

**THE VALUATION RELEVANCE OF CREDIT RATINGS: EMPIRICAL EVIDENCE FROM
FINANCIAL INSTITUTIONS AROUND THE WORLD**

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Abstract

This study investigates whether the market valuation of the two summary accounting measures, book value of equity and net income, is higher (lower) for the financial institutions positively (negatively) rated by the Moddy's and/or by the Standard and Poor's, when compared to financial institutions that are not rated by these credit rating agencies. Findings suggest that positive ratings have an impact in valuation both in developed and emerging countries, and that in the case of emerging countries negative ratings do not impact market valuation significantly. Overall, the results are consistent with the idea that credit ratings are useful in reducing value uncertainty of the issuing firms and in mitigating information asymmetry in capital markets.

Keywords: Credit ratings, value relevance, financial institutions, Moddy's, Standard and Poor's.

The valuation relevance of credit ratings: empirical evidence from financial institutions around the world

1. Introduction

Credit rating agencies (CRAs) are organizations that provide opinions on the creditworthiness of entities and their financial obligations and a credit rating is a CRA's assessment of the quality of the debt issuer or a specific debt obligation (Frost, 2007). The credit rating industry emerged in the United States (US) in the early 1900s and became a crucial part of financial markets (Jeon and Lovo, 2013). Nowadays, there is a high level of concentration in the credit rating agencies. Moody's, Standard & Poor's and Ficht control over 90 percent of the market share (Jeon and Lovo, 2013). Together, Moody's and S&P are typically seen as a duopoly or partner-monopoly (Rhee, 2014). In view of this dominance, we focus on these two agencies, similar to some prior studies (e.g. Li et al., 2006; Han et al., 2009).

Two crucial roles in capital markets are usually attributed to CRAs (Frost, 2007; Chung et al., 2012). First, a role as information suppliers, by gathering and analyzing information relevant for the assessment of credit quality and making the results of these activities available to market participants. Second, a role in the facilitation of contracting, because their letter ratings are viewed as efficient credit quality benchmarks.

Credit ratings also play a significant role in managers' decision making. There is survey evidence suggesting that credit ratings are a key objective for CFOs in the USA, being only surpassed by financial flexibility in terms of influence on capital structure decisions (Graham and Harvey, 2001). There is also evidence that managers from other countries attribute great importance to credit ratings, albeit less than their counterparts from the USA (Beattie et al, 2010; Brounen et al., 2004). Better credit ratings allow firms to have better capital market access, not only in terms of the cost of borrowing but also regarding the amount of debt issued, and this has a significant impact on their real outcomes (Tang, 2009).

Given the unique features of the banking industry, namely its role in financial intermediation and importance for financial stability (Packer and Tarashev, 2011), rating changes are likely to impact differently financial and non-financial firms (Hubler et al., 2014). This is why some authors focus on the financial sector (Gropp and Richards, 2001) or discriminate in the analysis the reactions observed for it (Abad-Romero and Robles-Fernandez, 2006; Hubler et al., 2014). For those same reasons, we adopt the former approach and focus on the financial sector.

Relying on the accounting based valuation model developed in Ohlson (1995), this study investigates whether the market valuation of book value and net income is higher (lower) for the financial institutions rated positively (negatively) by at least one of the major credit rating agencies (Moody's and Standard and Poor's), when compared to those financial institutions that are not rated by these credit rating agencies. The empirical analysis relies on the financial institutions (SIC code 6) of countries that have already adopted IFRS and for which 2012 and 2013 accounting and market information is available in the Thomson Worldscope Database.

Our study adds to the literature by investigating the value relevance of credit ratings. As far as we are aware, our study is the first to undertake this type of analysis. Given the scarcity of research pertaining to emerging countries (Han et al., 2009), we also compare the results obtained for financial institutions based in emerging countries with the results obtained for their counterparts from developed countries. The findings suggest that positive ratings have a positive impact in the market valuation of net income both in developed and emerging countries, and that in the case of emerging countries negative ratings do not impact market valuation significantly.

This study contributes to two streams of literature. First, it contributes to the literature on the valuation relevance of non-financial information, which widely concurs in establishing the link between the market value of equity and such type of information (e.g. Rajgopal *et al.*, 2003; Matolcsy and Wyatt, 2008; Berthelot *et al.*, 2012; Lourenço *et al.*, 2014). We extend these conclusions to the issue of credit ratings. Second, it contributes to the literature on the capital market impact of credit ratings. Despite a wealth of literature documenting the impact

of credit ratings on these markets (Holthausen and Leftwich, 1986; Dichev and Piotroski, 2001; An and Chang, 2008; Chan and Lo, 2011; Leventis et al., 2014), we revisit the question by examining their valuation relevance.

The remainder of the paper is organized as follows. Section 2 develops the hypothesis to be tested based on a literature review. Section 3 describes the research design and section 4 analyses the empirical results. Finally, section 5 presents the summary and concluding remarks.

2. Background and hypotheses

Leventis et al. (2014) summarize the results of studies on the impact of credit ratings on the debt market, by suggesting that CRAs impact this market in the following ways: certify the quality of the borrower; influence the cost of debt; lessen credit constraints, thus enabling rated firms to raise more financial resources; influence managers' decisions pertaining to corporate capital structure; and increase the magnitude of syndicated loans, thereby enabling firms to finance new investments and acquisitions. They suggest that credit ratings play a similar role in equity markets for two reasons: they consider all publicly available information; and they convey relevant private information that is not available to analysts. Examples of this private information include the possibility of firms communicating sensitive information to investors through confidential discussions with CRAs (Chou, 2013) and the possibility of these agencies incorporating private information into their assessments without revealing specific details (Chou, 2013; An and Chan, 2008). Additionally one has to consider the possibility of CRAs holding some information that is not in the public domain, especially on intangible assets of a firm (Hubler et al., 2014).

If credit ratings do convey relevant private information, they play an important role in mitigating information asymmetry and rating change announcements should provide incremental information to the market. The numerous studies on the information content of credit ratings confirm this much, in particular in the case of downgrades.

Most evidence comes from non-United States (US) markets (Matolcsy and Lianto, 1995; Choy et al., 2006; Barron et al., 1997; Elayan et al., 2001; Abad-Romero and Robles-Fernández, 2007; Poon and Chang, 2008; Murcia et al., 2013). In spite of some variation in the results of these studies, findings suggest that the market reaction is stronger whereas its reaction to upgrades does not exist or is weaker. Unlike US, UK and Australian studies, that find significant reactions to only bad news, studies analyzing smaller markets, such as the New Zealand (Elayan et al., 2001), the Spanish (Abad-Romero and Robles-Fernández, 2007) and the Brazilian markets (Murcia et al., 2013), find also positive and statistically significant market reactions to rating upgrades.

There is also evidence of the role of corporate credit ratings on initial public offerings (IPO) pricing (An and Chang, 2008; Chan and Lo, 2011), on seasoned equity offerings (SEO) (Poon et al., 2013) and on the information content of the earnings announcements (Leventis et al., 2014). An and Chang (2008) and Chan and Lo (2011) found that when firms go public, those with credit ratings are underpriced significantly less relative to companies without credit ratings. Poon et al. (2013) provide similar findings for SEO firms. These authors conclude that credit ratings are useful in reducing value uncertainty of the issuing firms and in mitigating information asymmetry in the IPO and SEO markets. Leventis et al. (2014) found that the level of credit quality enhances the value relevance of earnings announcements, especially when these contain positive earnings news and are released on a more timely basis.

Our study adds to this literature by investigating the value relevance of credit ratings relying on the accounting based valuation model developed in Ohlson (1995). Early value relevance research focused on financial information. It examined the association between accounting amounts and equity market values and accounting amount was defined as value relevant if it had a statistically significant association with equity market values (Barth et al., 2001). However, the increasing gap between the firms' equity market values and the corresponding accounting data has ushered researchers to study the value relevance of non-financial information (Carnevale et al., 2012). In this context, information is defined as value-

relevant if it is significantly related to investors' valuation of a firm as reflected in a financial measure of its value such as the firm's stock price (Wyatt, 2008).

The general conclusion emerging from research on the value relevance of non-financial information is that accounting information by itself is not able to fully explain equity market values and their variations. The literature on the valuation relevance of non-financial information widely concurs in establishing the link between the market value of equity and such type of information (Amir and Lev, 1996; Rajgopal et al., 2003; Johnston et al., 2008; Matolcsy and Wyatt, 2008; Berthelot et al., 2012; Carnevale et al., 2012; Sievers et al., 2013; Carnevale and Mazzuca, 2014; Lourenço et al., 2014; Clarkson et al., 2015).

Based upon the above discussion our hypotheses are stated as follows:

H1: the market valuation of book value and net income will be higher for the financial institutions rated positively by at least one of the major credit rating agencies (Moddy's and Standard and Poor's) relative to their counterparts.

H2: the market valuation of book value and net income will be lower for the financial institutions rated negatively by at least one of the major credit rating agencies (Moddy's and Standard and Poor's) relative to their counterparts.

3. Research design

3.1. Sample and data

The empirical analysis relies on the financial institutions (SIC code 6) of countries that have already adopted IFRS and for which information is available in the Thomson Worldscope Database. Given the focus of the analysis, the value relevance of accounting information, and in order to guarantee the homogeneity of the sample, we based our research on data included in a set financial statements prepared according to the same accounting standards, IFRS.

The financial institutions are classified into three groups, depending on whether they are rated positively, they are rated negatively or they are not at all rated by the major two CRAs, Moody's and Standard and Poor's. In view of the dominance achieved by these two

agencies (Jeon and Lovo, 2013; Rhee, 2014), numerous studies also focus on them (e.g. Chou, 2013; Li et al., 2006; Han et al., 2009; Murcia et al., 2013).

Each financial institution is assigned to the group of financial institutions rated positively (negatively) when it was awarded a positive rating by both credit rating agencies or when it was only assessed by one of the agencies and it was awarded a positive (negative) rating. The few financial institutions that were rated positively by one of the agencies and rated negatively by the other one are thus excluded from the sample.

The classification of the financial institutions in three groups based on their credit rating gives rise to the most important independent variables in our study, RAT_Pos and RAT_Neg.

The empirical analysis relies on 2012 and 2013 accounting and market data. The information used to compute most variables was collected from the Thomson Worldscope Database. To ensure that the regression results are not unduly sensitive to extreme observations, we exclude observations that differ from the average more than three times the standard deviation. This approach is consistent with some other value relevance studies.

The final sample is thus composed of 225 financial institution-year observations rated positively (RAT_Pos), 71 financial institution-year observations rated negatively (RAT_Neg), and 261 financial institution-year observation not rated by any of the two major credit rating agencies.

Table 1 presents the sample distribution across countries, which are classified into two groups, developed and emerging countries, based on the IMF classification (Nielsen, 2011).

Table 1 here

When all the countries are considered together, we find that 53% of the financial institutions are rated by at least one of the two major credit rating agencies. However, this percentage is slightly higher for financial institutions from the emerging countries when

compared to financial institutions from the group of developed countries (58% versus 50%). In the group of emerging countries, Brazil, Kuwait and South Africa stand out by its higher proportion of financial institutions that are rated by one of the two major credit rating agencies. In the group of developed countries, we highlight the role of Australia, Ireland, Netherlands, Spain, Sweden, and UK.

When analyzing only those financial institutions that are rated by the Moddy's or by the Standard and Poor's, we find that 81% of the financial institutions from the developed countries are rated positively. In the group of financial institutions from the emerging countries this percentage decreases to 68%.

3.2. Research method

To test the hypotheses formulated in Section 3, we estimate several regressions based on the same model, which relies on the accounting based valuation model developed in Ohlson (1995), who shows how the firm value relates to accounting data and other information. This approach is currently used in several empirical studies on the value relevance of non-financial information (e.g. Rajgopal *et al.*, 2003; Matolcsy and Wyatt, 2008; Johnston *et al.*, 2008; Sinkin *et al.*, 2008; Lourenço *et. al.*, 2014; Clarkson *et al.*, 2015). Our primary model shows that the market value of equity is a function of two summary measures of information reflected in financial statements, namely the book value of equity and earnings, given by equation (1).

$$MV_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 NI_{it} + \varepsilon_{it} \quad (1)$$

where MV is the market value of equity¹, BV represents the book value of equity and NI is the net operating income. All the variables are on a per share basis.

¹ We use the market value of equity as of fiscal year-end. However, untabulated findings reveal that our inferences are not sensitive to using prices as of fiscal year-end or as of three months after fiscal year-end.

In order to investigate whether the market valuation of book value and net income is higher (lower) for the financial institutions rated positively (negatively) by at least one of the major credit rating agencies (Moddy's or Standard and Poor's), when compared to those financial institutions that are not rated by any of these agencies, we use a new estimating equation, equation (2), which allows the coefficients of the variables BV and NI to vary according to whether the financial institution has been rated positively (negatively) and is given by

$$MV_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 NI_{it} + \alpha_3 RAT_Pos + \alpha_4 RAT_Pos \times BV_{it} + \alpha_5 RAT_Pos \times NI_{it} + \alpha_6 RAT_Neg + \alpha_7 RAT_Neg \times BV_{it} + \alpha_8 RAT_Neg \times NI_{it} + \varepsilon_{it} \quad (2)$$

where RAT_Pos (RAT_Neg) is a dummy variable which assumes the value 1 if the financial institution is rated positively (negatively) by at least one of the major credit rating agencies (Moddy's or Standard and Poor's) and 0 if the financial institution had not been rated.

We classify a financial institution as being rated positively by the Moddy's when its rating is Aaa (judged to be of the highest quality, subject to the lowest level of credit risk), Aa (judged to be of high quality and are subject to very low credit risk) or A (judged to be upper-medium grade and are subject to low credit risk).

The remaining ratings are classified as negative, including: Baa (judged to be medium-grade and subject to moderate credit risk and as such may possess certain speculative characteristics), Ba (judged to be speculative and subject to substantial credit risk), B (judged to be speculative and subject to high credit risk), Caa (judged to be speculative of poor standing and subject to very high credit risk), Ca (highly speculative and likely in, or very near, default, with some prospect of recovery of principal and interest) and C (typically in default, with little prospect for recovery of principal or interest).

We classify a financial institution as being rated positively by the Standard and Poor's when its rating is AAA (the obligor's capacity to meet its financial commitment on the obligation

is extremely strong), AA (the obligor's capacity to meet its financial commitment on the obligation is very strong), A (the obligor's capacity to meet its financial commitment on the obligation is still strong), BBB (exhibits adequate protection parameters). The remaining ratings are classified as negative, including: BB, B, CCC, CC and C, which are regarded as having significant speculative characteristics.

Following prior literature, some variables are used in this study to control for financial institution-level and country-level characteristics. We control for financial institution's size, profitability, leverage, ownership concentration, auditor and cross-listing, which gives rise to seven financial institution-level variables, SIZE (natural logarithm of total assets as of the end of the year), ROE (return on equity), LEV (end-of-year total liabilities divided by end-of-year total assets), OWN (percentage of closely-held shares), AUD (an indicator that assumes 1 if the financial institution is audited by a Big-4 audit firm, and 0 otherwise) and ADR (an indicator that assumes 1 if the financial institution is cross-listed in the US, and 0 otherwise). We also use three country-level variables: EMERGING (an indicator that assumes 1 if the country is classified by the International Monetary Fund (IMF) as an emerging country, and 0 if it is classified as a developed country) (Nielsen, 2011), INV_P (an indicator of the level of investor protection in each country) and GDP (the percentage of GDP growth).

Our predictions are as follows. If the market values the summary accounting measures differently for the financial institutions rated positively (negatively) by at least one of the major credit rating agencies, when compared to those financial institutions not are not rated, then the estimates for the coefficients of the interaction term of RAT_Pos (RAT_Neg) with BV and with NI should be statistically significant. If the market valuation of book value and net income is higher (lower) for the financial institutions rated positively (negatively), then we expect that $\alpha_4 > 0$ and $\alpha_5 > 0$ ($\alpha_8 < 0$ and $\alpha_9 < 0$).

We also compare the results obtained for financial institutions based in emerging countries with the results obtained for their counterparts from developed countries. We split

the sample into two sub-groups of financial institutions (from emerging vs developed countries) and we estimate Equation (2) separately for each of them.

4. Results

4.1. Descriptive statistics and correlations

Table 2 presents the descriptive statistics for the entire sample as well as for three sub-samples of 225 financial institution-year observations rated positively (RAT_Pos), 71 financial institution-year observations rated negatively (RAT_Neg), and 261 financial institution-year observation not rated by any of the two major credit rating agencies.

Table 2 here

When comparing the sub-group of financial institutions rated positively with the sub-group of financial institutions not rated, we find that for all the variables (except OWN) medians are higher for the group of positively rated financial institutions. Untabulated results for the equality of means parametric t-test show that the mean values are statistically different for all the variables, except Price, BV, NI and INV_P.

When comparing the sub-group of financial institutions rated negatively with the sub-group of financial institutions not rated, we find that for all the variables (except SIZE and ROE) medians are lower for the group of negatively rated financial institutions. Untabulated results for the equality of means parametric t-test show that the mean values are statistically different for all the variables, except INV_P and GDP.

Table 3 shows correlations for the continuous variables included in the regression equations (due to its discrete nature and limited range, we did not include dummy variables in the Pearson correlation analysis). Consistent with established results in the accounting literature, the market value of equity is positively and statistically related with BV, NI and SIZE. The independent continuous variables included in the regressions, whilst showing some

indications of collinearity, have no pairwise correlation coefficients in excess of 0.80, indicating that the threat of multicollinearity is limited.

Table 3 here

4.2. *Regression results*

Table 4 presents regression statistics resulting from the OLS estimation of Equation (2). The regression considered in the first column (C1) includes all the financial institutions, while in the other two columns only financial institutions from developed (C2) and emerging (C3) countries are considered. In all the columns, the coefficients estimates for the accounting summary measures are statistically significant and they have the expected sign, i.e., the BV and NI coefficients estimates are both positive.

Table 4 here

Regarding the regression for all the financial institutions considered together (C1), the findings indicate that the market values differently the net income of financial institutions rated by a major credit rating agency. When we permit the coefficients of BV and NI to depend on the type of financial institution in terms of ratings, the results indicate that the coefficient estimate for the interaction term of RAT_Pos (RAT_neg) with NI is positive (negative) and statistically significant, which means that on average the net income of financial institutions rated positively (negatively) by a major credit rating agency has a higher (lower) valuation by the market.

We find supporting evidence for the two hypotheses presented above. There is a statistically significant negative valuation by the market of financial institutions with negative ratings and a positive valuation of similar institutions with positive ratings. This is not entirely in accordance with the findings of the majority of studies on the information content of credit ratings (Holthausen and Leftwich, 1986; Cornell et al., 1989; Hand, Holthausen, and Leftwich,

1992; Goh and Ederington, 1993; Barron et al., 1997; Ederington and Goh, 1998; Dichev and Piotroski, 2001; Jorion et al., 2005; Matolcsy and Lianto, 2005; Choy et al., 2006; Poon and Chang, 2008; Chou, 2013), which suggest that only bad news have an impact on the market.

In this respect, our findings are consistent with those of Elayan et al. (2003) and Abad-Romero and Robles-Fernández (2007), who find that the New Zealand and Spanish stock markets, respectively, react significantly to both negative and positive announcements. These authors conclude that small markets, such as the case of the Spanish and the New Zealand markets, behave in a different way than large markets. Investors in these small markets are found to have higher sensitivity to good news than those in larger markets like the U.S., U.K., and Australia. Elayan et al. (2003) conclude that credit ratings assume greater importance or are more valuable to the interested parties in small markets. Our sample does not include firms from the largest market, the North American, and includes firms from many small markets, such as the case of the Spanish, the Portuguese, or the Israeli, in the case of developed economies, and the majority of the markets from emerging economies. Thus, our finds offer some sort of corroboration to the findings of these researches on small markets.

However, it may be the case that the reasoning presented above is not true for all small markets. For example, Afik et al. (2014) analyze the case of the Israeli market and find that except for downgrades in 2008-2009 the rating announcements have no information value. They conclude that the market internalizes most of the information prior to the rating announcements. This may be explained by the characteristics of the market, which include the existence of a dominant banking system, “being highly centralized, and highly influenced by control pyramids” (Afik et al., 2014, p. 67). Moreover, it is “a home biased investment sentiment and the culture is of a small market (“everybody knows everybody else”)” (ibid.).

Our findings suggest that in the case of emerging markets the picture is more or less similar to that of the Israeli market. Our findings for financial institutions from developed countries are consistent with those found for all the financial institutions considered together (Table 4). However, when the emerging countries are analyzed separately (Table 4), only positive ratings affect the market valuation of accounting numbers. It seems that, in these

countries, a negative rating is not so penalized by the market. It seems that, similar to what happens in the case of the Israeli market, which, given its characteristics, may be more similar to those of emerging economies than to those of more developed economies, “the relative advantage of rating agencies, stemming from their access to private and internal client information, might diminish” (Afik et al., 2014, p. 67).

5. Conclusions

Our results provide evidence that the market values differently the net income of financial institutions rated by a major credit rating agency. Our results support the view that accounting measures alone have only a limited ability to communicate a firm’s value to investors. They are consistent with those of studies on the capital market effects of credit ratings (Holthausen and Leftwich, 1986; Goh and Ederington, 1993; Dichev and Piotroski, 2001; Matolcsy and Lianto, 2005; An and Chang, 2008; Chan and Lo, 2011; Chou, 2013; Poon et al., 2013; Leventis et al., 2014). They are also consistent with the idea that credit ratings are useful in reducing value uncertainty of the issuing firms and in mitigating information asymmetry in capital markets (An and Chang, 2008; Chan and Lo, 2011; Poon et al., 2013).

Our findings are consistent with those of previous literature on the value relevance of other non-financial information unrelated to credit ratings (Matolcsy and Wyatt, 2008; Rajgopal *et al.*, 2003; Lourenço et al., 2014, Clarkson et al., 2015). We extend their conclusions to the issue of credit ratings. We find that the market values differently the net income of financial institutions rated by a major credit rating agency, both in the case of positive ratings and in the case of negative ratings. This is not entirely consistent with most of the information content literature that finds that only bad news have an impact on the market (e.g. Holthausen and Leftwich, 1986; Goh and Ederington, 1993; Dichev and Piotroski, 2001; Matolcsy and Lianto, 2005; Choy et al., 2006). We find that positive ratings have an impact in valuation both in developed and emerging countries, and that in the case of emerging countries negative ratings do not impact market valuation significantly. This study provides evidence that small markets

benefit from the certification provided by international CRA and that these agencies provide valuable information to investors in such markets.

This study is not without limitations. First, our sample includes only financial institutions that are listed on a stock exchange, because of data availability. Second, it includes only financial institutions from countries that have already adopted IFRS. This means that banks from the United States, which are very important in the context of the global economy, are not included in the sample because this country has not yet adopted IFRS. Future research could address these limitations.

6. References

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TABLE 1
Sample composition

	RAT_Pos	RAT_Neg	No_Rat	All firms
Developed Countries				
Australia	16	0	2	18
Austria	4	0	10	14
Belgium	0	0	2	2
Canada	12	0	8	20
Cyprus	0	4	2	6
Denmark	4	0	34	38
Germany	8	0	20	28
Finland	4	0	2	6
France	18	0	19	37
Greece	0	8	4	12
Ireland	0	2	0	2
Israel	10	0	6	16
Italy	6	8	16	30
Korea	8	0	6	14
Luxemburg	0	0	2	2
Netherlands	4	0	0	4
Norway	16	0	28	44
Portugal	0	4	2	6
Spain	4	5	2	11
Sweden	8	0	0	8
Switzerland	12	0	8	20
UK	10	2	2	14
	144	33	175	352
Emerging Countries				
Brazil	20	12	4	36
Chile	8	0	6	14
Croacia	0	0	4	4
Kuwait	16	0	4	20
Oman	4	0	8	12
Poland	13	4	14	31
Philippines	6	6	16	28
Russia	0	12	12	24
South Africa	6	2	4	12
Turkey	8	2	14	24
	81	38	86	205
All Countries	225	71	261	557

Column RAT_Pos includes the number of firms rated positively by the Moddy's or by the Standard and Poor's. Column RAT_Neg includes the number of firms rated negatively by the Moddy's or by the Standard and Poor's; Column No_RAT includes the number of firms not rated either by the Moddy's or by the Standard and Poor's.

TABLE 2
Descriptive statistics

	Mean	Median	SD
All Firms (n = 557)			
MV	14.354	6.524	19.789
BV	23.385	7.005	50.944
NI	1.335	0.477	3.254
SIZE	16.487	16.440	2.311
ROE	0.116	0.077	1.606
LEV	0.904	0.920	0.088
OWN	0.412	0.354	0.328
INV_P	6.276	6.300	0.808
GDP	1.630	1.670	2.647
AUD	0.901	-	-
ADR	0.145	-	-
Firms rated positively (n = 225)			
MV	17.547	9.305	21.842
BV	23.329	8.665	48.935
NI	1.659	0.759	3.212
SIZE	17.908	17.518	1.896
ROE	0.089	0.090	0.073
LEV	0.918	0.929	0.061
OWN	0.367	0.257	0.323
INV_P	6.366	6.300	0.738
GDP	2.274	1.920	2.405
AUD	0.947	-	-
ADR	0.240	-	-
Firms rated negatively (n = 71)			
MV	3.553	1.462	5.315
BV	3.918	1.389	10.221
NI	-0.387	0.050	3.090
SIZE	16.679	16.431	1.606
ROE	0.440	0.070	4.503
LEV	0.905	0.908	0.065
OWN	0.382	0.340	0.320
INV_P	6.023	6.300	0.853
GDP	0.509	1.320	3.150
AUD	0.958	-	-
ADR	0.254	-	-
Firms not rated (n = 261)			
MV	14.539	7.030	19.445
BV	28.728	8.659	57.677
NI	1.524	0.426	3.201
SIZE	15.209	15.282	2.055
ROE	0.050	0.067	0.146
LEV	0.891	0.913	0.108
OWN	0.458	0.420	0.329
INV_P	6.268	6.700	0.840
GDP	1.380	0.650	15.282
AUD	0.847	-	-
ADR	0.034	-	-

MV is the market price at the fiscal year-end; *BV* is the book value of equity as of the end of the year; *NI* is the net income of the year; *SIZE* is the natural logarithm of total assets as of the end of the year; *ROE* is the return on equity; *LEV* is end-of-year total liabilities divided by end-of-year market capitalization; *OWN* is percentage of closely held shares as disclosed in the Worldscope database; *AUD* is an indicator that assumes 1 if the firm is audited by a Big-4 audit firm, and 0 otherwise; *ADR* is an indicator that assumes 1 if the firm is cross-listed in the US, and 0 otherwise; *INV_P* is an indicator of the level of investor protection in each country, where a higher value means a lower level of investor protection; *GDP* is the percentage of GDP growth in each country.

TABLE 3
Correlation matrix

	MV	BV	NI	SIZE	ROE	LEV	OWN	INV_P
MV	1	-	-	-	-	-	-	-
BV	0.754***	1	-	-	-	-	-	-
NI	0.793***	0.814***	1	-	-	-	-	-
SIZE	0.129***	0.009	0.025	1	-	-	-	-
ROE	-0.013	-0.017	-0.013	-0.022	1	-	-	-
LEV	0.075*	0.013	-0.015	0.475***	0.037	1	-	-
OWN	-0.051	-0.079*	-0.025	-0.184***	-0.012	-0.096**	1	-
INV_P	0.180***	0.165***	0.185***	0.088**	-0.041	0.113***	-0.228***	1
GDP	-0.190***	-0.184***	-0.058	-0.081*	-0.029	-0.191***	0.169***	-0.394***

MV is the market price at the fiscal year-end; *BV* is the book value of equity as of the end of the year; *NI* is the net income of the year; *SIZE* is the natural logarithm of total assets as of the end of the year; *ROE* is the return on equity; *LEV* is end-of-year total liabilities divided by end-of-year market capitalization; *OWN* is the percentage of closely held shares as disclosed in the Worldscope database; *INV_P* is an indicator of the level of investor protection in each country, where a higher value means a lower level of investor protection; *GDP* is the percentage of GDP growth in each country.

***, ** and * indicate significance at the 0.01, 0.05 and 0.10 levels respectively.

TABLE 4
Regression results

	All Countries	Developed Countries	Emerging Countries
Intercept	11.413*	24.324**	-0.160
Main variables:			
BV	0.085***	0.077***	0.322***
NI	3.613***	3.407***	4.362***
RAT_Pos	0.923	-2.796	2.102***
RAT_Pos x BV	-0.177***	-0.080*	0.351**
RAT_Pos x NI	3.374***	2.038***	2.890*
RAT_Neg	-5.229***	-8.448***	-0.471
RAT_Neg x BV	0.214	0.211	-0.164
RAT_Neg x NI	-3.511***	-3.925***	-0.440
Firm-level Control variables:			
SIZE	0.565**	0.967***	0.092
ROE	-0.076	-0.011	-7.611*
LEV	-1.066	-3.345	-2.038
AUD	-1.166	-2.343	0.778
ADR	0.841	-0.577	0.797
OWN	1.325	-0.759	0.634
Country-level Control variables			
EMERG	-3.154**	-	-
INV_P	-1.621***	-3.730***	0.098
GDP	-0.652***	0.688	0.137
Adjusted R ²	0.739	0.736	0.922
F-Value	93.836***	62.137***	152.252***

Dependent variable: *MV* (market price at the fiscal year-end).

Independent firm-level variables: *MV* is the market price at the fiscal year-end; *BV* is the book value of equity as of the end of the year; *NI* is the net income of the year; *RAT_Pos* is a dummy variable which assumes the value 1 if the firm is rated positively by the Moddy's or by the Standard and Poor's, and 0 otherwise; *RAT_Neg* is a dummy variable which assumes the value 1 if the firm is rated negatively by the Moddy's or by the Standard and Poor's, and 0 otherwise; *SIZE* is the natural logarithm of total assets as of the end of the year; *ROE* is the return on equity; *LEV* is end-of-year total liabilities divided by end-of-year market capitalization; *OWN* is percentage of closely held shares as disclosed in the Worldscope database; *AUD* is an indicator that assumes 1 if the firm is audited by a Big-4 audit firm, and 0 otherwise; *ADR* is an indicator that assumes 1 if the firm is cross-listed in the US, and 0 otherwise; *OWN* is the percentage of closely held shares as disclosed in the Worldscope database.

Independent country-level variables: *EMERG* is a dummy variable which assumes the value 1 if the firm is from a country classified by the IMF as an emerging country and 0 if the firm is from a developed country; *INV_P* is an indicator of the level of investor protection in each country, where a higher value means a lower level of investor protection; *GDP* is the percentage of GDP growth in each country.

***, ** and * indicate significance at the 0.01, 0.05 and 0.10 levels respectively.