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Keywords
Cost of capital; corporate social responsibility; emerging markets; environmental, social and governance certification; ESG; Malaysia

Abstract
This paper examines the impact of environmental, social and governance (ESG) certification on Malaysian firms. The analysis shows that ESG certification lowers a firm's cost of capital, while Tobin's Q increases significantly. These findings, while consistent with existing studies in developed economies, demonstrate the value enhancement from corporate social responsibility disclosure by firms in emerging and developing nations. Overall, the study confirms the benefits to stakeholders from firms pursuing an ESG agenda.

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Abstract
This paper examines the impact on Malaysian firm value of environmental, social and governance (ESG) certification. The analysis shows that ESG certification lowers a firm's cost of capital, while Tobin's Q increases significantly. These findings are consistent with existing studies in developed economies demonstrating value enhancement from corporate social responsibility disclosure and highlights the benefits to stakeholders from firms pursuing an ESG agenda.

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Highlights:

- This paper examines the impact on Malaysian firm value of environmental, social and governance (ESG) certification.
- The analysis shows that ESG certification lowers a firm's cost of capital, while Tobin's Q increases significantly.
- These findings are consistent with existing studies in developed economies show positive benefits from external certification.
- The results also demonstrate the value enhancement from firms pursing greater ESG disclosure

Does ESG certification add firm value?

1. Introduction

Does a third party environmental, social and governance (ESG) certification matter and importantly does it add firm value? The increasing number of firms covered by third party ESG rating providers suggests that these ratings are considered valuable to capital providers.[1] ESG investing is used by about a quarter of the world's professional-managed investment funds, comprising about $20 trillion in assets.[2] A reduction in certification costs paid by these investment funds for firms with ESG scores may significantly shift the demand for ESG stocks that ceteris paribus may lead to an increase in the valuation of ESG rated stocks compared to stocks without an ESG rating (Galema et al, 2008).[3]

We investigate this question in the context of Malaysia and examine the impact that inclusion of a Bloomberg's ESG rating has on the value of listed Malaysian firms. The institutional setting of Malaysia, with its common law background and strong domestic economy, provides lessons for other developing and emerging countries. The results add evidence to the ongoing theoretical debate, in the corporate and social responsibility (CSR) literature, on the costs and benefits to stakeholders of firms pursuing CSR policies and strategies. We show that there are significant financial benefits to Malaysian firms from ESG certification, which could also encourage cross-border investment flows into firms pursuing CSR policies.

We hypothesize that when firms are included in Bloomberg's ESG score, it sends a credible signal to prospective investors about a firm's commitment to an ESG agenda. The private information related to ESG, which is not available prior to the inclusion of the ESG rating, helps reduce the monitoring costs of the capital provider and leads to higher firm value. In this study we verify this hypothesis by tracking the change in the cost of capital and Tobin's Q for each firm, 5 years before and after they were included in Bloomberg's ESG rating. This event study approach allows us to circumvent sample selection bias issues that

[1] The eight notable ESG rating providers according to Huber et al. (2017) are: Bloomberg ESG Data Services, Corporate Knights Global 100, Dow Jones Sustainability Index (DJSI), ISS, MSCI ESG Research, RepRisk, Sustainalytics Company ESG Reports, Thomson Reuters ESG Research Data.

[2] Retrieved on October 1, 2019, from https://www.forbes.com/sites/georgkell/2018/07/11/the-remarkable-rise-of-esg/#17418caf1695

[3] This positive link between ESG certification and the demand towards ESG stocks are in line with Holmstrom and Tirole (1997)'s theoretical framework in which uninformed lenders will only invest in firms that are monitored by the informed lenders. Sufi (2009) use the same framework to explain the certification impact of loan ratings by Moody's and Standard & Poor on firm's financial and investment policy.

have confounded previous studies in developing and emerging markets, where the adoption of an ESG rating is not randomly distributed across firms. In another words, there exists systematic differences between firms with an ESG rating and those without that could lead to overestimation of the effects of an ESG rating.[4] Importantly, this approach provides a template for investigation of this issue in economies where the financial markets are not as developed as those in major economies.

We add to the literature on ESG and CSR[5] on whether these policies are value enhancing or destroying (e.g. Diamond and Verrecchia, 1991). The existing literature that provides support for the positive view of CSR include studies that find firms with higher CSR are associated with lower levels of idiosyncratic risk (e.g. Boutin-Dufresne and Savaria 2004; Lee and Faff 2009), higher market-to-book ratios (e.g. Galema et al. 2008), favorable loan contracts (e.g. Goss and Roberts 2011; Nanday and Lodh 2012) and lower cost of equity (Ghoul et al. 2011; Plumlee et al. 2015). The alternate view is that pursuing these policies can lead to an overinvestment in CSR at the shareholders' expense. Empirical studies demonstrating value destruction include studies that show firms with higher CSR disclosure are associated with weak corporate governance (e.g. Barnea and Rubin 2006; Brown et al. 2006) and have a higher cost of equity (e.g. Richardson and Welker 2001).

The empirical evidence from this study supports the positive benefits of ESG and is consistent with the benefits from certification found in other industries: food industry (e.g. Jin and Leslie 2003; Bollinger et al. 2011); automotive industry (e.g. Sexton and Sexton 2014;) and the commercial real estate industry (e.g. Brounen and Kok 2011; Holtermans and Kok 2019). The remainder of this paper is organized as follows: Section 2 outlines the data and method; Section 3 discusses the empirical results; and Section 4 concludes the study.

2. Data, variable description and method

The Bloomberg ESG database covers more than 11,500 corporations in 83 countries and had over 18,800 subscribers in 2018.[6] The number of Bloomberg ESG subscribers to this database has more than tripled during the period 2012-2018. The data used in this study is obtained from Bloomberg and covers all listed firms in Malaysia across 11 sectors according

[4] In an unreported probit regression, we find our sample firms with Bloomberg ESG score tend to be mature (large, low growth and low debt), high performing (high Tobin' Q) and carry lower tangible assets.
[5] The common theme underpins both CSR and ESG is "sustainability" which according to Clark et al. (2014) is "one of the most significant trends in financial markets for decades". Some researchers however (e.g. Friede et al. 2015) treat CSR and ESG interchangeably.
[6] Retrieved on October 1, 2019, from https://www.bloomberg.com/impact/products/esg-data/.

to the Global Industry Classification Standard (GICS).[7] Malaysian firms are chosen as our sample of study due to the gradual inclusion of an ESG rating since 2005.

(Insert Figure 1 about here)

Figure 1 shows that there were only 2 firms (0.2% of total listed firms) with an ESG score in 2005. This number increased rapidly over the next 7 years before stabilizing at 80 firms (8.7% of total listed firms) during the period 2015-2018.

(Insert Table 1 and Table 2 about here)

Table 1 defines the variables used in the regression analysis, while Table 2 displays the summary statistics. The sample ranges from 640 to 670 for the various firm-year observations. All continuous variables used in the regression analysis were winsorized at the 1st and 99th percentile to avoid the influence of extreme observations.[8] An event study framework is used to identify the causal inference of ESG rating inclusion on firm value. The event window is centred on the year of the ESG rating inclusion. After inclusion, firms will carry scores based on the extent of a firm's environmental, social and governance disclosure. Bloomberg collects this ESG information through a firm's corporate social responsibility (CSR) or sustainability reports, annual reports and websites, and other public sources, as well as from direct contact with the firm. The ESG score (range from 0 to 100) is computed from 120 quantitative and qualitative measures across environment, social and governance dimensions using Bloomberg's proprietary calculation. The details of this scoring are not available[9].

A fixed effects panel regression model is used to assess the impact of ESG inclusion on Malaysian firm value in terms of the cost of capital and Tobin's Q. The regression model is estimated as follows:

[7] The top 3 sectors with highest number of firms with ESG rating in descending order are: industrials, consumer staples and financials. Our regression results are robust the exclusion of firms in financial sector.

[8] We also adopt the following filters to omit observations with extreme values: Tobin's Q more than 20 times, cost of capital less than zero or more than 30%, cash holdings more than 50%, asset growth more than 300%, ROA greater than 100% or less than -100% and total assets less than USD100,000.

[9] In unreported tests, we also examine the impact of ESG score on firm value (Tobin's Q and cost of capital). We however do not find any significant relationship between ESG score and firm value. These contradictory findings suggest that while the existence (certification) of ESG scores matter, the value of ESG scores do not. These contradictory findings suggest that while the existence (certification) of ESG scores matter the value of ESG scores do not. Although this seems surprising, it is not conceivable to expect investors in developing countries such as Malaysia to give more weight to the existence of ESG score given the fact that only 8.7% of listed firms in Malaysia are ESG rated.

$$Cost\ of\ capital_{it} = \alpha_0 + \alpha_1 ESG\ inclusion_{it} + \theta_2 \mathbf{Firm\ characteristics_{it}} + \alpha_3 Time\ effect_t + f_i + \varepsilon_{it} \quad (1)$$

$$Tobin's\ Q_{it} = \alpha_0 + \alpha_1 ESG\ inclusion_{it} + \theta_2 \mathbf{Firm\ characteristics_{it}} + \alpha_3 Time\ effect_t + f_i + \varepsilon_{it} \quad (2)$$

The dependent variables are cost of capital and Tobin's Q measured in each year (t) for each individual firm (i). *ESG inclusion* is a dummy variable indicating the number of years after inclusion to Bloomberg's ESG rating. **Firm characteristics** are a vector of six firm characteristic variables: firm size; asset growth; cash holdings; debt ratio; asset tangibility; and ROA. For simplicity all these variables are defined in Table 1. The controls variables used in equations 1 and 2 are similar in spirit to Goss and Roberts (2011) and Nandy and Lodh (2012) that examine the impact of CSR disclosure on a firm's cost of debt. *Time effect* is a dummy variable that equal one for the Global Financial Crisis (GFC) years (2008 and 2009) and zero for non-crisis years.[10] The firm level fixed effects are absorbed by f_i and ε is an error term.

(Insert Figure 2 and 3 about here)

3. Results

3.1 Graphical evidence

Figure 2 tracks the average cost of capital 5 years before and after the ESG inclusion event. We observe a hump shape pattern, where the cost of capital increases prior to the ESG inclusion events and declines after inclusion. Figure 3 tracks the average Tobin's Q also 5 years before and after inclusion. We observe a slight increase in Tobin's Q in the first year following ESG inclusion and a clear spike in the second year after inclusion. This graphical evidence provides preliminary evidence of the positive impact of ESG rating on firm value.

(Insert Table 3 about here)

4.2 Multivariate tests

Next, we formally examine the impact of ESG rating inclusion on the firm's cost of capital and value in a multivariate framework. Table 3 of Model 1 covers all windows with length ranging from 1 to 5 years surrounding an adoption event. Model 2 and 3, on the other hand, covers a narrower 3 and 5-year event window, respectively. Total number of firm-year observations for each side of the window is perfectly balance. Different event windows are

[10] The regression results are robust to the inclusion of year dummies and interest rate. This result is available upon request from the authors.

used to ensure the robustness of our results. Models 3 and 4 further decompose the cost of capital into the firm's cost of equity and cost of debt.

The coefficient for *ESG inclusion* is negative and significant across all models. The coefficient value *ESG inclusion* in Model 1 implies that the cost of capital reduced by 1.2% upon inclusion to Bloomberg's ESG rating. This effect is economically significant considering the average cost of capital was 8.9% for firms in our sample. Models 4 and 5 further highlight the value enhancement of ESG inclusion: it benefits the cost of equity, but it has no significant impact on the cost of debt.[11] Not reported here is the significant impact of ESG inclusion on the cost of equity, which was robust when using 3-and 5-year event windows.

Turning to the control variables in Model 4 and 5, the results confirm that large firms are associated with a higher cost of equity. This finding suggests that large firms in Malaysia do not benefit from their lower default probability, better access to financing and economies of scale as documented in the developed country literature, as reported by Titman and Wessels (1988), Rajan and Zingales (1995) and Fama and French (2002). The coefficient of the debt ratio is significant, but moves in the opposite direction to the cost of equity (negative) and cost of debt (positive), as shown in Models 4 and 5. The negative impact of the debt ratio on the cost of equity is contrary to Modigliani and Miller (1958)'s seminal paper that predicts the cost of equity should rise as the firm increases its debt. These findings highlight the unique institutional environment of Malaysia. One plausible explanation of this finding is the positive monitoring effects from using more bank loans that mitigate the agency cost of debt, hence, lead to a lower cost of equity (Diamond, 1984 and Fama, 1985). Asset tangibility and ROA (profitability) also exert a positive impact on the cost of debt. This again is contrary to the prediction of trade-off theory that hypothesizes that profitable firms and firms with high tangible assets, should all else be equal, lead to lower bankruptcy risks and a lower cost of debt.

(Insert Table 4 about here)

[11] For robustness, we also replace cost of equity with implied cost of equity computed using constant dividend growth formula $R=D1/P+G$ where $D1$ is the estimated EPS in future one year multiple with payout ratio of 0.5. G is the estimated average long-term growth while P is the current stock price. All data are obtained from *Datastream*. The coefficient of implied cost of equity is negative and significant at the 10% level. Total number of observations are however reduced by half due to missing value problem associated with estimated long-term growth (G). This result is available upon request from the authors.

Table 4 presents the regression results for the impact of ESG rating inclusion on Tobin's Q. The coefficient of *ESG inclusion* is positive and strongly significant in Model 1. This finding corroborates the findings in Table 3 and shows that ESG rating is valued by the stock market. The coefficient value suggests that the stock market attaches a 31.9% premium to firms with an ESG rating. The coefficients for ESG inclusion are, however, insignificant when we adopt narrower event windows of 3- and 5-years, as shown in Models 2 and 3. However, they point toward the expected direction. These results suggest that the positive certification effects on Tobin's Q tend to diminish over time.

ROA is the only control variable that is significant across all the estimated models. These results reveal that profitable firms tend to be highly valued by the stock market. The debt ratio is also positively related to firm value. This finding is consistent with Modigliani and Miller (1958)'s prediction that in a perfect capital market, risk (stock return) should increase with leverage. The negative and significant relationship between asset tangibility and Tobin's Q could be explained by growth opportunities proxied by asset tangibility. Under these circumstances, firms with higher growth opportunities (less tangible assets), all else being equal, should have a higher Tobin's Q. Cash holding is also marginally positive and significant in Model 3, but turns insignificant, with an opposite sign, in Model 1.

4. Conclusion

This study contributes to the international debate and research on the impact of an ESG rating on firm value. We investigate a sample of Malaysian listed firms that were given a Bloomberg ESG rating, over the period 2005 to 2018. The results show that on average a firm's cost of capital reduces by 1.2%, while Tobin's Q increases by 31.9%, upon receiving an ESG rating. These findings demonstrate the benefits to stakeholders from firms pursing an SRI or ESG agenda. It should also encourage activist investors as well as responsible investment given the positive impact of ESG certification on firm value. The mandatory disclosure of ESG information is also worth considering as a policy tool by regulators[12]. The findings also suggest that compared to the debt market, the equity market is more receptive to the adoption of ESG ratings. This implies that ESG disclosure may not be a first order priority in corporate lending decisions.

[12] Currently, Bursa Malaysia requires listed companies to report on their Corporate Social Responsibility performance, but does not stipulate the form in which disclosure should be presented.

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Figure 1: Number of firms with an ESC rating over the sample period from 2005-2018

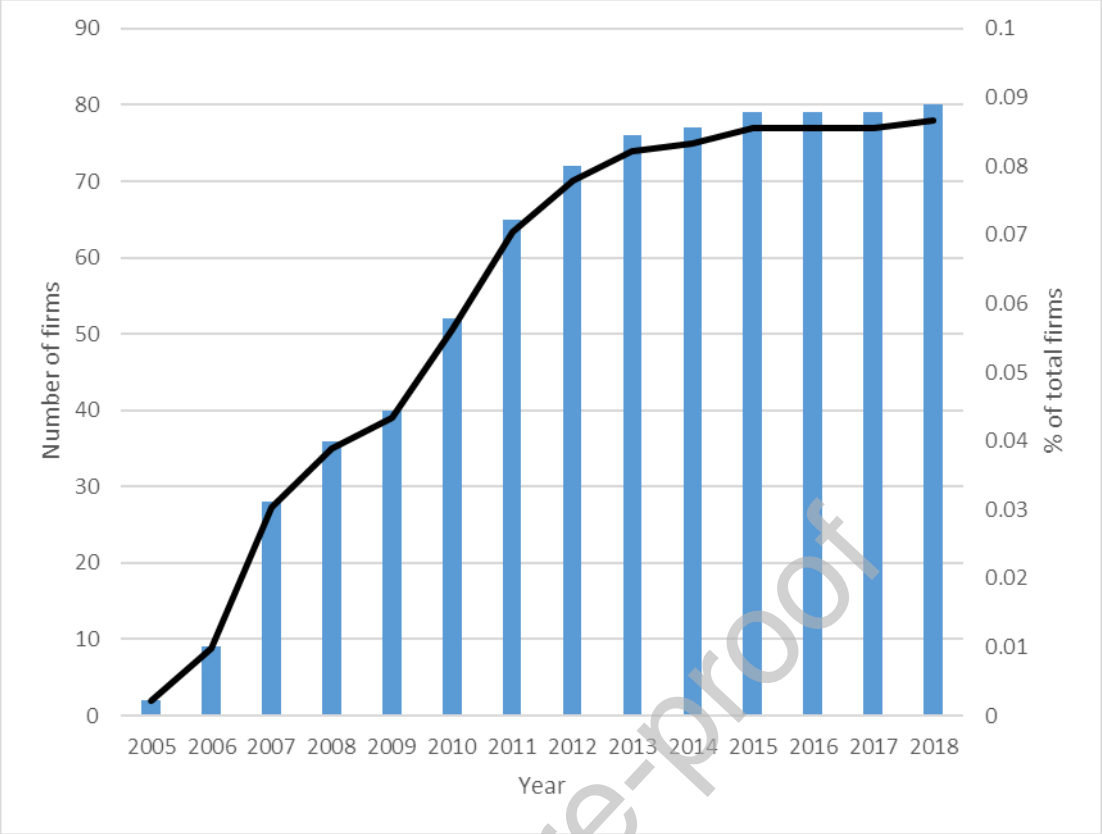

Figure 2: The cost of capital surrounding an ESG rating inclusion event

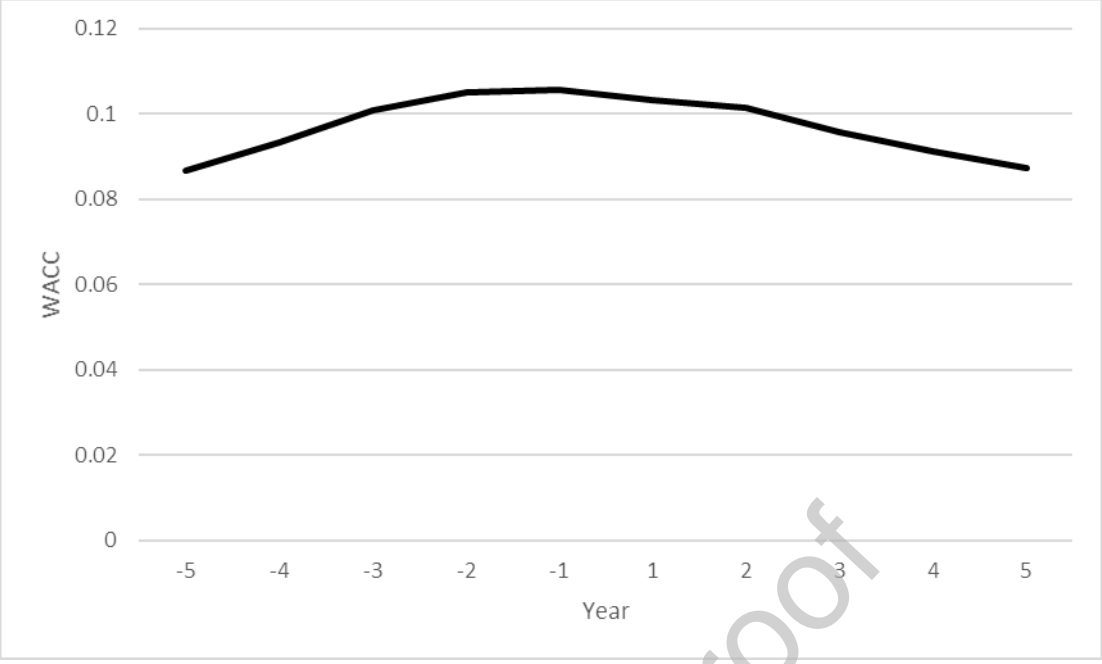

Figure 3: Tobin's Q 5-year before and after an ESG rating inclusion event

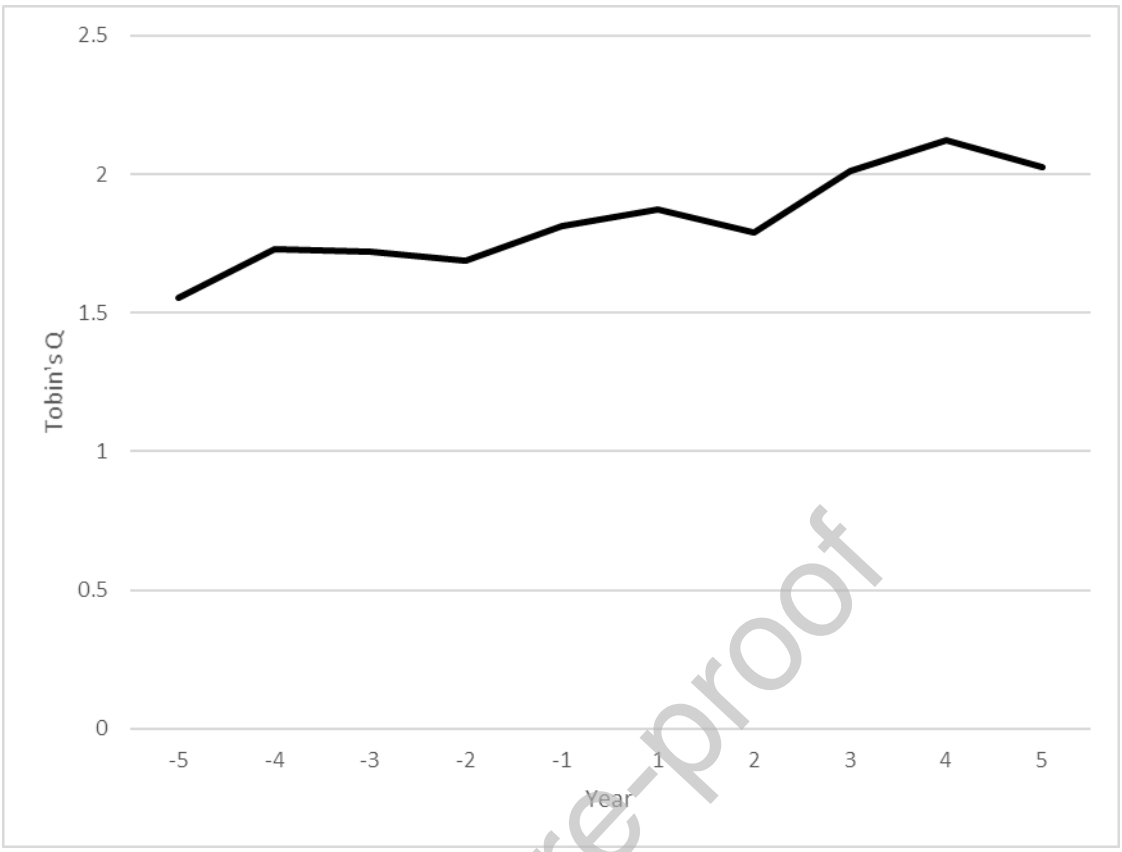

Table 1: Description of variables

Variable	Description
Tobin's Q	The sum of market capitalization, total liabilities, preferred equity and minority interest divided by total assets.
Cost of capital	Weighted average cost of equity and cost of debt. The weights equal the percentage debt or equity in firm's total assets.
Cost of debt	Total after-tax cost of long and short-term adjust for Bloomberg's proprietary debt adjustment factor.
Cost of equity	Derived from capital asset pricing model where cost of equity = risk free rate + beta (market risk premium). Risk free rate is the country's 10-year long-term bond rate. Beta is computed from a regression of the historical trading prices of the stock against the market index using weekly data over a two-year period. Market risk premium is the return on a country's stock market minus the risk free rate.
ESG inclusion (0,1)	Indicator variable equals to one for firm-year observations with ESG score and zero otherwise.
Total assets	In USD million as reported on the balance sheet.
Asset growth	One year total assets growth.
Cash holdings	Cash and cash equivalents divided by total assets.
Debt ratio	Total debt divided by total assets.
Tangibility	Net fixed assets divided by total assets.
ROA	Net income divided by total assets.

Table 2: Descriptive statistics for the full sample 2005 to 2018

	Mean	Median	Std. Dev	Min	Max	No of Obs.
Tobin's Q	1.831	1.254	1.520	0.626	9.894	640
Cost of capital	0.093	0.089	0.030	0.044	0.203	663
Cost of debt	0.026	0.029	0.015	0	0.066	664
Cost of equity	0.112	0.109	0.036	0.056	0.214	664
ESG disclosure (0,1)	0.500	0.500	0.500	0	1	670
Total assets (in USD million)	7,028.35	1,634,314	14,534.15	34.326	1,008,261	665
Asset growth	0.123	0.083	0.205	-0.380	1.153	649
Cash holdings	0.139	0.114	0.102	0.002	0.496	665
Debt ratio	0.223	0.205	0.168	0	0.625	664
Tangibility	0.352	0.352	0.216	0.002	0.888	665
ROA	0.077	0.059	0.084	-0.123	0.449	651

Notes: Total number of observations represent firm-year observations with perfectly balanced 5-year (62 firms) and 5-year (56 firms) event windows during the study period.

Table 3: Impact on the cost of capital of the introduction of an ESG score

Explanatory variables	Dependent variables				
	Cost of capital (All window) (1)	*Cost of capital (5-year window) (2)*	*Cost of capital (3-year window) (3)*	*Cost of equity (All window (4)*	*Cost of debt (All window) (5)*
Intercept	0.001	0.086***	0.061	0.022	0.017
	(0.03)	(3.46)	(1.17)	(-0.52)	(1.34)
ESG inclusion (0,1)	-0.012***	-0.009**	-0.009**	-0.014***	-0.002
	(-3.61)	(-2.50)	(-2.44)	(-3.39)	(-1.09)
Log (Assets)	0.017***	0.007*	0.010	0.020***	-0.001
	(4.06)	(1.96)	(1.34)	(3.71)	(-0.38)
Asset growth	0.004	0.014**	0.007	0.009	-0.002
	(0.77)	(2.09)	(0.81)	(1.20)	(-0.81)
Cash Holdings	0.010	0.012	-0.011	0.024	0.009
	(0.53)	(0.64)	(-0.47)	(0.92)	(0.85)
Debt Ratio	-0.140***	-0.150***	-0.110***	-0.069***	0.032***
	(-8.36)	(-7.84)	(-4.17)	(-3.47)	(3.54)
Asset Tangibility	-0.019	-0.026*	-0.020	-0.015	0.013*
	(-1.54)	(-1.76)	(-0.89)	(-0.88)	(1.75)
ROA	0.041	0.016	0.023	0.044	0.023**
	(1.39)	(0.42)	(0.50)	(1.08)	(2.04)
Time effects	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes
No of Observations	647	477	337	647	647
R^2*(within)*	0.28	0.30	0.17	0.14	0.07

Notes: The table presents the estimation results on the determinant of cost of capital using fixed effect panel regressions. Our key variable of interest is ESG inclusion, a dummy variable equals to one for firm-year observations with ESG score and zero otherwise. We use an event study framework to identify the causal inference of introduction of Bloomberg's ESG score on firm's cost of capital. The event windows centered around 1-5 years before and after the introduction of ESG scores. *t* statistics are reported in parentheses, while ∗∗∗, ∗∗ and ∗ refer to statistical significance at 1%, 5% and 10% levels, respectively.

Table 4: Impact on Tobin's Q of the introduction of an ESG score

Explanatory variables	Dependent variables *Tobin's Q (All window)*	*Tobin's Q (5-year window)*	*Tobin's Q (3-year window)*
Intercept	2.229**	1.946***	1.697***
	(2.44)	(3.29)	(3.06)
ESG inclusion (0,1)	0.319***	0.203	0.090
	(2.83)	(1.60)	(0.95)
Log (Assets)	-0.108	-0.092	-0.080
	(-0.79)	(-0.91)	(-0.88)
Asset growth	-0.304	-0.375	-0.271
	(-1.45)	(-1.09)	(-0.88)
Cash Holdings	-0.281	0.183	1.569*
	(-0.53)	(0.28)	(1.86)
Debt Ratio	1.226**	0.909	1.319
	(2.32)	(0.95)	(1.60)
Asset Tangibility	-1.244*	-0.392	-0.042
	(-1.74)	(-0.67)	(-0.07)
ROA	6.872**	6.748**	4.791**
	(3.12)	(2.31)	(2.09)
Time effects	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes
No of Obs	636	469	328
R^2*(within)*	0.28	0.25	0.19

Note: The table presents the estimation results on the determinant of firm Tobin's Q using fixed effect panel regressions. Our key variable of interest is ESG disclosure, a dummy variable equals to one for firm-year observations with ESG score and zero otherwise. We use an event study framework to identify the causal inference of introduction of Bloomberg's ESG score on firm's Tobin's Q. The event windows centered around 1-5 years before and after the introduction of ESG scores. *t* statistics are reported in parentheses, while ∗∗∗, ∗∗ and ∗ refer to statistical significance at 1%, 5% and 10% levels, respectively.