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The Degree of Determination of National Accounting Systems An Empirical Investigation*

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The Degree of Determination of National Accounting Systems - an Empirical Investigation

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ABSTRACT

In international accounting literature there are various approaches to assess the quality of national accounting systems with respect to specific key functions, e.g. the intensity of capital market information. An empirical approach often used measures the quality of disclosure by ranking the national systems with the so-called "disclosure index" (e.g. *Choi* 1973, *Barret* 1975, *Cooke* 1992, *Taylor/ Zarzeski* 1996). Concentrating on disclosure regulation in contrast to accounting practices, *Cooke/ Wallace* 1990 construct an index which measures the "degree of financial regulation". They identify groups of countries which can be clearly classified in highly regulated, regulated and moderately regulated national accounting systems.

In our analysis, we want to enrich the idea of the degree of financial disclosure regulation to a concept for evaluating the degree of determination of financial measurement. Assuming that a high degree of determination of a national accounting system leads to more comparable accounts than a low degree, the index can be interpreted as a quality measure of national accounting systems according to the intensity of capital market information. The following hypothesis is to be proved: the degree of disclosure regulation equals the degree of measurement regulation in order to serve the information needs of the national capital markets.

Three groups of different degrees of determination for national accounting systems can be easily identified which are compared to the results of *Cooke/ Wallace*. For some of the national systems the above hypothesis seems to be appropriate whereas some opposing results can be shown. Possible explanations are presented which can be causally related to these diverging results. They are based on historical developments, the differentiation between rules for individual and group accounts, and on conditions where different degrees seem plausible.

JEL-Classification: M41
Keywords: International Accounting, Comparative Accounting

Contents

1 Introduction

In the international accounting literature various approaches exist to assess the quality of national accounting systems with respect to specific key functions, e.g. the intensity of capital market information. An empirical approach often used measures the quality of disclosure by ranking the national systems with the so-called "disclosure index" which is based on the existence or non-existence of some "items of information" in annual accounts.[1] Concentrating on disclosure regulation in contrast to accounting practices, *Cooke/ Wallace* 1990 construct an index which measures the "*degree of financial regulation*". They identify groups of countries which can be clearly classified in highly regulated, regulated and moderately regulated national accounting systems.

In our analysis, we want to develop this idea of the degree of financial disclosure regulation into a concept for evaluating the degree of determination of financial measurement. Assuming that a high degree of determination of a national accounting system leads to more comparable accounts than a low degree, the index can be interpreted as a quality measure of national accounting systems according to the intensity of capital market information.[2] Accordingly, a system is as much determined as the related accounting methods are forbidden or required as opposed to being optional. We are aware that this constrained definition of comparability does not conform perfectly with real life concepts. Moreover, comparability is not the only objective of national reporting systems. However, a greater action space in accounting policy choice provided by a national system is supposed to lead systematically to less comparable accounts and hence to less useful information. Projects to improve the comparability of accounts like the Comparability Improvement Project of the IASC support this view.[3]

Following the idea of *Cooke/ Wallace*, a ranking and a grouping of 14 national accounting systems and the rules of the IASC are developed which show the different degrees of determination according to measurement rules. Assuming that the regulation of both disclosure as well as of measurement rules serves the quality of capital market information the following hypothesis will be tested: the degree of disclosure regulation as presented by *Cooke/ Wallace* equals the degree of measurement regulation in order to serve the information needs of the national capital markets.

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1 E.g. *Choi* 1973a, *Barrett* 1975, *Cooke* 1992, *Taylor Zarzeski* 1996.

2 Of course, there may be other reason (not just capital market) why a high or low degree of determination exists, but the quality measure stresses on the comparability of accounts in order to provide useful information for capital market users.

3 See *KPMG* 1996, p.20.

When comparing our results with the *Cooke/ Wallace*-findings, certain possible shortcomings have to be considered, when the stated hypothesis does not hold for some systems under review. These discrepancies in the results do not seem to lead back to the non-existence of the assumed dependence but can be causally related to plausible explanations. They are traced to developments that are not reflected in the database used by *Cooke/ Wallace* but by the current database which is built on new data on national accounting regulation.[4] Hence, plausible explanations for the change in the classification of the Spanish, Swedish, Australian, and Canadian systems are given. They are based on dramatic historical developments, on a differentiation between rules for individual and group accounts and on a possible bias in the data used. Furthermore, analysing the Dutch system, conditions are named, where different degrees seem plausible.

These findings demonstrate the dynamics that underlie some national systems whereas other countries' accounting system are more stable. Hence, the reaction of certain national standard setters to the tendency of international harmonisation can be interpreted according to these degrees of determination.

2 Literature Review: Concepts of Obligation and Regulation

One research topic in the field of international accounting research analyses the extent to which national financial reporting systems lead to compulsory accounting methods. This degree of obligation often focuses on accounting disclosure - named "disclosure index" - and is measured by indexes based on accounting practices. Later on, this concept is enhanced to provide a measure of the degree of regulation which encompasses several rules of national accounting systems.

The idea to calculate a degree of obligation of national accounting systems based on empirical data is not new in accounting literature. In the seventies *Barrett* developed an "*index of disclosure*", which measured the complexity and adequacy of accounting information for each national system by investigating the disclosures in several annual reports. The presence of 17 "*items of information*" in each reviewed report determined the value of the index.[5] According to the index, Anglo-American systems, especially the

4 The database is founded on the findings of the TRANSACC Reference Matrix. See *Ordelheide/ Semler* 1995 and section 3.1.

5 See *Barrett* 1975, 1976, 1977.

American and the British one, showed high values, whereas the Continental European systems with France at the bottom indicated relatively low degrees.[6] This ranking was congruent with the efficiency of the local capital markets.[7] Although these studies were based on accounting practices, the index provided information about the strictness of disclosure rules in national accounting systems. However, the database was restricted because of the relatively low number of annual reports reviewed.

Also in the seventies, *Choi* published three studies concerning the relation of external environmental factors related to the capital market influence on accounting and the quality of financial reporting practices.[8] Similar to *Barrett's* method, he measured the degree by a "*level of disclosure*", that was based on 36 "*items of information*". In contrast to *Barret's* results, *Choi* concluded that factors other than national borders influenced the disclosure level.

A partly related concept was used by *Belkaoui*, who evaluated national accounting systems by a "*reporting and disclosure adequacy index*"[9] based on the *Price Waterhouse* database on accounting practices.[10] The index was calculated by summing the ordinal categories of all items for each country, which included disclosure as well as measurement practices.[11] A test of significance did not prove a strong relation between this index and several environmental factors. While the sum of disclosure information categories can deliver meaningful information about the strictness of national accounting systems, the total score including all measurement items does not seem plausible for interpreting the adequacy of financial reporting systems.[12] It is hard to imagine that a disclosure item could be forbidden whereas of course the non-existence or injunction of a measurement method can serve as an indicator for accounting adequacy. To illustrate our

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6 In his analysis from 1975, *Barrett* made use of the reports of the 15 biggest enterprises for each country only. In the later studies form 1976 and 1977 the data base considered 103 reports from the financial years 1963 to 1972.

7 See *Barrett* 1976, p.24.

8 *Choi* 1973a, 1973b, 1974.

9 See *Belkaoui* 1983.

10 See *Price Waterhouse* 1979.

11 The categories are:
1 = required
2 = used by a majority of the firms
3 = used by about half of the firms
4 = used by a minority of the firms
5 = prohibited
6 = not applicable, not found

critique, we consider the item from the *Price Waterhouse* database on stock valuation by the LIFO method as a representative example.[13] A high score on the ordinal scale does not imply an adequate method of stock valuation as the author suggests,[14] but can be interpreted as an indicator for a tax based accounting practice.[15] Moreover, several items deal with other methods of stock valuation, e.g. FIFO or the average method. A high score for an item leads to a low one for another and vice versa, because one of the named methods is normally used in practice. Consequently, summing the scores over these items cannot be meaningful for the evaluation of the adequacy of national accounting systems. Hence, the research design seems doubtful and therefore the results, e.g. the lack of significance, can be questioned.[16] Furthermore, *Belkaoui/ Maksy* tested the relation between the ”*reporting and disclosure adequacy index*” and the concept of the ”*welfare of the common man*”. As in the earlier study, they could not prove a significant dependence.[17]

A more refined research design was developed by *Cooke/ Wallace*, who enhanced the concept of obligation to the idea of a degree of regulation of national accounting systems.[18] This "*degree of financial regulation*" only takes disclosure items into account and is measured on the basis of the *Price Waterhouse* database as well as the database from *Gray/ Campbell/ Shaw* (1984) which includes information about national accounting rules and practices. *Cooke/ Wallace* establish a scoring model from -1 (for Price Waterhouse) or 0 (for *Gray/ Campbell/ Shaw*) to 4, which covers only the state of regulation. Categories concerning accounting practices are transformed to the regulative level. Moreover, the databases are revised in order to eliminate items with analogous information. The index is calculated as the relation of the sum of scores and the total number of items; hence it represents an average of all scores. According to the intensity

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12 The term "adequacy" is taken from *Belkoui* 1983. He has not defined what the "adequacy of an accounting system" means. However, his index measures also a degree of obligation or regulation.

13 See *Price Waterhouse* 1979, No. 84.

14 *Belkaoui* 1983, p.213: "A high score on the "actual reporting and disclosure adequacy index" suggests a willingness by a given country to adhere and enforce 267 accounting principles and practices deemed necessary for enhancing the quality of accounting practice and helping the move toward a greater degree of harmonization".

15 See *Lischer/ Märkl* 1997.

16 *Belkaoui* does not trace back the lacking significance to the research design: ”While the results of the overall regression model was not significant, the paper indicates the need for research in an important, but relatively unexplored area.” *Belkaoui* 1983, p.218.

17 See *Belkaoui/ Maksy* 1985.

18 See *Cooke/ Wallace* 1990.

of regulation, the authors suggest four groups (*highly regulated, regulated, moderately regulated, underregulated*) in order to classify the analysed national systems. The results are compared to an environmental rating[19] and are differentiated in systems of developed and developing countries. Overall, a significant dependence between internal variables and levels of regulation are proved. But this dependence holds for developed countries only.[20]

Table 1 and 2 show the results for the two databases.[21] To facilitate the comparison with the present findings, only countries from the later used TRANSACC sample are included.[22]

Table 1: *Cooke/ Wallace*-Classification with *Price Waterhouse* data:

highly regulated		regulated		moderately regulated		underregulated	
USA	3,45	France	2,89	Austria	1,17	Switzerland	1,00
Canada	3,27	Japan	2,54			Spain	0,70
Great Britain	3,24	Australia	2,45				
Netherlands	3,13	Sweden	2,41				
		Belgium	2,30				
		Denmark	2,28				
		Germany	2,26				

Table 2: *Cooke/ Wallace*-Classification with *Gray/ Campbell/ Shaw* data:

highly regulated		regulated		moderately regulated	
Great Britain	3,26	Japan	2,94	Denmark	2,52
USA	3,25	Australia	2,70	Spain	2,37
		France	2,66	Switzerland	2,11
		Germany	2,65		
		Belgium	2,62		

Altogether, both databases lead to relatively comparable rankings, that differ in only a few aspects. In the first, the USA is group leader of the high regulated systems whereas

19 This rating bases on an environmental index that reflects factors such as the level of business activities, the rules for conducting business, and the political risks in scoring form. It is derived from the set of indexes issued by Business Environment Risk Information, SA (BERI). See *Cooke/ Wallace* 1990, pp.88-89.

20 See *Cooke/ Wallace* 1990, p.98.

21 See *Cooke/ Wallace* 1990, p.95.

22 See section 3.1 for details.

in the second Great Britain narrowly gains this leadership. Applying the *Price Waterhouse* database, Denmark belongs to the regulated group. The Danish system changes to the moderately regulated cluster when employing the *Gray/ Campbell/ Shaw* database.[23] There are also ranking differences within the groups.

With this study, *Cooke/ Wallace* establish the concept of regulation for the evaluation of national accounting systems, that explicitly considers the regulation level, whereas all other reviewed investigations cover only something like obligation degrees based on accounting practices.[24] Hence, in the following the *Cooke/ Wallace*-results will serve as our benchmark for comparison. The results will be taken according to the *Price Waterhouse* database, because all countries from the present sample are included (only the system of the IASC is missing).

Furthermore, several studies in the nineties investigate the relation between disclosure practices and the capital market influence. Based on the requirements of certain stock exchanges, particular indexes of disclosures are calculated.[25] Hereby, the size of the capital market as well as the size of the participating enterprises turn out as important variables for explaining differences in disclosure practices.[26] The concept of a disclosure index for several stock exchanges takes up again the idea of an index of the regulation level, but does not refer automatically to a national setting.[27] Hence, it will not be considered in the following.

3 Research Data and Methodology

3.1 Research Data

The sample for the empirical part of this paper covers 15 national systems including

23 A reason for this change could be found in the different periods of time for data collection. As the first EU member, Denmark has transformed the 4th EU directive in Danish law in 1981. Hence, between the set-up of the first and the second database this transformation took place. See *Christiansen/ Elling* 1993, p.67.

24 This remark should not be misinterpreted as a criticism of the work because we are aware, that the authors follow other research questions.

25 See *Cooke* 1992, *Adhikari/ Tondkar* 1996, *Taylor Zarzeski* 1996.

26 Vice versa, *Biddle/ Saudagaran* 1989 use the index of disclosure as an explanatory variable for listing choices of foreign enterprises.

27 E.g. each of the five Canadian stock exchanges has local reporting requirements. See section 5.4.3.

various European countries as well as the US, Canada, Australia, Japan and the rules of the IASC. Based on actual data on accounting regulation from the TRANSACC Reference Matrix, the index is calculated for each national system established on the differentiation between accounting methods which are forbidden or required versus those which are optional. Thus, the matrix shows the regulation level of the national accounting systems.

The matrix covers those rules which determine the content of the balance sheet and the profit and loss account including recognition and valuation. Rules concerning the preparation, auditing and publication as well as those concerning formats and disclosure are not dealt with.[28] The matrix is divided into two main parts. The first part deals with items concerning recognition and valuation rules that generally have to apply for individual accounts. Of course, they normally have to apply for group accounts, too. The second part deals with matters that apply only to the consolidated accounts, such as the determination of the consolidation set or methods of consolidation. The content of the data base is summarised in the following table:

Table 3: Content of the current data base

Topics	Example	Σ variables after coding
INDIVIDUAL ACCOUNTS		Σ 71
Recognition - Assets	Recognition of development costs	20
Recognition - Liabilities	Provision for expenditure	7
Valuation - Assets	LIFO	37
Valuation - Liabilities	Valuation of foreign currency liabilities	4
Revaluation Accounting	Treatment of revaluation reserve	3
GROUP ACCOUNTS		Σ 58
Full consolidation set	Exclusion in cases of diverging activities	16
Proportional consolidation set	Rights which assure joint control	3
Uniformity of accounts	Uniform accounting policies	6
Foreign currency translation	Treatment of translation adjustment	7
Consolidation of capital	Pooling of interest method	13
Consolidation of debt/ profits	Treatment of differences	2
Equity method	Exercise of significant influence	8
Deferred taxation	Netting of tax assets and liabilities	3

The entries for each country have been checked by accounting professors or accounting

28 See *Ordelheide/ Semler* 1995, p.3.

professionals of their respective countries. Additionally, certain background information is available which enabled the matrix to be adjusted for the specific research design. The adjustments were necessary because some entries had to be standardised for applying the following model. Consequently, brief descriptions had to be adjusted by standardised answers (required, allowed, forbidden). Furthermore, variables had to be eliminated which were at a higher degree of aggregation or did not serve the separable function.[29] As result the revised TRANSACC Reference-Matrix **x** has the following form:

$$\mathbf{x} = \begin{array}{c} \\ e_1 = \text{Australia} \\ e_2 = \text{Austria} \\ . \\ . \\ e_{15} = \text{United States} \end{array} \begin{array}{c} \begin{array}{cccc} a_1 & a_2 & .... & a_J \end{array} \\ \begin{pmatrix} R & & & \\ F & & & \\ . & & & \\ . & & & \\ A & & & \end{pmatrix} \end{array}$$

- e_i symbolizes the unit ”country” inclusive the IASC with i = (1, 2, ... 15),
- the units can be distinguished by a_j attributes ”items” with j = (1, 2, ... J),
- x_{ij} stands for the j^{th} item of country i
- the items x_{ij} maintain ordinal attributes having the form
  R (required) □ *A* (allowed) □ *F* (forbidden)[30]

As the next step, the ordinal information has to be transformed in countable values. In dichotomising the data it is possible to change from an ordinal to a nominal scaling degree without losing information and at the same time avoiding interval assumptions.[31] One example may illustrate the procedure. The item ”recognition of development costs” can be dichotomised in the two questions ”recognition required” and ”recognition forbidden”. Hence, the following answers are possible when taking the three categories ”required, allowed, forbidden” into account:

29 For a discussion of the transformation process see *Semler* 1997.

30 The symbols represents the following (*Ordelheide/ Semler* 1995, p.4):
"*R*: the accounting method indicated is required by law or is highly recommended by the standard setter
A: the accounting method may be used but is not compulsory or is not recommended by the standard setter
F: the accounting method is forbidden or corporations are discouraged to apply it.".

31 *Shoenthal* 1989 proposes a similar proceeding alternatively to the cardinal scaling level.

	Country A Required	Country B Allowed	Country C Forbidden
Recognition of development costs required	1	0	0
Recognition of development costs forbidden	0	0	1

Some items are only simply coded, because besides an option only a prohibition exists in some countries so that the first variable covers in all cases the attribute "0". Hence, it is eliminated from the database. For instance the LIFO method for the evaluation of stocks is sometimes optional[32] or forbidden[33], but never required.

The information in the revised matrix can be interpreted as follows: A "1" suggests a willingness by a given country to enforce or to prevent a specific accounting method whereas "0" symbolises the possibility of accounting policy choice. Consequently, the enforcement as well as the prevention of methods are equally measured. Thus, summing up the scores of these items can offer information for the evaluation of the degree of determination of national accounting systems.

3.2 Methodology: The Concept of Determination

The concept of regulation is based on a six steps scale from "not accepted" to "required or not required".[34] In contrast, the concept of determination is founded not on a stages model but on a dichotomous system that simply measures if a method is determined or not.[35] Accordingly, the absolute degree of determination (ADD) for a country *i* stands for the sum of all item attributes:

$$ADD_i = \sum_{j=1}^{J} v_{ij} \; \forall \; i$$

with:

ADD_i = absolute degree of determination for country *i*, with $i = 1 - 15$
v_{ij} = value for the j^{th} variable for country *i* with $v_{ij} \in \{0; 1\}$
J = number of variables = 129

32 E.g. in the USA.

33 E.g. in France.

34 See *Cooke/ Wallace* 1990, p.92.

35 For the own investigation the expression "determination" is used instead of "regulation" to separate easily from the regulation degree concept proposed by *Cooke/ Wallace*.

According to the assumptions attained earlier, the higher the *ADD* the more a national system is determined. The ranking of all national *ADD*s allows a first impression and a comparison with the results from *Cooke/ Wallace*. But the absolute values offer limited indications for interpretation only. For a further comparison of the *ADD*s a relative concept is proposed, that takes into account the relative deviation from each value from the average for all countries:

Relative deviation level of determination

$$RDL_i = \frac{\sum_{j=1}^{J} v_{ij}}{\sum_{i=1}^{I}\sum_{j=1}^{J}\frac{v_{ij}}{I}} - 1 \quad \forall\, i$$

with:

RDL_i = relative deviation level of determination for country i,
v_{ij} = value for the j^{th} variable for country i with $v_{ij} \in \{0; 1\}$
I = number of countries = 15
J = number of variables = 129

Besides relative information, an absolute measure which takes into account the theoretical maximal degree of determination enhances the understanding of the adequacy of national accounting systems. The maximal *ADD* can be calculated as the sum on the condition that all methods are determined. For the calculation it has to be considered that most items are coded as dichotomous variables. Hence, those two connected variables can only show the maximum sum 1, because a method can not be forbidden and required at the same time. Consequently, these variables are weighted with g = ½ for the optimal sum whereas simply coded items are weighted with g = 1. The relation of the *ADD* for each country and the sum of all weights indicates how far a national system reaches the maximum degree of determination.

Reaching level of determination:

$$RLD_i = \frac{\sum_{j}^{J} v_{ij}}{\sum_{j}^{J} g_j} \quad \forall\, i$$

with:

RLD_i = reaching level of determination for country i, with i = 1 - 15
v_{ij} = value for the j^{th} variable for country i with $v_{ij} \in \{0; 1\}$

J = number of variables = 129

g_j = weighting factor for the j^{th} variable, with $g_j = 1$ if variable j is simply coded and

$g_j = 0.5$ if variable j is dichotomous coded.[36]

4 Results and Comparison

Table 4 shows the results of all types of determination degrees. To ease the comparison with the *Cooke/ Wallace* findings, each degree of financial regulation (see table 1) is transformed according to the above described procedure. First, the relative deviation of each score to the average is calculated comparable to the *RDL*. Then, the scores which stand for the degrees of regulatory intensity are rescaled from the -1 to 4 scale to a 0 to 1-interval.[37] These values can be interpreted as a reaching level because the closer the values reach 1 the more the related national systems are determined.

Table 4: Degrees of Determination and Regulation

	Degree of Determination (own investigation)				Degree of Regulation (*Cooke/ Wallace*)		
Country	*ADD*	*RDL*	*RLD*	rank	RDL_{CW}	RLD_{CW}	rank
Spain	65	28.97%	73.86%	1	-70.38%	34.00%	14
USA	63	25.00%	71.59%	2	45.97%	89.00%	1
Australia	60	19.05%	68.18%	3	3.66%	69.00%	7
Sweden	60	19.05%	68.18%	3	1.96%	68.20%	8
UK	56	11.11%	63.64%	5	37.08%	84.80%	3
France	50	-0.79%	56.82%	6	22.27%	77.80%	5
IASC	50	-0.79%	56.82%	6	n.a.	n.a.	n.a.
Japan	50	-0.79%	56.82%	6	7.46%	70.80%	6
Austria	49	-2.78%	55.68%	9	-50.50%	43.40%	12
Belgium	49	-2.78%	55.68%	9	-2.69%	66.00%	9
Canada	49	-2.78%	55.68%	9	38.35%	85.40%	2
Netherlands	48	-4.76%	54.55%	12	32.43%	82.60%	4
Germany	42	-16.67%	47.73%	13	-4.38%	65.20%	11
Denmark	39	-22.62%	44.32%	14	-3.54%	65.60%	10
Switzerland	26	-48.41%	29.55%	15	-57.69%	40.00%	13
average	50.4	0.00%	57.27%		0.00%	67.27%	

Spain as group leader covers 65 determined methods whereas Switzerland only requires or forbids 26. The Spanish degree lies 29% over the average of 50.4, while the Swiss

36 Maximum sum of g_j for the current data base = 88.

37 Consequently, the reaching level for *Cooke/ Wallace* is counted as follows: RLD_{CW} = (1 + score)/ 5.

negative deviation measures 48%. Nearly ¾ of all methods are determined in Spain. Against that, in Switzerland less than 30% of the methods are settled.

It has to be considered that the results should be interpreted with caution. The findings are linear related to the input and hence are directly influenced by the subjective choice of items that form the database. Nevertheless, some trends can easily be identified. Analysing figure 1, the existence of three groups becomes obvious:[38]

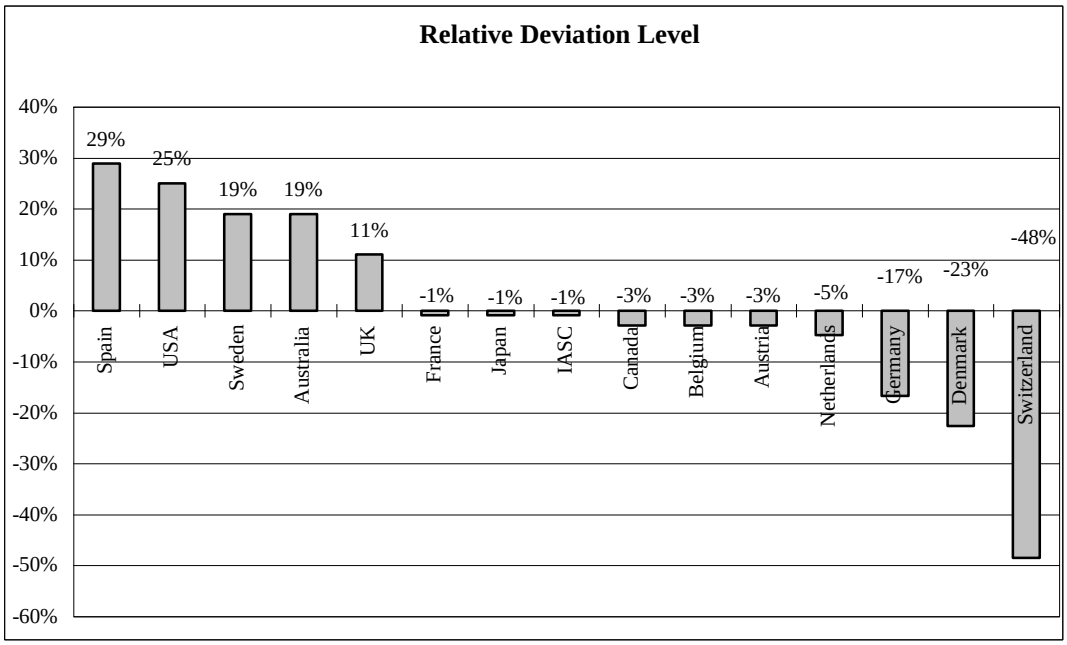

Figure 1: Relative Deviation Level

The first 5 systems including Spain, USA, Australia, Sweden and Great Britain show a clear positive deviation level. They reach app. ⅔ of the maximum degree of determination or more. The second group including France, the IASC, Japan, Austria, Belgium, Canada, and the Netherlands is characterised by values relatively close to the average and a reaching level between 55 and 57%. The last group including Germany, Denmark and Switzerland shows clear negative deviation levels. In all three cases less than half of the methods are determined.

The structure within the second group seems to be very homogenous - the interval between the highest and the lowest degree measures only 2.27. Moreover, two groups of three countries cover the identical value in each case. In contrast, the first group shows more heterogeneous results with a maximum distance of 18. The last group could also be

38 Using the scores as input for cluster analysis (Euclidean distance, Ward method), the procedure proofs the existence of these groups with the restriction that Switzerland builds an own cluster.

disaggregated into two subgroups with Switzerland as its own cluster because the Swiss degree is significantly the lowest, even in comparison to Germany or Denmark.

Interpreting these three groups according to the classification introduced by *Cooke/ Wallace*, they can be labelled as "highly regulated", "regulated" and "moderately regulated":

Table 5: Classification of countries according to the degree of determination

highly regulated		regulated		moderately regulated	
Spain	73,86%	France	56,82%	Germany	47,73%
USA	71,59%	IASC	56,82%	Denmark	44,32%
Australia	68,18%	Japan	56,82%	Switzerland	29,55%
Sweden	68,18%	Austria	55,68%		
UK	63,64%	Belgium	55,68%		
		Canada	55,68%		
		Netherlands	54,55%		

The following two figures show the deviation level and the reaching level of determination including the transformed results from *Cooke/ Wallace*:

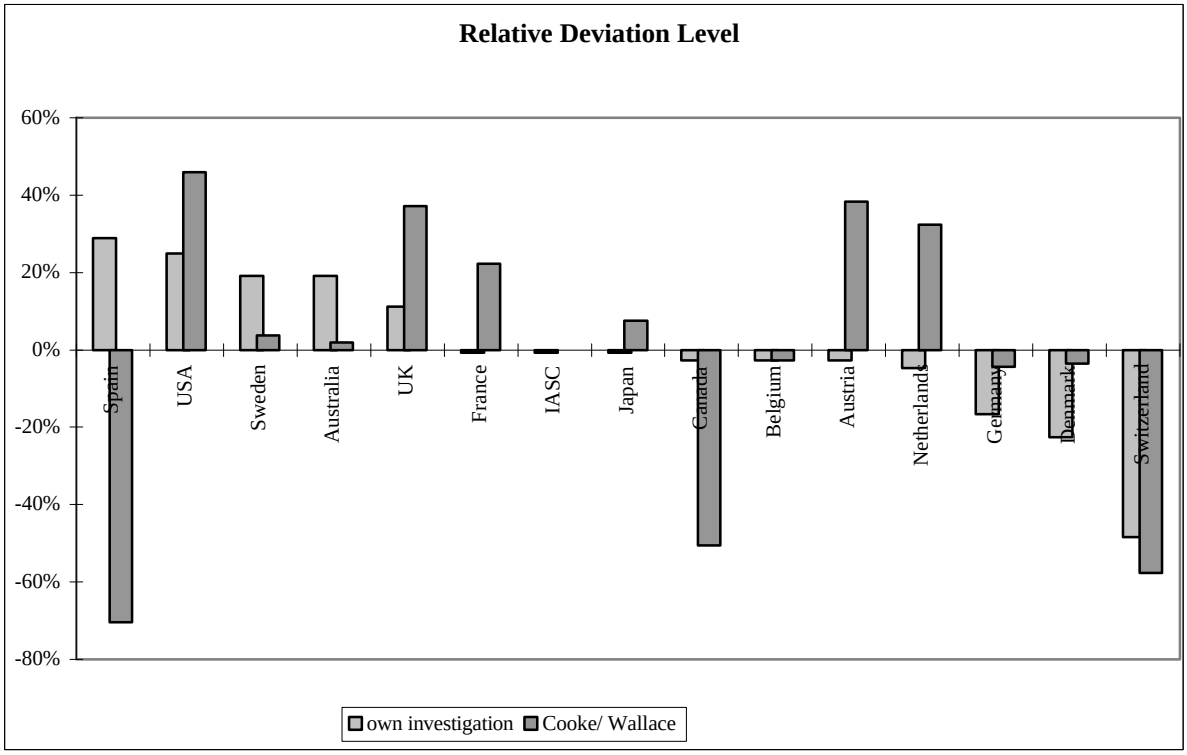

Figure 2: Comparison RDL

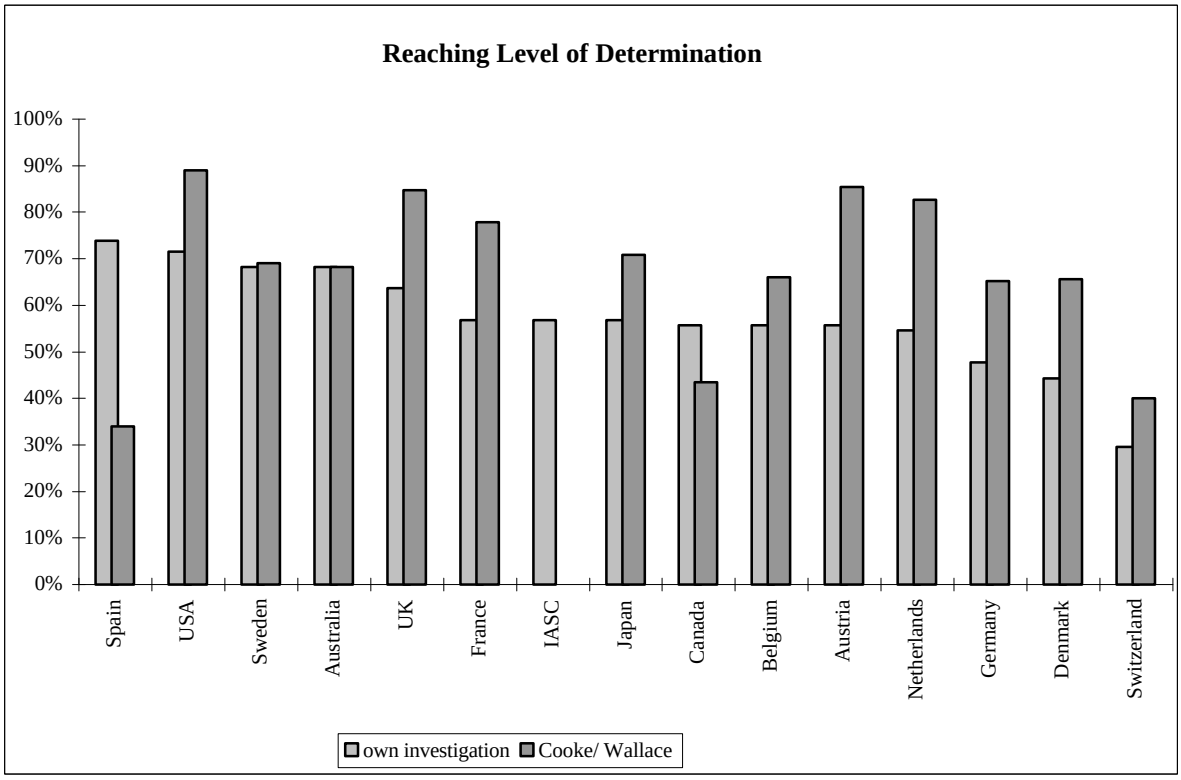

Figure 3: Comparison RLD

Overall, the transformed values from *Cooke/ Wallace* are comparably more heterogeneous, so that the deviation from the average is more marked.[39] For the own investigation the maximal negative deviation is under 50% whereas the lowest *Cooke/ Wallace*-score lies under -70%. This heterogeneity is also visible in the span of the reaching level. The difference between the biggest and the lowest value for the present investigation results in 45 since the *Cooke/ Wallace*-data produces an amount of 55. However, a comparison of the two reaching levels for each country has only limited implications because the value structure is not fully comparable.

More insight is offered by the analysis of the rank order and the group memberships. Great Britain as well as the USA belong to the highly regulated group irrespective of whether disclosure or measurement rules are employed. Likewise, Japan, Belgium, and France are grouped as regulated independent of the database used. Also Switzerland is characterised as moderately regulated in both studies. In contrast, Spain is an anomaly. Whereas Spain appears as underregualted in regulation based on disclosure rules, the present study suggest the Spanish system as highly regulated. Moreover, the results for Canada and the Netherlands seem to be contradictory. According to *Cooke/ Wallace*

39 The variance of the deviation level for the own investigation amounts 0.04, for *Cooke/ Wallace* 0.12.

both systems belong to the highly regulated group, whereas in the present investigation they are classified at a lower level. Also surprising are the high degrees of Australia and Sweden, because in the older study they are classified only as "regulated". These discrepancies do not seem to be unsystematic like other smaller differences in rank orders within groups. Besides the possibility that there is no connection between the regulation of disclosure (*Cooke/ Wallace*) and that of the other issue (covered in the present study), possible explanations are presented in the following which can be causally related to these diverging results.

5 Discussion: Reasons for Discrepancies

5.1 Possible Reasons for the Described Conflicts: an Overview

It would be hasty to trace back the diverging results to the non-existence of the relation between the degree of determination of valuation rules on the one hand and the degree of regulation of disclosure rules on the other hand. Still, a dependence between these two degrees seems plausible and for some systems like the US or the British the results are congruent. At least, a more detailed analysis of the systems that are contradictorily classified could be helpful for a deeper understanding of differences in national accounting systems.

First, the diverging periods of time for data collection - the *Price Waterhouse* database was published in 1979, the TRANSACC matrix in 1995 - could serve as plausible explanation for differences. Consequently, it has to be shown which far-reaching changes in the related environment and the accounting system have caused a drastic rising trend of the degree of determination.[40] This historical or time-related interpretation of contradictions, which will be used in the case of Spain, demonstrates the high dynamics that underlie some national systems. In contrast, it seems to be difficult to find historical explanations for systems that show decreasing degrees. In these cases, the separable investigation of rules according to the individual and the group accounts might give some insights about the interpretation of the differences

40 A falling or rising trend has always to be interpreted in a relative way to the development of all other systems under review. Hence, it is possible that the absolute degree of a system rises whereas relatively seen the trend is negative.

observed. Finally, it is feasible that for some systems the hypothesis does not hold and hence conditions can be found where different degrees of regulation and determination seem plausible. Furthermore, a bias in the database can serve as a convincing explanation.

If we succeed in explaining the contradictory results for Spain, Canada, the Netherlands, Sweden and Australia, the concept of *Cooke/ Wallace* as well as ours will be suitable for the evaluation of certain quality aspects of national accounting systems. Especially the dependence between these two types of degrees relating to the valuation and the disclosure level will be proved with two different databases and diverging proceedings. In the contrary, if the transformation fails, the research design as well as the hypothesised dependence must be questioned.

5.2 Historical reasons: Spain

The results suggest a dramatic change in the degree of determination of the Spanish system. A plausible reason for this turn is the diverging periods of time for data collection. Especially the older database reflects the conditions before the implementation of the EU accounting directives whereas the latter offers a much higher stage of topicality. Of course, between the two are more than 1½ decades of development.[41] But it has to be considered that the implementation of the EU directives alone does not explain such a dramatic change. Other EU member states like Germany or Denmark have preserved their status. Consequently, a historical investigation of the Spanish political, economic and accounting development of the last two decades should demonstrate the changes that have occurred not only in an absolute sense, but also relatively to the other EU member states.

In fact, the Spanish accounting system has undergone modifications that can be traced back to fundamental political changes. In 1975 - a time when the *Price Waterhouse* database was built - the dictatorship of *Franco* ended.[42] Herewith, democratic structures

41 This finding is congruent with *Alexander/ Nobes*, who find changes in the cluster structure for Sweden and Spain after the implementation of the EU Directives. See *Alexander/ Nobes* 1994, p.84.

42 *Franco* died at 20.11.1975, the dictatorship ended officially with the proclamation of *Juan Carlos* I. as king of Spain at 22.11.1975. See *Mann* 1991, p.696.

were built up complete with the foundation of the parliamentary monarchy in 1978 which made it possible to implement a market directed economy.[43] With EU membership in 1986 the foundation were laid for a modern company and commercial law. Before then, even a general statutory audit was unknown.[44] Other landmarks were the formation of the Spanish exchange commission in 1988 and the codification of the EU accounting directives in Spanish law in 1989.[45] Both databases that are used by *Cooke/ Wallace* do not take into account these significant developments in the second half of the eighties.

The case of the Spanish system demonstrates the dynamics that underlie the development of accounting systems. Hence, static structures in the groupings of national systems according to the degree of regulation can not be proved. Indeed, the special case of Spain is not transferable to any other system. Results of empirical investigations that are based on out of date data should always be interpreted with caution. However, a historical reasoning for differences that takes into account general political and economic developments seems adequate.

Still, the implementation of the EU directives and the developments described alone do not explain the rise from a moderately regulated country to the top level of determination because it is very probable that other systems also improve their absolute degrees. Moreover, the directives have a wide range of discretion through certain options and non-regulated accounting problems so that their implementation does not automatically force a higher degree. However, other EU member states tried to hold their status quo in accounting[46] whereas Spain used the accounting reform for far-reaching changes. So, the traditional substantial linkage of taxation and financial accounting (principle of congruency) was eliminated.[47] This separation opened the possibility to introduce a more equity oriented view of accounting, focusing on shareholder and creditor protection.[48] The concept of a "true and fair view", that was previously unknown in Spanish law, was introduced alongside prudence as a predominant accounting principle. Besides others, the requirement for comparable information that had to be consistent and uniform over

43 See *Gonzlo/ Gallizo* 1992, p.9.

44 See *Bougen* 1997 for developments in the Spanish auditing system.

45 See *Gonzlo/ Gallizo* 1992, p.4.

46 E.g. in Germany "soft transformations" and other "helpful interpretations" as well as options enabled to maintain the common reporting practice. See *Ordelheide* 1990.

47 See *López Díaz/ Rivero Torre* 1995, pp.2210-2212.

48 See *López Díaz/ Rivero Torre* 1995, p.2207.

time as well as among different companies was codified.[49] Also, the national securities and exchange commission (Comisión Nacional del Mercado de Valores) issues circulars with binding accounting standards for quoted companies.[50] These influences as a whole make the actual high degree of determination of the Spanish system understandable that is sometimes compared with the standard of Anglo-American accounting.[51]

5.3 Structural Reasons: the Differentiation of Rules for Individual and Group Accounts

None of the studies under review differentiates between rules according to individual and group accounts. This generalising view seems adequate under the condition that both forms of accounts underlie the same principles and serve the same objectives. E.g. in the USA, the individual accounts are not published separately and are more or less only of academic interest. Moreover, a goal congruency of consolidation accounting with all other parts of GAAP is assumed.[52] In contrast, in Germany the individual accounts serve the objective of profit measurement and the regulation of profit distribution, because the payments to the owners as well as to the tax authorities depend on the profit figures whereas the sole function of group accounts is to inform about the economic position of the group.[53] For systems where separate objectives for individual and group accounts exist, a different degree of determination according to the two types of accounts is conceivable. Especially, if there is a strong link between tax and financial accounting a differentiated result seems to be likely. Correspondingly, table 6 shows the results for the RDL and RLD differentiated in degrees according to rules for individual and for group accounts. For the analysis according to rules for individual accounts, only the first 71

49 See *López Díaz/ Rivero Torre* 1995, p.2208.

50 See *López Díaz/ Rivero Torre* 1995, p.2198.

51 See *Martinez* 1995, p.859, who characterises the Spanish financial reporting as ”modern, transparent, and generally useful”.

52 E.g. the objective to provide information to investors and creditors that is useful in making investment and credit decision. See *Baker/ Rapaccioli/ Solomon* 1995, p.3111.

variables of the data base are taken into account. For the group account degree only variables that show consolidation techniques are taken. To facilitate the comprehension, the rank order and the difference between each rank according to the rules for individual and group accounts are presented as well.

53 See *Ballwieser* 1995, p.1420.

Table 6: Differentiation of reaching and deviation level according to regulation for individual and group accounts

	Absolute Degree			Deviation Level			Reaching Level			Rank			
Country	All	IA	GA	All	EA	GA	All	IA	GA	All	IA	GA	Δ
Spain	65	38	27	28.97%	35.39%	20.90%	73.86%	84.44%	62.79%	1	1	3	-2
USA	63	35	28	25.00%	24.70%	25.37%	71.59%	77.78%	65.12%	2	2	2	0
Sweden	60	27	33	19.05%	-3.80%	47.76%	68.18%	60.00%	76.74%	3	10	1	9
Australia	60	33	27	19.05%	17.58%	20.90%	68.18%	73.33%	62.79%	3	4	3	1
UK	56	32	24	11.11%	14.01%	7.46%	63.64%	71.11%	55.81%	5	5	7	-2
France	50	29	21	-0.79%	3.33%	-5.97%	56.82%	64.44%	48.84%	6	7	9	-2
Japan	50	25	25	-0.79%	-10.93%	11.94%	56.82%	55.56%	58.14%	6	11	6	5
IASC	50	34	16	-0.79%	21.14%	-28.36%	56.82%	75.56%	37.21%	6	3	13	-10
Canada	49	30	19	-2.78%	6.89%	-14.93%	55.68%	66.67%	44.19%	9	6	12	-6
Belgium	49	25	24	-2.78%	-10.93%	7.46%	55.68%	55.56%	55.81%	9	11	7	4
Austria	49	22	27	-2.78%	-21.62%	20.90%	55.68%	48.89%	62.79%	9	13	3	10
Netherlands	48	28	20	-4.76%	-0.24%	-10.45%	54.55%	62.22%	46.51%	12	9	11	-2
Germany	42	29	13	-16.67%	3.33%	-41.79%	47.73%	64.44%	30.23%	13	7	14	-7
Denmark	39	18	21	-22.62%	-35.87%	-5.97%	44.32%	40.00%	48.84%	14	14	9	5
Switzerland	26	16	10	-48.41%	-42.99%	-55.22%	29.55%	35.56%	23.26%	15	15	15	0
Average	50.4	28.1	22.3	0.00%	0.00%	0.00%	57.27%	62.37%	51.94%				4.3

All = all = 129 variables of the data base are included
IA = 71 variables according to individual accounting rules are included
GA = 58 variables according to specific group accounting rules are included

Altogether, rules according to individual accounts are more determined than those for group accounts. Individual accounts regulation shows on average a degree of over 60% (reaching level), whereas group accounts regulation reaches only a level around 50%. This higher level in the regulation of individual accounts is also reflected in the top values. E.g. Spain scores at 84% for the individual accounts category while Sweden as leader of the group accounts ranking reaches 76% only. The lowest score in the first category amounts to 36% for Switzerland, the same system shows for groups accounts a very low degree of 23%.

The division of the rank orders concerning the individual and group accounts category shows substantial differences within the national systems. To make these differences evident, the following figure illustrates the differences as well as the rank orders. A positive deviation symbolises a better rank in the individual accounts and vice versa.

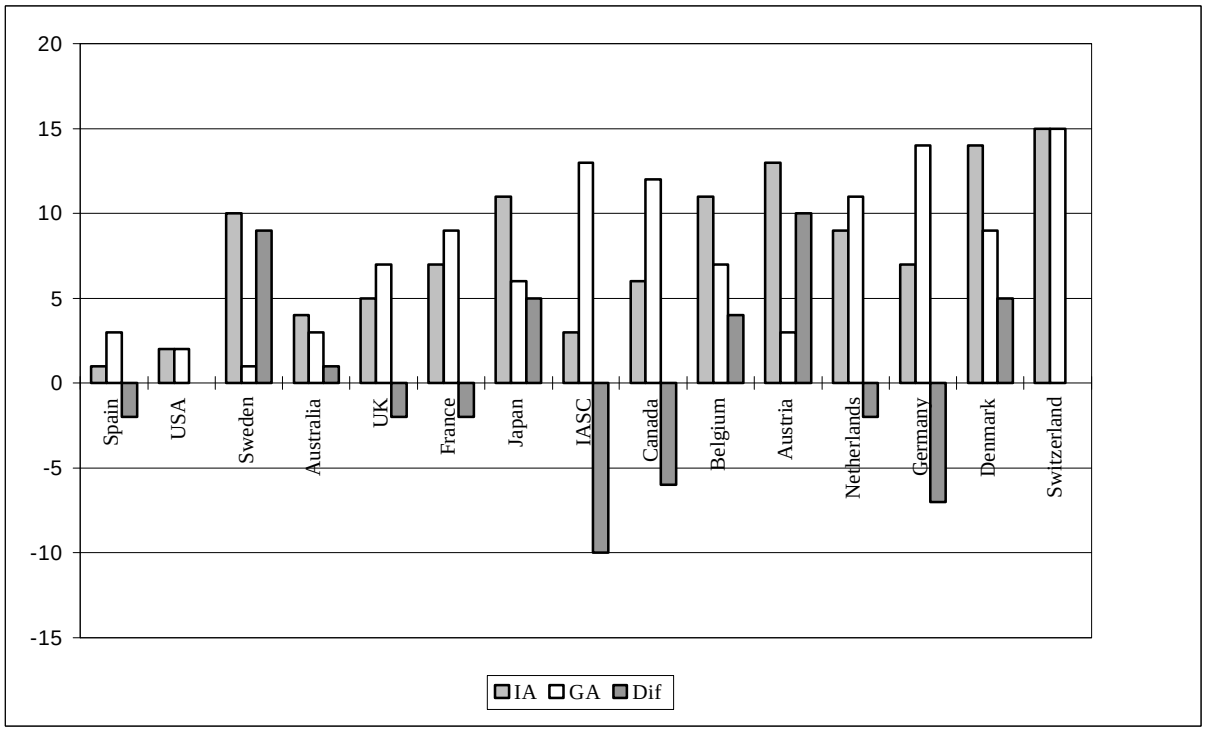

Figure 4: Differences in rank order for individual and group accounts

Analysing 15 systems and consequently 15 ranks, a deviation of 10 ranks for both the IASC and Austria is substantial. Also Sweden with 9, Germany with 7, Canada and Denmark with a divergence of 5 ranks show important differences between the determination degree of individual and group accounts. In contrast, 7 systems only reach a deviation from 2 or less, e.g. the USA and Switzerland attain the same ranks for both

categories. Spain, Australia, Great Britain, France and the Netherlands only show insignificant differences. A positive deviation (6 cases) seems as possible as a negative (5 cases). Hence, all facets from a higher degree of determination for the individual accounts like in Germany, to a balanced regulation in both categories in Spain or Denmark, and a stronger degree for group accounts in Sweden can be observed.

Concentrating on the case of Sweden the question arises how the differences in the degrees of determination according to individual and group accounts can be explained. Traditionally, Sweden was characterised as a country with a strong link between tax accounting and financial reporting. The principle of congruency could be seen as a main motive for accounting policy choice whereas the objective of information stayed in the background.[54] Today, the influence is still present but some drastic changes have occurred. Nowadays, the ability of Swedish companies to create untaxed reserves has been drastically reduced. The companies are allowed to carry tax losses indefinitely, so that the incentive to create reserves has decreased.[55] Moreover, larger Swedish companies are listed on foreign stock exchanges where normally Swedish GAAP is not accepted. Until the last few years, US GAAP was mainly used by the Swedish global players, but recently the International Accounting Standards have also gained an increasing acceptance.[56] Further, the Swedish standard setter reacts to the tendency of internationalisation. A new standard setting body, the Swedish Financial Accounting Standards Council (Redovisningsrådet) which was founded in 1989, has the objective of developing new standards for public companies in the changing environment and is nowadays the most important standard setter. This institution was formed by representatives of the government (Swedish Accounting Standards Board), of the accountants (Institute of Authorised Public Accountants) as well as of the Swedish industry (Federation of Swedish Industries) to incorporate all main interest groups in the standard setting process. The first recommendation was published in 1991 on the subject of group accounting and has introduced main changes in consolidation accounting. It is essentially based on the related IAS and consequently serves the objective of informing shareholders and creditors.[57] These developments were also supported by the former private standard setting institution, the FAR (Föreningen Auktoriserade Revisorer),

54 See *Rundfeld* 1995, p.2391.

55 Since 1994 only two kinds of untaxable reserves are still allowed. See *Rundfeld* 1995, p.2392.

56 Already in 1991, 19 Swedish companies referred to international standards (US-GAAP, IAS, OECD). See *Rundfeld* 1995, p.2381.

which published standards since 1957. Although these standards could not be enforced, the constellation of a private standard setter as a supplementary institution to governmental rules was unique at that time.[58] Taking into account this background, it is not surprising, that the new Swedish requirements concerning group accounts have more in common with the related IAS rules than with requirements in other European countries. Moreover, the clearly higher degree of determination compared with the *Cooke/ Wallace* results seems plausible.

5.4 Other reasons

5.4.1 The Netherlands

Indeed, all contradictions have yet to be explained. Especially for the Netherlands neither historical nor structural reasons as introduced in the previous sections seem plausible explanations for the weak degree of determination in the current study. The rank order difference of 2 is comparable low, the implementation of the EU directives does not explain a decrease of the degree. In this case, the linkage between the quality of disclosure information on the one hand and the determination of valuation rules on the other hand seem to be weak. Still, the absolute degree could have increased, but less than that of other countries, leading to a relative fall. Therefore, the question arises, whether special Dutch conditions could explain this contradiction.

Although the Netherlands show certain typical characteristics of Continental European countries, e.g. the Dutch law system is based on the Roman tradition, the accounting system is unique in some respects.[59] So in contrast to the roots of the law system, the link between tax and financial accounting is weak as in the Anglo-American tradition.[60] Traditionally, to convey a true and fair view within general-purpose reports is the predominant objective in Dutch accounting, more important then providing information for decision-making by specific users such as shareholders, creditors, etc..[61] Likewise,

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57 See *Östman/ Schuster* 1995, p.2448.

58 See *Puxty et al.* 1987, pp.285-286.

59 *Mueller* classifies the Dutch system as microeconomic approach, that interprets accounting as part of the economy. Typical outcomes are the revaluation of assets for capital maintenance purposes and the separation from the tax system. Typically, no GAAP exists, but for Management aims individualised information are presented. See *Mueller* 1967, pp.51-57.

60 See *Dijksma/ Hoogendoorn* 1993, p.60.

61 See *Klaassen/ Hekers* 1995, p.2068.

the principle of substance over form is of greater importance then in other countries. In this special environment, parallel reporting systems were developed. Especially the current cost accounting was not only supported by academics but was also a generally accepted and often used option to the historical cost principle until the beginning of the nineties.[62] This general view is also reflected in the implementation of the EU directives. Many member state options were directly adapted as allowed alternatives without narrowing the possibility of accounting policy choice.[63] Consequently, a relatively low degree of determination according to valuation rules cannot be a surprise. This openness in accounting method choice faces the general requirement of distinct and proper documentation. Also other disclosure items like segment reporting were comparably early established.[64] Correspondingly, the quality of disclosure information as documented by *Cooke/ Wallace* is relatively high whereas the degree of determination of measurement rules reaches only a low level.

5.4.2 Australia

Furthermore, the different results for Australia have still to be considered. In the present investigation the Australian system is classified as highly regulated whereas *Cooke/ Wallace* groups it in the regulated category. Our findings are congruent with the importance of the national capital market and the former influence of the British empire on the accounting system. Moreover, the loose linkage between tax and financial accounting supports the result.[65] It is remarkable in this context, that Australian GAAP requires certain disclosure information that is elsewhere, especially in the USA, unknown.[66] Accordingly, a reason for the lower degree according to *Cooke/ Wallace* could be found in a bias in the item selection process that underlies the database used.[67] This assumption seems particularly probable inasmuch as up to now the Australian

62 The Dutch system of current cost accounting was developed by *Theodore Limperg* in the 30ties. Philips as one of the largest Dutch companies founded its accounts from 1953 to 1992 on current costs. See *Hoogendoorn* 1995, p.559.

63 See *Dijksma/ Hoogendoorn* 1993, pp.221-228.

64 See *Dijksma/ Hoogendoorn* 1993, p.162.

65 See *Craswell* 1995a, p.100.

66 E.g. the fees paid to auditors. See *Craswell* 1995a, p.93.

67 *Nobes* identifies this bias as main problem of the *Price Waterhouse* database as foundation of empirical research: ”The one bias I personally fear is that the difference between the U.K. and the U.S. are comparatively exaggerated because of their familiarity to the question compilers who come from these countries.” *Nobes* 1981, p.270.

accounting system is unique in certain respects and follows in certain accounting methods an outsider position.[68] But the recently planned implementation of the IAS demonstrates a willingness to conform with accounting standards on an international level.[69]

5.4.3 Canada

Finally, the case of the Canadian system should be analysed. The close connection to US-GAAP as well as a strong capital market influence suggests a high degree. But in fact, the degree of determination of the group accounts is lower than expected. This finding is congruent with the closeness of the Canadian GAAP to the related IAS 27.[70] The Canadian standard setting body CICA (Committees of the Canadian Institute of Chartered Accountants) is a founding member of the IASC and undertakes joint projects with the IASC, e.g. the exposure draft on financial instruments in 1991. Reducing differences between Canadian GAAP and IAS is an official objective so that IAS are always taken into account when new standards are discussed.[71] Further, an important contrast to the American system can be seen in the provincially regulated capital markets and law systems. No national organisation like the SEC in the USA oversees the financial reporting of listed companies so that in each of the 10 provinces the financial reporting and taxation are individually governed.[72] Likewise, each of the five stock exchanges in Canada has local financial reporting requirements with different levels of regulation.[73] For the interpretation of the Canadian accounting practices it has to be considered that many Canadian companies interlist on Canadian and American stock exchanges and hence follow the more strict US GAAP requirements. Consequently, the closeness in reporting practices to US GAAP is plausible. Moreover, the CICA-Handbook, a pair of loose-leaf binders including accounting and auditing standards, represents a common national denominator. But neither the detail nor the binding nature of the standards

68 E.g. the valuation of associated companies at cost in the group accounts is unique. See *Craswell* 1995b, p.202.

69 See *Dunk/ Kilgore* 1998 for some new developments in Australian accounting.

70 See *Beechy* 1995b, p.679.

71 See *Beechy* 1995a, p.581.

72 See *Beechy* 1995a, p.577.

73 So, the Ontario Securities Commission is characterised as the most aggressive regulator whereas the regulation of the Vancouver Stock Exchange is classified as relaxed. See *Beechy* 1995a, pp.583-584.

reaches those of the FASB.[74] However, on the regulation level a smaller degree of determination for Canada seems plausible.[75]

The cases of the Netherlands, Australia, and Canada demonstrate the variance in reasons for diverging results. Consequently, the use of only one type of explanation is not sufficient. Moreover, these explanations show that even if the anecdotal interpretations may not satisfy everyone in general, the actual results seem to correspond principally with the *Cooke/ Wallace* findings.

The results concerning to the Swiss system are based on rules, that were obligatory in 1995. Sine July 1996 some of the pronouncements of a Swiss private standard setter are mandatory for quoted companies (FER, Fachempfehlungen zur Rechnungslegung).[76] Consequently it is feasible, that since then the degree of determination has increased.[77]

6 Conclusion

Altogether, a clear association between the results of *Cooke/ Wallace* and our findings can be shown. Consequently, there is some evidence for a close link between the degree of determination of valuation rules and the degree of regulation of disclosure rules. Indirectly a connection between the degree of determination and other environmental factors which was introduced by *Cooke/ Wallace* can be drawn. The diverging classifications of certain national systems which at the first view tell against the conclusion, can be transformed by historical and structural explanations. Moreover, the two cases of Spain and Sweden demonstrate the dynamic that underlies the development of some national accounting systems in the last two decades. This dynamic can not simply be traced back to the effects of the EU directives, but some countries like Spain or Sweden took their chance to change the accounting system in the direction of a more capital market orientated view. In this changing environment, the foundation of new standard setting bodies such as those in Spain or Sweden seems to form important landmarks in improving the national accounting system. Other countries like Germany or

74 See *Beechy* 1995a, p.578.

75 Likewise, *Taylor/ Turley* 1986, p.172, find at the regulation level a closeness of the Canadian system to the British system and on the practice level a link to US-GAAP.

76 See *Sutter* 1998.

77 See *Bachmann* 1998 for an analysis of the impact of quoting requirements for the Swiss accounting system.

Switzerland, which are low ranked, are currently seeking to establish a structured standard setting process which enables a prompt reaction to new accounting problems.

Furthermore, the findings indicate a systematic lower degree of determination for rules according to group accounts. This could be traced back to the shorter tradition of this part of the financial reporting system. An increase seems probable in the next future taking into account the general tendency of internationalisation of the capital markets as well as of the companies. Accordingly, a further elimination of options in the IAS's can be expected in order to come closer to the rules of other capital market influenced systems like the US or the British.

Finally, it should be considered that the ranking can be interpreted as a quality measure for the adequacy of national accounting systems. Even taking into account the simple calculation method which was used, the weakness of some systems, e.g. the German, is very evident. This low degree of determination possibly will not be accepted in the future by the users of financial reporting information. Some enterprises have already reacted by providing accounting information according to other accounting philosophies.[78] The reaction of the national standard setters varies. For example the German legislation has just allowed the use of other international standards (IAS, US-GAAP) instead of German GAAP which some interpret as resignation.[79] At least, it is questionable that the simple acceptance of other standards will improve the quality of the national accounting practices.[80] Spain and Sweden have already started to solve this problem, whereas other systems like Germany still have to get down to it.

78 See for an overview of the use of international accounting standards in Germany, France and Italy *Zambon/ Dick* 1997 and for Germany *Ordelheide* 1998.

79 E.g. *Grund* 1996.

80 As reaction, a German financial reporting council (Deutscher Standardisierungsrat) was established in May 1998.

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