Shorter and easier is more useful: A longitudinal analysis of how financial report enforcement affects individual investors

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Abstract

According to the literature, individual investors rarely use Accounting and Financial Information (AFI), even though they do not give it a particularly low valuation when asked. This behavior increases the risk to lose investments. The main contribution of this paper is to propose a new AFI format: a one-page report that is short and easy to understand, as a complement to the long and complex traditional format in order to increase the usefulness of information for investors and to decrease investment risk. Two experiments provide evidence about the increased usefulness of AFI when using the new proposed format. More importantly, it seems that results in terms of profits also improve considerably in medium (one year) and long-term (four year) investments, in contrast to more modest profits of speculative investments. Furthermore, this difference occurs regardless of the investors' previous experience.

Keywords: Accounting Information; Enforcement Statements; Investment Risk; Behavioral Accounting.

Highlights:

- Individual investors rarely use Accounting and Financial Information.
- Increase the use of AFI should decrease the risk of the investment.
- A new AFI format of a one-page report is proposed.
- Results in terms of profits improve in medium and long-term investments.

1. Introduction

> "*Without doubt, the most pressing and crucial problem facing the accountancy profession today is the search for a blend of reportable financial information which is likely to satisfy the requirement of its potential users*" (Lee, 1975 in Accounting and Business Research).

In the last few years, around forty years after Lee´s paper, both the associations for the defense of investors and the national financial institutions of many countries have renewed the objective to improve investors' protection and decrease risk judgments (Lipe, 1998). After the great recession of 2008, many governmental agencies tried to focus on ways to protect investors (e.g., the Dodd-Frank Act in the U.S) . These efforts were concentrated in essentially three different actions: education, training and legislation. These decisions changed not only the role of public institutions but also the way in which individual investor protections have been studied from an academic point of view. However, these actions are needed but they are not enough to increase investor's protection. One of the main messages sent from different public and private organizations relies on the importance of understanding that investing is not a random game, although it involves risk or uncertainty of results. Still, the same organizations admit that individual investors' decisions are usually based on intuition or feelings, following "hot" advice from the Internet, co-workers or family members. Financial education tries to deal with these situations urging investors to use authorized brokers after consulting reliable information to avoid these types of risky situations. However, small investors admit to ignoring financial advisers, even though the information is not easily interpretable, and financial advisors have access to a larger amount of information and knowledge to interpret it (see Bouwman, Frishkoff and Frishkoff, 1987; Willman, Fenton-O'Creevy, Nicholson and Soane, 2002). The knowledge of investors' behavior has led to a debate on what approach should be taken by the institutions concerned with the financial education of citizens. It is clear that professional investors make their investments with methodologies and tools that provide them with technical support that individual investors do not have, thus the behavior of individual investors is more speculative and less reasoned. From this point of view the debate is created: should individual investors be the final recipients of the information published or should the information be targeted to professionals? What information should be available to

investors? And maybe more importantly, what is the best format to spread information about markets for individual investors?

In our opinion, in addition to the education, training or legislation, the national institutions should focus their efforts on guaranteeing a better accessibility and facilitating the interpretation of the information provided to individual investors, specifically AFI (e.g., Balance, Income Statement, Cash Statement, Audit report), which is one of the most important sources of information in the investment decision-making process (Belkaoui, 1980). Therefore, we need to understand how individual investors interpret and/or use AFI in the stock markets. As we can see in the next sections many different studies focus their attention on investors' behavior and the usefulness of AFI, but the fact remains that the role of accounting information in individual invetors' decision-making is negligible at present perhaps because the AFI format in Spain (similar to that in many other countries) is too long (up to more than one hundred pages), too difficult to understand (very complex formats and technical language), and difficult to find (not easy to locate within different website structures for each company embedded among much rrelevant information). The objective of the present paper is to propose a new AFI format of one-page report, shorter and easier to understand, as a complement to the long and complex traditional format in order to increase the usefulness of this type of information for investors.

Some authors have found that individual investors may give importance to different variables based on their demographic characteristics in general (Baker and Haslem, 1974; Warren, Stevens, and McConkey, 1990) and other studies have noted the importance of the place of the investors' origin in particular or of the country they invest in (French and Poterba, 1991). As we do not have information specific to Spanish investors in the literature, we used the questionnaire as a comparative test to be sure that there are no differences from the existing studies in Anglo-Saxon countries.

On the other hand, recent studies suggest that the investment decision is also affected by internal factors such as one's own knowledge and external factors such as frame (type of investment, investment location, etc.) or the way in which the possible investment is presented (Shefrin, 2000; Shleifer, 2000) that could depend on the experience of the investors. Therefore, we control the effect of the new proposal according to the experience. The experiment was conducted both with real investors and with students completing their last year of a Bachelor of Business Administration to see

if their use of AFI depends on previous investing experience and if lower use of AFI is replicated for both participants group.

The main contribution of the present paper is to provide evidence about how the usefulness of AFI significantly increased when using the new format proposed. More importantly, it seems that results in terms of profits also improve considerably in medium (one year) and long-term (four years) investments, in contrast to the more modest profits of speculative investments. Furthermore, this occurs regardless of the previous experience of the investors.

2. Theoretical Framework and Hypotheses

Since the seventies many studies have been conducted within a financial perspective, analyzing the importance of the presentation of accounting information (e.g. Martin, 1971; Kaplan and Roll, 1972; Hendricks, 1976; Savich, 1977) or financial reports (e.g. Cassidy, 1976). More recently, continuing in the same line (e.g. Pirie and Smith, 2008; Jumah, 2014; Shin and Park, 2014) other studies have examined variables such as investors´ sentiment (e.g. Ho and Hung, 2009; Palomino, Renneboog and Zhang, 2009) or the different types of published information (e.g. Chen and Chan, 2009). However, most of these studies extrapolate results from markets analysis to individual investors without working directly with individual investors. Only a very few papers have focused on a direct analysis of individual investors. Significant differences have been found between the results of those studies based on markets and those based on the direct analyses of investors (Debont, 1998); therefore, in our opinion direct analysis is essential.

Collecting their opinions about the decision making of the investments has made a direct analysis of investors' behavior. The results found in this research are based on questionnaires given to individual investors globally, and they have found fairly homogeneous results regarding the usefulness of financial and accounting information. Three main conclusions can be derived from these studies. Firstly, investors initially make their investment decisions based on future expectations. It is important to allow companies to voluntarily express their expectations of benefits and financial statements because these future expectations are extensively used by investors (Baker and Haslem, 1973; Nagy and Obenberger, 1994). Second, there is information of greater relevance than financial statements, for instance, expectations of benefits (Baker and Haslem, 1973). Nagy and Obenberger (1994) also found that financial reports were the fourth

variable used by investors, behind earnings expectations. However, in the same study, a factor analysis ranked AFI as the second most important factor to explain investors´ behavior behind the general information. Third, in the nineties a new tendency could be observed in which the most important variable for individual investors was company management instead of expectations (e.g. Rogers & Grant, 1998; Clark-Murphy & Soutar, 2004).

In the late nineties and early in the new millennium, demand for information about markets increased considerably from the investors. The development of the media, specifically the financial press and financial television channels, and particularly the rise of the Internet, have offered investors much more information. The benefit of Internet use by individual investors is unavoidable and yet quite controversial. Internet information is immediately available, but there is such a large amount of information that selection of the most productive and useful sources is difficult for investors. The sheer quantity of information has driven investors to focus on many different selective variables of the markets. Perhaps because of this, in recent years insufficient importance has been directed to the AFI reporting itself, but rather to interpretations made of this information by management. Clark-Murphy and Soutar (2004) used the Adaptive Conjoint Analysis questionnaire (ACA) to study which variables may be crucial for investors. They applied the ACA to the client list of an Australian company of brokers. The results found are truly striking showing that the most important factor for respondents is the management of the company over the financial report or dividend expectations. Previous studies (Rogers and Grant, 1998) had pointed to management as a key variable for analysts but not for individual investors. Moreover, those studies showed that it is not only financial reports that are under valued. As shown by the ACA results, financial information like dividends is less valued than other variables such as recent movements in the shares on the stock market (Clark-Murphy and Soutar, 2004). Baker and Haslem (1973) also found that financial statements are used for investment decision-making, but they only represent 8% of all of the sources used. In the same line, Nagy and Obenberger (1994) found surprisingly that neither recommendations of brokerage firms and individual brokers nor the financial reports themselves are taken into account to a large extent.

Regarding the search and retrieval of information for individual investors, they have a variety of sources at their disposal everyday (Pascual-Ezama, Pavoni and Gil-Gomez de Liaño, 2010). Media and financial press, radio and television, have made

available a large quantity of economic and financial data. In addition, investors are exposed to a continuous stream of opinions from experts, family, friends and colleagues. However, no clear effects on investors were found. According to Baker and Haslem (1973) the advice of experts and consultants, the financial press and even the opinions of family and friends may be relevant. Yet, Nagy and Obenberger (1994) found that the vast majority of investors are self-sufficient when it comes to deciding on investment, not giving much importance to the opinions of their family or coworkers.

It is so important for individual investors to obtain and process as much information as possible, which has an obvious cost for them (Coleman, 2014). Investors who have a high information cost should settle for less information while investors who have a low information cost, should obtain much information more easily (Loibl and Hira, 2009). However, not always having much information leads to better results. There may be cases in which the reception and processing of information can have a negative outcome, causing investors to react too slowly to events in the markets (Shiller, 1987, 1989). On the other hand, it has been shown that individual investors tend to accept information which is in accordance with their beliefs and inclinations, while rejecting information that runs counter (Lovric, Kaymak and Spronk, 2008). Moreover, the disposition effect (Shefrin and Statman, 1985; Odean, 1998), which describes the tendency of investors to sell shares whose price has increased, while keeping assets that have dropped in value, is very common among individual investors. Therefore, the cost of information access together with the ability to process this information, leads investors, depending on their characteristics, to use different strategies with respect to their search for information (Agarwal et al. 2016). From the work of Claxton, Fry and Portin (1974) all studies that have analyzed how investors pursue information have found three different strategies used consistently: high, moderate and low information search (Kiel and Layton, 1981; Furse, Punj and Stewart, 1984).

Not only the search and retrieval of information but also the format of this information is important for individual investors. In recent years, there have been a few attempts to study the effect of showing different investors alternative presentations of the same accounting and financial information. Hales, Venkataraman and Wilks (2012) conducted an experiment in which they found that the perception of the usefulness of accounting information was different depending on the application form. In the same vein Clor-Proell et al. (2010) and Bloomfield et al. (2010) demonstrated that the way in which the accounting information is broken down changes the way in which this

information is processed and used. Maines and McDaniel (2000) also found that different presentation formats of financial reporting affect the perceived usefulness by investors. With all this in mind, one of our main goals of the present study was to test if different formats of accounting and financial information could lead to differences in the final decision about investment and we proposed the following hypothesis.

H1: If Financial and Accounting information format is presented to investors in a format that is shorter and easier to interpret, the usefulness of the information should increase.

Finally, our intention to present a brief and easy to digest financial and accounting analysis report to investors can only succeed if the content of the report is indeed useful. We need to demonstrate not only the format is critical regardless of information contained there but also the use of this information leads to financial gain for the investors. Different types of information could be included in the one-page report it. When developing our concise AFI report we included relevant information easy to read and easy to understand by investors, so we decided to use four ratios. Many researchers have tried to predict the behavior of the stock markets since Kendal (1953) cared to relate the past contributions of companies with future contributions. In recent years different indicators related to firm size (e.g. Johnson and Soenen, 2003; Hobarth, 2006) or cash flow (e.g. Daniati, 2006; Susanto and Ekawati, 2006; Meythi, 2006) have been used. However, some of the most common predictors used are both economic and financial ratios, and in recent years corporate governance ratios. In the 70s researchers began to try to give an explanation for the evolution of stock markets from a global context (Fama, 1965,1970), using specific ratios such as price-earnings ratios (e.g. Breen 1968; Basu, 1977) or dividend ratios (e.g. Black and Scholes, 1974). And yet, none of those studies have given conclusive results. Almost 30 years later results are not more conclusive and researchers have tried to predict markets in specific sectors (e.g. Sparta, 2005; Roswati, 2007) or even in times of crisis (Manao and Nur, 2001). Some works have found significant results but only for very specific markets with specific characteristics such as the Asian markets. Examples include Ariff et al. (1998) for the case of Malaysia, Lau et al. (2001) in the case of Singapore and Malaysia or Choudhury (2003) and Hjalmarsson (2004) that give results for several Asian countries. Although the analyses are focused on markets with particular characteristics, the results are still

inconclusive. While Lau et al. (2001) found that the price-earnings ratio correlated with future contributions in Malaysia, Ariff et al. (1998), Choudhury (2003) and Hjalmarsson (2004) found no significant results in the same markets, and Kheradyar and Ibrahim (2011) found significant results but with other market indicators.

Although there is no clear consensus on which indicators are commonly acceptable to all sectors and markets, previous studies have found that some indicators are more useful for prediction in stock markets than others. Recent studies have found that profitability is a good predictor of stock market prices (e.g. Utama and Santosa, 1998; Hobart, 2006; Restraningsih, 2007; Büyüksalvarcı and Abdioglu, 2010). ROE was selected as one of the best indicators of profitability (Hillestad, 2007; Martini and Rahfiani, 2009). Other studies such as Ross, Westerfield and Jordan (2006) used financial ratios such as solvency or liquidity among others. Hamzah (2007) use ratios of liquidity, solvency, profitability and debt among others. Therefore, when developing our report we decided to use the following: ratios of liquidity, solvency, profitability and indebtedness. So taking all these into account, our last hypothesis would be as follows:

H2: An increase in the usefulness of accounting and financial reporting should lead to better investment results.

In order to test our hypotheses we carried out research in three different phases. Firstly, we applied a questionnaire to analyze the opinion of individual investors on the usefulness of Accounting and Financial Information. Secondly, we ran an experiment in the laboratory in two different stages to experimentally test results found in the questionnaire. In this second phase we also studied if a subject´s experience with the stock markets may affect the results, by comparing two different samples: real investors and students with no experience investing but with knowledge of stock markets. Finally, in the third phase, a second experiment was performed with several objectives: first, to try to solve several methodological limitations of the first experiment, and second, to see if financial knowledge is relevant or not regarding the usefulness of accounting information in a decision-making process. Investment results obtained by our participants were classified according to three types of investors within a longitudinal analysis: speculative (1 month), short-term investors (1 year) and long-term investors (4 years).

3. Study 1

The instrument used was the ININBE questionnaire (Pascual-Ezama et al., 2010). It consists of five questions about personal data and a scale of 47 financial indicators in a five-points Likert scale. Each indicator was information that could potentially be used for investing, and the Likert scale allowed test subjects to rank the importance of that particular indicator for investing from 0 "not used", to 4 "necessary for investing".

3.1. Participants

A total of 136 individual Spanish investors (58% male; M_{age}=35.27, *SD*=7.32) completed the questionnaire. About 46% had studied Business, and about 30% Engineering. Their mean experience as investors in stock exchange markets was 9.5 years (SD=6.29) and the average amount of money invested was about 14,000€. For that amount of money, the average time of investment was 15 months.

3.2. Design and Procedure

Previous studies analyzing the usefulness of accounting information for individual investors (e.g. Baker and Haslem, 1973; Nagy and Obenberger, 1994; Clark-Murphy and Soutar, 2004) used questionnaires that had not been validated. In this study we used a validated scale (Pascual-Ezama et al., 2010; Gil-Gómez de Liaño and Pascual-Ezama, 2012) in order to test the first hypothesis of the present work. All investors were contacted by email only once, and they were requested to complete the questionnaire voluntarily.

3.3. Results and Discussion

AFI variables were relevant but less highly valued than other non-financial variables. "*Shares' price"* (M=3.96; SD=1.24); "*Expectations of market value"* (M=3.91; SD=1.10); "*Amount of money available to invest"* (M=3.70; SD=1.40); "*Expected profits"* (M=3.67; SD=1.32) and "*Expectations of continued growth"* (M=3.65; SD=1.04) were the variables that individual investors ranked the highest. The

most AFI valuated factor was "*Financial highlights" (Cash Flows, NPV, IRR, etc.)* (M=3.17; SD=1.48), in position 24 over 47 followed by "*Balance Sheet" and "Income Statement"* (M=2.94; SD=1.28, 34/47), "*Information provided on corporate reports"* (M=2.64; SD=1.32, 35/47) and "*Audit report"* (M=2.41; SD=1.37, 40/47). Therefore, we can conclude, that AFI has an acceptable utility by investors. However, previous literature in Anglo-Saxon countries found that investors depend more on other variables, such as expectations (Baker and Haslem, 1973; Nagy and Obenberger, 1994; Clark-Murphy and Soutar, 2004).

Therefore, we can conclude that in Latin markets as Anglo-Saxon markets "*Financial and Accounting information utility is less valued than other variables for individual investors in stock exchange*". There may be two possible explanations for these results that until now have not been examined in depth. First, individual investors do not have enough experience or financial knowledge to analyze accounting information. Second, the way in which this information has traditionally been presented is difficult to interpret and thus tends to be disregarded by the average individual investor. These results, like others found in the literature (Baker and Haslem, 1973; Nagy and Obenberger, 1994; Clark-Murphy and Soutar, 2004), have been obtained through questionnaires. But, would the results be the same if we test investors during the "decision-making process" to invest? How do individual investors manage and use different sources of information in a real situation of investing? Do investors use accounting and financial information in the decision-making process contrary to what the polls claim? How do experience or knowledge affect individual investors' decision-making? Experiments 1 and 2 will try to answer all these questions.

4. Study 2: Experiment 1

A factorial 2x2 quasi-experimental design was used with AFI usefulness as dependent variable and with report format and experience as independent variables in order to test our first hypothesis: a shorter and easier to interpret AFI format should prove more its useful to investors than the current format. We controlled for the effect of the new format taking into account the experience of the investor. Therefore the experiment was conducted both with real investors and with students in their last year of a Bachelor in Business Administration.

4.1. Participants

There were 79 participants in the experiment (including one group of real investors and four groups of non-investors[1]). *For the investors*, the average age was 33 and about 30% of participants were women. The educational level ranged from general university studies to Master's in Business Administration, and they frequently invested in the stock market. The average experience as investors was more than six years, with an average amount of 12,000€ invested and the average time of investment was around 12 months. These demographic results of the investor sample are consistent with the profile of investors found by Perera and Toharia (2006) and Pascual-Ezama et al. (2010) on a sample of investors in the Spanish markets. *Non-investors* were students in the final year of a Bachelor of Business Administration, with a mean age of 21. 60% were women and none of them had previously invested in the stock market. It has been shown previously that college students are a good proxy for the general population (Exadaktylos, Spin and Brañas-Garza, 2013). More specifically, both MBA (Elliott et al., 2007) and students in the final year of a Business Administration Bachelor (Kelly et al., 2012) are also a good proxy in order to study the behavior of amateur individual investors.

4.2. Design and Procedure

A factorial 2x2 quasi-experimental design was used in the study with two factors: *Experience* (investors versus non-investors) as between-subjects and *Information* (Traditional versus Traditional+Proposal) as within-subjects. Although, there are basic methodological problems when a within-subjects variable is not controlled by randomizing order or by counterbalancing, from a theoretical point of view it made no sense to counterbalance levels of *Information* in this particular study. Our main goal was to simulate as realistic a situation as possible in which investors have the actual accounting information format (Traditional) and then, they are given the new AFI format (Traditional+Proposal). Methodological problems derived from this "real

[1] In a first phase of the experiment, we controlled all possible market trends (W= all the shares rise; L=all the shares fall; N=some shares rise and some of them fall). We analyzed the 62 non-investors results at different stages. Participants were randomly distributed as follows: (WNLN = 26; NWNL = 11; LNWN = 14; NLNW = 11). No differences were found among them, so we decided to compare only the WNLN condition for the 26 non-investors and 17 investors.

situation simulation" will be controlled in Experiment 2 by manipulating the variable as between-subjects, and therefore randomly assigning participants to the levels of the factor.

All participants first ran the "traditional" situation in four different phases, and had to choose between five different companies proposed by researchers in each one of the phases. Four types of information: real (charts, financial information and news from the Spanish media) and non-real (fake opinions from family and friends) were provided to the participants. The charts were obtained from Infobolsa.com. They were modified in order to allow the participants to follow the evolution of the charts only from a certain point, where they might know the price at the moment they had to decide to invest. The financial statements were obtained from the Spanish Securities Market Commission (CNMV), and the latest published accounts of each company were used. We controlled for the particular moment when investors had to invest. Also, the time elapsed since the publication of the AFI and the decision-making moment was a few months. The press releases were obtained from the best-selling financial newspaper in Spain (Expansión). Participants were provided with the latest information on the date of investment, though controlling that the news offered did not give information about the company. Finally, participants were also provided with information about the points of view from relatives and/or friends. These opinions were controlled. We balanced positive and negative (half of them were positive and half negative), randomly assigning them to the participants. In some cases, favourable opinions coincided with a good investment and sometimes with the worst, as there was random assignment. The same procedure was followed for unfavourable opinions. So, we tried to simulate the situation in the lab as closely as possible to real life. In addition, we offered the participants the opportunity to speak with each other about their decisions, and share the information that they deemed appropriate, so there was no competition among them. Each one achieved profits or losses based on the appropriateness of their decisions, so there was no problem with sharing as much information as they wanted. However, it was required that they indicate the source of information used when sharing it.

Finally, participants had to select the best option for investing based on the available information. All information they used was real past information about real companies, but we withheld any information that could give them an idea about what companies they were working with. Thus, they did not know the names of the companies or the dates of the investment, and all participants had the same information for the final

decision. This was crucial in order to avoid specific expertise that investors might have had if more information had been available about specific companies with which they might have been familiar, thereby giving them an advantage over the non-investors. All participants started the experiment with 50,000 virtual euros (equivalent to 50 real euros in the experiment). At the end of each phase every participant reported to the researchers using a small template. They reported the company they selected as well as the information source used in that decision, and the order of relevance they assigned to the seven options they had at their disposal (charts; financial information; news from the media; opinions from family or friends; opinions from other participants; expectations based on information; intuitions). Results obtained were shown to investors, so they knew the amount of money available for the next investment. At the end of the first four phases every participant received the amount of money they ended up with, above or below the initial amount.

When the first four phases were finished (the "Traditional" situation), participants had to run another four new phases within the "Traditional+Proposal" situation. They started the four new phases again with 50,000 virtual euros (equivalent to 50 real euros). Now we provided the participants with the same information as in the "Traditional" condition plus additional information: an extra one-page with AFI in our new format. In fact, they already had that information, but now it had been analysed and summarized in a shorter and easier format. We provided them with four calculated and analysed ratios: liquidity, solvency, profitability and indebtedness. The objective of doing this was to check if investors do not use accounting information because they think it is not useful, or on the contrary, because it is too long and difficult to interpret.

4.3. Results and Discussion

A 2x2 repeated measures ANOVA was run with *experience* (investors and non-investors) as between-subjects variable and *information format* (traditional and traditional + proposal) as within-subjects variable. Three Dependent Variables were analysed: use of accounting information, preference of accounting information and results of the investment (profits/losses).

Regarding the *use of accounting information*, we only found a main effect of information format [$F(1,41)= 87.52$; $p < .000$; $\eta 2 = .681$]. Neither the effect of *experience* nor the interaction was significant ($F<1$, for both). In the first four phases

(traditional) AFI was used less than 30% of the time, but when we added our new AFI format (the extra one-page document; Traditional + Proposal condition), AFI was then used up to 90% of the time. Those results were similar both for real investors and non-investors, showing that experience did not affect the use of the accounting information contrary to our second hypothesis. The use of other sources is shown in Table 1.

The same analysis on the *source preference* for decision-making showed similar results: only a main effect of information format was found [$F(1,41)= 31.95$; $p < .000$; $\eta 2 = .438$]. Neither the effect of *experience* nor the interaction was significant ($F<1$, for both). Real investors increased their preference regarding AFI from the Traditional to the Traditional + Proposal condition. All participants considered AFI the most important source in decision making with the new information format (Traditional + Proposal), while previously (Traditional) AFI was the fourth ranked among the seven sources.

Interestingly, *results of the investment* (profits or losses) are significantly better when they have (and use) the extra one-page AFI (Traditional+Proposal condition). Again, only a main effect of information format was found [$F(1,41)= 14.92$; $p < .000$; $\eta 2 = .267$] and neither the effect of *experience* nor the interaction were significant ($F<1$, for both). As we can see in Table 1, in the Traditional condition investment results obtained by investors (M=52,044; SD=6,727) and students (M=52,084; SD=8,407) were similar. In the Traditional+Proposal condition, profits increased both for real investors (M=58,311; SD=3,096) and non-investors (M=56,366; SD=6,057).

Therefore and confirming our first hypothesis as it currently exits, when we use the actual format of accounting and financial information the usefulness for the individual investors is lower compared to other variables. These results replicate those found using the questionnaire (Study 1), and also with other results found in the literature (Baker and Haslem, 1973; Nagy and Obenberger, 1994; Clark-Murphy and Soutar, 2004). Importantly and contrary to our second hypothesis these results are independent of previous investing experience. Both investors and non-investors, verifying our third hypothesis, use the shorter and easier format of AFI more than the traditional one. These results are also in line with previous literature about the effect of the format (e.g. Maines & McDaniel, 2000), structure (e.g. Clor-Proell et al., 2010; Bloomfield et al., 2010) and presentation (e.g. Hales, Venkataraman & Wilks, 2012) of the Accounting and Financial Information on the investors' use. In line with our fourth hypothesis, results in terms of profits/losses were improved for both investors and non-investors.

Finally, as we can see in Table 2, although no interaction was found, we considered the difference between investors and non-investors relevant in both conditions, Traditional and Traditional+Proposal.

Nonetheless, the present experiment shows a few important limitations. Firstly, the increase of use of the AFI in the Traditional+Proposal condition may be due to its novelty, as it was not available in the first phases of the Traditional condition. Just because it was only available in the second part (Traditional+Proposal condition), participants have been inclined to use it. In the same line, the higher rating of AFI in Traditional+Proposal condition could be explained by a participant's expectation of the effectiveness. They may use it and rank it higher just because they expect that this is exactly what the researcher is looking for. Likely, both investors and students might be conditioned by their training and knowledge in Business Administration to use the new AFI format. They may consider financial ratios important because their training is biased to use this information (otherwise it wouldn't be used), and not because the new format briefer and easier to understand. Counterbalancing phases (Traditional and Traditional+Proposal versus Traditional+Proposal and Traditional) could control for all these concerns. However, as we pointed out before, in real life AFI is presented in a certain format. So, a good option to avoid AFI problems is to manipulate *information* as a between-subjects variable instead of within-subjects, which will indeed be done in Experiment 2.

Table 1. Sources Used, number of trades and Outcomes of the rounds by condition.

Condition	Type of Investors	Sources	Percetage of participants who used sources	Number of trades	Outcomes of the rounds
Traditional	Investors	Charts	81%	4	52.044€ ≅4% profitability
		Newspaper	88%		
		EFI	25%		
		F&F	25%		
		Peers	25%		
		Expectations	81%		
		Intuitions	69%		
	Non-Investors	Charts	89%	4	52.084€ ≅4% profitability
		Newspaper	87%		
		EFI	41%		
		F&F	33%		
		Peers	25%		
		Expectations	59%		
		Intuitions	71%		
Traditional + Proposal	Investors	Charts	87%	4	58.311€ ≅16% profitability
		Newspaper	94%		
		EFI	94%		
		F&F	7%		

	Peers	25%		
	Expectations	82%		
	Intuitions	69%		
Non-Investors	Charts	76%	4	56.366€ ≅12% profitability
	Newspaper	81%		
	EFI	96%		
	F&F	17%		
	Peers	9%		
	Expectations	58%		
	Intuitions	71%		

Table 2. Statistical difference in the use and preference of the financial and accounting information and the profitability results.

	Information	Experience	Interaction
USE OF INFORMATION	F(1,41)= 87.52 p < .000; η2 = .681	F<1	F<1
SOURCE PREFERENCE	F(1,41)= 14.92 p < .000; η2 = .267	F<1	F<1
RESULTS OF INVESTMENT	F(1,41)= 14.92 p < .000; η2 = .267	F<1	F<1

	TRADITIONAL		TRADITIONAL+PROPOSAL	
	INVESTORS	NON-INVERSTORS	INVESTORS	NON-INVERSTORS
USE OF INFORMATION	23%-29%	34%-50%	70%-94%	88%-96%
	χ2 = 4.395; p-value = .355		χ2 = .763; p-value = .683	
SOURCE PREFERENCE	4/7	4/7	2/7	2/7
	U = 180; p-value = .302		U = 176,5; p-value = .231	
RESULTS OF INVESTMENT	52,044	52,084	58,311	56,366
	U = 201; p-value = .619		U = 184; p-value = .358	

5. Study 3: Experiment 2

5.1. Participants

Participants were 74 volunteer students from Computer Sciences (80% male; M_{age}=19.3, *SD*=3.64). None of them had previously invested, and the sample was divided in two groups: a control group (39 participants) and an experimental group (35 participants). Participants had enough knowledge to understand basic financial and accounting information (all of them were enrolled in an introductory course of financial accounting and financial statements analysis). At the same time their knowledge in finance and accounting was limited, and they did not have any expertise analyzing ratios. Therefore, they did not have experience in stock exchange investment or

advanced accounting information knowledge, but they had enough knowledge of accounting information to analyze balance sheets and income statements.

5.2. Design and Procedure

In this experiment we only manipulated one variable: *information*. Therefore, we used a simple design with *information* as the independent variable, but now we manipulated it as a between-subjects factor: half of the participants were randomly assigned to the Traditional condition (balance sheet and income statement), and half of them were randomly assigned to the Traditional + Proposal condition (balance sheet and income statement + ratios interpreted). Everything else remained the same as in Experiment 1.

Like in the former experiment, all participants started with 50,000 virtual euros (equivalent to 50 real euros). At the end of the experiment each participant received the money they had earned over the initial amount. They could buy and sell stocks as many times as they wanted during the period of one month. The participants received all information they needed to invest. In a seminar class, a professor showed how they could access different information sources [the same sources as in the previous experiment: charts (www.infobolsa.com and the like), accounting information (www.cnmv.es), financial newspapers and investment websites (www.expansion.com and the like)]. Before starting the experiment any participants were well informed and encourage to use or to consult all information they wanted without restrictions, just like in a real situation. They were only required to indicate all information they had used for each decision and rank the relevance of each source for the final investment (charts, financial information, news from the media, opinions from family or friends, opinions from other participants, expectations based on information, intuitions or any other). To report their decisions a template was provided. Any time participants decided to sell or buy, they had to email the completed template to the researcher with the name of the stock company, number of stocks, price and information used. The researcher checked the time at which each participant had sent a template with the real price of the stock at that time in order to confirm the accuracy of each decision. Feedback was automatically given by the markets evolution like in real investments.

The only difference between the control and the experimental group was that in the experimental group, the researchers explained the extra information source in addition to all the information previously described. We used SABI, a database in which accounting information is available and ratios are calculated. We used the same ratios as those used in Experiment 1, and the researchers explained to the participants how to interpret them. As in the previous experiment, the objective was to demonstrate that if investors have access to an easy to understand accounting information source, the perception of AFI usefulness would increase.

5.3. Results and Discussion

We found interesting results "along the same lines" as in Experiment 1 when comparing control (traditional) and experimental (traditional + proposal) groups.

For the *use of accounting information*: participants declared that they used AFI about 75% of the time in the experimental group compared to the 50% declared by the control group, which led to a significant difference between groups (χ^2=16.55; p=.05). Moreover, 67% of the participants in the experimental group reported using AFI in all the phases compared to 32% in the control group (χ^2=8.18; p=.004). Only 19% of the participants in the experimental group did not use the accounting information at anytime while in the control group this percentage increased to 38% (χ^2=3.002; p=.070). For the *preference of accounting information*, AFI went from the fourth position in the control group to the second choice in the experimental group (U=434; p=.042). The use of other sources is shown in Table 3.

Therefore, there is an important difference in the use and in the perception of usefulness of AFI when working with the official format and when working with our new simpler proposal. In line with other recent studies (e.g. Clor-Proell et al 2010; Bloomfield et al 2010; Maines and McDaniel, 2000), and according to our third hypothesis, the way in which the accounting and financial information is presented does in fact affect its practical use.

Finally, for the results of the investment (profits/losses), we ran the analyses taking into account the three types of investors: speculative (one month analysis after the investment moment), short-term investors (one year analysis after the investment moment) and long-term investors (four-year analysis after the investment moment). As we can see in Table 3, results for speculative investment (1 month) show no differences

(t=-.345; p=.733) between the control (M=50,432; SD=1,734) and the experimental group (M=50,643; SD=1,067). Differences were marginally significant for the short-term investment (one year) (t=-1.975; p=.060) between the control (M=46,548; SD=5,200) and the experimental group (M=53,159; SD=11,781). Importantly, for long-term investments (four years) the experimental group had significantly greater outcomes (M=74,323; SD=23,979) than the control group (M=60,860; SD=32,284; t=-2.01; p=.047). Therefore, profit results obtained in the longitudinal analysis for those participants who made use of our new, easy AFI format had significantly larger benefits than those who did not use our new format. Although results are not conclusive as there are not significant differences in the speculative investment, there is an upward tendency in the short-term analysis, and clearly significant differences in the long term.

Table 3. Sources Used, number of trades and Outcomes of the rounds by condition.

Condition	Type of Investors	Sources	Percetage of participants who used sources	Number of trades	Outcomes of the rounds
Traditional	Speculative	Charts	100%	6,6	50.432€ ≅0,8% profitability
		Newspaper	100%		
		EFI	67%		
		F&F	64%		
		Peers	35%		
		Expectations	64%		
		Intuitions	67%		
	Short-term investors	Charts	81%	3,2	46.548€ ≅-6% profitability
		Newspaper	93%		
		EFI	50%		
		F&F	68%		
		Peers	75%		
		Expectations	93%		
		Intuitions	87%		
	Long-term investors	Charts	87%	2,6	60.860€ ≅21% profitability
		Newspaper	61%		
		EFI	52%		
		F&F	44%		
		Peers	56%		
		Expectations	91%		
		Intuitions	87%		
Traditional + Proposal	Speculative	Charts	80%	7,4	50.643€ ≅1,2% profitability
		Newspaper	40%		
		EFI	80%		
		F&F	80%		
		Peers	60%		
		Expectations	80%		
		Intuitions	40%		
	Short-term investors	Charts	75%	2,8	53.149€ ≅6,2% profitability
		Newspaper	30%		
		EFI	83%		
		F&F	50%		
		Peers	68%		
		Expectations	73%		
		Intuitions	67%		
	Long-term investors	Charts	70%	2,4	74.323€ ≅48% profitability
		Newspaper	62%		
		EFI	70%		
		F&F	25%		
		Peers	45%		
		Expectations	83%		

Intuitions	70%

6. General Discussion and Conclusions

Undoubtedly, AFI is one of the most useful sources of information when assessing a company as an investor. AFI is, in fact, the most important source of information for long-term investments. But as shown in the present study, as well as in others (Haslem and Baker, 1973; Nagy and Obenberger, 1994; Clark-Murphy and Soutar, 2004) in the short term and for most individual investors, charts or similar analyses play a greater role in the decision-making process, as well as other psychological variables (see results of Study 1 and Pascual-Ezama, et al., 2010). However, taking into account longitudinal analysis of companies, when it comes to long-term investments Accounting and Financial Information should reflect an overview of a company´s standing in the market at any given moment; therefore, it is an extremely useful source for all investors, specifically for those with limited access to other types of information. Those results are in line with Hail (2013) who suggests that changes in the economy, the institutional environment, and in how firms operate affect the relative importance of accounting information for the use in firm valuation by outside stakeholders. However as we have shown, individual investors' decisions are more influenced by other types of variables. According to the present results (studies 1 and 2), the results of the ININBE questionnaire (Pascual-Ezama et al., 2010) and other previous studies (Haslem and Baker, 1973; Nagy and Obenberger, 1994; Clark-Murphy and Soutar, 2004), the usefulness of AFI is much lower than other variables such as expectations and intuitions. Therefore, it seems that those types of variables are much more important for individual investors than AFI.

In the present study, we report empirical data not only that investors have self-reported (questionnaire from study 1), but also from experimental simulations (Studies 2 and 3). We tested whether results found by using questionnaires are in line with investors' actual behavior during the process of decision-making in a laboratory simulation and in a field experiment. The results of the present experiments replicate those found using the INNINBE questionnaire of Study 1, as well as other similar

studies (Martin, 1971; Kaplan and Roll, 1972; Hendricks, 1976; Savich, 1977; Nagy and Obenberger, 1994; Rogers and Grant, 1998; Clark-Murphy and Soutar, 2004). Therefore, the data found are clear and replicate other study results, but probably the most interesting question here is *why* individual investors are more influenced by other variables such as expectations or intuitions than by AFI, even though it is known to be an important variable, as previously mentioned. Although demographic characteristics (e.g. Baker and Haslem, 1974; Warren, Stevens and McConke, 1990), internal and external factors such as knowledge and type of investment (e.g. Shefrin, 2000; Shleifer, 2000) or the type of investors (e.g. French & Poterba, 1991) are used to explain this low use of AFI among individual investors, other causes are possible. In our opinion, one explanation could be that the cost of individual investors (be it time, money or effort) is too high and AFI tends to be difficult to access and interpret. Studies 2 and 3 in fact test this hypothesis in the present study.

Results from experimental studies 2 and 3 of the present report clearly demonstrate that the way in which AFI is presented crucially affects its use. This fact was also demonstrated by other recent work in the field (e.g. Clor-Proell et al 2010; Bloomfield et al 2010; Maines and McDaniel, 2000). The usefulness of AFI radically changes when a simpler and shorter format is available than when the usual, long and technical format is provided. Also importantly, these differences appear both for experienced investors and students of business administration with no investment experience. These results are supported by Exadaktylos, Spin and Brañas-Garza (2013) who showed no differences between students and the regular population in experimental tasks. Moreover, the results of the present experiments show that facilitating the access and interpretation of AFI, also improves the process of decision-making and the results in terms of individual investors' profits, regardless of their experience and financial knowledge. As we have seen in the results of Studies 2 and 3, when individual investors have access to typical AFI, they do not use it probably due to the high costs (time, money and/or effort) and the challenges of analyzing. However, when the same information is presented with information clearly interpreted and explained, AFI comes to play a key role in the decision-making of individual investors. It is ranked as one of the most important sources of information to decide where to invest, and crucially it is proven that use of AFI correlates with increased profits.

Therefore, results of the present study clearly support the idea that using a simpler AFI format can increase the usefulness of AFI among individual and

experienced investors in order to improve their profits in the long term. However, although the format used in the present study is useful for the investors, we have not delved into the fact that these AFI ratios, shown in the new proposal, could be replaced by other AFI ratios or different AFI information. Although there is empirical evidence that ratios such as profitability (Utama and Santoso, 1998; Hobart, 2006; Restraningtyas, 2007; Büyüksalvarcı and Abdioglu, 2010) solvency and liquidity (Ross, Westerfield and Jordan, 2006) or indebtedness (Hamzah, 2007) can be correlated with stock market evolution, it does not preclude that there may be other ratios that can also be useful for individual investors. Although more difficult to understand by individual investors, maybe other ratios such as corporate governance, dividend or some more complex financial indicators could have a similar effect as that found in the present study. Further studies could show more evidence of the usefulness of other types of AFI information, again using simpler formats to be understandable and useful for investors. We must bear in mind that, according to individual investors, the ratios used in the present study express easily understandable and interpretable concepts unlike other types of AFI. What is indisputable is that the format we have suggested when accepted by investors increases the perception of usefulness of AFI, and more importantly their profits.

In conclusion, the results of the present study show that facilitating the access and interpretation of accounting and financial information can improve not only the decision-making process of investors but also the final results (in terms of profits) of individual investors regardless of their experience and training. Although this improvement is not for speculative investment, results of long term investments prove that providing a simpler and easier to interpret format not only increases its usefulness, but also improves the outcomes obtained in the investment process.

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