matter whether these allowances have been directly granted to the hospital or transferred to the hospital via the hospital operating entity. If the hospital is granted an allowance, it needs to assess whether the allowance qualifies as an allowance for operational losses, an investment allowance or an allowance for interest and annuity. Classification has to be carried out by the hospital according to the type and the earmarking of the funds. An arbitrary classification of the funds is not permitted. Allowances for which the hospital is not able to distinguish between the individual categories have to be shown in the position "other operating allowances".

The data shown in the statement of allowances shall be primarily derived from the hospital's statement of accounts and from the hospital's accounting records.

The statement of allowances is structured as follows (see table 5):

[41] See Federal Ministry of Health (2010d), section C.III.5.

statement of allowances (SA)							
		total	thereof	thereof	thereof	thereof	thereof
			provincial health funds	provincial government(s)	local government(s)	hospital operating entity	others
A01	allowances for operational losses						
A02	other operating allowances (e.g., for pensions, schools, etc.; allowances for transplantations and the like)						
A03	**total operating allowances (A01+A02)**						
A04	**investment allowances**						
A05	**allowances for interest and annuity**						

Tab. 5: Statement of allowances (SA)

4. Hospital financial ratio analysis

Financial ratios are used by various interest groups (e.g., hospital administrators, governing boards and public policy groups) to assess the financial performance of a hospital or a group of hospitals. There are several reasons why financial ratio analysis of hospitals differs from traditional financial analysis, with the considerable size of the hospital industry (total annual health care expenditure in Austria is about 11 % of GDP) and the specific ownership-structure of the hospital sector being the most evident ones.[42] To evaluate a hospital's financial performance it is important to identify common financial characteristics of performance.[43] Zeller et al. (1997) define a characteristic of performance as "a group of ratios which measure essentially the same financial activity of a firm".

4.1. Frequently used indicators of hospital financial performance

Zeller et al. (1996) identified eight financial characteristics of firm performance applicable to hospitals.[44] These are profitability, return on equity, fixed asset efficiency, capital structure, fixed-asset age, working capital efficiency, liquidity and debt coverage. Two of them – profitability and capital structure – were also identified as financial characteristics of hospital performance in other studies.[45]

Profitability can be defined as the efficiency of a company at generating earnings.[46] Examples of financial ratios which measure profitability of hospitals are return on assets (ROA), total margin (TMAR), return on investment (ROI) and operating margin (OMAR). The ROA informs about the efficiency of using the assets to generate earnings. It is calculated as the ratio of earnings before interest and tax (EBIT) to total assets.[47] The calculation of the ROI is carried out similarly, except that the earnings include interest and tax. Whereas the ROA and the ROI correlate earnings (with or without interest and tax) with total assets, the margins (TMAR, OMAR) focus on the proportion of earnings and revenues.

The characteristic return on equity can also be seen as a sub-characteristic of profitability. The return on equity (ROE) displays the amount of income returned as a percentage of the hospital's equity. Hence, the ROE can be described as the interest rate of financiers.[48] It is calculated as the ratio of earnings to equity. The growth rate in equity (GRIE) shows by how much equity has changed in a financial year as a percentage of equity. It is calculated as the ratio of change in equity to equity.

---

[42] See Zeller et al. (1996), 161-163.

[43] See Zeller et al. (1997), 62.

[44] The following remarks regarding the identification of ratios associated with the financial characteristics and their calculation refer to Zeller et al. (1996), 168-178.

[45] See Cleverley/Rohleder (1985), 85; Counte et al. (1988),176; Chu et al. (1991), 47; Watkins (2000), 83; Das (2009), 17-18.

[46] See Coenenberg et al. (2009), 1132-1133.

[47] See Coenenberg et al. (2009), 1144-1145.

[48] See Küting/Weber (2006), 308; Egger et al. (2010), 651.

Efficiency is a measure of the success achieved by performing a task. The fixed asset efficiency describes the capability of hospitals to generate revenues with their assets or – in other words – how profitable a hospital uses its assets. For example, fixed asset efficiency of hospitals can be measured by the following ratios: fixed asset turnover (FATO) and total asset turnover (TATO). The FATO is the ratio of revenues to net fixed assets whereas the TATO is the ratio of revenues to total assets.

Ratios to describe the characteristic capital structure include, for example, equity financing (EF) and fixed asset financing (FAF). EF is the ratio of equity to total assets. It expresses the portion of the total assets financed by equity. FAF is the ratio of non-current liabilities to net fixed assets. It expresses the portion of the net fixed assets financed by non-current liabilities.

The characteristic fixed asset age represents the approximate age of a company's plant and equipment. For example, the fixed asset age of hospitals can be measured by the following ratios: average age of plant (AAP) and depreciation rate (DEPR). The AAP is calculated as the ratio of accumulated depreciation to depreciation expense. The result is the average number of years the depreciable assets have already been depreciated – therefore their average age. The DEPR is calculated as the ratio of depreciation expense to gross fixed assets. Thus, this percentage displays the portion of gross fixed assets depreciated annually.

The working capital is the balance of current assets and current liabilities.[49] Working capital efficiency expresses the relative efficiency of a company's investment in current assets or working capital. Examples of financial ratios which measure working capital efficiency of hospitals are the current ratio (CR) and the current asset turnover (CATO). The CR indicates whether the hospital has enough current assets to cover its current liabilities. It is calculated as the ratio of current assets to current liabilities. If this ratio is below 1, the current liabilities exceed the current assets.[50] The CATO is the ratio of revenue to current assets. It indicates how efficiently a hospital is using its current assets to generate revenue.

The liquidity of a company expresses its ability to meet its financial liabilities or its access to unrestricted cash.[51] A ratio to measure the liquidity of hospitals is days cash on hand (DCH). It represents the average number of days it takes to deplete the cash and cash equivalents. The indicator is calculated as the ratio of cash plus marketable securities to total expenses (without depreciation) per day.

The debt coverage represents a hospital's ability to satisfy current and future interest obligations. Examples of ratios to measure the debt coverage of hospitals are debt service

[49] See Coenenberg et al. (2009), 1067-1068.
[50] See Egger et al. (2010), 627-628.
[51] See Küting/Weber (2006), 112.

coverage (DSC) and times interest earned (TIE). The DSC is calculated as the ratio of cash flow plus interest expense to principal payment plus interest expense. Thus, it shows the cash flow's ability to cover the annual principal payment and interest expense. The TIE expresses how many times the interest expense could be covered by the revenues before interest expenses. It is calculated as the ratio of revenue plus interest expense to interest expense.

4.2. The new reporting system – benefits for financial ratio analysis

On the one hand, the new reporting system implemented by the Federal Ministry of Health facilitates the calculation of the ratios related to the characteristics mentioned above. In addition, financial ratios for all hospitals covered by the reporting system can be calculated and compared automatically. On the other hand, due to the detailed structure of the components of the new reporting system a much more specific analysis can be performed by the addressees of the reporting system, i.e., the governor and the Federal Ministry of Health.

Since the statement of assets and capital distinguishes between current and non-current assets and liabilities, the ratio of current assets to total assets and the intensity of investments, which is the ratio of non-current assets to total assets, can be calculated. This information is of particular importance since the hospital's non-current assets tie up capital and strongly affect principal payments and interest expense, the depreciation expense and the costs for maintenance. Correspondent to the analysis of the maturity of the assets, the maturity of capital can be determined by both the ratio of current liabilities to total liabilities and the ratio of non-current liabilities to total liabilities. More profound information about the composition of the hospital's capital can be provided by the ratios of social overhead capital to total capital or to non-current liabilities. In addition, the debt-equity ratio, calculated as the ratio of total liabilities to total capital, informs about the degree of indebtedness of a hospital.

The structure of the statement of assets and capital also enables to compute the working capital or working capital ratio and the net indebtedness which is the balance of liabilities and cash and cash equivalents. Furthermore, due to the thereof remarks required for the positions "other receivables" and "other non-current liabilities" it is possible to see both the source (e.g., Federal Government, provincial government, local government and hospital operating entity) of these items and the sources' portion of the total positions.

The statement of equity describes the origin and the composition of the hospital's equity. So, amongst others, the structure of the statement of equity enables to display the ratio of investment allowances to equity capital. If one combines the data of the statement of equity with the data of the statement of assets and capital, additional ratios like the ratio of investment allowances to non-current assets or the equity ratio which is the ratio of equity capital to total capital can be determined.

The statement of receipts and expenditures structures receipts and expenditures more detailed than the income statement and provides, amongst others, subtotals for receipts and expenditures from operating, investing and financing activities. Hence, it enables the calculation of these subtotals' portion of the total receipts respectively the total expenditures. The statement of receipts and expenditures also enhances the analysis of the hospital's investing and financing activities. For example, the ratio of expenditures from investing activities to non-current assets shows the average percentage of non-current assets reinvested. Besides, the ratio of interest expenditures and similar expenditures to interest-bearing liabilities informs about the interest-bearing liabilities' average interest rate. Since the hospital sector is traditionally very labour-intensive, the proportion of personnel expenditure to both operating expenditures and to total revenues are significant ratios. The latter shows how efficiently a hospital generates revenues via its personnel.

The statement of revenues provides detailed information about the origin of the hospital's revenues. Therefore, it enables both the analysis of the origin of the respective revenues and the calculation of the subtotals' portion of the total revenue.

5. Conclusion

In Austria, hospital care is mainly provided by publicly funded hospitals. About 75 % of the bed capacity and 85 % of all hospital employees are concentrated in hospitals which are subsidised by the government.[52] The major funders of the Austrian health care system include the social health insurance funds and the Federal Government. In order to ensure an efficient allocation of resources, the Federal Ministry of Health established a reporting system for hospitals in 2010 which consists of five components. These components provide information about the structure and the maturity of the hospitals' assets and capital, the composition of equity, revenues, receipts and expenditures and the origin and composition of allowances.

Based on several studies on hospital financial ratio analysis, this paper suggests financial ratios which are significant financial indicators for hospitals. The recently implemented reporting system facilitates the calculation of these indicators and enables the automatic computation and the comparison of financial ratios for all hospitals covered by the reporting system. Due to the detailed structure of the individual components, the reporting system allows for a more specific analysis of the hospitals' assets, capital, receipts and expenditures and revenues than the hospitals' statement of accounts. Whether the new reporting system will truly fulfil its aim of supporting decision-making processes on the federal and provincial level and of providing reliable data for effective decisions in connection with the ongoing health care reform debate, can only be assessed by monitoring the data provided by the

[52] See Hofmarcher et al. (2002), 7.

reporting system over time since financial ratios are only decision-useful if calculated and compared for more than one reporting period. Hence, further research has to be carried out once the reporting system has been established for a couple of years and data are available for a considerable period of time.

References

Chu, D. K.W./Zollinger, T. W./Kelly, A. S./Saywell, R. M., Jr. (1991): An Empirical Analysis of Cash Flow, Working Capital, and the Stability of Financial Ratio Groups in the Hospital Industry, in: Journal of Accounting and Public Policy, Vol. 10, No. 1, 39-58.

Cleverely, W. O./Rohleder, H. (1985): Unique Dimensions of Financial Analysis Service Ratios, in Topics in Health Care Financing, Summer 1985, Vol. 11, No. 4, 81-88.

Coenenberg, A. G./Haller, A./Schultze, W. (2009): Jahresabschluss und Jahresabschlussanalyse, Betriebswirtschaftliche, handelsrechtliche, steuerrechtliche und internationale Grundsätze – HGB, IFRS, US-GAAP, Vol. 21, Stuttgart. (in German)

Counte, M./Glandon, G./Holloman, K./Kowalezky, J. (1988): Using ratios to measure hospital financial performance: Can the process be simplified?, in: Health Services Management Research, Vol.1, No. 3, 173-180.

Das, D. (2009): Factor Analysis of Financial and Operational Performance Measures of Non-Profit Hospitals, in: Journal of Health Care Finance, Vol. 36, No. 2, 13-23.

Egger, A./Bertl, R./Samer, H. (2010): Der Jahresabschluss nach dem Unternehmensgesetzbuch, Band 1, Der Einzelabschluss, Erstellung und Analyse, Vol. 13, Vienna. (in German)

Federal Ministry of Health (2010a): The Austrian DRG system. Vienna.

Federal Ministry of Health (2010b): The Austrian Health Care System. Key Facts. Vienna.

Federal Ministry of Health (2010c): Leistungsorientierte Krankenanstaltenfinanzierung – LKF - Systembeschreibung. Vienna. (in German)

Federal Ministry of Health (2010d): Berichts-Handbuch. Handbuch zum Krankenanstalten-Berichtswesen landesgesundheitsfondsfinanzierter Krankenanstalten zur Krankenanstalten-Rechnungswesen-Berichtsverordnung – KRBV. Vienna (in German)

Federal Ministry of Health: Berichtswesen über den Rechnungsabschluss der Krankenanstalten, http://www.bmg.gv.at/home/Schwerpunkte/Gesundheitssystem_Qualitaetssicherung/Dokumentation/Berichtswesen_ueber_den_Rechnungsabschluss_der_Krankenanstalten. (in German)

Fetter, R. B. (1991): Diagnosis Related Groups: Understanding Hospital Performance, in: Interfaces, Jan.-Feb. 1991, Vol. 21, No. 1, 6-26.

Hofmarcher, M. M./Lietz, C./Schnabl, A. (2005): Inefficiency in Austrian Inpatient Care: Identifying Ailing Providers Based on DEA Results, in: Central European Journal of Operations Research, Dec. 2005, Vol. 13, No. 4, 341-363.

Hofmarcher, M. M./Paterson, I./Riedel, M. (2002): Measuring Hospital Efficiency in Austria – A DEA Approach, in: Health Care Management Science, Feb. 2002, Vol. 5, No. 1, 7-14.

Hofmarcher, M. M./Rack, H. M. (2006): Austria: Health system review, European Observatory on Health Systems and Policies (ed.), Health Systems in Transition, Vol. 8, No. 3.

Kranebitter, S. (2007): Die Finanzierung des Krankenanstaltenwesens in Österreich am Beispiel des Tiroler Gesundheitsfonds, in: Gamper, A./ Fraenkel-Haeberle, C. (ed.), Gesundheits- und Pflegewesen im Umbruch. Ein euroregionaler Rechtsvergleich, Vienna, 87-106. (in German)

Küting, K./Weber, C.-P. (2006): Die Bilanzanalyse, Beurteilung von Abschlüssen nach HGB und IFRS, Vol. 8, Stuttgart. (in German)

Lüngen, M./Lauterbach, K. W. (2000): Nutzung von Diagnosis-Related Groups (DRG) im internationalen Vergleich, in: Der Chirurg, Vol. 71, 1288-1295. (in German)

Rauner, M. S./Schaffhauser-Linzatti, M. M. (2001): Interplay between in-patient reimbursement systems and health-care technology management: the Austrian case, in: International Journal of Healthcare Technology and Management, Vol. 3, No. 1, 1-23.

Rauner, M. S./Schaffhauser-Linzatti, M. M. (2002): Impact of international in-patient payment strategies on health technology management: a system-dynamics-model for Austria, in: Socio-Economic Planning Sciences, Vol. 36, No. 3, 133-154.

Republic of Austria (2009): Krankenanstalten-Rechnungsabschluss-Berichtsverordnung – KRBV, BGBl. II, No. 405/2009. (in German)

Rodrigues, J.-M. (1989): L'Europe des DRG, in: Sozial- und Präventivmedizin (Social and Preventive Medicine), July 1989, Vol. 34, No. 4, 152-155.

Rössler, W. (2010): Stöger dreht Ländern eine bittere Pille, in: Kleine Zeitung, Nov. 4th, 2010, 6-7. (in German)

Schaffhauser-Linzatti, M. M./Zeileis, A./Rauner, M. S. (2009): Effects of the Austrian performance-oriented inpatient reimbursement system on treatment patterns: illustrated on cases with knee-joint problems, in: Central European Journal of Operations Research, Sep. 2009, Vol. 17, No. 3, 293-314.

Sommersguter-Reichmann, M. (2000): The impact of the Austrian hospital financing reform on hospital productivity: empirical evidence on efficiency and technology changes using a non-parametric input-based Malmquist approach, in: Health Care Management Science, 2000, Vol. 3, No. 4, 309-321.

Statistics Austria: Health Expenditure in Austria, http://www.statistik.at/web_en/statistics/health/health_expenditure/index.html.

Theurl, E./Winner, H. (2005): Die Reform der Krankenhausfinanzierung in Österreich und ihre Auswirkungen auf die Verweildauer, in: Wirtschaftspolitische Blätter, Vol. 54, No. 3, 504-514. (in German)

Watkins, A. L. (2000): Hospital financial ratio classification patterns revisited: Upon considering nonfinancial information, in: Journal of Accounting and Public Policy, Vol. 19, No. 1, 73-95.

Zeller, T. L./Stanko, B. B./Cleverley, W. O. (1996): A Revised Classification Pattern of Hospital Financial Ratios, in Journal of Accounting and Public Policy, Vol. 15, No. 2, 161-182.

Zeller, T. L./Stanko, B. B./Cleverley, W. O. (1997): A new Perspective in Hospital Financial Ratio Analysis, in: Healthcare Financial Management, Nov. 1997, Vol. 51, No. 11, 62-66.