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Comparing the value relevance of earnings and book value in IFRS and GAAP standards

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***THE VALUE RELEVANCE OF ACCOUNTING NUMBERS: THE
CASE OF FINANCIAL INSTITUTIONS***
***Comparative Study between the IFRS countries “Benelux, Spain, France, UK” and US
GAAP in the United States***

Abstract

The aim of this paper is to present a comparative analysis of the value relevance of the book value and earnings on a sample of companies belonging to the financial sector, made up largely of banks. The sample is taken from several European markets in IFRS, namely the Benelux countries, France, Spain, the United Kingdom and the US market in US GAAP. We will aim to find out under what standard applied to a given financial market, the relation between accounting numbers (earnings and equity) and the stock market returns is the most significant. The results of the statistical tests show a superiority of the value relevance of the European markets compared to the American market.

KEYWORDS: US-GAAP, IFRS, Banks, Stock market, Price, Association study.

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Introduction

The adoption of the IFRS¹ in 2005 by the listed European companies has, no doubt, proved to be a major event and a primordial step in the history of contemporary accounting. These new standards were created in order to provide a better comparability and transparency of financial accounts. They give priority to the pre-eminence of the economic reality over legal form by replacing, notably for financial instruments, the principal of historical cost valuation by that of fair value.

Today, the IFRS have succeeded in challenging its American rivals the US GAAP, the latter being no longer considered as the only standards with an international dimension.

Thus, the financial markets are dominated today by two systems based on different philosophies. The IAS/IFRS standards are based on more flexible principles, whilst the US GAAP are based on the very detailed and complex rules. In this context, a group of accounting and finance professionals sought a convergence between the US GAAP and the IFRS, which was formalised by the Norwalk agreement in 2002. This resulted in setting up a harmonisation project aimed at eliminating the differences between the two standards.

Meanwhile, the cohabitation is likely to persist for several years. This situation produced another group of professionals and researchers, motivated among other reasons, by the current upheaval and financial crisis, and who think that a great battle has started. They are questioning both the role of the IFRS in the current economic situation, and want to know which is the best frame of reference: the IAS/IFRS or the US GAAP?

The aim of this paper is to present a comparative analysis of the value relevance of earnings and equity across financial institutions, and more particularly for banks. The organisations present a very specific case study because they have problems accounting for the fair value of their financial assets creating a certain volatility in their book value and equity.

So far the only studies found, are comparisons between the US GAAP and on or more standards or accounting methods, including Hernander et al. (2007), using the Gray conservative index, which found a constant growth in the number of Latin American banks complying with the US GAAP, which leads to the belief that the US GAAP is more useful and therefore better quality compared with local standards. The results of the study of Khuruna et al. (2003) carried out on a sample of American banks, show that the relation between the historic value of the financial instruments and the stock market price of the equity does not have any significant difference compared with the association of the fair value of the financial instruments and the stock market price of the equity. Among the studies carried out on companies other than banks, including those of Harris and Muller (1999) which found that the reconciliation table IAS/US GAAP presented in the forms 20-F provides a value relevance. Chen and Sami (2006) came to the same conclusion by observing an abnormal number of transactions during the publication of the 20-F forms. In the British market, Ashbaught and Olssen (2002) found similarities in the levels of value relevance for accounting figures compared according to US GAAP and IFRS. Furthermore, in the German market, Luez (2003), Bartov, Goldberg and Kim (2005), and Meulen et al. (2007) studied a sample of companies listed on the new German stock market. The study showed a lack of any significant difference between the value relevance of US GAAP and IAS/IFRS.

As with the previous research, our study is interested in estimated the value relevance of the US GAAP and the IFRS on financial service companies (banks and financial

establishments). Nevertheless, contrary to previous studies which made their comparisons on only one financial market, we will base our study on several different institutional models, specifically the American market for US GAAP, and the markets of the Benelux countries, the French market, the Spanish market and the British market. Conscious of the potential bias in relation to the characteristics of each of these markets (Barth and Clinch, 1996), our goal will be to compare the value relevance of accounting figures by the association between these and the market returns. Our research question is centred on the identification of the reference (IFRS or US GAAP) and the financial market (European or American) on which the impact of the accounting figures on the market return is the most significant.

The sample studied is made up of smaller sample groups of all banks listed on 5 different financial markets, specifically the markets of the Benelux countries (Brussels, Amsterdam and Luxemburg) with 21 companies, the Spanish market with 20 companies, the French market with 51 companies, the British market with 172 and the American market with 118 companies.

1. Literature review

The basis of association studies

Financial accounting may generally be recognised as having two functions. The first function is based on the agency theory and is concerned with controlling the links between the company and its partners. In this context, the accounting is a basis of calculation which takes into account and provides proof. Whilst the second function, corresponds to the provision of information allowing investors to appreciate the company's value (Dumontier et al., 2001). In other words, by using the various financial and accounting indicators, the investors can value the company's shares, which allow them to make decision, notably whether to buy/sell shares on the markets.

There are many criticisms of this latter function such as: being based on unreal principles, the information is too late and becomes obsolete, it is a complex system allowing many subjective choices by managers... One may really doubt then if the explanatory power of accounting indicators could really help the investors to have an idea or estimate the value of the company. In order to answer these doubts and criticisms, many research papers called “Value Relevance Studies” have been carried out.

The origin and purpose of the Value Relevance Studies

Although the term “Value Relevance” only really appeared in the literature in the 1990s, studies carried out to show the relation between the accounting figures and company value began more than 41 years ago. The first article in this area was published by Miller and Modigliani (1966), using a sample of companies belonging to the electricity sector. The two authors showed that the capitalisation of earnings on the assets balance sheet is of significant importance in the market valuation. However it was to Ball and Brown (1968) and Beaver (1968) who earned the right to be considered as the founders of the Value Relevance studies on accounting numbers. Ball and Brown (op. cit) studied the relevance content of earnings, and showed that these are correlated with market prices. As for Beaver (op. cit), he studied the value relevance by observing the market price reaction and the transaction volume following the publication of annual reports. Nevertheless, it is considered that the first study which literally used the term “value reference” to describe the

relation between accounting figures and company value is that of Amir et al. (1993) Holthausen and Watts (2001) classified these studies into three categories.

“Relative” association studies

In this category, the researcher, using the linear regression technique, compares the degree of correlation ‘ R^2 ’ of the different accounting and financial indicators with the market price over a relatively long period. The accounting indicators which are expressed by a capital ‘ R^2 ’ are considered as the most relevant. These studies may concern notably valuing the degree of correlation between an accounting profit calculated according to two different standards (local standard vs foreign standards) and the market profitability (Harris et al., 1994, Dhaliwal et al., 1999, Niskanen et al., 2000).

Incremental association studies

The incremental association studies are interesting in determining to what extent added a given variable to a model comprising other explicit variables has an impact on the market price or the market profitability. In this case, it is considered that the variable test is relevant when its ‘ R^2 ’ is significantly different from zero. (Barth, 1994, Venkatachalam, 1996, Eccher, Ramesh and Thiagarajan, 1996).

Studies containing marginal information

In this type of study, the so called “event” methodology is used over a relatively short period (window). The purpose is to determine if the modification of certain accounting numbers due to the disclosure of new information is correlated with a change in the market price or in the returns. In the event of a market reaction, the new information is considered as being relevant. (Air et al. 1993).

The duality of IFRS – US-GAAP in research literature

The IAS/IFRS standards are based on generous principles, whereas the US-GAAP are based on very detailed and complex rules. Indeed, while the IFRS standard currently cover more than 2000 pages of accounting rules, the American US-GAAP standards include nearly 2000 distinct declarations (standards, interpretations, opinions and bulletins), many of which span several hundred pages, published in different forms and formats by many different bodies. (Gill M. L., 2007). Nevertheless, because of the convergence work set up by the two standardisation authorities, the scale of the divergences between the standards is continuously diminishing. As an example, the recent declaration No 159 of the FASB “The Fair Value Option for Financial Assets and Financial Liabilities” proposes an option for Fair Value similar to that in the IAS 39 standard, albeit with several divergent points.

Little research has been carried out in the banking sector. Thus, the only studies identified are comparison studies between the US-GAAP and one or several accounting standards. Hernander et al. (2007), used Gray’s conservative index (1980) to analyse the growth in the adoption of the US GAAP by banks in 5 Latin American countries, in this case, Argentina, Chile, Columbia, Brazil and Peru. They noticed a growing trend in the number of Latin American banks complying with the US GAAP, which could lead to the conclusion that the

use of US GAAP increases the value relevance of accounting figures. The results of the Kharuna et al. study (2003) carried on a sample of 320 American banks during the period 1995-1998, showed that applying the historic costs gives more relevance to the fair value for average sized banks that do not belong to a group with international visibility. Using a sample of industrial and commercial companies, Ahsbaugh and Olssen (2002), compared the explanatory power of book value and equity prepared according to IFRS and US GAAP standards. The study was carried out on the London Stock Exchange. Thus on a sample made up of 26 and 36 companies who prepared their consolidated accounts according the IFRS and US GAAP standards respectively for the year 1997, the authors tested three different valuation models: (1) the earnings capitalisation model, (2) the equity model and (3) the residual revenue model which included equity and abnormal book value. The researchers noted that when companies adopt IFRS standards, the earnings capitalisation model and the valuation of residual revenue model show similar explanatory powers. These two models have a higher intensity value than that of equity. Thus only the earnings model or the model of all the earnings and equity in IFRS, better explains the change in market returns than the model based on equity. However, when companies publish in US GAAP standard, the residual revenues model has a higher intensity value than the other valuation models.

Leuz (2003) examined the difference between the American accounting standards (US-GAAP) and the international standards (IFRS) in terms of asymmetric value. For that, the author selected a sample made up of between 69 and 195 companies listed on the new German stock market “Germany’s New Market” for the years 1999 and 2000. The results indicated that the US GAAP and the IFRS have a comparable effect in terms of reducing asymmetric value, and that despite the apparent differences between these two standards, the companies were similar in terms of the quality of the accounting numbers. For Leuz, this result can be explained by the fact that the companies studied belonged to the same financial market. These companies are thus subject to the same institutional conditions. Meulen et al. (2007) established a sample made up of 128 companies listed on the new German market, while most (116) were German companies, the sample included companies from 6 different countries. The value relevance was measured by the various indicators used in research of this type. The results found a relative similarity in the value relevance of the financial data prepared according to the IFRS and the US GAAP rules. Nevertheless, the US GAAP showed a certain superiority in the predictive capacity of the accounting information.

Harris and Muller (1999) studied during the period [1992-1996] the market valuation of companies from a sample made up of 31 non-American companies from 13 different countries. Each company applied both the international accounting standards (IFRS) on the local market, and the US GAAP by providing a 20-F form for their listing on the American stock market. The authors wanted to find out if the reconciliation with the American GAAP provided more information than the IFRS. The results suggested that share price has a greater correlation with financial numbers in IFRS than with those using US GAAP. Using a sample made up of 38 non-American companies listed on the American stock markets and for a period between 1995 and 2001, Chen and Sami (2006) analysed the reaction of the financial markets in terms of transaction volume following the publications of the 20F reconciliation forms. The results confirmed a positive correlation between the accounting book value determined using US GAAP and the transaction volumes in the short term. These results showed that the American investors take into consideration the value content of the IFRS/ US GAAP when making investment decisions.

The Bartov study (2005), set up using a sample group of 699 German companies, had the aim to compare the value relevance of three accounting standards, specifically the US GAAP, the IFRS and the German standards. The empirical tests were carried out using a regression model of returns/earnings/ The author showed that earnings based on the American standards and international standards provided an explanatory power higher than that found with the German standards.

2. Assumption development and sample description

Assumptions

As previously mentioned, our study aimed to find out under what combination (US GAAP, American Market) or (IFRS, European Market), the relation between accounting numbers and the market price is the most significant.

Assumption development for this type of study is generally based on the culture of the country in which the stock market is based. (Mora and Arce., 2002) Nobes (1984), and Nobes and Parker (2002) provide evidence of certain elements considered as explanatory the agreed differences in systems and accounting practices in countries, notably: (1) the common law legal system as practised in Anglo-Saxon countries or written law (code law) as practised in Continental European countries; (2) the nature of the investors and the fund source : private, banks or markets; (3) the financial system and whether or not it is based on accounting numbers to calculate the tax base; (4) the opinion of professionals, standardisation bodies, and lawyers who influence and dominate accounting development; (5) the inflation rate, and finally (6) the events and historical accidents which marked the previous economic situation.

Furthermore, Joos (1997) suggests that the conservative culture as defined by Belkaoui (1985) plays an important role in determining the parameters (or coefficients) of the theoretical model of Feltham and Ohlson (1995). It supposes that in countries where the accounting is based on a conservative culture (continental system), the correlation coefficients between earnings and equity on one hand, and the share price on the other hand, are higher compared to those calculated in the Anglo-American system. However, this assumption has been invalidated empirically. In using the same assumption, King and Langli (1999) found that equity is, from a value point of view, more relevant than the accounting book value in continental countries, while the book value seems to generate a value intensity higher than equity in the Anglo-American countries (UK).

With regard to our study, we propose to distinguish between the two institutional accounting systems as per the classification proposed by Glaum and Mandler (1996). Here the two authors distinguished between the Anglo-Saxon system and the continental system. Each system answers to the economic and social characteristics presented below:

Table 1: Fundamental characteristics of Anglo-Saxon and continental accounting systems

Accounting system	Continental	Anglo-saxons
Source of financing	Banking sector	Financial market
Culture	Collective aspect	Individual aspect
Legal system	Written law, the law provides precise accounting laws	Jurisprudence, the law is developed by bodies
Tax system	Close link between tax issues and accounting	Accounting is unconnected to tax issues

Source : based on Glaum et Mandler (2996, op.cit.)

Thus, by taking into account the above, we can formulate our assumptions as follows:

A1: The value relevance of earnings and equity per share is greater in continental markets than in Anglo-American markets.

A2: In continental markets, the value relevance of equity per share is greater than the value relevance of earnings per share.

A3: In the Anglo-American markets, the value relevance of earnings per share is greater than the value relevance of equity per share.

Sample characteristics

Our initial sample is made up of sub-groups comprising all banks listed on the five different financial markets, that is the markets of the Benelux countries (Brussels, Amsterdam and Luxemburg) with 21 companies, the Spanish market with 20 companies, the French market with 51 companies, the British market with 172 companies and the American market with 118 companies, for the period 2005, 2006 and 2007.

In order to avoid any analytical problem and to ensure a certain homogeneity in our sample, we retained certain selection criteria, notably:

- (1) The sample of companies selected in the financial sector was based on the Global Industry Classification Standard³. Thus, we only kept companies with the code 4010 “Bank” or 4020 “Diversified Financials”.
- (2) Companies with a negative equity value were removed from the sample. These are likely to be in financial difficulty which will give them a specific character which could harm our analysis².
- (3) Finally, the companies with extreme values for BVS (equity) and EPS (earnings/accounting book value) were removed from the sample. These companies represent statistically 1% of all observations.

Table (1.a) presents the different steps for selecting the samples, whilst Table 2 shows the breakdown of companies by industry as defined by the GICS classification.

Table 1.a: Steps for selecting the initial sample

Years	Steps	Benelux	Spain	France	G. Britain	USA
2005	Initial sample	45	21	58	230	141
	Missing values	13	4	9	93	34
	Negative book value	0	0	0	7	0
	Unusual observations 1%	4	0	0	13	4
	Final sample size	28	17	49	117	103
2006	Initial sample	45	21	58	230	141
	Missing values	15	3	9	60	33
	Negative book value	0	0	0	7	0
	Unusual observations 1%	3	0	1	19	4
	Final sample size	27	18	48	144	104
2007	Initial sample	45	21	58	230	141
	Missing values	11	1	16	40	20
	Negative book value	0	0	0	11	4
	Unusual observations 1%	3	0	1	23	11
	Final sample size	31	20	41	156	106

Table 2: Composition of final sample by GICS sector

Global Industry Classification Standard		Benelux	Spain	France	G. Britain	USA
401010	Commercial Banks	9	42	60	21	112
401020	Thriffs & Mortgage Finance	-	-	9	1	50
402010	Diversified Financial Services	41	6	23	66	34
402020	Consumer Finance	-	-	-	30	24
402030	Capital Markets	36	7	46	299	93
Total		86	55	138	417	313

Statistical description

The accounting and financial data for the entire period of the study come from the Thomson Financial database. The statistical description of the entire sample, by year and financial market are presented in Table 3. This data shows a positive skew (average > median) for all the variables (Price, EPS and BVS) no matter what period studied. Our results show that the value of equity per share is considerably higher than that of earnings per share for the entire period studied.

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Tableau 3 : Statistiques descriptives des variables (Rendement, BVS, EPS) par pays.

Année	Pays Indicateurs	Pays du Benelux			Espagne			France			Grande Bretagne			Etats-Unis		
		R	BVS	EPS	R	BVS	EPS	R	BVS	EPS	R	BVS	EPS	R	BVS	EPS
2005	N Observations	28	28	28	17	17	17	49	49	49	117	117	117	103	103	103
	Moyenne	30,49	26,48	3,30	17,99	9,76	1,49	154,61	173,34	9,51	147,04	0,82	0,06	36,65	17,98	2,48
	Médiane	21,00	13,53	2,22	12,29	5,05	0,82	64,00	48,36	5,95	82,00	0,41	0,01	29,93	14,78	2,09
	Ecart-type	27,25	27,25	3,48	18,11	10,85	2,04	324,53	401,77	12,52	192,28	1,11	0,15	21,34	11,90	1,80
	5 ^{ème} Centil	1,13	0,47	-0,85	2,03	1,70	0,22	2,65	1,53	0,00	2,33	0,01	-0,16	11,92	3,62	0,42
	95 ^{ème} Centil	80,35	90,49	10,95	79,65	40,51	6,77	1278,00	1604,04	44,85	517,50	3,45	0,46	78,75	45,04	6,66
2006	N Observations	27	27	27	18	18	18	48	48	48	144	144	144	104	104	104
	Moyenne	38,36	36,81	3,80	23,45	10,76	2,14	213,78	237,63	17,73	155,01	0,79	0,08	42,26	20,41	2,70
	Médiane	20,85	14,24	2,22	17,50	6,15	1,14	72,40	54,34	6,77	89,50	0,43	0,02	36,71	15,59	2,24
	Ecart-type	42,18	55,46	5,77	20,95	11,86	3,39	574,96	634,96	38,13	193,69	1,02	0,19	25,01	14,09	2,09
	5 ^{ème} Centil	1,11	0,75	-2,66	2,16	2,11	0,27	3,90	1,79	0,19	1,44	0,01	-0,05	11,90	3,69	0,32
	95 ^{ème} Centil	146,36	200,72	18,73	92,15	45,15	14,15	2142,58	2358,62	146,82	554,10	3,03	0,59	96,66	50,78	7,54
2007	N Observations	31	31	31	20	20	20	41	41	41	156	156	156	106	106	106
	Moyenne	42,41	43,23	3,21	18,55	11,50	2,04	181,25	194,35	17,02	125,23	0,82	0,08	30,03	18,69	1,47
	Médiane	18,08	15,08	2,18	13,88	6,35	1,20	47,50	45,54	3,73	80,13	0,43	0,02	23,63	15,46	1,37
	Ecart-type	68,76	79,96	4,01	15,73	13,35	2,38	546,80	548,08	44,32	150,38	1,06	0,18	20,52	12,97	2,28
	5 ^{ème} Centil	0,80	0,81	-1,47	2,38	1,77	0,15	4,22	1,89	0,12	0,83	0,01	-0,10	7,08	2,11	-2,77
	95 ^{ème} Centil	208,00	246,51	13,92	63,51	50,69	8,47	2263,30	2284,39	132,13	453,10	3,46	0,53	74,52	47,90	5,46
Toute la période	N Observations	86	86	86	55	55	55	138	138	138	417	417	417	313	313	313
	Moyenne	37,26	35,76	3,43	19,98	10,72	1,90	183,11	201,95	14,60	141,63	0,81	0,07	36,27	19,03	2,21
	Médiane	20,80	14,63	2,20	14,45	5,97	1,00	63,00	49,60	5,41	81,75	0,43	0,02	30,31	15,33	1,93
	Ecart-type	49,74	59,01	4,45	18,12	11,93	2,63	488,09	532,29	33,79	178,33	1,06	0,18	22,85	13,02	2,13
	5 ^{ème} Centil	1,16	0,73	-1,49	2,22	1,98	0,23	3,61	2,08	0,11	1,42	0,01	-0,08	8,69	3,42	-0,66
	95 ^{ème} Centil	95,05	122,58	14,29	67,45	44,78	8,30	1345,90	1615,17	55,23	503,35	3,40	0,53	81,31	48,09	6,45

Modelling of the relation between EPS, BVS and price

The methodology adopted in this research is that of association studies. This method, assuming the efficiency of the financial markets, tries to measure the value relevance of accounting numbers by measuring the association between the company's market value and the various financial indicators. Ohlson (1995) stipulated that the company market value is a linear function of its earnings and its net situation. Thus association studies generally develop by using regression analyses which consists of regressing the profitability value for a given share in a market on the accounting numbers for which that value relevance should be appreciated. The regression model is generally expressed as follows:

$$V_{it} = \alpha_0 + \alpha_1 I_1 + \alpha_2 I_2 + \dots + \alpha_n I_n + \epsilon_{it}$$

Where:

V_{it} represents the market value of the company;

$I_{(1..n)}$ represents the different financial indicators retained

ϵ_{it} is the random error

We will develop our model, to study the value relevance of BVS and EPS as follows:

$$P_{it} = b_0 + b_1 BVS_{it} + b_2 EPS_{it} + e_{it} \quad (1)$$

P_{it} = Share price of company i at the end of year t ;

EPS_{it} = Earnings per share of company i during period t ;

BVS_{it} = Book value per share for company i during period t ;

e_{it} = Other value relevances for company i during period t ;

The equation (1) expresses the price per share as a function of their accounting values and the relative earnings. Examining the incremental value relevance of these two last variables requires the examination of two additional equations. The first (equation 2) presents the

price only as a function of the accounting value of the share BVS, while the second (equation 3) interprets the price as a function of the earnings per share.

$$P_{it} = d_0 + d_1 BVS_{it} + e_{it} \quad (2)$$

$$P_{it} = c_0 + c_1 EPS_{it} + e_{it} \quad (3)$$

The correlation between the accounting variables and the market returns is measured by a regression coefficient (R^2). This coefficient explains the intensity of the relation between the market returns and the accounting variables selected. It informs on the value content of the accounting indicators and expresses their capacity to reflect the data transmitted on the financial market which is incorporated in the company's market price. The higher R^2 , the greater the redundant value content of the accounting variables. And therefore the greater likelihood that this indicator can substitute market returns. The regression coefficients ($b_0, b_1, b_2, \dots, b_k$) illustrate the correlations which are expressed in the accounting variables and the market returns. More specifically, they measure the impact of the relative variation of market returns which result from a change in the accounting indicators.

Correlation test

According to Table 4, which shows the results of the correlation test between the price and the accounting variables by year and by financial market, three important points should be made:

The correlation coefficients (r) demonstrated by the Spearman test are statistically significant. Indeed, the (r 's) as calculated, vary according to the financial market and the corresponding year between 0.616 (high correlation) and 0.954 (very high correlation) for the pair (price/EPS) and between 0.544 (average correlation) and 0.952 (very high correlation) for (Price/BVS).

It is noticeable that there is a higher correlation between the returns and accounting variables in the European markets than those noticed in the American markets.

Additionally, according to Table 5, it is noticed that contrary to the United States, which shows a higher correlation between returns/EPS than between returns/BVS during the entire study period, the European markets have a greater correlation between the returns and BVS than with EPS.

Table 4: Correlation test between the dependant and independent variables by country and by period.

Year	Variable	Benelux countries			Spain			France			Great Britain			USA		
		Price	BVS	EPS	Price	BVS	EPS	Price	BVS	EPS	Price	BVS	EPS	Price	BVS	EPS
2005	Return	1	.894(**)	.695(**)	1	.952(**)	.897(**)	1	.942(**)	.834(**)	1	.811(**)	.743(**)	1	.585(**)	.674(**)
	BVS	.894(**)	1	.725(**)	.952(**)	1	.947(**)	.942(**)	1	.676(**)	.811(**)	1	.437(**)	.585(**)	1	.808(**)
	EPS	.695(**)	.725(**)	1	.897(**)	.947(**)	1	.834(**)	.676(**)	1	.743(**)	.437(**)	1	.674(**)	.808(**)	1
2006	Return	1	.924(**)	.783(**)	1	.948(**)	.760(**)	1	.993(**)	.903(**)	1	.781(**)	.794(**)	1	.571(**)	.624(**)
	BVS	.924(**)	1	.754(**)	.948(**)	1	.869(**)	.993(**)	1	.901(**)	.781(**)	1	.533(**)	.571(**)	1	.818(**)
	EPS	.783(**)	.754(**)	1	.760(**)	.869(**)	1	.903(**)	.901(**)	1	.794(**)	.533(**)	1	.624(**)	.818(**)	1
2007	Return	1	.973(**)	.748(**)	1	.842(**)	.885(**)	1	.995(**)	.954(**)	1	.763(**)	.746(**)	1	.486(**)	.616(**)
	BVS	.973(**)	1	.717(**)	.842(**)	1	.981(**)	.995(**)	1	.937(**)	.763(**)	1	.622(**)	.486(**)	1	.452(**)
	EPS	.748(**)	.717(**)	1	.885(**)	.981(**)	1	.954(**)	.937(**)	1	.746(**)	.622(**)	1	.616(**)	.452(**)	1
Total for Period	Return	1	.952(**)	.688(**)	1	.888(**)	.817(**)	1	.982(**)	.898(**)	1	.776(**)	.752(**)	1	.544(**)	.647(**)
	BVS	.952(**)	1	.673(**)	.888(**)	1	.903(**)	.982(**)	1	.857(**)	.776(**)	1	.536(**)	.544(**)	1	.647(**)
	EPS	.688(**)	.673(**)	1	.817(**)	.903(**)	1	.898(**)	.857(**)	1	.752(**)	.536(**)	1	.544(**)	.661(**)	1

** A correlation is significant at the 0.01 level (2-tailed).

Table 5: The BVS/EPS ratio by country and by period

	BVS/EPS				
	Benelux countries	Spain	France	Great Britain	USA
2005	1.286	1.061	1.129	1.092	0.868
2006	1.180	1.247	1.100	0.984	0.915
2007	1.301	0.951	1.043	1.023	0.789
Period Total	1.384	1.087	1.094	1.032	0.841

Price = Share price of company i at the end of year t ;

EPS = Earnings per share of company i during period t ;

BVS = Book value per share for company i during period t ;

3. Regression results

The explanatory power of EPS and BVS

Table 7 summarises the various results applied using the equations (1), (2) and (3).

Applying the first equation to each of the financial markets for the entire period, shows that the French market is the most pertinent in terms of the quality of earnings and equity per share with a highly significant $r^2=97.63\%$ ($\alpha < 0.05$), followed by the Benelux $r^2=90.86\%$, Spain $r^2=78.15\%$, Britain $r^2=75.97\%$, and the United States with $r^2=43.89\%$.

The results from the second model concerning the value relevance of equity per share leads to the same conclusions as those expressed by the previous model. The determination coefficient (r^2) for the BVS on the French market is estimated at 96.44%, very significant ($\alpha < 0,05$), whilst the (r^2) observed in the American market is the weakest at 29.36%.

The analysis of the results of the 3rd model indicates that the earnings per share have the

greatest relevance in the French market with (r^2) equaling 46.64% and the American market where $(r^2) = 41.65\%$.

Furthermore Table 6 below and Graph 1 show the existence for the entire European sample group of a high level of value relevance for equity per share compared with the value relevance of book value per share. This superiority is very significant for the Benelux countries for which the ratio between the determination coefficients is estimated at 194.83%.. followed by France and Spain for which the ratio are 119.83% and 118.80% and Great Britain with a ratio of 106.38%. In the United States, contrary to European markets, the equity per share has less value relevance than the earnings per share, the ratio is estimated at 70.49%.

Table 6: The ration between the relevance of equity and earnings per share

Country	R2 (b)	R2 (e)	R2 (b) / R2 (e)
Benelux countries	90.57%	46.64%	194.19%
Spain	78.44%	66.08%	118.70%
France	96.44%	80.48%	119.83%
Great Britain	60.11%	56.50%	106.38%
United States	29.36%	41.65%	70.49%

The adjusted correlation coefficients R^2 , the result of various regressions over all parts of the sample are significantly positive with relatively high values. This comment means that our two variables (EPS and BVS) explain well the price of shares on the various financial markets. Furthermore, the observations made can be summarized as follows:

- The earnings and equity per share studied in IFRS in the European markets have greater value relevance than the earnings per share for US GAAP in the American market.
- The equity per share is more relevant in terms of value than the earnings per share in the European markets in IFRS.
- The earnings per share are more relevant in terms of value than the equity per share in the American market using US GAAP

Table 7: Results of the regression concerning the explanatory power of the accounting value and the earnings per share

Period	N	Model 1 : Pit=b0+b1(EPSit)+b2(BVSit)+eit				Model 2 : Pit=c0+ c1(BVSit)+eit			Model 3 : Pit=d0+ d1(EPSit)+eit		
		Counting b0	b1(BVS)	b2(EPS)	R2(e,b)	Countingc0	c1(bvs)	R2(b)	Counting b0	d1(eps)	R2(e)
Panel A : Benelux countries											
2005	28	6.159 (1.789)*	0.822 (6.398)***	0.773 (0.769)	78.80%	6.816 (2.060)**	0.894 (10.171)***	79.14%	12.544 (2.390)**	5.434 (4.924)***	46.26%
2006	27	11.154 (2.986)**	0.587 (6.925)***	1.471 (1.803)*	86.00%	12.491 (3.268)***	0.703 (12.079)***	84.79%	16.610 (2.681)**	5.730 (6.303)***	59.83%
2007	31	3.273 (0.904)	0.773 (15.098)***	1.784 (1.749)*	94.80%	6.235 (1.882)*	0.837 (22.668)***	94.47%	1.171 (0.109)	12.831 (6.072)***	54.45%
Total period	86	7.024 (3.408)***	0.755 (20.181)***	0.948 (1.910)**	90.86%	8.551 (4.433)***	0.803 (28.589)***	90.57%	10.908 (2.200)**	7.692 (8.677)***	46.64%
Panel B : Spain											
2005	17	2.395 (1.173)	1.654 (3.876)**	-0.368 (-0.162)	89.20%	2.485 (1.308)	1.588 (12.005)***	89.94%	6.095 (2.429)**	7.959 (7.868)***	79.19%
2006	18	4.592 (2.136)**	2.070 (7.728)***	-1.590 (-1.698)	90.40%	5.432 (2.456)**	1.675 (11.937)***	89.27%	13.381 (3.393)***	4.696 (4.683)***	55.18%
2007	20	6.884 (3.115)***	-0.845 (-1.282)	10.503 (2.839)**	77.90%	7.140 (2.740)**	0.992 (6.612)***	69.22%	6.636 (2.962)***	5.851 (8.061)***	77.10%
Total period	55	5.653 (3.625)***	1.236 (5.504)***	0.567 (0.557)	78.15%	5.523 (3.605)***	1.349 (14.051)***	78.44%	9.272 (5.261)***	5.624 (10.305)***	66.08%
Panel C : France											
2005	49	-32.531 (-2.669)***	0.562 (17.114)***	9.431 (8.944)***	95.70%	22.758 (1.323)	0.761 (19.180)***	88.43%	-51.013 (-1.565)	(21.622) (10.356)***	68.88%
2006	48	-2.924 (-0.268)	0.866 (23.995)***	0.620 (1.032)	98.60%	0.091 (0.009)	0.899 (57.489)***	98.60%	-27.517 (-0.690)	13.612 (14.236)***	81.10%
2007	41	-16.544 (-2.299)**	0.833 (23.453)***	2.105 (4.791)***	99.40%	-11.735 (-1.317)	0.993 (64.114)***	99.04%	-18.924 (-0.677)	11.764 (19.777)***	90.70%
Total period	138	-9.845 (-1.411)	0.734 (31.356)***	3.065 (8.314)***	97.63%	1.235 (0.147)	0.901 (60.906)***	96.44%	-6.234 (-0.312)	12.971 (23.790)***	80.48%
Panel D : Great Britain											
2005	117	26.634 (3.014)***	103.852 (14.607)***	605.850 (11.689)***	84.12%	31.631 (2.427)**	140.137 (14.841)***	65.40%	93.129 (7.287)***	936.433 (11.902)***	54.81%
2006	144	35.099 (3.896)***	95.428 (11.534)***	527.144 (12.170)***	80.74%	36.588 (2.847)***	149.067 (14.920)***	60.78%	88.641 (8.266)***	793.289 (15.578)***	62.82%
2007	156	38.832 (4.627)***	69.062 (8.639)***	372.456 (7.886)***	69.85%	36.082 (3.641)***	108.250 (14.626)***	57.87%	75.601 (8.598)***	626.135 (13.921)***	55.43%
Total period	417	34.461 (6.376)***	88.195 (18.361)***	474.266 (16.580)***	75.97%	35.152 (6.963)***	130.894 (5.224)***	60.11%	85.173 (6.250)***	755.864 (32.485)***	56.50%
Panel E : United States											
2005	103	15.867 (5.527)***	0.210 (0.939)	6.853 (4.641)***	44.80%	17.797 (5.712)***	1.049 (7.246)***	33.55%	16.865 (6.328)***	7.972 (9.162)***	44.85%
2006	104	20.344 (5.976)***	0.328 (1.382)	5.644 (3.531)***	38.80%	21.568 (6.038)***	1.014 (7.029)***	31.97%	22.173 (7.039)***	7.451 (8.059)***	38.30%
2007	106	15.707 (5.891)***	0.413 (3.135)***	4.489 (5.983)***	42.20%	15.662 (5.084)***	0.769 (5.668)***	22.87%	21.854 (11.609)***	5.552 (7.966)***	37.30%
Total période	313	17.264 (10.049)***	0.363 (3.662)***	5.471 (9.028)***	43.89%	18.102 (9.405)***	0.955 (11.433)***	29.36%	20.932 (14.708)***	6.938 (14.957)***	41.65%

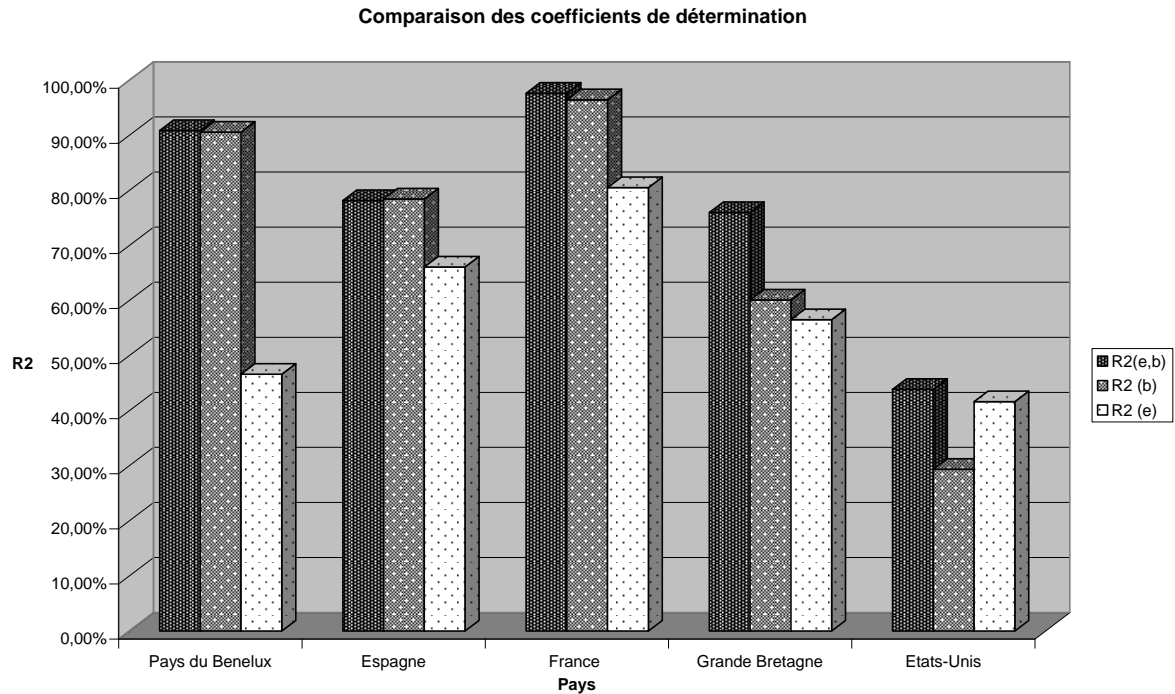
The stars show a significant result of 1% (***), 5% (**) and 10% (*).

Price = Price of share of company *i* at the end of the year *t*;

EPS = Earnings per share of company *i* at the end of the year *t*;

BVS = Book value per share of company *i* at the end of the year *t*;

Graph 1: Graphical presentation of the value relevance by country



The incremental explanatory power of EPS and BVS

The incremental explanatory power of the book value per share and earnings per share is defined by estimating the determination coefficients (R^2). (Theil, 1971). This coefficient is generally called the semi-partial determination coefficient in the literature (Cohen and Cohen 1975, 79-84). Its purpose is to measure the incremental explanatory power of a variable in the presence of other independent variables.

In defining the determination coefficients R^2 from the equations (1), (2) and (3) as being $R^2_{e,b}$, R^2_e et R^2_b respectively, the incremental explanatory power can be defined as follows (Kings and Langli, 1998):

$$R^2_{e|b} = R^2_{e,b} - R^2_b$$

$$R^2_{b|e} = R^2_{e,b} - R^2_e$$

$$R^2_{Com} = R^2_{e,b} - R^2_{e|b} - R^2_{b|e}$$

The incremental explanatory power of earnings per share represents the total explanatory power of the book value and the earnings per share less the explanatory power of the book value of the shares
 The incremental explanatory power of the book value of the shares represents the total explanatory power of the book value and the earnings per share less the explanatory power of earnings per share
 The common incremental explanatory power at book value and of the earnings per share represents the total explanatory power of the book value and earnings per

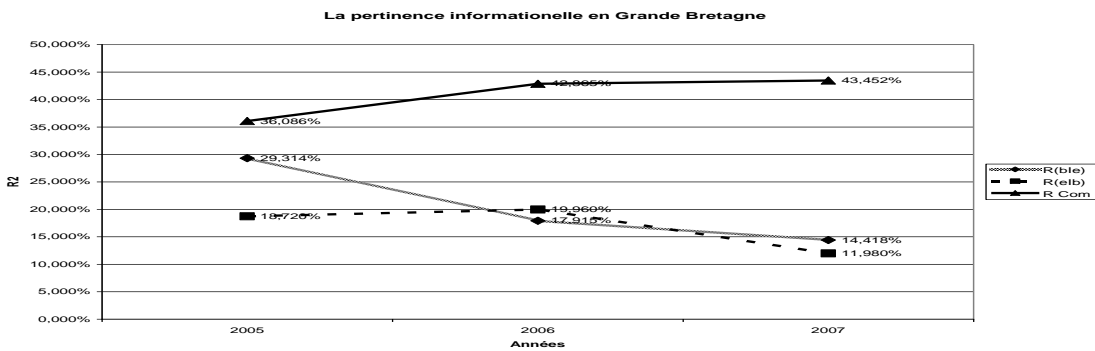
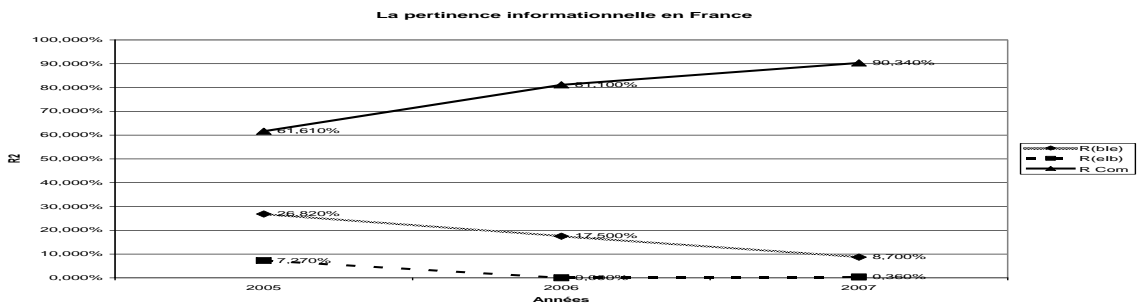
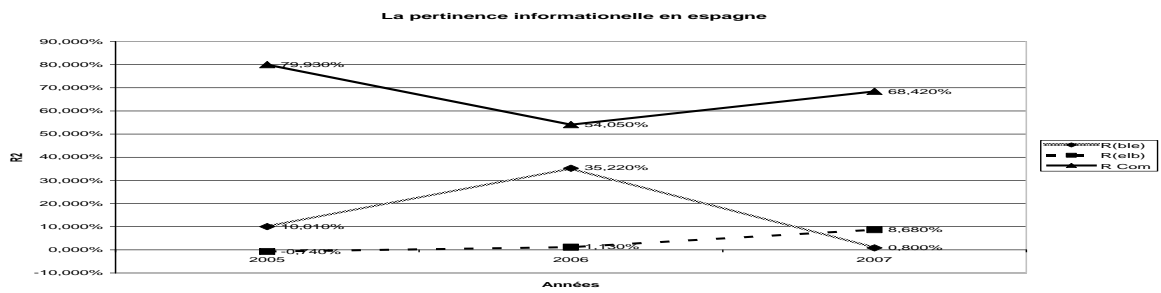
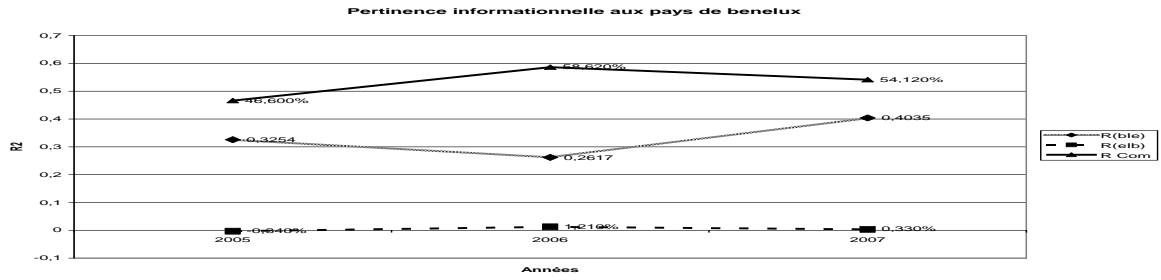
share less the incremental explanatory
 power of the book value and earnings per
 share.

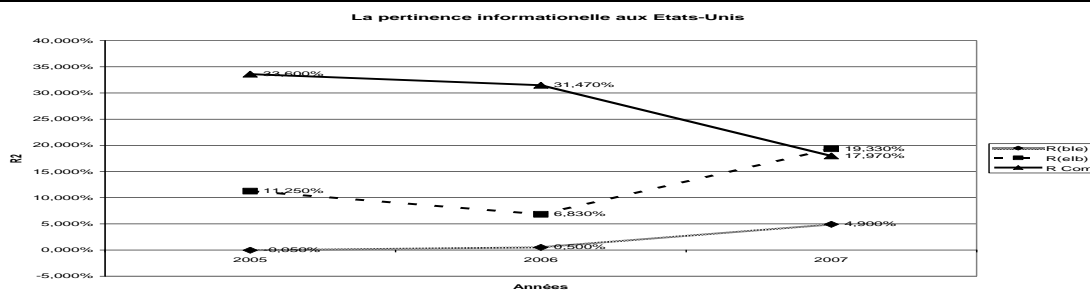
Table 8: The incremental value explanatory power of equity and earnings per share

		$R^2(e,b)$	$R^2(b)$	$R^2(e)$	$R^2(b e)$	$R^2(e b)$	$R^2(Com)$
Panel A : Benelux countries							
2005	28	78.80%	79.14%	46.26%	32.54%	-0.34%	46.60%
2006	27	86.00%	84.79%	59.83%	26.17%	1.21%	58.62%
2007	31	94.80%	94.47%	54.45%	40.35%	0.33%	54.12%
Total period	86	90.86%	90.57%	46.64%	44.22%	0.29%	46.35%
Panel B : Spain							
2005	17	89.20%	89.94%	79.19%	10.01%	-0.74%	79.93%
2006	18	90.40%	89.27%	55.18%	35.22%	1.13%	54.05%
2007	20	77.90%	69.22%	77.10%	0.80%	8.68%	68.42%
Total period	55	78.15%	78.44%	66.08%	12.07%	-0.29%	66.37%
Panel C : France							
2005	49	95.70%	88.43%	68.88%	26.82%	7.27%	61.61%
2006	48	98.60%	98.60%	81.10%	17.50%	0.00%	81.10%
2007	41	99.40%	99.04%	90.70%	8.70%	0.36%	90.34%
Total period	138	97.63%	96.44%	80.48%	17.15%	1.19%	79.29%
Panel D : Great Britain							
2005	126	84.12%	65.40%	54.81%	29.32%	18.72%	36.08%
2006	151	80.74%	60.78%	62.83%	17.91%	19.96%	42.87%
2007	168	69.85%	57.87%	55.43%	14.42%	11.98%	43.45%
Total period	445	75.97%	60.11%	56.50%	19.46%	15.86%	40.64%
Panel E : United States							
2005	103	44.80%	33.55%	44.85%	-0.05%	11.25%	33.60%
2006	104	38.80%	31.97%	38.30%	0.50%	6.83%	31.47%
2007	106	42.20%	22.87%	37.30%	4.90%	19.33%	17.97%
Total period	313	43.89%	29.36%	41.65%	2.24%	14.53%	27.12%

The calculation results of the incremental explanatory power of our two variables are represented in Table 8. The resulting analysis shows that on European markets a much higher incremental explanatory power of BVS than that of EPS. These results are reversed in the American market. As for the common explanatory power, its overall value greater in the European markets where the common determination coefficients are $(Com)_{French} = 79.29\%$ for France, followed by Spain 66.37% , the Benelux countries 46.35% , Great Britain 40.64% , and finally United States $R^2(Com)_{American} = 27.12\%$. Graph 2 shows the growth of value relevance over the three years of the study and for each market place.

Graph 2: The incremental power of earnings and equity per share





Conclusion

This paper presents an international comparison of the value relevance of accounting figures using the accounting aggregates of earnings per share and equity per share. The companies selected belong principally to the banking and financial services sectors. The study was carried out across 5 financial market places including 4 European markets (Benelux countries, France, Spain and Great Britain) subject to the new IFRS international accounting standards. The 5th market place is the United States, subject to the American US GAAP standards. The purpose of the study was to try to answer the following question: under what standard (IFRS or US GAAP, and what financial market (European or American) is the correlation (intensity value) between the accounting numbers (earnings and equity per share) and the market return the most significant?

After various regression tests, the results obtained showed that the earnings and equity had greater value relevance in the European markets with IFRS than in the American market with US GAAP. Indeed, these results show clearly that the French market is the most relevant in terms of value quality of earnings and equity per share. This is followed by the Benelux countries, Spain, Great Britain and finally the United States.

Another observation as important was discovered and confirmed during the analysis of the value explanatory power of the accounting numbers studied. This revealed that on the European markets, there is a higher level of value explanatory power for equity per share over that of earnings per share. This superiority is quite moderate in Great Britain. These results are reversed in the American market where the value relevance of earnings is higher than that of equity per share.

In conclusion we can say that our research assumptions were validated except for Great Britain, where the relevance of accounting numbers has a tendency to follow the behaviour of the continental markets. This observation can be justified by the adoption of IFRS in Great Britain along with the continental countries. Finally we note that the different proposals of our study concerning the comparison of the European and American financial markets, can be explained both by the different in the accounting standards and the divergence in the national regulatory factors (financial market regulations). Nevertheless, given the ongoing convergence work between IFRS and the US GAAP, we believe that the observed differences in our study will be justified in the future principally by institutional and perhaps cultural factors.

The analysis framework and its empirical validation may be enriched by:

- Taking into consideration other variables and accounting indicators in order to test the explanatory power,
- analysing the explanatory power of accounting indicators by sector of activity within the banking sector,
- extending the field of analysis in order to compare other financial markets,
- studying the growth of the value relevance for each financial market over the coming years and studying the impacts of the IFRS/ US GAAP convergence project.

Notes :

1. The E.U ruling n° 1606/2002 required all listed companies publishing consolidated accounts to produce financial accounts as of 1st January 2005 in I.A.S. / I.F.R.S.
2. See King R. D. et Langli J. C. « Accounting diversity and firm valuation », *The international journal of accounting*, Vol. 33, N°5, pp.529-567.
3. The Global Industry Classification Standards (GICS) class companies in 10 economic activity sectors, 24 industry groups, 67 industries et 147 sub-industries. The system is similar to the Industry Classification Benchmark (ICB).

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