

A Case Study on the Value of Corporate Social Responsibility Systems

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Abstract—The relationship between Corporate Social Responsibility (CSR) and financial performance (FP) is a subject of great interest that has not yet been resolved. In this work, we have developed a new and original tool to measure this relation. The tool quantifies the value contributed to companies that are committed to CSR. The theoretical model used is the fuzzy discounted cash flow method. Two assumptions have been considered, the first, the company has implemented the IQNet SR10 certification, and the second, the company has not implemented that certification. For the first one, the growth rate used for the time horizon is the rate maintained by the company after obtaining the IQNet SR10 certificate. For the second one, both, the growth rates company prior to the implementation of the certification, and the evolution of the sector will be taken into account. By using triangular fuzzy numbers, it is possible to deal adequately with each company's forecasts as well as the information corresponding to the sector. Once the annual growth rate of the sales is obtained, the profit and loss accounts are generated from the annual estimate sales. For the remaining elements of this account, their regression with the nets sales has been considered. The difference between these two valuations, made in a fuzzy environment, allows obtaining the value of the IQNet SR10 certification. Although this study presents an innovative methodology to quantify the relation between CSR and FP, the authors are aware that only one company has been analyzed. This is precisely the main limitation of this study which in turn opens up an interesting line for future research: to broaden the sample of companies.

Keywords—Corporate social responsibility, case study, financial performance, company valuation.

I. INTRODUCTION

ALTHOUGH the origin of what we know today as CSR can be attributed to Zarathustra, the father of philosophy [1], [2] situates the modern concept of CSR as beginning in the fifties as a consequence of ethical investments, initially arising from fundamentally moral and religious motivations. Nevertheless, the first relevant occurrence of responsible ethical investments took place in 1970, when a series of social activists in the USA discovered that investment was a good way to present social issues to companies and to urge them to change. In the 1980s and continuing to today, CSR investing has expanded beyond using personal values [3].

One issue affecting the credibility of CSR amongst management scholars is the lack of consensus of a definition. World Business Council for Sustainable Development (WBCSD) defines CSR as “the continuing commitment by business to behave ethically and contribute to economic

development while improving the quality of life of the workforce and their families as well as the local community and society at large” [4]. Accordingly, through CSR practices, organizations need to create a positive impact on the society. Anyway, authors like Porter and Kramer [5], Linz [6], Prahalad and Hammond [7] or Hart and Christensen [8] point out the economic dimension of the CSR, and they even arrive to establish the strategic character of the social responsibility according to the benefits for the company and the contribution to obtain economics objectives and benefits.

Porter and Kramer [9] noted a lack of value created through philanthropic donations, despite recent growth in the number of charitable foundations and their assets. They say that becoming a socially responsible company does not only involve costs and charities, but it also brings benefits to the company and to society. These authors highlight the importance of technological innovations, numerous opportunities emerging and, probably the most important in this case, competitive advantage. Business and society are interdependent and so should be treated as such. Social and economic goals are not inherently conflicting, and that a middle ground can be found where companies can create both social and economic value.

Porter and Kramer [9] consider two kinds of CSR in the company:

- 1) Reactive CSR. It pretends the Company acts just as a good corporative citizen, given priority to the society in front of its own economic interest. In this case, the efforts to implement CSR would be limited to the minimum.
- 2) Strategic CSR. It pretends to take advantage of the opportunities that allows the Company to be pioneer in innovations that benefit the society but that always strengthen its competitiveness. In this sense, it is very important the concept of creating shared value (CSV), introduced by Porter and Kramer [10] as “policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which they operate”.

CSV is the process of change of the relation between a firm's outcomes and inputs that generates social value. In the other words, it comes down to economic value creation through creating social value. Its biggest contribution is that CSV sees business activity through the lens of value creation in two dimensions: economic and social. The CSV concept may therefore be considered as a voice in the discussion within the business case for the CSR research stream, as it refers to the underlying arguments or rationales supporting

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why companies consider social concerns [11]. As a result, it is clear the significance of analyzing the relation between the company's CSR initiatives and its FP.

Although several very interesting studies have been published in recent years, analyzing the relationship between CSR and FP, they hardly advance in the same direction, obtaining differing and even contradictory results [19]. The contribution from CSR currently remains a controversial issue.

The main objective of the present work is to provide a tool that shows the relation between CSR and FP. We are going to measure the value contributed to companies that are committed to CSR. This study is doubly innovative because of the methodology used and the way it defines CSR through the IQNet SR10 certification of social responsibility systems.

II. METHODOLOGY

Two different valuations will be made for the company: the first considers that the company has obtained IQNet SR10 certification, and the second assumes that the company has not obtained it. In this way, it is possible to appreciate the variation that occurs in the value of the organizations as a consequence of CSR certification. The discounted cash flow method is used as the valuation method of the company. It is a widely used methodology but does present a high level of subjectivity, so the use of fuzzy mathematics is very useful.

A. Valuation of the Company under the Premise of IQNet SR10 Certification

The discounted cash flow method (1) is used for company's valuation. According to it, the value of a company (V_0) can be expressed as the company's future cash flow (CF) discounted at the interest rate "i". The discount cash flow will be classified into two different periods: the first one contemplates a time frame of 5 years, on which different growth assumptions will be made according to the cases, and the second one, called residual period, on which a growth rate of constant cash flow will be applied for all assumptions (g).

$$V_0 = \sum_{t=1}^5 \frac{CF_t}{(1+i)^t} + \frac{CF_5(1+g)}{(1+i)^5(i-g)} \quad (1)$$

Therefore, it will be necessary to estimate the net cash flows, the discount rate and the growth rate in the residual period. For obtaining the net cash flows, it will be necessary to calculate the net amount of the company's revenue for the coming financial years. This will make it possible to project the profit and loss accounts for future financial years, and thereby obtain cash flows. Afterwards, with the determination of the discount rate to be applied and the estimation of the growth rate the valuation of the company under the premise of IQNet SR10 certification will be obtained.

1) Estimation of Net Cash Flow

In order to proceed with the estimation of net amount of business revenue which permits determining net cash flow, it is necessary to establish a priori the growth rates to be considered. Two different growth rates are considered:

- 1) Growth rate for the so-called time horizon. The growth rate used for the time horizon, which in our case is 5 years, is the rate maintained by the company after obtaining the IQNet SR10 certificate.
- 2) Growth rate for the residual period. According to Casanovas [12], the long-term growth rate of the company cannot be higher than the growth of the country's GNP. For this reason, and as a precautionary measure, 50% of the growth of this variable in recent years is considered.

The expected sales for each year can be obtained multiplying the sales of the previous year by the obtained growth rate. The expenses are classified into materials, personal expenses, depreciation and amortization, other costs and FP. These expenses can be estimated by regressions, using as independent variable net sales. Once these items have been obtained, the profit and loss accounts have been generated. In this way, it is possible to obtain the expected annual result for the company. Finally, the expected cash flow is obtained by adding amortizations to the company's revenue.

2) Estimation of Discount Rates

The discount rate applicable is risk-free interest plus a discount premium. Risk-free interest is estimated using the interest rate on Spanish 10-year bonds

A risk premium must be added to this value. The literature on this is vast, and we want to highlight Fernández et al. [13] who surveyed managers, analysts, and university professors and these offered a very wide range. The median for professors and managers was 5.5%, while for analysts it was 5.0%. For their part, several studies, such as those by Shiller [14] or Wilson and Jones [15] estimate a risk premium between 4.2 and 8.5%. As there is dispersion, by considering the risk premium through a triangular fuzzy number (TFN) this will make the final results consistent. A TFN is expressed by three real numbers (a,b,c) where b is the central point and a and c are the lower and the higher extremes. The membership function $\mu(x)$ of the TFN is defined by (2).

$$\mu(x) = \begin{cases} \frac{x-a}{b-a} & a \leq x < b \\ \frac{x-b}{c-b} & b \leq x < c \\ 0 & \text{Otherwise} \end{cases} \quad (2)$$

Fig. 1 shows the membership values of the TFN (a,b,c). The maximum value is obtained for b, and the function takes positive values between a and b, the lower and the higher extremes.

3) Valuation of the Company

The discounted cash flow estimated at the considered discount rate allows us to obtain the company's value. The result obtained is a TFN that can be defuzzified by any of the known methods.

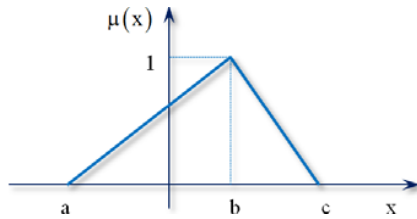


Fig. 1 Triangular fuzzy number (TFN)

B. Valuation of the Company under the Premise of No IQNet SR10 Certification

Once again, we are dealing with the valuation of the company, but now under the assumption of not having IQNet SR10 certification. As it is based on a hypothetical premise, the estimation of the growth rate of sales entails a high level of subjectivity. For this reason, two factors will be taken into account: the growth rates of the company in the period when the social responsibility standard had not been implemented and the evolution of the sector that the company belongs to.

The use of the TFN allows combining, in a proper way, the company's forecasts and the information coming from the whole sector.

As it is difficult to estimate what the variation in the revenue would be under the new premise, the TFN growth rate is constructed as follows:

- 1) Central value: based on the mean of the company's net revenue growth from the last financial years before obtaining the IQNet SR10 certificate. Added to this figure is the variation in net revenue growth for the whole of the sector that does not have the IQNet SR10 certificate, measured through the median, between the year the IQNet SR10 certificate was obtained and the last year for which there is information available. This central TFN value represents the most possible value that can be reached.
- 2) Minimum value: this is to determine the behavior of the company in the worst scenario. The worst scenario is considered to occur on account of the behavior of the worst part of the sector that does not have IQNet SR10 certification. In order to avoid excessive distortions of the extreme values, the growth rates are given in ascending order and the central value corresponding to the fourth quartile is taken.
- 3) Maximum value: this is to determine the behavior of the company in the best scenario. This behavior is understood as that of the best companies of the sector that do not have IQNet SR10 certification. In order to avoid distortion of extreme values in this case the central value from the first quartile is taken.

Based on these three scenarios it is possible to construct a TFN corresponding to the net figure of estimated sales. As in section valuation of the company under the premise of IQNet SR10 certification, the next step is to generate the profit and loss accounts through the estimation of the rest of the items grouped as materials, personal expenses, depreciation and amortization, other expenses and FP. Once again, these estimations, obtained from the regressions between the different items and the net sales figure, make it possible to

determine expected annual results.

The repetition of this procedure for each of the extremes facilitates obtaining the TFN net profit and loss for the financial year, based on which, and after incorporating amortizations, the company's TFN cash flow will then be obtained.

As with the premise of IQNet SR10 certification, the final value of the company will be obtained by discounting expected cash flow for the time horizon and the residual period in each of the three scenarios considered. In order not to undermine the results, the same discount rates will be considered as in the previous section. Once again, the final result obtained will be a TFN, which can be defuzzified by any of the known methods. The comparison of this value with the one obtained in section valuation of the company under the premise of IQNet SR10 certification enables us to appreciate the contribution of IQNet SR10 certification to the value of the company.

III. CASE STUDY AND RESULTS

Since our aim is to quantify the value that IQNet SR10 certification contributes to a Spanish company, the selected company has been a micro company certified in 2013 by the Spanish Association of Standards and Certification (AENOR), which is the only national entity of standardization and by far the main certification entity that operates in the Spanish market [16]. The company belongs to the sector 0161 (NACE classification Rev. 2). Table I gives details about the main financial magnitudes of their profit and loss accounts from year 2013 to 2014.

TABLE I
MAIN FINANCIAL MAGNITUDES OF THE COMPANY FROM 2013 TO 2015

Year	2015	2014	2013
Net sales	828,877	816,715	1,080,143
Material	191,773	175,559	263,335
Personnel costs	342,982	412,978	503,864
Amortization of fixed assets	28,346	18,254	16,439
Other expenses	262,447	205,277	265,114
Financial performance	-12,075	-9,139	-7,879
Corporate tax	-2,186	-898	4,702
Net profit	-6,559	-3,593	18,808
Cash flow	21,787	14,661	35,248

The valuation of the company under the assumption of IQNet SR10 certification is made using the mean variation rate of the company's revenue since the year the certificate was obtained, 4.94%. The estimated cash flow for the year 2016 is shown in Table II.

The valuation of the company under the assumption of no IQNet SR10 certification is made using a TFN as the growth rate. The lower and upper extremes of the TFN are the averages of the fourth and first quartiles respectively of the variation rate of the sector the company belongs to (-19.89 and 16.39 respectively). The central value of this TFN is obtained from the sum of the variation rate of the company's net sales figure for the period immediately prior to certification (17.79%) plus the difference in the medians of the sector's

growth rate since obtaining IQNet SR10 certification (1.55%). It should be indicated that the averages for the sector are obtained by selecting those organizations with similar revenue to each of the companies that make up the sample, making sure that the definition of micro company is respected according to Commission Regulation (EU) n° 651/2014. The estimation of the cash flow under the optimistic, base and pessimistic case is shown in Table III.

TABLE II
MAIN ESTIMATED FINANCIAL MAGNITUDES OF THE COMPANY FOR 2016
UNDER THE ASSUMPTION OF IQNET SR10

Year	2016
Net sales	841.221
Material	216.636
Personnel costs	237.651
Amortization of fixed assets	13.128
Other expenses	203.710
Financial performance	4.505
Corporate tax	43.650
Net profit	130.951
Cash flow	144.079

TABLE III
MAIN ESTIMATED FINANCIAL MAGNITUDES OF THE COMPANY FOR 2016
UNDER THE ASSUMPTION OF NO IQNET SR10 FOR THE OPTIMISTIC, BASE AND
PESSIMISTIC CASE

	Optimistic	Base	Pessimistic
Net sales	967.193	694.305	663.985
Material	240.409	188.910	183.188
Personnel costs	286.194	181.037	169.353
Amortization of fixed assets	15.533	10.323	9.744
Other expenses	240.450	160.861	152.018
Financial performance	4.908	4.034	3.937
Corporate tax	47.379	39.302	38.405
Net profit	142.137	117.906	115.214
Cash flow	157.669	128.229	124.958

With respect to growth rates in the residual period, as the average variance of the Gross National Product (GNP) in Spain has been 3.46% since 1961, the growth rate is taken at 1.73%.

The TFN discount rate is obtained by adding risk-free interest 1.65% to the TFN risk premium which takes a value between 4.20 and 8.50 with the most possible value 6.35. As a result, the used discount rate is the TFN (5.85%, 8.00%, 10.15%).

The value of the company under the premise of IQNet SR10 certification or non-certification can be obtained from the growth rates for the time horizon, the growth rate for the residual period and the discount rate.

The CSR certification yields for the organization can be approximated by the differences between the valuation of the company with IQNet SR10 certification (2,155,013) and non-certification (1,846,701). The variation in the value of the organization as a consequence of IQNet SR10 certification is 16.70%.

IV. CONCLUSION

Previously, companies invest in CSR is regarded as an unnecessary investment [17]. At present time, many successful companies utilize CSR as an important strategy to create innovation [18]. However, the contribution from CSR to FP currently remains a controversial issue. In this work, a tool has been developed to shows the relation between CSR and FP. This tool aims to determine the value of certification of CSR Systems. For this purpose, the discounted cash flow has been adopted. However, the use of this methodology involves a high level of uncertainty and subjectivity, both in the estimation of future cash flow and the type of interest to be used to discount it. That is why we develop an innovative methodology underpinned by making two valuations for each organization in the fuzzy environment, one under the hypothesis of certification and the other assuming that there is no certification. As a result, the difference between these two valuations makes it possible to approximate the contribution that this certificate makes to the company's value.

The methodology proposed has been applied to a Spanish micro company that has implemented the IQNet SR10 standard in social responsibility management has been certified by AENOR in 2013. The value of the company has improved as a result of the implementation of the certification.

Although this study presents an innovative methodology to quantify the relation between CSR and FP, by estimating the contribution of IQNet SR10 certification to a company's value, we are aware that the application to the rest of the certified companies can generalize the conclusions.

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