THE IMPACT OF IFRS ADOPTION DURING THE 2008 FINANCIAL CRISIS ON THE RELATIONSHIP BETWEEN YIELD AND ACCOUNTING VARIABLES

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ABSTRACT

This research tests the impact of the financial crisis on the informational content of accounting numbers. The study is based on IAS-IFRS in the French context. The period chosen in this study is 2006 to 2011, divided into two periods: Pre-crisis 2006-2007 and post-crisis 2009-2010-2011. The results show the 2008 financial crisis contributed to reducing the information content of accounting numbers due to lack of confidence created by investors towards the information published on the basis of international standards.

JEL: C12, M41

KEYWORDS: IAS-IFRS, Crisis, Accounting Information and Performance

INTRODUCTION

The objective of accounting as identified by the Financial Accounting Standards Board (FASB) in 1973 and adopted by the International Accounting Standards Board (IASB) in 1989 is to provide useful and quality information to assess the ability of the company to generate future cash flows and to enable decision-making. The emergence and development of multinational concerns, the growth of international financial markets and changing investor behavior has, among other factors, contributed to the internationalization of economic activity. As a result of this phenomenon, financial reporting has spread beyond national borders. However, interpretation and understanding of financial information at the international level is hindered by a multitude of factors, including diversity of accounting principles and rules governing the preparation of reports. Various bodies (International Accounting Standards Board (IASB) and the European Union (EU)) have made considerable efforts since the 1970s to harmonize accounting rules in different countries, with the aim of improving the usefulness of financial information in the international context (Callao et al. (2007)).

Among other factors, the non-mandatory nature of the standards issued by the IASB, the flexibility and ease of compliance with EU directives and, most seriously, the lack of political will in the countries concerned, rooted in local culture and a strong national outlook, have so far prevented the attainment of a truly harmonized framework for useful financial reporting. Awareness within the EU of the need to make progress towards achieving international comparability resulted in the approval of Regulation 1606/2002, which provides for the mandatory application of International Financial Reporting Standards (IFRS) by business groups listed on European stock markets as of January 2005. The approval of this regulation has resulted in the adoption of IFRS in European countries.

A number of European countries including Belgium, France, Germany and Italy have allowed listed companies to use international accounting standards instead local Generally Accepted Accounting Principles (GAAP) since 1998. Many European listed companies were early adopters that choose to use International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB) in preparing consolidated financial statements before the European Commission's

stipulation for it to be done by 2005 (Bhimani (2008)). Yet, only a decade earlier, the European Commission had actively considered the establishment of its own European accounting standard setting body rather than opt for any form of international convergence.

Currently, over 100 countries have implemented IFRS or at least have taken steps to adopt these standards in the future (Alali & Cao, (2010)). The U.S. Securities and Exchange Commission (SEC), in Concept Release No.33-8879 (July 2007), ruled that it will "accept from foreign private issuers in their filings with the Commission, financial statements prepared in accordance with IFRS as issued by the IASB without reconciliation to GAAP as used in the United States". To arrive at this ruling, the SEC noted that the Commission has long viewed reducing the disparity between the accounting and disclosure practices of the United States and other countries as an important objective both for the protection of investors and efficiency of capital markets.

In the late 1990s, multinational corporations seeking financing in European capital markets reported their accounts using international accounting standards to facilitate their search for capital. Firms listed on US exchanges had to report under US GAAP. A number of research investigations have sought to explore the merits of using a single set of global accounting standards for reporting purposes (Alexander & Nobes (2008)). Some scholars discuss how agency costs can be countered by the benefits of adopting IFRS (Dumortier & Raffournier (1998); El-Gazzar et al. (1999) and Hung (2001)). The regulatory environment as a factor affecting the success of global accounting harmonization had also been studied (Bushman & Piotroski (2006) and Lang et al. (2003). Renders et al. (2007) noted that IFRS is more likely to be adopted in countries with strong laws protecting investors and/or extensive corporate governance recommendations.

The pace of globalization over the past decade has led enterprises and information users to seek greater clarity, comparability and simplicity in understanding organizational processes and in evaluating firm performance. This brought to the forefront debates and regulation relating to the standardization of financial reporting globally. Thus the wide spread and growing receptivity to international accounting harmonization in many quarters can be partly explained in terms of satisfying information exchange functions necessitated by the rapid globalization of business and the need to enhance the capacity of firms to raise capital in international markets. But the road to harmonized standards is not linear, demarcated entirely by the technical resolution of comparability issues, arguments about the efficiency of particular standards of financial reporting, or cost-benefit analysis of convergence options. Technical and functional imperatives partially explain normative accounting shifts. Understanding why, in the context of the US economy and its financial regulatory system, there exists willingness to consider an alternative to US GAAP as a world standard, requires a wider view of how such change can come about (Bhimani (2008)).

Business and other issues analyzed in connection with the adoption of IFRS in Europe are varied, although a few studies have addressed the impact of adoption on accounting figures during the crisis. In fact, our study is one of the first to consider these issues in the field of European accounting information. A growing body of literature examines the quality of accounting information associated with adoption of IFRS and the predecessor set of standards, International Accounting Standards (IAS). The research to date provides mixed evidence on whether accounting information from such systems exhibits higher quality than those associated with application of local accounting standards (Leuz & Wysocki (2008)).

This paper examines the role of IAS-IFRS standards adoption on the relationship between economic and accounting measures during 2008 crisis in the French context. Our decision to use the French context is explained by the fact that few researchers have previously studied it. It is considered a new context after the adoption of IAS-IFRS in 2005. The objectives of our research are to first, perform the analysis of the relationship between economic and accounting measures before the crisis. Second, the analysis of the relationship between economic and accounting measures after the crisis. Third, an analysis of IAS-IFRS

adoption during the 2008 financial crisis is conducted. We first present the literature review, then the methodology and the results and finally the paper closes with some concluding comments.

LITERATURE REVIEW

Two research streams on IFRS adoption exists: the first stream studies the comparison between countries or in the same country between local and international accounting systems. The second research stream studies the impact of the announcement of company earnings.

Addressing the adoption of IFRS in EU, Horton & Serafeim (2006) examined market reaction to the announcement of the earnings at the end of the accounting period and value relevance of reconciliation adjustments from UK companies in the transition to IFRS compliance. The sample consists of 85 firms from the London Stock Exchange (FTSE 350) for 2005. The authors employed an event study methodology and a market value model. They found the reconciliation adjustment from UK GAAP to IFRS to be value relevant with respect to earnings but not to shareholders' equity. Landsman et al. (2012) examined whether the information content of earnings announcements–abnormal return volatility and abnormal trading volume–increases in countries following mandatory IFRS adoption; and conditions and mechanisms through which increases occur. Their findings suggest information content increased in 16 countries that mandated adoption of IFRS relative to 11 countries that maintained domestic accounting standards, although the effect of mandatory IFRS adoption depends on the strength of legal enforcement in the adopting country. Utilizing a path analysis methodology, they found evidence of three mechanisms through which IFRS adoption increases information content: reducing reporting lag, increasing analyst following, and increasing foreign investment. Using European data, Armstrong et al. (2007) reported that the stock market reacts positively to the early adoption of IFRS, which suggests that European equity investors perceive net benefits due to convergence of accounting standards and improved information quality following IFRS adoption.

Lenormand & Touchais (2009) examined 160 French companies included in the SBF 250 index for 2004. They compared the relevance of the information content provided by IFRS against French GAAP. They examine cross-sectional data using a model which analyzes the association between stock prices and accounting earnings. They find the adoption of IFRS leads to a significant increase in the explanatory power (R^2) from 71.7% to 73.5%. This indicates that IFRS increased the association between earnings and stock prices. Studying the association between stock yields and accounting earnings they found also a significant increase in explanatory power from 30.9% to 33% for firms that adopted IFRS. These results summarize that adoption of IFRS leads to a reduction in information asymmetry. International standards lead to financial information of greater relevance in relation to local GAAP.

The same result also appears in the research of Bartov et al. (2005). These authors compared the value relevance of financial statements produced by three accounting standards: the US GAAP, German GAAP and IAS. First, they performed a cross-sectional study of 417 German firms between 1998 and 2000. They found that the return on equity and net income is significant and positive for companies using IFRS. Then they conducted a study of event, but on a sample of 37 companies during the period 1994-2000, and found that after the adoption of IFRS, equity returns become more connected to accounting income than before adoption. The authors showed that the information content of accounting earnings is higher following the adoption of international standards.

Outside the EU, Lin & Chen (2005) investigated the incremental value relevance obtained from reconciling accounts prepared under Chinese accounting standards to IFRS. The sample consisted of 53 to 79 listed companies per year on the Chinese stock exchange markets for the period 1995–2000. The authors applied the Ohlson model and the returns model and found that earnings and equity book values

determined under Chinese GAAP provide more relevant accounting information for the purpose of determining the shares prices than IFRS.

The study of Goodwin et al. (2008) has two main parts. First, they documented the effect of IFRS on key accounting information and ratios. Using a sample of 1,065 listed firms, they found the mean (median) of total liabilities has increased and the mean (median) of total equity has fallen. Total assets and earnings are higher under IFRS but the changes are not significant apart from the increase in the half-year earnings median. IFRS increases the leverage ratio. Second, they examined the relative value relevance of IFRS earnings and equity and the incremental value relevance of IFRS over Australian Generally Accepted Accounting Principles (A-GAAP). Using models with market prices and returns as dependent variables, they carried out their tests on annual earnings (net income) and equity measured at the changeover date to IFRS. They found no evidence that IFRS earnings and equity are more value relevant than A-GAAP, as well as, weak evidence that the aggregate changes for earnings and equity are incrementally value relevant to A-GAAP.

Barth et al. (2005) used data from 24 countries over a 15-year period to 2004 and found the transition to IFRS resulted in improved accounting quality using a variety of measures. Specifically, they found that IFRS results in more timely recognition of losses and higher R^2s in regressions of market value on earnings and book value.

Hung & Subramanyam (2007) used a sample of 80 German firms, which voluntarily adopted IFRS over the period 1998-2002 and provided accounts under German GAAP and IFRS for the same period. Using price 'levels' models, they found that total assets and book value of equity, as well as variability of book value and net income, are higher under IFRS than under German Accounting Rules (HGB). They also found that book value of equity and net income under IFRS are no more value relevant than the amounts under HGB. Further, they reported that earnings and equity under IFRS are incrementally value relevant to German GAAP. Both coefficients are highly significant but the earnings coefficient sign is negative which they suggest is consistent with more measurement errors in the IFRS earnings than in the German earnings (Bartov et al. (2005)).

To examine the ability of the adjustments to explain market value, Goodwin et al. (2008) used share-based payment instrument (SHA), income tax (TAX), goodwill (GOO), intangibles (INT), provisions (PRO), investments (INV), leases (LEA), impairment (IMP), foreign exchange translation (FX) and other (OTH) which is the catch-all component. The equity adjustment for tax (TAX) is negative indicating that those adjustments weaken associations with price. The coefficient for goodwill (GOO) adjustment to earnings is positive and significant suggesting that investors do not view depreciation (amortization) as a wasting asset. The intangibles' (INT) coefficients for earnings and equity are negative, suggesting the changes to accounting for intangibles under IFRS are inconsistent with investors' beliefs about the value of intangibles. The coefficients for provisions (PRO) for earnings and equity are both significant, suggesting that fair valuing of provisions is sufficiently reliable to be value relevant, but the negative signs imply that the accounting is inconsistent with investor beliefs. The negative coefficient for investments (INV) for earnings also suggests that investors view these adjustments differently from the accounting policy. The coefficient for impairment (IMP) is negative indicating that write-offs of different types of assets in earnings under IFRS polices are also inconsistent with investor beliefs, although the equity adjustment is not significant. Results indicate that the IFRS earnings level coefficient is positive and significantly associated with returns.

Callao et al. (2007), based on the Spanish IBEX-35 companies, focus on the effects of new standards on comparability and relevance of financial reporting in Spain. They addressed these objectives by seeking significant differences between accounting figures and financial ratios under two sets of standards (i.e. Spanish GAAP and IFRS). The accounting variables used are balance sheet variables (fixed assets,

inventories, debtors, cash, current assets, total assets, equity, long-term liabilities, short-term liabilities, total liabilities, long-term resources, total equity and liabilities); income statement variables (operating income, ordinary income, net income and net income attributable to equity holders of the parent); and financial ratios (current ratio, acid test, cash ratio, solvency, indebtedness, return on assets per operating income and ordinary income, return on equity per ordinary income and net income). They concluded that the financial statements of Spanish firms adopting IFRS reflect increases in cash and cash equivalents, long-term and total liabilities and in the cash ratio, indebtedness and return on equity; and decreases in debtors, equity, operating income and solvency ratio and return on assets (measured in terms of the operating income).

Ormrod & Taylor (2004) studied the impact of the change from UK GAAP to IFRS on covenants included in debt contracts. They suggest the change is likely to result in more volatile reported earnings figures, in addition to differences in reported profits and balance sheet items. A movement towards cash flow-based covenants might thus be seen as one method of moderating the uncertainty for borrowers arising from the introduction of IFRS.

Ernstberger & Vogle (2008) critically examined the impact of voluntary adoption of Internationally Accepted Accounting Principles (IAAP, IAS/IFRS and US GAAP) on the cost of equity capital in Germany. First, the authors found an overall cost of equity-capital estimates in the Capital Asset Pricing Model (CAPM) for companies applying IAAP are significantly lower compared to those applying German GAAP. Second, the enhanced multi-factor model that incorporates the accounting-regime differences (called "GM model") absorbs the cost of equity-capital differences. Third, changes of the institutional background in Germany and of the accounting standards lead to different cost of equity capital effects for sub-periods of the 1998–2004 voluntary-adoption periods, while particularly controlling for effects like self-selection, cross-listing, and New Market (Neuer Markt) listing.

Schipper (2005) described a series of implementation effects associated with the mandatory adoption of IFRS in the EU. The IASB had found it necessary to provide detailed implementation guidance for IFRS, otherwise accountants and auditors turn to US GAAP or jurisdiction-specific European GAAP. Likewise, the adoption of IFRS coupled with the IASB's commitment to international convergence with the FASB places additional pressure on two reporting issues: defining the reporting entity for consolidation purposes and developing reliable fair value measures.

In Germany, Schiebel (2006) examined the value relevance of IFRS and German GAAP. The sample included 24 German companies listed on the Frankfurt stock exchange market (12 companies publishing exclusively German GAAP consolidated reports for the period 2000–2004 and 12 companies publishing exclusively IFRS consolidated reports for the period 2000–2004). The author conducted different regressions of market capitalization on consolidated equity book value using a simple linear regression analysis, finding that German GAAP are significantly more value relevant than IFRS. These findings are mixed; with some studies showing that the change to IFRS improves value relevance (Bartov et al. (2005); Harris & Muller (1999) and Horton & Serafeim, (2006)), and others showed it worsens value relevance (Lin & Chen (2005) and Schiebel (2006)). Still others found no conclusive evidence either way (Niskanen et al. (2000)). They examined the improvement in the value relevance of accounting information as a result of the application of IFRS rather than local GAAP.

Kinnunen et al. (2000) exploited a unique market setting in Finland, where foreign investors are restricted in their trading of certain shares. This permits the authors to examine the relative value relevance of Finnish GAAP and voluntarily adopted IFRS between two investor groups. They found that IFRS improves the information content for foreign investors but not for domestic investors. Another Finnish study conducted by Niskanen et al. (2000), examined components of reconciliations to IFRS for 18 Finnish firms that using voluntarily IAS/IFRS over the period 1984 to 1992. They reported that aggregate

earnings difference is value irrelevant for explaining returns but that untaxed reserves adjustments and consolidation differences are value relevant.

More recently, Christensen et al. (2007) examined the economic consequences for UK firms of the European Union's decision to impose mandatory IFRS. They showed cross-sectional variations in both short-run market reactions and long-run changes in cost of equity associated with the decision. This suggests that mandatory IFRS adoption does not benefit all firms in a uniform way but results in winners and losers. Using a price levels regression, Hu (2003) reported that Chinese GAAP is more value relevant than IFRS using a sample of 252 firm-years (Eccher and Healey (2003)).

According to the above-mentioned studies, we formulate the following hypotheses:

H_1: The crisis has an effect on the relationship between yield and assets turnover.
H_2: The crisis has an effect on the proportion of equity invested in fixed assets.
H_3: The crisis has an effect on earnings.
H_4: The crisis has an effect on dividends.
H_5: The crisis has an impact on the liabilities.
H_6: The crisis has a negative effect on the relationship between accounting information and yield.

METHODOLOGY

We selected a sample of 220 companies-year observations listed on the French stock market that adopted the IAS-IFRS since 2005. To study the impact of adoption on the manipulation of accounting figures, we chose two study periods, the pre-crisis period 2006-2007 and the post-crisis period 2009-2011. The results obtained from both periods will be compared. We analyze the correlation relationship between discretionary accruals and accounting and financial data published by the French firms before and after the crisis. We eliminated financial companies and other enterprises with sector-based accounting rules.

The yield per share for a period of time t can be expressed as follows:

$$R_{it} = \frac{P_{it+1} - P_{it} + D_{it} + d_{att} + d_{sous}}{P_{it}} \quad (1)$$

P_{it} is the value of investment at beginning of the period.
P_{it+1} is the value of this investment at the end of the period.
D_{it} is dividends paid during the period.
d_{att} represents the rights of attribution.
d_{sous} represents the rights of subscription.

Accounting and financial information were collected annually from of 45 French companies websites. We were able to distribute transactions over the five financial years (2006, 2007 and 2009, 2010, 2011) in two sets. The first set, related to the period before the financial and economic world crisis. The second considers the behavior of the market after the crisis. So we have 88 firm-observations for the first period (before crisis) and 132 firm-observations for the second period (after crisis). This allows the study of different ratios related to the financial structure, margins and overall income and financing. Among these ratios, 13 were selected in our study. They are the key points of the analysis made by financial analysts (Nafti & Baccouche (2007)) at the introduction of companies to the stock market or after its introduction as shown in Table 1.

Table 1: Selected Accounting Variables

Variables	Nature of Each Variable
V_1	Turnover / Customers (Customers Turnover)
V_2	Turnover / Net Fixed Assets (Assets Turnover)
V_3	Turnover / Equity (Equity Turnover)
V_4	Non-Current Liabilities / Equity
V_5	Net Fixed Assets/Total asset
V_6	Current Asset/Total Asset
V_7	Non-Current Liabilities/Total Asset
V_8	Current Liabilities/Total Liabilities
V_9	Equity / Net Fixed Assets
V_{10}	Earnings / Turnover
V_{11}	Earnings / Equity
V_{12}	Net income/Turnover
V_{13}	Dividend per Share

This table shows the variables examined in this study.

The empirical validation of the relationship yield-accounting information requires the measurement at a given date the relationship between Y_{it} value or market performance R_{it} of a company i and one or more accounting variables intended to reflect the ability of the firm to create wealth and to pay dividends:

$$Y_{it} = \alpha_0 + \alpha_1 VC_{it}^1 + \alpha_2 VC_{it}^2 + \cdots + \alpha_k VC_{it}^k + \upsilon_i + \varepsilon_i \quad (2)$$

Where:

Y_{it}: represents the dividend yield;
VC_{it}^k: represents the accounting variable *k* published by the company *i* at *t* (see Table 1);
υ_i: represents the specific effects of companies;
ε_i: represents the error term.

Our model can be written as follows:

$$R_{it} = \alpha_0 + \alpha_1 V_1 + \alpha_2 V_2 + \alpha_3 V_3 + \alpha_4 V_4 + \alpha_5 V_5 + \alpha_6 V_6 + \alpha_7 V_7 + \alpha_8 V_8 + \alpha_9 V_9 + \alpha_{10} V_{10} + \alpha_{11} V_{11} + \alpha_{12} V_{12} + \alpha_{13} V_{13} + \upsilon_i + \varepsilon_i \quad (3)$$

The adjusted coefficient of correlation (adj. R^2) of the previous model is used to assess the intensity of the relationship between the level or changes in yield and accounting information. Most studies have only retained earnings as an explanatory variable of profitability or market value of the company. They have relatively poor performance and their coefficients of determination (R^2) are low. Indeed, the model developed and tested in the study of Beaver et al. (1997) measures the relationship between changes in share price and those of earnings. According to this study, the earnings may change for reasons that have nothing to do with the price change. The share price may also change due to events that have no relationship with earnings. Finally, share prices and earnings are two endogenous variables. In the same line of thought, Kothari et al. (2003) used, as in the case of several other researches, earnings as a benchmark in the relationship of yield-earnings. Their study is based on aggregate earnings news. They find the relationship between yield and earnings is markedly different when we use aggregate data.

STUDY RESULTS

Impact of the Adoption of IAS-IFRS before the Crisis

The examination of the correlation matrix presented in Table 2, allows us to conclude the existence of multicollinearity. According to Kennedy (1998) multicollinearity in a data set is considered if at least one

simple correlation coefficient between the independent variables is at least 0.8 in absolute value. In fact, there is a significant correlation relationship between the following variables as is shown in Table 2:

V_5 (Net Fixed Assets/Total asset) and V_2 (Turnover / Net Fixed Assets (Assets Turnover)
V_6 (Current Asset/Total Asset) and V_2 (Turnover / Net Fixed Assets (Assets Turnover)
V_6 (Current Asset/Total Asset) and V_5 (Net Fixed Assets/Total asset)
V_7 (Non-Current Liabilities/Total Asset) and V_4 (Non-Current Liabilities / Equity)
V_8 (Current Liabilities/Total liabilities) and V_3 (Turnover/Equity)
V_9 (Equity / Net Fixed Assets) and V_4 (Non-Current Liabilities / Equity)
V_{12} (Net income/Turnover) and V_{11} (Earnings / Equity)

Table 2: Correlation Matrix of the Independent Variables

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}
V_1	1.000												
V_2	-0.2406	1.000											
V_3	-0.2038	0.6562	1.000										
V_4	-0.0280	-0.3377	0.2976	1.000									
V_5	0.3524	**-0.8453**	-0.4305	0.3813	1.000								
V_6	-0.3524	**0.8453**	0.4305	-0.3813	**-1.000**	1.000							
V_7	0.1419	-0.6164	-0.0755	**0.8719**	0.6461	-0.6461	1.000						
V_8	-0.3443	0.7388	**0.8076**	-0.0503	-0.6165	0.6165	-0.4723	1.000					
V_9	-0.1542	0.5532	-0.1606	**-0.8389**	-0.6757	0.6757	-0.7798	0.1164	1.000				
V_{10}	0.1796	-0.5518	-0.6366	-0.0516	0.5762	-0.5762	0.2692	-0.5840	-0.0421	1.000			
V_{11}	-0.1218	0.0639	0.1978	0.0626	0.0256	-0.0256	0.0280	0.1291	-0.0045	0.4588	1.000		
V_{12}	-0.1229	0.0307	0.1653	0.0442	0.0514	-0.0514	0.0413	0.0891	0.0155	0.4752	**0.9697**	1.000	
V_{13}	0.1689	-0.3875	-0.1968	0.0652	0.4833	-0.4833	0.2163	-0.2368	-0.2184	0.4957	0.3771	0.3497	1.000

This table shows the correlation matrix of the independent variables used in this study.

This observation brings us to eliminate five variables from the model to avoid having a biased model. The eliminated variables are:

V_3: Turnover / Equity (Equity Turnover)
V_4: Non-Current Liabilities / Equity
V_5: Net Fixed Assets/Total asset
V_6: Current Asset/Total Asset
V_{12}: Net income/Turnover

Table 3 presents the correlation matrix for the remaining variables. From Table 3, we conclude the absence of multicollinearity for all remaining variables. In fact, all correlation coefficients between the remaining independent variables are less than 0.8 in absolute values.

Table 3: Correlation Matrix of the Remaining Independent Variables

	V_1	V_2	V_7	V_8	V_9	V_{10}	V_{11}	V_{13}
V_1	1.000							
V_2	-0.2406	1.000						
V_7	0.1419	-0.6164	1.000					
V_8	-0.3443	0.7378	-0.4723	1.000				
V_9	-0.1542	0.5532	-0.7798	0.1164	1.000			
V_{10}	0.1796	-0.5518	0.2692	-0.5840	-0.0421	1.000		
V_{11}	-0.1218	0.0639	0.0280	0.1291	0.0045	0.4588	1.000	
V_{13}	0.1689	-0.3875	0.2163	-0.2368	-0.2184	0.4947	0.3771	1.000

This table shows a correlation matrix of independent variables used in this study.

Table 4 presents the regression estimates of the equation:

$$R_{it} = \alpha_0 + \alpha_1 V_1 + \alpha_2 V_2 + \alpha_3 V_7 + \alpha_4 V_8 + \alpha_5 V_9 + \alpha_6 V_{10} + \alpha_7 V_{11} + \alpha_8 V_{13} + \upsilon_i + \varepsilon_i, \quad (4)$$

where:

V_1: Turnover / Customers (Customers Turnover)
V_2: Turnover / Net Fixed Assets (Assets Turnover)
V_3: Turnover / Equity (Equity Turnover)
V_7: Non-Current Liabilities/Total Asset
V_8: Current Liabilities/Total Liabilities
V_9: Equity / Net Fixed Assets
V_{10}: Earnings / Turnover
V_{11}: Earnings / Equity
V_{13}: Dividend per Share
υ_i: Specific effects of companies

The results presented in Table 4 show that the eight variables chosen to be in the model, explain the dividend yield at 35.51% (adjusted R^2). This is a good value for a regression performed on 88 observations (44 firms observed over 2 years). The adjusted R^2 (35.5%) is significantly different from zero, which proves the existence of a relationship between accounting and performance variables. Moreover, all the empirical studies in this direction proved the existence of a correlation between these two types of variables (economic and accounting) with percentages of correlation different from one study to another (Ball & Brown (1968), Toms (2002), Cheng (2005) and Bao (2004)). None of these studies has found there is no such relationship.

Table 4: Regression Results of R_{it} to Remaining Accounting Variables (2006-2007)

Model A: $R_{it} = \alpha_0 + \alpha_1 V_1 + \alpha_2 V_2 + \alpha_3 V_7 + \alpha_4 V_8 + \alpha_5 V_9 + \alpha_6 V_{10} + \alpha_7 V_{11} + \alpha_8 V_{13} + \upsilon_i + \varepsilon_i$

	Parameter Estimate	**t**	**Probability> | T |**
Constant	0.0236	0.21	0.832
V_1	-0.0068	-0.78	0.443
V_2	**-0.0317**	**-2.00**	**0.053****
V_7	0.0688	0.53	0.602
V_8	0.1805	0.87	0.388
V_9	**0.0175**	**3.45**	**0.001***
V_{10}	0.0240	0.90	0.372
V_{11}	0.0463	-0.43	0.671
V_{13}	-0.5606	-0.29	0.776

This table shows regression results. Adjusted R^2 = 35.51%, chi2 = 14.47 with Prob.>0.07 (Hausman specification test)
*Significant at: *1%, **5% and ***10% (***)*

According to the results presented in Table 5, the overall significance chi^2 test shows that the coefficients α_k are different from zero (prob. = 0.02) and the Lagrangian test shows the existence of heterogeneity among variables (prob. = 0.9097). This is corrected by the introduction into the model of an element υ_i expressing specific effects of companies.

Table 5: Econometric Tests Related to Model A

Tests	**Chi2**	**Prob. > chi2**	**H_0**
Test of global significance for α_k	2.48	0,0298	Reject $\alpha_1 = \alpha_2 = \cdots = \alpha_k = 0$
Test of Breusch and Pagan Lagrangian	0.01	0.9097	Heterogeneity
Hausman specification test	14.47	0.0703	Accept corr $(\upsilon, V) = 0$

This table shows the results of statistical tests related to Model A.

The results of our study, presented in Table 4, are obtained through estimates based on the fixed effect model (fixed effect) and that, using the Hausman test (chi2 = 14.47 and prob. > chi2 equal to 0.07) which means that H_0 is accepted and corr $(\upsilon, V) = 0$ is a prerequisite for the Generalized Least Squares (GLS) model to be Best Linear Unbiased Estimator (BLUE) and convergent.

In addition, from Table 4, we notice variable coefficients V_2 and V_9 are significant. These two ratios represent asset turnover and the ratio of equity to total assets. This result leads us to conclude that first, before the crises, we find a significant and negative (-0.0317) relationship between the yield of the French listed companies and the proportion of assets turnover. This result can be explained by the significant investments made by the company after the adoption of the international standards since 2005. These investments have increased both the value of assets (acquisition of new software) and business expenses (training), which resulted in a significant decrease in operating income of certain companies. Second, before the crises, we found a significant and positive (0.017) relationship between French listed companies yield and the proportion of their equity from net assets. This result reflects the accounting impact after the adoption of the international standards since 2005. Indeed, this change increases the revaluation account and the level of equity. Other variables, included in Model A and presented in Table 4, are not significant. However, these variables contribute to explain the dividend yield at 35.51%.

According to the work of Lev and Thiagarajan (1993), accounting data can explain 13% to 35% of the variation in the market value of companies. The most relevant for the assessment indicators turn out to be the current earnings, inventories, investment, gross margin, R&D and employee productivity.

Impact of the Adoption of IAS-IFRS after the Crisis

The examination of Table 6 presenting the correlation matrix of the variable allows us to detect a significant correlation relationship between variables. As stated earlier, significant correlation between independent variables is considered if the value of the correlation coefficient between the independent variables is at least 0.8 in absolute values. The following variables have a significant correlation coefficient:

V_7 (Non-Current Liabilities/Total Asset) and V_4 (Non-Current Liabilities / Equity)
V_7 (Non-Current Liabilities/Total Asset) and V_8 (Current Liabilities/Total liabilities)
V_{12} (Net income/Turnover) and V_{10} (Earnings / turnover)

Table 6: Correlation Matrix of the Independent Variables

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}
V_1	1.000												
V_2	0.1205	1.000											
V_3	0.2138	0.6977	1.000										
V_4	-0.0195	-0.3397	0.2159	1.000									
V_4	0.2647	-0.7381	-0.3573	0.4223	1.000								
V_6	-0.0726	0.6930	0.4190	-0.3387	-0.7840	1.000							
V_7	0.0039	-0.4403	-0.0105	**0.8513**	0.5536	-0.4538	1.000						
V_8	0.0427	0.5841	0.2678	-0.6440	-0.5759	0.5406	**-0.8124**	1.000					
V_9	-0.0716	0.4613	0.1319	-0.6526	-0.6732	0.4759	-0.7062	0.4751	1.000				
V_{10}	0.2413	-0.3623	-0.1667	0.1653	0.5545	-0.5214	0.1982	-0.1772	-0.2180	1.000			
V_{11}	0.2681	-0.4452	-0.1941	0.2391	0.6319	-0.5535	0.2829	-0.2565	-0.3405	**0.9557**	1.000		
V_{12}	0.2964	0.0801	0.0415	-0.1261	0.1979	-0.1897	-0.0707	0.2092	-0.2220	0.6057	0.5797	1.000	
V_{13}	0.1463	-0.3435	-0.1403	0.2318	0.4726	-0.5400	0.2213	-0.0995	-0.2288	0.6716	0.6008	0.4509	1.000

This table presents a correlation matrix of independent variables used in the analysis.

This result brings us to eliminate three variables from the model to avoid having a biased model:

V_4 (Non-Current Liabilities / Equity)
V_7 (Non-Current Liabilities/Total Asset)
V_{12} (Net income/Turnover)

The examination of the correlation matrix of the remaining variable presented in Table 7, allows us to conclude the inexistence of multicollinearity. In fact, all correlation coefficient between the remaining independent variables are less than 0.8 in absolute values.

Table 7: Correlation Matrix of the Remaining Independent Variables

	V_1	V_2	V_3	V_5	V_6	V_8	V_9	V_{10}	V_{11}	V_{13}
V_1	1.000									
V_2	0.1205	1.000								
V_3	0.2138	0.6977	1.000							
V_5	0.2647	-0.7381	-0.3573	1.000						
V_6	-0.0726	0.6930	0.4190	-0.7840	1.000					
V_8	0.0427	0.5841	0.2678	-0.5759	0.5406	1.000				
V_9	-0.0716	0.4613	0.1319	-0.6732	0.4759	0.4751	1.000			
V_{10}	0.2413	-0.3623	-0.1667	0.5545	-0.5214	-0.1772	-0.2180	1.000		
V_{11}	0.2964	0.0801	0.0415	0.1979	-0.1897	0.2092	0.2220	0.6057	1.000	
V_{13}	0.1463	-0.3435	-0.1403	0.4726	-0.5400	-0.0995	-0.2288	0.6716	0.4590	1.000

Table 8 presents the regression estimates of the equation

$$R_{it} = \alpha_0 + \alpha_1 V_1 + \alpha_2 V_2 + \alpha_3 V_3 + \alpha_4 V_5 + \alpha_5 V_6 + \alpha_6 V_8 + \alpha_7 V_9 + \alpha_8 V_{10} + \alpha_9 V_{11} + \alpha_{10} V_{13} + \upsilon_i + \varepsilon_i, \quad (5)$$

where:

V_1: Turnover / Customers (Customers Turnover)
V_2: Turnover / Net Fixed Assets (Assets Turnover)
V_3: Turnover / Equity (Equity Turnover)
V_5: Net Fixed Assets/Total asset
V_6: Current Asset/Total Asset
V_8: Current Liabilities/Total Liabilities
V_9: Equity / Net Fixed Assets
V_{10}: Earnings / Turnover
V_{11}: Earnings / Equity
V_{13}: Dividend per Share
υ_i: Specific effects of companies

Table 8: Regression Results of R_{it} to Remaining Accounting Variables (2009-2011)

Model B: $R_{it} = \alpha_0 + \alpha_1 V_1 + \alpha_2 V_2 + \alpha_3 V_3 + \alpha_4 V_5 + \alpha_5 V_6 + \alpha_6 V_8 + \alpha_7 V_9 + \alpha_8 V_{10} + \alpha_9 V_{11} + \alpha_{10} V_{13} + \upsilon_i + \varepsilon_i$ (5)

	Parameter estimate	**t**	**Probability> | T |**
Constant	-0.0626	-0.38	0.702
V_1	0.0009	0.07	0.945
V_2	0.0308	1.54	0.124
V_3	-0.1624	-1.18	0.238
V_5	0.0615	0.49	0.626
V_6	-0.2163	-1.24	0.216
V_8	**0.2314**	1.65	**0.100*****
V_9	-0.0309	-1.05	0.293
V_{10}	-0.0259	-0.48	0.630
V_{11}	**-0.3341**	-2.50	**0.012***
V_{13}	**1.0319**	48.87	**0.000***

This table shows regression results. Adjusted R^2 = 15.86%, chi2 = 13.9 with Prob.>0.1259 (Hausman specification test). Significant at: *1%, **5% and ***10% (***)

The results presented in Table 8 and corresponding to model B, show the ten variables chosen to be in the model, explain the dividend yield at 15.86% (adjusted R^2). This value is significantly different from zero, which proves the existence of relationship between accounting and performance variables. Moreover, from Table 8, we confirm a significant correlation relationship between Yield and dividends (V_{13}).

According to the results presented in Table 9, the overall significance Chi2 test shows the coefficients α_k are different from zero (prob. = 0) and the Lagrangian test shows the inexistence of heterogeneity among variables (prob. = 0.0001). This is corrected by the introduction into the model of an element υ_i expressing specific effects of companies.

Table 9: Econometric Tests Related to Model A

Tests	Chi2	Prob. > chi2	H_0
Test of global significance for α_k	3719.52	0,0000	Reject $\alpha_1 = \alpha_2 = \cdots = \alpha_k = 0$
Test of Breusch and Pagan Lagrangian	15.43	0.0001	No Heterogeneity
Hausman specification test	13.90	0.1259	Accept corr $(\upsilon, V) = 0$

This table shows statistical tests related to Model A.

The results of our study, presented in Table 8, are obtained through estimates based on the random effect model (random effect) and using the Hausman test (chi2 = 13.90 and prob. > chi2 equal to 0.1259). In addition, from the observation of Table 8, we found the coefficient of variable V_1 is clearly insignificant in the model. For this reason, we decided to remove it from the model.

Table 10 Presents the Regression Estimates of the Equation

$$R_{it} = \alpha_0 + \alpha_1 V_2 + \alpha_2 V_3 + \alpha_3 V_5 + \alpha_4 V_6 + \alpha_5 V_8 + \alpha_6 V_9 + \alpha_7 V_{10} + \alpha_8 V_{11} + \alpha_9 V_{13} + \upsilon_i + \varepsilon_i, \text{ where:} \quad (6)$$

V_2: Turnover / Net Fixed Assets (Assets Turnover)
V_3: Turnover / Equity (Equity Turnover)
V_5: Net Fixed Assets/Total asset
V_6: Current Asset/Total Asset
V_8: Current Liabilities/Total Liabilities
V_9: Equity / Net Fixed Assets
V_{10}: Earnings / Turnover
V_{11}: Earnings / Equity
V_{13}: Dividend per Share
υ_i: Specific effects of companies

Table 10: Regression Results of R_{it} to Remaining Accounting Variables (2009-2011)

Model C: $R_{it} = \alpha_0 + \alpha_1 V_2 + \alpha_2 V_3 + \alpha_3 V_5 + \alpha_4 V_6 + \alpha_5 V_8 + \alpha_6 V_9 + \alpha_7 V_{10} + \alpha_8 V_{11} + \alpha_9 V_{13} + \upsilon_i + \varepsilon_i$

	Parameter Estimate	t	Probability> | T |
Constant	-0.0599	-0.38	0.703
V_2	**0.0310**	1.60	**0.110*****
V_3	-0.0163	-1.19	0.236
V_5	0.0623	0.50	0.618
V_6	-0.2169	-1.26	0.207
V_8	**0.2317**	1.66	**0.097*****
V_9	-0.0313	-1.07	0.284
V_{10}	-0.0259	-0.49	0.627
V_{11}	**-0.3346**	-2.51	**0.012***
V_{13}	**1.0319**	49.19	**0.000***

This table shows regression results. Adjusted R^2 = 15.82%, chi2 = 10.43 with Prob.>0.2364 (Hausman specification test) Significant at: *1%, **5% and ***10% (***)

The results presented in Table 10 show that the nine variables chosen to share the analysis of panel data, explain the dividend yield at 15.82% (adjusted R^2). This is a good rate for a regression performed on 132 observations (44 firms observed over 3 years). These results are in concordance with the work of Lev and Thiagarajan (1993) stating that accounting data can explain 13% to 35% of the variation in the market value of companies.

According to the results presented in Table 11, the overall significance of the Chi2 test shows the coefficients α_k are different from zero (prob. = 0) and the Lagrangian test shows the inexistence of heterogeneity among variables (prob. = 0.0001). This is corrected by the introduction into the model of an element υ_i expressing specific effects of companies.

Table 11: Econometric Tests Related to Model C

Tests	Chi2	Prob. > chi2	H_0
Test of global significance for α_k	3726.68	0,0000	Reject $\alpha_1 = \alpha_2 = \cdots = \alpha_k = 0$
Test of Breusch and Pagan Lagrangian	15.93	0.0001	No Heterogeneity
Hausman specification test	10.43	0.2364	Accept corr $(\upsilon, V) = 0$

This table shows statistical test results.

The results of our study, presented in Table 10, are obtained through estimates based on the random effect model (random effect) and using the Hausman test (chi2 = 10.43 and prob. > chi2 equal to 0.2364).

Based on the above results, the variable V_2 has a significant coefficient (as in Model A before the crisis). However, the V_2 coefficient is positive (unlike Model A). This result shows that French listed companies did not enter into new long-term investment processes after the crisis. They were more interested in increasing turnover and keeping their customers. Moreover, the very small and insignificant coefficient of variable V_8 shows that companies were trying to sell more on credit to maximize revenue. At this stage, we confirm our first hypothesis (H_1). Table 10 also shows that variables V_8 (current liabilities / Total Liabilities), V_{11} (earnings / equity) and V_{13} (dividend per share) have significant coefficients of 0.231, -0.334 and 1.03 respectively. This leads to the conclusion that after the crises companies adopted a policy of short-term debt to maintain levels of performance, profits and dividends. All these variables were not significant before the crisis. Consequently, we confirm our hypotheses H_2, H_3, H_4 and H_5.

Comparative Analysis of the Results

Table 12 summarizes the results, detailed above, of the regression estimates of the equation

$$R_{it} = \alpha_0 + \alpha_1 V_1 + \alpha_2 V_2 + \alpha_3 V_3 + \alpha_4 V_4 + \alpha_5 V_5 + \alpha_6 V_6 + \alpha_7 V_7 + \alpha_8 V_8 + \alpha_9 V_9 + \alpha_{10} V_{10} + \alpha_{11} V_{11} + \alpha_{12} V_{12} + \alpha_{13} V_{13} + \upsilon_i + \varepsilon_i \quad (7)$$

for model A and model C.

From the regression results presented in Table 12, we conclude that our final hypothesis (H_6) is confirmed. Pre-crisis accounting numbers explain the yield variation of 35.51%, while after the crisis this rate decreased to 15.82% (Table 12). This is due to the mistrust and lack of confidence that investors have had towards the accounting information published after the crisis.

CONCLUSION

This research tests the economic crisis impact the informational content of accounting information based on the IAS-IFRS in the French context. We selected a sample of 220 companies-year observations listed

on the French stock market that adopted the IAS-IFRS since 2005. The period chosen in this study is 2006 to 2010 (five years), divided into two periods: Pre-crisis 2006-2007 and post-crisis 2009-2010-2011. The results obtained from both periods are compared. We analyzed the correlation relationship between discretionary accruals and accounting and financial data published by French firms before and after the crisis. We eliminated financial companies and other enterprises with sector-based accounting rules.

Table 12: Impact of the Crises on the Relationship Yield-Accounting Variables

$$R_{it} = \alpha_0 + \alpha_1 V_1 + \alpha_2 V_2 + \alpha_3 V_3 + \alpha_4 V_4 + \alpha_5 V_5 + \alpha_6 V_6 + \alpha_7 V_7 + \alpha_8 V_8 + \alpha_9 V_9 + \alpha_{10} V_{10} + \alpha_{11} V_{11} + \alpha_{12} V_{12} + \alpha_{13} V_{13} + \upsilon_i + \varepsilon_i$$

	Results after the Crises			Results before the Crises	
Variables	**Parameter Estimate**	**Probability> | T |**	**Variables**	**Parameter Estimate**	**Probability>| T |**
Constant	-0.059	0.7	Constant	0.023	0.832
-	-	-	V_1	-0.006	0.443
V_2	**0.031**	**0.1*****	V_2	**-0.0317****	**0.053****
V_3	-0.016	0.236	-	-	-
V_5	0.062	0.618	-	-	-
V_6	-0.216		-	-	-
-		0.2	V_7	0.688	0.602
V_8	**0.231**	**0.09*****	V_8	0.18	0.388
V_9	-0.0312	0.284	V_9	**0.017***	**0.001***
V_{10}	-0.0259	0.627	V_{10}	0.024	0.372
V_{11}	**-0.334**	**0.012***	V_{11}	0.0463	0.671
V_{13}	**1.03**	**0.000***	V_{13}	-0.56	0.776

This table shows results of regression on the impact of the crises on the relationship between Yield and Accounting Variables. Before the Crisis: Adjusted R^2: 15.82%, chi2: 10.42 with Prob. > 0.2364 (Hausman specification test). After the Crisis : Adjusted R^2: 35.51%, chi2: with Prob. > 0.07 (Hausman specification test).

The results show that before, the crises **t**he adoption of IAS-IFRS affects negatively (-0.0317) the relationship between the yield of the French listed companies and the proportion of assets turnover. This result can be explained by significant investments made by companies at the date of transition to international standards. These investments have increased both the value of assets and business expenses, which resulted in a significant decrease in operating income of certain companies. Moreover, the adoption of IAS-IFRS affects positively (0.017) the relationship between the yield of French listed companies and the proportion of equity from assets. This result reflects the accounting impact of the transition to international standards. Indeed, this change increases the revaluation account and the level of equity. For the period after the crises, the results show that French listed companies did not enter into new long-term investment process. They are more interested in increasing their turnover and keeping their customers. The very small and insignificant coefficient of the Customer Turnover variable shows that companies are trying to sell more on credit to maximize their revenue. Companies after the crisis adopt the policy of short-term debt to keep the same level of performance, profits and therefore dividends. All these variables were not significant before the crisis. Finally, the pre-crisis accounting information explained 35.51% of the yield, while after the crisis this rate decreased to 15.82%.

The present research can be extended to include more European Union (EU) countries and ideally, the 28 countries and study the impact of IFRS adoption during the 2008 crisis on the relationship between yield and accounting variables. The results will be interesting and challenging since each country has its own culture and local accounting rules (local GAAPs) but linked to the EU accounting rules and laws in general and to the adoption of the IFRS in 2005 in particular.

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