ACRN Journal of Finance and Risk Perspectives
Vol. 3, Issue 1, Jan. 2014, p. 1 – 18
ISSN 2305-7394

HOW DOES THE ELIMINATION OF THE PROPORTIONATE CONSOLIDATION METHOD FOR JOINT VENTURE INVESTMENTS INFLUENCE EUROPEAN COMPANIES?

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Abstract. *Following the adoption of IFRS 11 "Joint Arrangements" on 1 January 2014, IFRS-reporting entities are facing new challenges regarding the classification and accounting of joint ventures. As a consequence of the short-term convergence project between the IASB and the FASB, the accounting option for joint ventures has been eliminated in the new standard in order to reduce the differences between these two major accounting principles. However, the abolition of the accounting option for joint ventures will affect financial statement figures and key financial ratios, as some European companies have to change from the proportionate consolidation method to the equity method. This paper examines how the transition from the proportionate consolidation method to the equity method will affect European companies. It describes the relevance and preferred accounting methods for joint venture investments and explores whether the effects on several financial statement figures and key financial ratios are material for European companies. Thus, this paper provides European companies as well as the users of financial statements – auditors, financial analysts, banks and investors – first evidence of these expected effects.*

JEL: *M40, M41, M42, M48*

Keywords: *IFRS 11, joint arrangements, joint ventures, proportionate consolidation method, equity method, materiality, effect analysis*

Introduction

To achieve economic goals, joint ventures have gained international importance in recent years (for the development of joint ventures in recent years see IASB, 2011a and KPMG & IESE, 2009). Therefore, the International Accounting Standards Board (IASB) published International Financial Reporting Standard (IFRS) 11 – a new standard for accounting on joint arrangements – to replace IAS 31, which was endorsed by the EU in 2012 and will be mandatory for European companies for annual periods beginning on or after 1 January 2014 (earlier application is permitted). With the goal of improving the quality of financial reporting, the revision of IAS 31 concentrated on two major aspects. First, the identification, classification and accounting requirements now focus on the rights and obligations of the parties as central criteria for demarcation. Second, the accounting option for joint ventures has been eliminated to reduce differences between IFRS and United States-Generally Accepted Accounting Principles (US-GAAP) and to improve the comparability of IFRS reports. Therefore, the proportionate consolidation (PC) method for joint ventures is prohibited, which means that all joint ventures have to be included in the consolidated financial statements using the equity method (see IFRS 11.24 as well as Küting & Seel, 2011).

Through this harmonisation between IFRS and US-GAAP, as well as the new requirements of IFRS 11, European companies are facing new challenges in accounting for joint arrangements. On one hand, they have to apply the new classification rules and therefore have to re-evaluate all existing joint arrangements. Especially for companies in industries where the use of know-how and financial resources is an important factor (e.g. in the construction and food industries), re-evaluation causes a significant workload. On the other hand, the abolition of the accounting option affects financial statement figures and key financial ratios. These effects can be justified by a change from the PC method to the equity method.

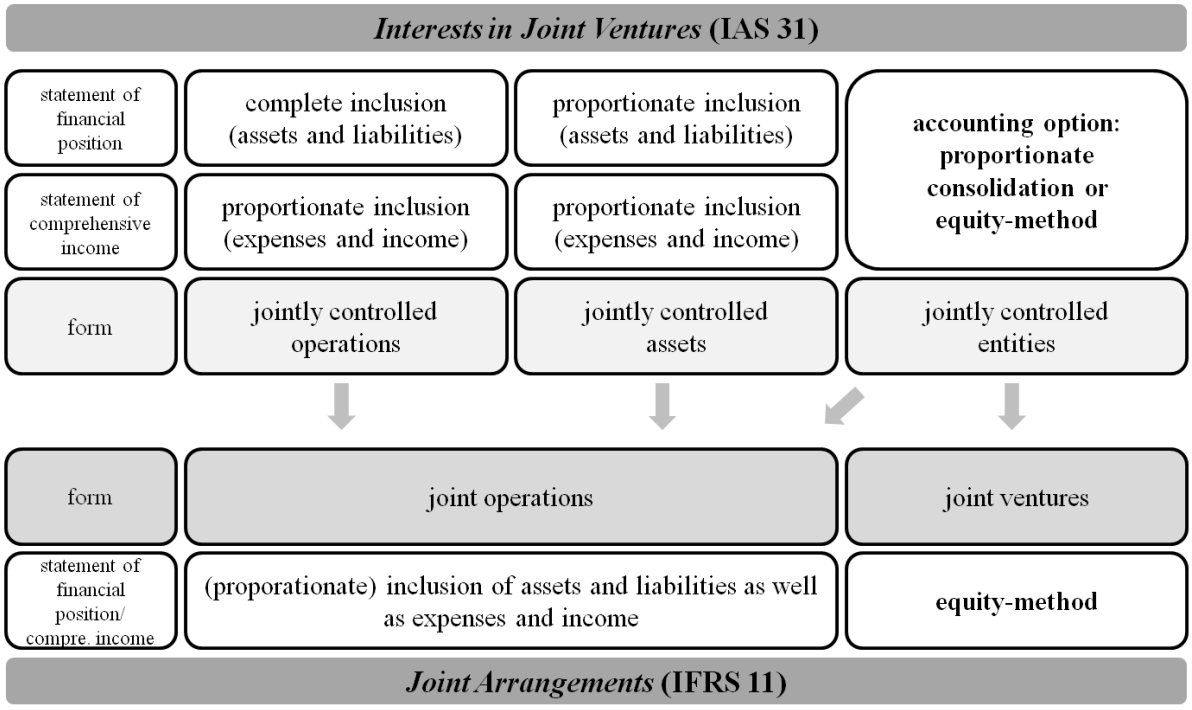
The structure of the paper is organised as follows to cover the aforementioned topics. In a first step, this paper shows the readjustments of IFRS 11 compared with the previously prevailing legal norm IAS 31, followed by a critical analysis of the abolition of the accounting option based on the general opinion in the literature and in practice. The empirical part of this paper analyses the practical relevance of joint ventures and consolidation methods. It then provides information about how many of the sampled European companies account for joint ventures using the PC method and consequently are concerned with the effects of the transition. In the main part, the effects of the abolition of the accounting option on selected financial statement figures and key financial ratios for European companies are analysed and compared with the formulated hypotheses using a deductive empirical study.

Background

In May 2011, the IASB published IFRS 11 “Joint Arrangements” to replace the former standard IAS 31 “Interests in Joint Ventures”. This led not only to fundamental changes in terminology, but also to conceptual changes. Thus, the title IFRS 11 “Joint Arrangements” reflects not only the subject matter, but also the content more clearly than that of IAS 31. While under IAS 31, joint ventures were described by the scope of the standard in terms of a preamble, under IFRS 11 joint ventures are referred to as an exclusive type of joint arrangement (Küting & Seel, 2011 and Lüdenbach, 2011).

With the aim of improving the quality of financial reporting, IFRS 11 focuses on two main aspects. Contrary to IAS 31, in which the legal form of the arrangement was the primary determinant for the classification, IFRS 11 defines the rights and obligations of the involved parties as the central criteria for classification. According to that, IFRS 11 now identifies two instead of three forms of joint arrangements (i.e. joint operations or joint ventures). As a material conceptual change, the accounting option for joint ventures has also been eliminated. Accordingly, the PC method is no longer allowed with the result that joint ventures have to be accounted for using the equity method. For a summary of the material terminological and conceptual changes, see Figure 1.

Figure 1: Terminological and conceptual changes between IAS 31 and IFRS 11 (Source: Küting & Seel, 2011)



Accounting for jointly controlled entities under IAS 31

Joint ventures appear in different forms and structures. Depending on the stage of legal integration and organisational structure, IAS 31 distinguished three forms of joint ventures: jointly controlled operations, jointly controlled assets and jointly controlled entities. Under IAS 31, the demarcation of jointly controlled operations/assets and jointly controlled entities was based on the existence of a legal entity separated from the parties and therefore on the legal form of cooperation (IAS 31.13, IAS 31.19, IAS 31.24). As its classification was consistent with the subsequent accounting treatment, this step was paid special attention in practice. In the following part of this paper, the accounting for jointly controlled entities and joint ventures is considered, as the effects on financial statement figures and key financial ratios can be justified by the change from the PC method to the equity method only for that form.

PC method

For the inclusion of jointly controlled entities, IAS 31 provided an accounting option between the PC method and the equity method. IAS 31 (revised 2000) stated that the PC method was the benchmark treatment. In the current version, there is no highlighting. However, the PC method was recommended by the IASB, as it reflects the substance and economic reality of a venturer's interest in a jointly controlled entity better (IAS 31.40).

According to the PC method, the assets and liabilities from the balance sheet and the income and expenses from the income statement of jointly controlled entities are recorded in the consolidated financial statements of the venturer at the level of the group's share (percentage rate). This percentage rate is calculated using the capital share rather than the voting share (an alternative calculation of the capital share could be the profit share, however, the most common method is consolidation using share capital; Pellens et al., 2011). IAS 31 allowed two reporting formats when using the PC method. The first format combined the proportionate interests in the assets, liabilities, income and expenses of the joint venture with

the corresponding items in the venturer's financial statements (line-by-line reporting). The second format showed those proportionate interests in the venturer's financial statements as separate line items.

Under the PC method, the principles of full consolidation according to IAS 27 are applied. The main difference between PC and full consolidation is that minority interests are not reported in the consolidated financial statements (Fröhlich, 2011). Furthermore, all transactions between partner companies and the jointly controlled entity have to be eliminated proportionally through liabilities, expenses and income consolidation as well as the elimination of inter-company profit and loss. From this, upstream and downstream transactions can be distinguished (Pellens et al., 2011).

Equity method

Under the equity method, the investment is initially recognised at cost and has to be adjusted for the post-acquisition change in the venturer's share of net assets of the investee. In contrast to the PC method, the venturer presents its proportion of the inferred value of the investment in a single line on the balance sheet and its proportion of the net income as a single line in the statement of comprehensive income (see IAS 28 for further details). Similar to the PC method, profit and losses through upstream and downstream transactions have to be eliminated proportionally within the equity valuation. In the literature, there is a discussion as to whether the equity method is a consolidation or a valuation method (see, for example, Busse v. Colbe et al., 2010). Even if consolidation activities (e.g. the elimination of inter-company profit and loss) are necessary, it is not necessary to summarise the accounts.

Accounting for joint ventures under IFRS 11

Similar to IAS 31, accounting for joint arrangements under IFRS 11 is determined by the classification. IFRS 11.24 states that for joint ventures, it is mandatory to use the equity method in accordance with IAS 28. As classification results in a joint venture under IFRS 11, which was previously accounted using PC under IAS 31, transition to the equity method is mandatory (for a detailed analysis of the transition from the PC method to the equity method see IFRS 11.C2-6 in association with IFRS 11.BC60-69 as well as Böckem & Ismar, 2011; Ernst & Young, 2011a; Fuchs & Stibi, 2011; Galbiati & Baur, 2011; KPMG, 2011; Küting & Wirth, 2012 and PWC, 2011a).

PC method versus the equity method

The main aim of the elimination of the PC method is to achieve convergence with US-GAAP, which allows for only the use of the equity method for joint venture investments. Even with the elimination of the PC method, full convergence with US-GAAP will not be achieved, however, since AIN-APB 18 and EITF Issue No. 00-1 allow for some industries to use PC within US-GAAP (e.g. the oil and gas exploring and construction industries). For this reason, the new standard of accounting for joint ventures does not comply with US-GAAP. Owing to the events of recent years, convergence with US-GAAP is becoming more and more irrelevant for companies using IFRS. As at the end of 2007, the Securities and Exchange Commission (SEC) abolished reconciliation requirements to US-GAAP for foreign companies using IFRS (SEC, 2007a). In addition, the decision to allow US registrants to prepare financial statements in accordance with IFRS questions the importance of adapting the new IFRS to US-GAAP (SEC, 2007b). Thus, it should be more important to identify a method that supports the decision usefulness of the consolidated financial statements.

In Europe, the public's reaction to the elimination of the PC method was mainly negative (for negative responses, see, for example, the Comment Letters to ED 9 of the Accounting Standards Committee of Germany (DRSC), the European Financial Reporting Advisory Group (EFRAG) and the Federation of European Accountants (FEE)). Three main arguments against the abolition were propagated: (i) the PC method provides more useful information and leads to the better validity of the consolidated financial statements, (ii) the elimination of the PC method means that joint ventures are accounted for in the same way as associated companies and (iii) ED 9 contained no compelling arguments for the elimination (DRSC, 2008, EFRAG, 2008 and FEE, 2008). However, the elimination of the PC method was a step towards a more consistent framework, which can be justified by the economic unity concept (IASB, 2008).

Critics also argue that the PC method leads to divergent conceptual results compared with the equity method, that comparability between IFRS reports is more difficult and that it contravenes the economic unity concept of the framework. Supporters, however, argue that the PC method provides higher information value and the better validity of IFRS reports (see the next chapter for a detailed analysis).

Furthermore, the costs of financial reporting are expected to rise following the abolition of the PC method; when the internal reporting of joint ventures was based on PC, external reporting had to be carried out based on the equity method. This led to inconsistencies, as the management approach is mandatory in reporting operating segments in accordance with IFRS 8.

In summary, the accounting option for joint ventures is divisive and this has led to a dispute over the actual methods used. Nevertheless, each method has its advantages and disadvantages. However, the elimination of the PC method was not a decision in favour of the equity method, but rather a consequence of the underlying principle of IFRS 11 that the accounting treatment of joint arrangements depends on rights and obligations. The question of whether the equity method is a suitable form for accounting for joint venture investments remains open (IFRS 11.BC41-45).

Previous research

Since the beginning of the 21st century, standard setters worldwide have called for research to investigate the impact of different joint venture accounting methods. Nevertheless, there is little extant literature on accounting for joint venture investments.

According to the categorisation of Biddle et al. (1995), the following studies explain the relative information content based on a multiple regression model. Therefore, the conformation content of an accounting method is measured by the predictive value of an elected earnings ratio. The study of Kothavala (2003) provided market-based evidence that financial statements based on the equity method are more relevant for bond ratings. Even based on the same regression model as Kothavala (2003), the results of Bauman (2007) showed that financial statements prepared under the PC method are more relevant for explaining bond ratings. However, the samples differ due to differences in reporting methods used in the financial statements (US-GAAP, Canadian GAAP), bond rating methodologies and sample composition (Bauman, 2007).

The findings of the study by Stoltzfus & Epps (2005) pointed out that the PC method for accounting for joint ventures should be used if there is evidence of guarantees and/or other agreements. These results indicated that financial data prepared under the PC method have a stronger association with bond risk premiums than financial data prepared under the equity method.

For a set of Canadian firms, Graham et al. (2003) found evidence that financial statements prepared under the PC method have more relative information content for predicting future returns on shareholder equity than financial statements prepared under the equity method. Based on the same regression model, the study of Leitner-Hanetseder (2010) indicated that the PC method provides greater predictive power of future profitability than the equity method for German listed companies. The findings showed that the intended elimination of the PC method would not improve the relative information content for users of financial statements prepared under IFRS. However, the findings also proved that additional disclosures to calculate PC data would improve the relative information content of future profitability under the equity method.

Richardson et al. (2012) found that the elimination of the choice of joint venture accounting method does have value relevance implications. Similarly, the findings of the study by Soonawalla (2006) proved that the separate recognition of the disclosure of joint ventures and associate companies provides value relevance.

According to previous research, the elimination of the choice between the PC method and equity method decreases value relevance. Furthermore, the use of the PC method provides stronger information content than the use of the equity method. However, few studies investigate the relevance of the equity method or PC method for accounting for joint venture investments within single industries. The study of Keitz (2005) indicated, for example, that the equity method is preferred in the automobile and transport industry and that the PC method is preferred in the construction industry. Nölte et al. (2007) and Leitner (2009) investigated the impact of the change from the PC method to the equity method on financial figures and/or ratios. However, the studies mentioned were carried out only for German and/or Austrian listed companies. Similar results for listed companies in the EU are missing.

With the present empirical study, the authors of this paper aim to contribute to the research by investigating the relevance of the choice of joint venture accounting methods and the impact on financial figures and ratios of a change from the PC method to the equity method in the financial statements of European companies. In the next section, the methodology, hypotheses and sample of the empirical study are described.

Methodology of the empirical study

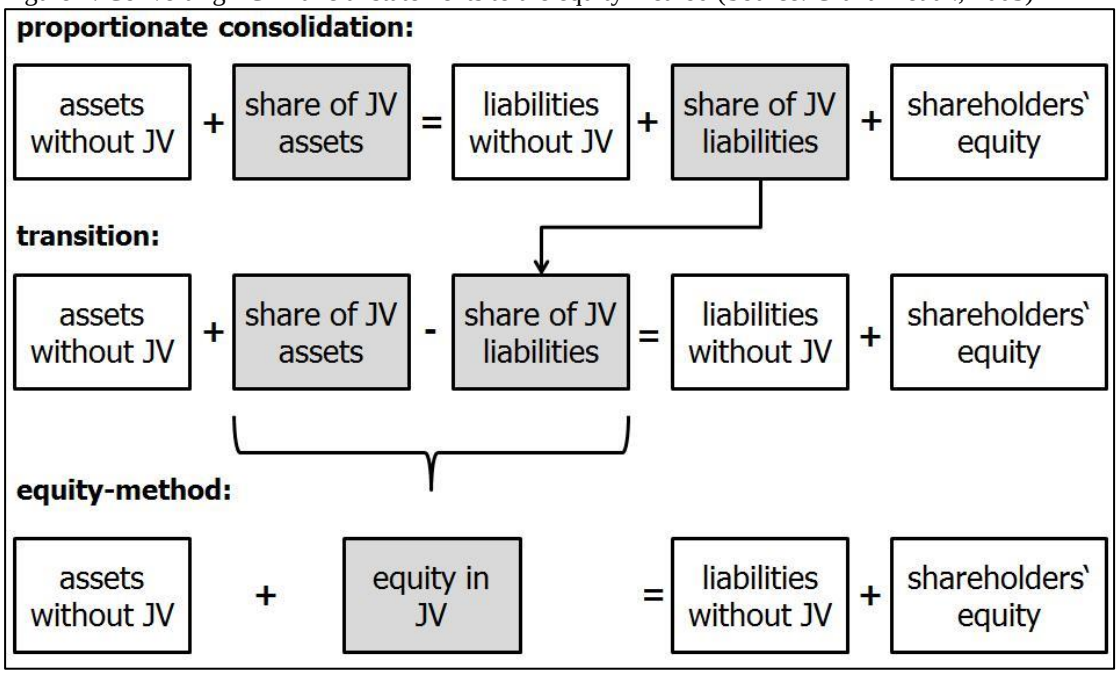
As shown above, the transition from the PC method to the equity method affects financial statement figures and key financial ratios. However, the extent of these impacts has been analysed to a limited degree for European companies. As potential effects are still known theoretically (see IASB, 2011b and KPMG, 2011), this study provides a detailed descriptive overview and quantifies these impacts in practice using data of 350 European companies from different indices, industries and countries in the EU.

The following cross-sectional study is characterised as a deductive analysis, which means that the hypotheses introduced will be confirmed or rejected. Descriptive deviation analysis was elected as the methodology, whereby selected financial statement figures and key financial ratios are calculated twice, using the PC method and a fictitious equity method. For the fictitious calculation of the equity method, the impacts on assets, liabilities, income and expenses can be directly seen in the Notes.

As the study examines the effects on total assets and liabilities as well as income and EBIT, these financial data were converted. To convert liabilities and sales under the equity method, the liabilities and sales of joint ventures had to be subtracted. To ascertain the fictitious equity in joint ventures, the share of liabilities decreases the amount of total assets. The fictitious total assets under the equity method are increased by the amount of the net book

value of the joint venture. Figure 2 illustrates the procedure for converting the financial data under the PC method to the financial data under the fictitious equity method.

Figure 2: Converting PC financial statements to the equity method (Source: Graham et al., 2003)



A calculation is only possible if European companies provide information about their jointly controlled entities in the Notes as required by IAS 31.56. Furthermore, the results are based on the assumption that jointly controlled entities under IAS 31 will be joint ventures under IFRS 11 otherwise an evaluation of the results is impossible. However, this will be expected in most cases (IASB, 2011b and KPMG, 2011).

The aim of this study is to answer the following questions:

1. What practical relevance do joint ventures have for European companies, i.e. how many European companies account for joint ventures in their consolidated financial statements?
2. Which accounting method do European companies use for joint ventures, i.e. what accounting method is relevant in practice and how many European companies account for their joint ventures using the PC method and therefore will be affected by the transition to the equity method?
3. How does the transition affect the selected statement figures according to the concerned European companies in point two, i.e. to what extent do financial statement figures change?
4. What quantitative impacts do the change in financial statement figures have on key financial ratios, i.e. to what extent do key financial ratios change due to the transition?

Development of hypotheses

IAS 1.9 states that "…the objective of financial statements is to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions". The change from the PC method to the equity method will affect financial positions and financial performance and, consequently, key financial ratios. As, theoretically, these effects are already known, we analyse whether they

are below or above a materiality margin of 5% for financial positions respectively 5 percentage points for key financial ratios and confirm or reject the following hypotheses using a deductive approach.

For financial positions, we check the following hypotheses:

H_1: When changing from the PC method to the equity method, total assets of European companies decrease by more than 5%.

H_2: When changing from the PC method to the equity method, liabilities of European companies decrease by more than 5%.

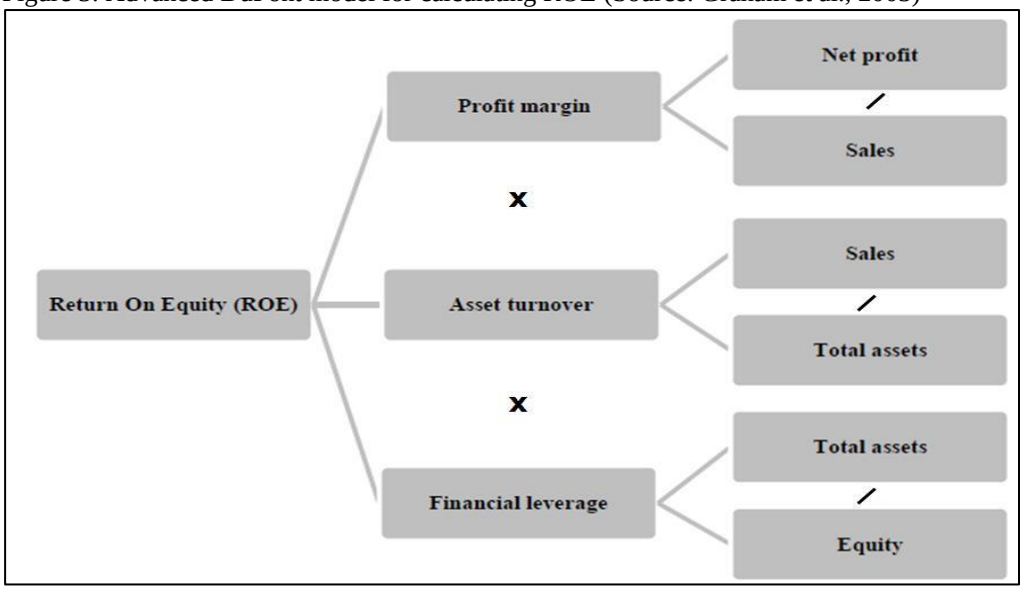
H_3: When changing from the PC method to the equity method, income of European companies decrease by more than 5%.

H_4: When changing from the PC method to the equity method, EBIT of European companies decrease by more than 5%.

Under the equity method, the joint venturer's assets and liabilities will no longer be proportionately consolidated. Instead, the adjusted share of net assets will be shown in a single line on the balance sheet. Therefore, total assets and liabilities will decrease and H_1 and H_2 can be justified due to that fact. Equally, income will decrease to the extent of the entity's previously recognised share income of the joint venture and H_3 will also be justified. The decline in EBIT and therefore H_4 can be justified because the share of EBIT is also not included in the income statement. However, it must be noted that the effects on EBIT depend on whether the entity or joint venture ever achieves a positive EBIT. If the joint ventures have a negative EBIT in total, the group companies' EBIT will rise, as a negative EBIT of the joint ventures will not be included. As no rules within IFRS exist as to whether the earnings of joint venture investments under the equity method must be shown as financial earnings or operating earnings, companies can show such earnings in either manner. The following results imply that companies using the equity method would show their earnings of joint venture investments as financial earnings, because this is the most common way in practice. Therefore, EBIT would decrease in comparison with the use of the PC method.

For business analysis and valuation, the impacts on key financial ratios can be derived from changes to financial statement figures. According to Burns et al. (2008) and Graham et al. (2003) we use an advanced DuPont model that divides Return On Equity (ROE) into three distinct parts and their determinants (see Figure 3). Hence, the cause and effects of the impacts can be shown with this model.

Figure 3: Advanced DuPont model for calculating ROE (Source: Graham et al., 2003)



ROE is computed as follows:

ROE = Profit margin x Asset turnover x Financial leverage	
Profit margin I =	Earnings after tax/Sales
Profit margin II =	EBIT/Sales
Asset turnover =	Sales/Total assets
Financial leverage =	Total assets/Equity

For the key financial ratios of the advanced DuPont model, we check the following hypotheses:

H_5: When changing from the PC method to the equity method, Profit Margin I (Profit Margin II) of European companies rises (decreases) by more than 5 percentage points.
H_6: When changing from the PC method to the equity method, Asset turnover of European companies decreases by more than 5 percentage points.
H_7: When changing from the PC method to the equity method, financial leverage of European companies decreases by more than 5 percentage points.
H_8: When changing from the PC method to the equity method, ROE II of European companies decreases by more than 5 percentage points.

As there is no effect on net profit in the numerator and sales in the denominator are not included using the equity method, Profit Margin I will rise inevitably. Unlike Profit Margin I, calculating Profit Margin II means that EBIT is used in the numerator, which usually decreases under the equity method. Primarily for companies whose joint ventures contribute significantly to EBIT, this leads to a decline in Profit Margin II, and thus H_5 can be justified due to this fact. H_6 and the decline in asset turnover can be justified because the numerator (sales) as well as the denominator (total assets) decline under the equity method. H_7 means that equity in the denominator is subject to no change and that there is a decline in total assets in the numerator; therefore, financial leverage also decreases.

In summary, ROE is calculated as the multiplication of profit margin, asset turnover and financial leverage. If ROE is calculated using Profit Margin I, there is no impact on ROE I, as neither net profit nor equity are subject to change. If ROE is calculated using Profit Margin II, the decrease in ROE II can be justified because EBIT already decreases. Nevertheless, the level of the impact depends on the ratio of the joint ventures' EBIT and the groups' equity.

Sample selection and descriptive statistics

As research into the extent of the impacts on financial statement figures and key financial ratios has been analysed to a limited degree for European companies thus far in the literature, we used 350 annual reports of different indices, industries and countries in Europe. Thus, we analysed annual reports from companies listed on the indices of the Prime Market of the Vienna Stock Exchange of Austria, the DAX, MDAX and TecDAX of the German Stock Exchange, the Financial Times Stock Exchange (FTSE) of the United Kingdom and the New York Stock Exchange (NYSE) of France. Depending on the index, 40 companies of the Austrian Traded Index (ATX) Prime, 110 companies of the HDAX (DAX, MDAX and TecDAX), 100 companies of the FTSE 100 and 100 companies of the Euronext 100 were analysed (see Table 1). In order to draw conclusions about the population of all European listed companies with a representative sample, the sample was chosen so that companies from continental Europe (Austria, Germany and France) and from Anglo-Saxon countries (United Kingdom) are represented. In addition, the Euronext 100 index provides a broad spread of European companies, including companies from the Netherlands, Belgium, Portugal and Luxembourg.[1]

[1] 36 companies (72%) of the EURO STOXX 50 index are included in the sample. This index contains the most important 50 listed companies from 12 countries in the EU and it has developed into a leading barometer of

Table 1: Sample selection by index

Index	**Stock Exchange**	**Country**	***n***	**in %**
ATX Prime	Austrian Stock Exchange	Austria	40	11.43
DAX	German Stock Exchange	Germany	30	8.57
MDAX	German Stock Exchange	Germany	50	14.29
TecDAX	German Stock Exchange	Germany	30	8.57
FTSE 100	London Stock Exchange	United Kingdom	100	28.57
Euronext 100	NYSE Euronext	France	100	28.57
Total			350	100.00

Furthermore, Table 2 shows the sample selection by industry according to the Industry Classification Benchmark (ICB).[2] The largest proportion of the sample is allocated to industrials (78 companies, 22.30%), followed by finance (45 companies, 12.90%), consumer goods (42 companies, 12%) and basic materials (36 companies, 10.30%). The samples of the technology industry (21 companies, 6%), oil & gas as well as healthcare (20 companies each, 5.70%), utilities (15 companies, 4.30%) and telecommunications (12 companies, 3.40%) are comparatively small.

Table 2: Sample selection by industry

ICB code	**Industry**	***n***	**in %**
0001	Oil & Gas	20	5.70
1000	Basic Materials	36	10.30
2000	Industrials	78	22.30
3000	Consumer Goods	42	12.00
4000	Health Care	20	5.70
5000	Consumer Services	45	12.90
6000	Telecommunications	12	3.40
7000	Utilities	15	4.30
8000	Finance	61	17.40
9000	Technology	21	6.00
	Total	350	100.00

Of these 350 annual reports, one company did not provide an annual report (Consolidated Airlines Group S.A. listed on the FTSE 100) and six companies (Century Casino Inc., Fresenius Medical Care AG, Fresenius SE & Co KgaA, Carnival Plc. and ASML Holding N.V.) did not prepare their consolidated financial statements using IFRS. Thus, the total sample comprised 343 annual reports.

Sample Selection:

ATX, HDAX, FTSE 100, Euronext 100	350
-no annual report	-1
available annual reports	349
-not applying IFRS	-6
Sample	343

Europe. Hence, the sample represents a smaller part of the whole population and, therefore, it can be considered to be representative.

[2] The ICB structure enables the classification of companies into 10 industries, 19 super sectors, 41 sectors and 114 subsectors. The ICB system is maintained by FTSE International Ltd.

Empirical results

Relevance of joint ventures and related accounting methods

Based on the data for 2010, of the 343 companies in the sample, 246 had a joint venture (71.70%). The results in Table 3 indicate that joint ventures are highly relevant in most industries. Indeed, in the basic materials, consumer goods, consumer services, utilities and finance industries, more than 75% of companies had one or more joint ventures.

Table 3: Relevance of joint ventures by industry

Industry according to ICB	*Joint Ventures*				Total	
	No		Yes			
	n	**in %**	***n***	**in %**	***n***	**in %**
Oil & Gas	6	30.00	14	70.00	20	100.00
Basic Materials	6	16.70	30	83.30	36	100.00
Industrials	26	33.80	51	66.20	77	100.00
Consumer Goods	8	19.00	34	81.00	42	100.00
Health Care	10	58.80	7	41.20	17	100.00
Consumer Services	8	18.60	35	81.40	43	100.00
Telecommunications	5	41.70	7	58.30	12	100.00
Utilities	1	6.70	14	93.30	15	100.00
Finance	13	21.30	48	78.70	61	100.00
Technology	14	70.00	6	30.00	20	100.00
Total	97		246		343	

Of these 246 companies, only 229 disclosed information about the accounting method used for joint ventures: 127 of these 229 companies used the equity method and 100 used the PC method for accounting for joint ventures in their consolidated financial statements. To provide consistency across financial statements, companies are not allowed to mix accounting methods. In line with IAS 31.1 and IAS 39, two companies valued their joint ventures under the fair value approach (see Table 4).

Table 4: Relevance of accounting methods

Accounting method	***n***	**in %**
Equity method	127	51.63
PC method	100	40.65
Fair value	2	0.81
No information on accounting method	17	6.91
Total	246	100.00

These results show that within single indices the equity method is preferred for accounting for joint venture investments. Further, companies listed on the ATX Prime Market, DAX, MDAX, TecDAX and FTSE 100 prefer the equity method to the PC method. Only in the Euronext 100 Index is the PC method preferred (see Table 5).

Table 5: Relevance of accounting methods by index

Indices	Accounting method						Total	
	Equity method		PC		Fair value			
	n	**in %**	***n***	**in %**	***n***	**in %**	***n***	**in %**
ATX Prime	11	52.38	10	47.62	0	0.00	21	100.00
DAX	18	81.82	4	18.18	0	0.00	22	100.00
MDAX	18	56.25	14	43.75	0	0.00	32	100.00
TecDAX	6	75.00	2	25.00	0	0.00	8	100.00
FTSE 100	46	69.70	18	27.27	2	3.03	66	100.00
Euronext 100	28	35.00	52	65.00	0	0.00	80	100.00

Total	127	100	2	229

Furthermore, the results indicate that more than half of the sampled companies in the basic materials, industrials, utilities and finance industries prefer the PC method for accounting for joint ventures (see Table 6), implying that half of these companies will be affected by the change from the PC method to the equity method.

Table 6: Relevance of accounting method by industry

Industries according to ICB	**Accounting method**						**Total**	
	Equity method		**PC**		**Fair value**			
	n	**in %**	***n***	**in %**	***n***	**in %**	***n***	**in %**
Oil & Gas	11	78.57	3	21.43		0.00	14	100.00
Basic Materials	12	42.86	16	57.14		0.00	28	100.00
Industrials	23	48.94	24	51.06		0.00	47	100.00
Consumer Goods	17	58.62	12	41.38		0.00	29	100.00
Health Care	5	71.43	2	28.57		0.00	7	100.00
Consumer Services	24	75.00	8	25.00		0.00	32	100.00
Telecommunications	5	71.43	2	28.57		0.00	7	100.00
Utilities	7	50.00	7	50.00		0.00	14	100.00
Finance	19	42.22	24	53.33	2	4.45	45	100.00
Technology	4	66.67	2	33.33		0.00	6	100.00
Total	127		100		2		229	

At least 40% of the European companies sampled would have had to change accounting method for joint ventures from the PC method to the equity method. In particular, companies in the Euronext 100 index and/or single industries will be affected by this change. These companies consequently are concerned with the following impacts on selected financial statement figures and key financial ratios.

Impacts on selected financial statement figures

This section evaluates the impacts on the consolidated financial statement figures caused by a change from the PC method to the equity method for the financial year 2010 (see Table 7).

Table 7: Descriptive statistics of the effects of conversion on selected financial statement figures

	Impact on total assets in %	**Impact on liabilities in %**	**Impact on sales in %**	**Impact on EBIT in %**
n*	82	80	54	64
Mean	-3.17	-5.75	-7.87	-16.51
Median	-1.70	-3.13	-4.43	-2.75
Std. Deviation	5.24	9.20	9.38	83.70
Maximum	-39.70	-58.21	-43.40	-662.50/+85.75
Hypothesis	rejected	confirmed	confirmed	confirmed
Impact according to industry				
Oil & Gas	immaterial	material**	immaterial	material
Basic Materials	immaterial	material	material	immaterial
Industrials	immaterial	immaterial	material	material
Consumer Goods	immaterial	immaterial	immaterial	material
Health Care	immaterial	immaterial	immaterial	immaterial
Consumer Services	immaterial	material	immaterial	material
Telecommunications	immaterial	immaterial	material	material
Utilities	immaterial	material	material	material
Finance	immaterial	material	material	material
Technology	immaterial	immaterial	no information***	material

Based on financial data for 2010, Table 7 points out the relative differences between financial data under the equity method and under the PC method.
*n means the number of companies using the PC method and disclosing the data required for the financial year 2010
**material means that the impact was more than 5% on average
***no information means that none of the companies in the industry selected disclosed the information required

Therefore, a calculation of the impact on total assets of the change from the PC method was possible for only 82 companies. For half of these companies, the change to the equity method implied a decrease in total assets by a maximum of 1.70%. By analysing total assets, we find an average impact of -3.17% (*SD* = 5.24). Excluding outliers [3], the mean is -2.38% (*SD* = 2.52). Therefore, H_1 is rejected. The results also show that in none of the industries regarded an impact of more than 5% on average was given. Therefore, the impact is immaterial.

By using the equity method, selected companies would have on average 5.75% (*SD* = 9.20) lower total liabilities. This means that H_2 is confirmed. However, without outliers the decrease in total assets is on average -4.28% (*SD* = 4.73). Regarding single industries, the results show a material impact in the oil & gas, basic materials, consumer services, utilities and finance sectors.

Half of companies would see a decrease in sales of at most 4.43%. The impact on total sales would be on average -7.87% (*SD* = 9.38) (without outliers Mean = -6.11% [*SD* = 5.95]). Therefore, H_3 is confirmed. The results indicate that the impact is material only in five industries. However, in utilities and telecommunications, the average impact is considerable (telecommunications = -17.75%, utilities = -18.48%).

From the sample, only 64 companies could be identified to calculate the impacts on EBIT. By transition to the equity method, the selected companies would have on average 16.51% (*SD* = 83.70) lower EBIT. Excluding outliers, EBIT would decrease by on average 6.99% (*SD* = 10.56). Therefore, H_4 is confirmed. The high SD without excluding outliers can be justified because impacts depend on whether the joint ventures have positive EBIT. In cases where the EBIT of the joint ventures is negative, a change to the equity method could cause a rise in EBIT, as negative EBIT would no longer be proportionally consolidated. For example, the EBIT of Salzgitter AG would rise by 15.38% due to the change to a fictitious equity method.

Based on financial data for 2010, those companies whose joint ventures contribute significantly to EBIT should expect a material decline, such as EVN AG (-33.21%), Warimpex Finanz- und Beteiligungs AG (-39.86), Randgold Resources Ltd. (-33.13%) and Veolia Environment S.A. (-33.52%). Furthermore, five companies in the sample should expect a material decline in EBIT of more than 20%. Further, in eight of the 10 industries selected, the impact is material.

Impacts on key financial ratios

Based on the changes in financial statement figures, the impacts on key financial ratios can be derived. In this regard, each financial ratio was calculated twice, first using the PC data and second using the data from the conversion to the equity method. Thus, the analysis of the impact of conversion was possible. As stated in before, we concentrate on financial ratios according to the advanced DuPont model, as the cause and effects of the impacts can be

[3] Outliers are calculated using the statistical software SPSS. In SPSS, outliers are marked through boxplots, when their interval at the 25th percentile or 75th percentile is more than three times the height of the box, leaving the range of values with the middle 50%.

shown with this model. Table 8 presents the differences in financial ratios based on the financial data for 2010.

Table 8: Descriptive statistics of the effects of conversion on key financial ratios

	Impact on ROE II	**Impact on profit margin I**	**Impact on profit margin II**	**Impact on asset turnover**	**Impact on financial leverage**
n*	39	54	39	54	82
Mean	-1.90	2.84	1.16	-2.05	-13.62
Median	-0.88	0.39	-0.01	-0.85	-4.47
Std. Deviation	2.63	12.86	9.75	3.07	33.02
Maximum	-11.00/+0.05	-0.21/+94.61	-4.34/+59.70	-13.76/+0.20	-272.72
Hypothesis	rejected		rejected	rejected	confirmed
Impact according to industry					
Oil & Gas	immaterial	immaterial	immaterial	immaterial	material
Basic Materials	immaterial	immaterial	immaterial	immaterial	immaterial
Industrials	immaterial	immaterial	immaterial	immaterial	material
Consumer Goods	immaterial	immaterial	immaterial	immaterial	immaterial
Health Care	immaterial	immaterial	immaterial	immaterial	immaterial
Consumer Services	immaterial	immaterial	immaterial	immaterial	material
Telecommunications	immaterial	immaterial	immaterial	immaterial	immaterial
Utilities	immaterial	immaterial	immaterial	immaterial	material
Finance	not material	material**	material	immaterial	material
Technology	no information***	no information	no information	no information	material

Based on financial data for 2010, Table 8 points out the relative differences between financial data under the equity method and under the PC method.

*n means the number of companies using the PC method and disclosing the data required for the financial year 2010

**material means that the impact was more than 5 percentage points on average

***no information means that none of the companies in the industry selected disclosed the information required

In the statement of comprehensive income, there are four levels of profit or loss (i.e. gross profit or loss, operating profit or loss, pre-tax profit and net income). As mentioned above, in the present study, profit margin was calculated by using two numerators. Under profit margin I, net income after tax was used, while under profit margin II, operating profit or loss was used. Profit margin I was used to calculate ROE I. Profit margin II is an important ratio to investors, as management has much control over operating expenses. In most cases, positive and negative trends in this ratio can be directly attributed to management decisions. Although sales decrease under the equity method, the impact on profit margin I is positive, as the numerator is lowered by the amount of sales from the joint venture investments. A lower numerator increases profit margin I.

For the calculation of profit margin I, 54 companies of the sample could be identified, which provided the necessary information. Following a change from the PC method to the equity method, profit margin I would increase by an average of 2.84 percentage points (SD = 12.86). Without outliers, the average increase in profit margin I would be 0.85 percentage points (SD = 1.32). In the cases of Wienerberger AG (-0.21 percentage points) and Thales S.A. (-0.10 percentage points), a decrease in profit margin I could be identified due to their negative net profits. In 50% of cases, however, the impact would be no more than 0.39 percentage points. These results also indicate that only in the finance industry the impact would be material.

In the next step, the results indicate few differences between profit margin II under the equity method and the PC method. Even though a maximum difference of -4.34/+59.70 percentage points was calculated, the difference in profit margin II was no higher than -0.01

percentage points in half of the cases. As the average impact was only 1.16 percentage points (without outliers M = 0.04 percentage points [*SD* = 0.93]), H_5 is rejected. As with profit margin I, the impact would only be material in the finance industry.

The numerator and denominator of asset turnover are influenced by the conversion from the PC method to the equity method. Asset turnover decreases if the total sales of joint venture investments are higher than the decrease in total assets caused by the conversion and vice versa. The decrease in total assets equates to the total liabilities of the joint venture. Based on a sample of 54 companies, asset turnover would decrease by an average of 2.05 percentage points (*SD* = 3.07). Without outliers, a decrease of M = 1.61 percentage points (*SD* = 2.08) could be analysed for asset turnover. Thus, H_6 is rejected. The results also indicate that in none of the sampled industries would the impact be material.

From the sample, 82 companies could be identified to calculate the impact on financial leverage. In half of cases, the leverage ratio would decrease by -4.47 percentage points (without outliers, mean = -7.62 percentage points [*SD* = 9.41]). The mean difference in the leverage ratio includes a decrease of -13.62 percentage points (*SD* = -272.72). Thus, H_7 is confirmed. Based on the comparative descriptive statistics of the components of ROE, the highest impact of the change from the PC method to the equity method can be determined for the leverage ratio. Based on the data for 2010, there would be a material impact on the leverage ratio in six (oil & gas, industrials, consumer services, utilities, finance, technology) of the 10 industries selected following a change from the PC method to the equity method.

As mentioned above, net income after tax and equity are the same under both accounting methods; therefore, ROE I is also the same. ROE II was calculated as the product of profit margin II, asset turnover and financial leverage. From the sample, only 39 companies could be considered where all three ratios could be computed. The results show that the difference between ROE II under the PC method and that under the equity method is very low. Compared with ROE II under PC method, ROE II decreases (increases) under the equity method if the joint venture shows an operating profit (loss). Further, the difference between ROE II under PC and the equity method would be negative (positive) if the joint venture shows an operating profit (loss) in the financial statements under PC. In 50% of cases, ROE II decreases by at least 0.88 percentage points. On average, ROE II would decrease by 1.90 percentage points (*SD* = 2.63). Excluding outliers, the mean is -1.66 percentage points (*SD* = 2.19). On average, therefore, the impact on ROE II is immaterial and H_8 is rejected.

However, there are material impacts in single cases. For example, Warimpex Finanz- und Beteiligungs AG should expect a material decline in ROE II of -11.00 percentage points. The cause/effect analysis of this model shows that profit margin I would rise (+1.16 percentage points), while asset turnover (-1.04 percentage points) and financial leverage (-272.72 percentage points) would decrease, and therefore ROE II would also decrease. However, in none of the industries selected would the impact of a change from the PC method to the equity method be material for ROE II.

Conclusion

As shown herein, the application of IFRS 11 influences European companies. First, they have to re-evaluate all their joint arrangements due to the new classification rules on rights and obligations. Second, European companies using the PC method are affected by the change in accounting method. Hence, financial statement figures and key financial ratios will change following the transition from the PC method to the equity method.

The presented empirical results indicate that joint ventures are highly relevant in practice because approximately 70% of the European companies sampled account for at least one joint

venture. In particular, in the materials, consumer goods, consumer services, utilities and finance industries, more than 75% of the European companies sampled account for joint ventures in their consolidated financial statements. The results also show that the equity method is preferred for accounting for joint ventures. Nevertheless, approximately 40% of sampled firms use the PC method, and therefore they are concerned with the impact of the change to the equity method. In particular, more than half of the companies listed on the Euronext 100 index and those from the basic materials, industrials, utilities and finance industries have to change their accounting methods and are facing impacts due to that fact.

By analysing the impacts on selected financial statement figures, H_2, H_3 and H_4 were confirmed, which means that liabilities, sales and EBIT are all influenced materially by the discussed change. H_1 was rejected, however, meaning that there is no material impact on total assets. These results also indicate that in several industries changing from the PC method to the equity method causes material impacts on selected financial statement figures. However, not all industries are affected in the same way. For a detailed analysis of the impacts on specific industries, we recommend Ernst & Young (2011b, c, d), PWC (2011b, c, d) and EFRAG (2012).

Owing to these changes in financial statement figures, the impacts on key financial ratios using an advanced DuPont model were then derived. The results show that these impacts are in the single-digit range on average, except for financial leverage. As a consequence, H_5, H_6 and H_8 were rejected, which implies no material impact on profit margin I and II, asset turnover and ROE II. However, H_7 was confirmed, suggesting that financial leverage changes materially due to an accounting change.

It must be noted here that in single cases impacts were material on both financial statement figures and key financial ratios; therefore, these cases are relevant for the companies and stakeholders involved. Although the results of the present study provide the first evidence of the expected effects, the extent of the impact still depends on the year of transition. As this study was designed as a cross-sectional investigation, further research is thus necessary. For example, the methodology of this study could be changed to a longitudinal study design to measure, for example, the correlations between accounting methods and their predictive power, as shown in previous studies, or to analyse the impacts of economic development on the accounting change.

In summary, the results of this paper are highly relevant for practice and for scientific discourse. On one hand, they provide a first reference point on the impacts that can be expected when applying IFRS 11 for the first time. On the other hand, they open up further scientific discussion on the impacts of changing from the PC method to the equity method.

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