

Exploring the link between Environmental, Social and Governance (ESG) disclosure and market value of the firm: evidence from Thai listed companies

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Abstract

This paper explores the way market values the disclosure of non-financial information, namely the environmental, social and governance (ESG) activities of 719 Thai publicly traded corporations. We used the data from the Bloomberg ESG disclosure score as a reference for ESG activities in the valuation model provided by Ohlson (1995) to find the link between non-financial information and market value. Our results show the value relevance of both ESG disclosure used as a dummy variable in the model and ESG score as a continuous variable for the financial market in Thailand. This research contributes to the vast literature on value relevance of non-financial information and the relations between firm value and sustainability performance by showing that the Thai market also responds favorably to ESG disclosure. In more general terms the research supports the efficient market hypothesis (suggested by Fama - 1998).

Keywords: ESG, market value, value-relevance of non-financial information, ESG disclosure

Introduction

ESG, or environmental, social and governance matters are an emerging investment tool widely used by corporations to improve portfolio performance. ESG matters show primarily in the process of corporate engagement, a term used to denote all kinds of activities used by shareholders to promote change at corporations, including the private dialogues and negotiations (Bauer, Clark & Viehs, 2013). And if earlier ESG was seen as an additional practice in the XXI century the evidence has put it directly in the sphere of financial management, as the extant research currently discusses a market interest in such engagements (Fulton, 2012; Eccles & Serafeim, 2011; Hoepner, 2013). The link between Environmental,

Social and Governance factors and the value of the firm has been explored before but in alternative contexts which gives the authors an opportunity to apply the concept in the local context and seek the evidence from the local market. The extant research does not provide sufficient evidence as to how domestic market in Thailand reacts to firms' ESG engagements, which is the scope of our research. Therefore we define our research as exploratory and formulate the research question for this study as - What effect does the disclosure of non-financial information such as ESG data have on the market value of the firms in Thailand?

The research is based on the theoretical premise that market values ESG engagements which is in line the large body of literature on intangible determinants of stock prices or extra-financial information (Friedman, 1971; Derwal & Bowen, 2010; Heal, 2005) also consistent with the Fama's efficient market hypothesis (1998). Thus we are dwelling in the positivist domain and using a deductive approach to find the link between ESG engagements and market value of the firm. This research is quantitative and based on secondary data on Thai listed firms collected from the Bloomberg terminal. The study is cross-sectional and utilizes the data from the year 2017.

Literature review

As compared to socially responsible investing, which is an early form of such engagements implying ethical imperatives, ESG is driven by economic imperatives and is also a tool for risk management aimed at capturing the effects of environment, social and corporate governance implications on financial performance, as found in Hoepner (2012) ESG engagements also have substantial risk reduction effects. ESG generally lies in the domain of sustainability and specifically it refers to sustainable investing (SI). Historically the theoretical research framework of sustainable investing draws its beginnings in the 1950s when the notion of Corporate Social Responsibility (CSR) was introduced by Bowen (1953). The economic effects for corporations were later researched in multiple publications (Davies, 1960; Friedman, 1971, Sparkes & Cowton, 2004) but the missionary value of CSR paralleled the economic value in the research. Up to the late 1990s SRI (Socially responsible investing) mostly focused on social, ethical and environmental aspects of corporate behavior.

During the same period the term sustainable development was introduced and the focus shifted to environmental engagement and the role of corporations in preserving the environment. First coined in Brundtland report (1987) the term implied meeting present needs without compromising the ability of future generations to meet their needs. The concept included social welfare, environmental protection, efficient use of resources and economic well-being. UN quickly employed the new concept and it became widely acknowledged. The research followed the same line as with CSR and the sustainability practices started to be regarded as a source of competitive advantage (Lourenço, Branco, Curto, & Eugénio, 2012) with substantial evidence found as to its effect on market performance (Semenova & Hassel, 2016; Fulton, 2012, Bauer, 2010; Dowell, Hart, & Yeung, 2000).

The effect of Corporate Governance first became verbalized by Moscovits in his 1998 report "100 Best Companies to Work For" and subsequently the impact on corporate financial performance (CFP) was found in multiple studies (Becht, Franks, Mayer, & Rossi, 2010; Bauer, 2013; Bebchuk, Cohen, 2015; Gompers, Ishi & Metrick, 2003). The OECD Glossary specifies the corporate governance structure as "...the distribution of rights and responsibilities among the different participants in the organization – such as the board, managers, shareholders and other stakeholders – and lays down the rules and procedures for decision making" (Mercer, 2007). Thus environmental, social and governance factors needed to be encompassed by a single concept, which was introduced later in 2003 by UNEP Financial Initiative forming Asset

Management Working Group to study the financial effects of ESG in securities valuation. The resulting report proved positive changes in shareholder value (UNEP, 2004). Later in 2004 UN launched the Principles for Responsible Investing (OECD, 2007) isolating the term responsible investing and giving an outline of ESG factors in the investment process. The terminological framework of sustainable investing was put together in a popular 2007 report by Mercer corporation, 'The language of responsible investment' (Mercer, 2007) which contains the most up-to-date definition of ESG: the term that has emerged globally to describe the environmental, social and corporate governance issues that investors are considering in the context of corporate behavior.

ESG investing uses the so called best-in-class approach, which draws investors' attention to companies ranking high among their sector in environmental protection, social responsibility and corporate governance issues. The extant literature abounds in proof of ESG oriented investment being rewarded by the market (Luciani, Maga, & Keerativutisest, 2018; Fulton, 2012; Reading & Hart, 1993; Hoepner, 2013). In ESG effects assessment the emphasis is usually placed on the effects of corporate social responsibility, socially responsible investment and ESG practices on either cost of capital, financial performance, or return on investment. There has been research in certain local contexts proving the link between ESG performance and market value (Loh, Thomas & Wang, 2017; Semenova, Hassel & Nilsson, 2016) as well as the inquiries into the value relevance of non-financial reporting in developed (Eccles, Serafeim, 2011) and emerging markets (Claudiu, Spatacean, & Nistor, 2012) all finding compelling evidence of a positive relationship between the variables discussed. This research moves beyond the listed studies and aims at providing an insight into the domestic context of Thailand and the value relevance of non-financial reporting such as ESG for local firms.

Theoretical approach and Methodology

This research provides value for two streams of thought, the first is the market reward of ESG engagements, and the second is the field of market interest in non-financial information. It has been proved by the extant research that financial markets react to all kinds of nonfinancial publicity (Eccles, Krzus, and Serafeim, 2011; Claudiu et al, 2012; Hassel, Nilsson & Nyquist, 2005) which is consistent with the Efficient Market Hypothesis (Fama, 1998; French & Roll, 1986). Our goal is to apply this trend of thought on the evidence from emerging markets, which now attract significant attention of the investors. Therefore the main research question of this research is whether the company's degree of ESG-related performance publicity creates market value in an emerging market, which we chose to be Thailand, a rapidly growing economy of which currently piques the investors' interest.

To answer the research question we have developed two hypotheses. H1 concerns the market value relevance of the fact of ESG reporting. The fact of a firm's disclosure of non-financial information, such as ESG should affect its market value through improvements of its reputation (Beardshell, 2008) and investors' trust and confidence (Eccles, Serafeim, 2011). Also the relevance of non-financial data is consistent with the efficient market hypothesis (Fama, 1998) and namely the semi-strong form of it, which means that current market prices incorporate not only historical prices but also all other published information. Therefore H1 states:

Hypothesis 1 (H1): Companies that undertake ESG reporting have higher market values than companies that do not undertake ESG reporting.

The quality of a firm's reporting on its ESG engagements should affect the firm's market value in the same manner that environmental (Derwall, 2005), social (Friedman, 1971), and governance (Kiernan, 2007) factors affect it separately. The main reasons behind such an effect being increased competitiveness (Porter, 1995), social value creation (Davies & Keith, 1960), and lower risk (Bauer & Hann, 2010). Therefore our second hypothesis (H2) states:

Hypothesis 2 (H2). Companies with higher quality of ESG reporting have a higher market value than companies with lower quality ESG reporting

The empirical analysis relies on the **719** corporations listed in the Thailand Stock Exchange for which there is sufficient data (out of the total 779) on selected variables. We use the Bloomberg ESG disclosure score as proxy for ESG performance publicity. In this research, we are using the seminal Ohlson's (1995) model of a firm market value relation to accounting data and other information. Ohlson's valuation model has become a conventional approach in determining value-relevance of financial and non-financial data used in accounting (Hassel, 2005) and finance research (Loh et al, 2017; Lourenco & Eugenio, 2011).

Data and Methodology

Sample size and source of data

The study covers shares listed on the Stock Exchange of Thailand (SET), it excludes delisted and suspended companies. The sample size is 719 companies. Financial data was sourced using Bloomberg Terminal. ESG reporting data was also gathered using Bloomberg Terminal, with individual companies' ESG score being used as a proxy for the quality of ESG reporting. Listed companies publishing information up to the 31st of December 2017 have been taken into account. Companies that do not undertake any ESG reporting are awarded a zero ESG score. The greater the quality of ESG reporting made by the company, the higher the score awarded to the company, with the maximum possible of one hundred.

Bloomberg ESG score covers more than 120 environmental, social and governance indicators including: climate change effect, pollution, renewable energy, supply chain, political contributions, discrimination, diversity, human rights, shareholders' rights etc (Huber & Homstock, 2017). The score is assigned annually based on data collected from company disclosures as well as third-party ratings, the score is a value within the range of 0 to 100.

To test the hypotheses we carried out a weighted least squares regression where the weighting was the inverse of the square of market value. Here we are using a derivation of the seminal Ohlson's model for market valuation (Ohlson, 1995), the derivation used for measuring the ESG effects was adopted from Loh and Thomas (2017) with our modifications in terms of ESG disclosure variable.

The model (1) is as follows:

$$MV_{i,t+4} = \alpha_0 + \alpha_1 BV_{i,t} + \alpha_2 EARN_{i,t} + \alpha_3 EARN_{i,t} \times NEG_{i,t} + \varepsilon_{i,t}, \quad (1)$$

where:

$MV_{i,t+4}$ is market value four months after financial year-end of company i ;

$BV_{i,t}$ is book value of common equity at the year-end of company i ;

$EARN_{i,t}$ is earnings before extraordinary items at the year-end of company i ;

$NEG_{i,t}$ is a dummy variable equal to 1 if earnings at the year-end of company i are negative in year t and 0 otherwise;

$\varepsilon_{i,t}$ is the error term

We include book value and earnings (before extraordinary items), because in line with the previous research (Loh et al. 2017; Hassel, 2005; Ohlson, 1995) these variables show a positive relationship with the market value, earnings, on the other hand, can show a negative relationship with the market value, because profit is usually rewarded by the market and loss is usually penalized. As the next step we include the ESG score as a dummy variable to find the link between the ESG disclosure and the market value to accept/reject the hypothesis H1. Our model (2) thus has the following shape:

$$MV_{i,t+4} = \alpha_0 + \alpha_1 BV_{i,t} + \alpha_2 EARN_{i,t} + \alpha_3 EARN_{i,t} \times NEG_{i,t} + \alpha_4 ESG_{i,t} + \varepsilon_{i,t}, \quad (2)$$

where:

$MV_{i,t+4}$ is market value four months after financial year-end of company i ;
 $BV_{i,t}$ is book value of common equity at the year-end of company i ;
 $EARN_{i,t}$ is earnings before extraordinary items at the year-end of company i ;
 $NEG_{i,t}$ is a dummy variable equal to 1 if earnings at the year-end of company i are negative in year t and 0 otherwise;
 $ESG_{i,t}$ is a dummy variable equal to 1 if the company i is deemed as communicating ESG for the year covered and 0 if otherwise;
 $\varepsilon_{i,t}$ is the error term

To test the hypothesis 2 (H2) we explore the relationship between the quality of ESG reporting and the market value replacing the dummy variable $ESG_{i,t}$ with a continuous variable, the ESG score (between 0 and 100) and produce the following model (3):

$$MV_{i,t+4} = \alpha_0 + \alpha_1 BV_{i,t} + \alpha_2 EARN_{i,t} + \alpha_3 EARN_{i,t} \times NEG_{i,t} + \alpha_4 ESG_{i,t} + \varepsilon_{i,t}, \quad (3)$$

$MV_{i,t+4}$ is market value four months after financial year-end of company i ;
 $BV_{i,t}$ is book value of common equity at the year-end of company i ;
 $EARN_{i,t}$ is earnings before extraordinary items at the year-end of company i ;
 $NEG_{i,t}$ is a dummy variable equal to 1 if earnings at the year-end of company i are negative in year t and 0 otherwise;

$ESG_{i,t}$ is the ESG reporting score of the company i ;
 $\varepsilon_{i,t}$ is the error term

Assessing the model specification and predicting power we will examine the R^2 for the three models and the p -values for significance, we are expecting to see a significant value of coefficient of determination of more than 0.5, which means that the model can predict 50% of the variance of the dependent variable by the change in independent variables, we expect the value of R^2 to either grow or remain constant for subsequent model specifications. To support that the variation of individual independent variables caused the change in the dependent variable not randomly we will use the significance level of p below 0.05. Thus if the association proves to be statistically significant (p -value below 0.05) we will accept that the association did not happen by chance.

Additionally we will examine the effect of four more independent variables which we set as control variables to test the model fit. The chosen variables are "high total return" ($HIGHR_i$) which is coded as an index and recoded as a dummy variable of a company having either "high" (over 10) or "low" (less than 10) value of total return, with variable set as either "0" for low return or "1" as high return. The third control variable is adopted from Loh et al.

(2017) it is the governmental ownership of the firm's assets ($OWN_{i,t}$), which may have a significant impact on the market value. In emerging markets public ownership of a firm's assets may be viewed as the measure of stability and be rewarded by the market (Eni, Mattei & Gupta, 2002). We code government control both as an index number indicating the degree of government ownership (with the maximum value of 100) and recoded as a dummy variable if the share of public ownership is greater than 25%, then the variable is set as "1", and if less than 25% then its set as "0". We will include the two control variables in the model consecutively and run the regression to check if it qualifies for the criteria described above.

Results and Implications

Table 1 summarizes the summary statistics of all variable used in this research describing the central tendency and the dispersion of variables used in the model.

Table 1. Summary statistics of variables

	Mean	Standard Deviation	Minimum	Maximum
$EARN_{i,t}$	1.51E+09	8.40E+09	-2.79E+09	1.85E+11
$EARN_{i,t} * NEG_{i,t}$	-5.99E+07	2.71E+08	-2.79E+09	0.00E+00
$ESGI_{i,t}$	1.542	7.584	0	62.397
$BV_{i,t}$	1.33E+10	6.04E+10	1.76E+07	1.25E+12
$MV_{i,t+4}$	2.52E+10	9.75E+10	2.05E+08	1.61E+12
$OWN_{i,t}$	2.456	10.139	0	86.096
$TRTI_{i,t}$	(7.896)	24.947	(66.667)	179.864

The mean ESG score among the companies that undertook some form of ESG reporting was 29.2 out of 100 maximum possible with a range between 0 and 62.4, the ESG values were derived from Bloomberg databases. With a little more than 5% of SET listed companies undertaking some of sustainability report, it would be fair to say that this is not common practice amongst Thai firms. Average ESG scores of just above 29, also indicates that the quality of the sustainability reporting is not very high. Of the 719 firms in the samples, 29 had significant government ownership stakes', in excess of 25%, whilst, the government has some ownership stake in 134 out of these 719 companies. 115 out of 719 companies' had Total Rates of Return in excess 10%, this represents 16% of the sample.

The correlation between the book value of common and equity and the market value of equity is high (Table 2), the same can be said about the correlation between the earnings before extraordinary items and the market value of equity (0.87). There was also relatively high correlation between sustainability reporting variables. However these correlations do not interfere with our choice of model.

Table 2. Correlation matrix of the variables

	<i>EARN_{i,t}</i>	<i>NEG_{i,t}</i>	<i>NEG_{i,t}*EARN_{i,t}</i>	<i>ESG_{i,t}</i>	<i>ESGI_{i,t}</i>	<i>BV_{i,t}</i>	<i>MV_{i,t+4}</i>
<i>EARN_{i,t}</i>	1	-.105**	.074*	.417**	.528**	.953**	.871**
<i>NEG_{i,t}</i>		1	-.460**	-0.066	-0.073	-.084*	-.107**
<i>NEG_{i,t}*EARN_{i,t}</i>			1	-0.042	-0.005	0.023	0.039
<i>ESG_{i,t}</i>				1	.861**	.402**	.530**
<i>ESGI_{i,t}</i>					1	.490**	.577**
<i>BV_{i,t}</i>						1	.844**
<i>HIGHR_{i,t}</i>							.082*

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

* . Correlation is significant at the 0.05 level (2-tailed).

Table 3. Model 1 Regression Results

	Expected Value		
Intercept		2.71E+08	***
BV _{i,t}	(+)	0.26	***
EARN _{i,t}	(+)	5.68	***
EARN _{i,t} txNEG _{i,t}	(-)	(6.20)	***
R-squared		0.501	
Adjusted R-squared:		0.498	
F-statistic:		238.8	***

Note: P- Value

‘***’ P<= 0.01; ‘*’ P<= 0.05

The results from the baseline regression, regression model 1 are included in the above Table (Table 3). The value of the reported coefficients are in line with their theoretical expected values, namely positive coefficients for firm’s book value (BV_{i,t}) and earnings before extraordinary items (EARN_{i,t}) and a negative coefficient value for the negative earnings before extraordinary items variable (EARN_{i,t}txNEG_{i,t}). All three coefficients are statistically significant with p scores less than 0.01.

Table 4. Model 2 Regression Results

	Expected Value		
Intercept		2.73E+08	***
BVi.t	(+)	0.26	***
EARNi.t	(+)	5.63	***
EARNi.txNEGi.t	(-)	(6.14)	***
ESGi.t	(+)	4.28E+09	*
R-squared		0.503	
Adjusted R-squared:		0.501	
F-statistic:		180.9	***

Note: P- Value

‘***’ P<= 0.01; ‘*’ P<= 0.05

In the model (2) regression, the results of which are included above in Table 4, we added the dummy variable: ESGi,t. This variable was awarded a “1” if the firm undertakes some form of ESG reporting and a “0” if it did not undertake any form of ESG reporting. The expected value of this coefficient was positive in line with the theory discussed above. Our study did find a positive relationship between ESG reporting and corporate market value, the ESGi,t coefficient was positive and statistically significant with a p-value less than 0.05. Moreover such specification of the model allowed to improve the value of R², which means that the predicting power of such a model is higher. These results support Hypothesis 1 (H1). As in the model 1 regression, the values of the other coefficients were in line with their expected values and were statistically significant, with p-values less than 0.01.

Table 5. Model 3 Regression Results

	Expected Value		
Intercept		2.74E+08	***
BVi.t	(+)	0.26	***
EARNi.t	(+)	5.60	***
EARNi.txNEGi.t	(-)	(6.11)	***
ESGi.t	(+)	3.36E+08	*
R-squared		0.505	
Adjusted R-squared:		0.502	
F-statistic:		181.8	***

Note: P- Value

‘***’ P<= 0.01; ‘*’ P<= 0.05

Table 5 shows the results of the model (3) regression. In this model the $ESG_{i,t}$ dummy variable was replaced with $ESGI_{i,t}$ variable. The $ESGI_{i,t}$ reflects the quality of the ESG reporting undertaken by the firm. According to the theory, the $ESGI_{i,t}$ coefficient should have a positive value. The results of the regression analysis were in line with the theory, the $ESGI_{i,t}$ did in fact have a positive, statistically significant value ($p < 0.05$). This evidence supports hypothesis 2 (H2). The expected values of the other coefficients were in line with their expected values and were statistically significant with p-values less than 0.01.

Then, we include four control variables into models (2) and (3) consecutively generating models (4), (5), (6), and (7). To model (2) we add two dummy variables separately; firstly we added the dummy variable $HIGHR_{i,t}$ producing model (4), though the variable had a large positive coefficient however the p-value was high (0.6357) which is not a statistically significant association. Next we added the dummy variable $OWN_{i,t}$ to model (2), resulting in model (5); this variable ($OWN_{i,t}$) also had a large positive coefficient, but the p-value relating to this it was 0.6279 which is not statistically significant. To test model (3) we independently added variables $OWN_{i,t}$ and $TRTI_{i,t}$ to produce models (6) and (7) respectively. $OWN_{i,t}$ has a large positive coefficient and a p-value of 0.4161, which is not statistically significant; the variable $TRTI_{i,t}$ had a large negative coefficient and a p-value of 0.647, which is not statistically significant either (Table 6).

Table 6. Regression results including control variables

	Model (4)	Model (5)	Model (6)	Model (7)
Intercept	2.689e+08***	2.722e+08***	2.726e+08***	2.700e+08***
$BV_{i,t}$	2.618e-01***	2.599e-01***	2.583e-01***	2.605e-01***
$EARN_{i,t}$	5.616e+00***	5.632e+00***	5.607e+00***	5.503e+00***
$NEGI_{i,t} * EARN_{i,t}$	-6.135e+00***	-6.149e+00***	-6.122e+00***	-6.100e+00***
$ESG_{i,t}$	4.262e+09*	4.289e+09*		
$ESGI_{i,t}$			3.365e+08*	3.362e+08*
$HIGHR_{i,t}$	3.169e+07			
$OWN_{i,t}$		7.922e+07		
$HIGHRI_{i,t}$				
$OWN_{i,t}$			3.301e+06	
$TRTI_{i,t}$				-3.957e+05
R^2	0.5035	0.5035	0.505	0.5047
Adjusted R^2	0.5	0.5	0.5016	0.5012
F-value	144.6	144.6	145.5	145.3
p-value	<2.2e-16	<2.2e-16	<2.2e-16	<2.2e-16

*** P<= 0.01; ** P<= 0.05

The results of testing prove that our models have right specification at the statistically significant level. The control models also reinforce our previous findings regarding the link between ESG reporting and market value.

Therefore, we find compelling evidence of positive relationship between ESG reporting and the firm's market value, based on the above evidence we cannot reject hypotheses H1 and H2.

Conclusions

Publication of non-financial information is increasingly valued by investors in both developed and emerging markets, Thailand being no exception. Our paper supports that the market rewards the ESG publicity of publicly traded companies in Thailand, supported by the evidence from 719 firms. Our study supports the impact of ESG reporting on market value, which means that investors express more interest in equity of firms engaging in transparent reporting of their ESG practices, the reasons for firms undertaking the ESG reporting or refusing to do so might be a topic of a subsequent qualitative research based on interviews with investors.

Our study contributes to the literature in three ways, the first being the school of thought on the market interest of non-financial information confirmed by Hypothesis 1 (H1) which is in line with the Efficient Market Hypothesis and the semi-strong form of the market (French & Roll, 1986; Fama, 1998); the second being the literature on the market relevance of the quality of ESG disclosure, supported by Hypothesis 2 (H2) (Hassel et al., 2010, Loh et al., 2017), and the third being the evidence that investors in emerging markets reward the same information as the ones in developed markets, because our results are consistent with the finding of the relevant literatures on developed markets (Fulton, 2012; Reading & Hart, 1993; Hoepner, 2013).

As the continuation of our research we can propose to take into consideration the industry factor and investigate what industries tend to provide more ESG reporting firms and what the effect of the industry factor in the model might be. Also, the future research can focus on individual effects of environmental, social and governance factors on market value.

Limitations of our research include the inability to run a longitudinal analysis because of the lack of reporting in the years previous to 2015, which is possible to conduct in the future too.

The results of this research are applicable by financial managers in making decisions about ESG reporting.

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