

The Impact of ESG Controversies on Stock Returns

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Abstract

In the chatter of online communities and in the writings of investigative journalists, corporate controversies are revealed and discussed in real time. Many of these controversies involve violations of environmental, social, and governance (ESG) standards. This paper studies the Refinitiv MarketPsych ESG Analytics, a dataset of ESG controversies extracted from real-time news articles and social media posts. Using monthly rotation models on the Russell 3000 constituents our research demonstrates that companies associated with a higher level of controversial online chatter experience greater future volatility and stock price underperformance. After excluding companies that are the most involved in ESG controversies, and controlling for the industry, a long-only simulated portfolio achieved annualized risk-adjusted returns 46% higher than the benchmark in the period from 2006 to 2020.

Key words: *ESG controversies, news analytics, social media, Russell 3000.*

1 Introduction

In a 1970 New York Times opinion piece, economist Milton Friedman criticized the concept of "social responsibility", partly due to its "analytical looseness and lack of rigor" (Friedman, 1970). Friedman, who won the Nobel prize for economics in 1976 and was one of the most influential economists of the 20th century, suggested that businessmen who invested in such efforts would be "spending someone else's [stockholders and clients] money". The Friedman doctrine (Friedman, 1962) remained quantitatively unchallenged in the following decades. With the concept of social responsibility being ill-defined, sparse availability of datasets, and studies difficult to replicate, the debate remained largely qualitative.

In the mid-2000s the media increasingly turned its focus to both the environmental impacts of human activities (most prominently global warm-

ing) and the societal impacts of corporate practices. Notably, in a 2004 United Nations (UN) report, the acronym ESG was coined to raise awareness of sustainable environmental, social, and corporate governance (ESG) issues facing stakeholders (Compact, 2004). The interest of balancing shareholder returns with stakeholder outcomes re-emerged under the rubric of "stakeholder capitalism" (Schwab, 2021). The growth of investment funds managed using ESG guidelines has expanded rapidly since then. According to a 2018 report by Morningstar Research, assets under management (AUM) in portfolios guided by sustainable investment directives were at \$23 trillion, an increase of more than 600% over the previous decade (Hale, 2018). Bloomberg Intelligence projects \$53 trillion in global assets will be invested according to ESG principles by 2025 (Bloomberg Intelligence, 2021). This in turn has created a large demand for new, higher-quality

ESG-based metrics. More rigorous metrics now allow researchers and practitioners to more robustly test Friedman’s hypothesis.

1.1 Do ESG Ratings Predict Stock Returns?

Currently, the bulk of academic and industry research indicates that corporate social responsibility is aligned with the creation of value for shareholders. An extensive 2015 academic review of more than 2000 papers reported that “roughly 90% [...] find a non-negative ESG–CFP (Corporate Financial performance) relationship” (Friede et al., 2015). A joint academic-industry review of 200 academic studies by industry-affiliated academics at the University of Oxford found that “80% of the reviewed studies demonstrate that prudent sustainability practices have a positive influence on investment performance” (Clark et al., 2015). Practitioners have also reported positive relationships between ESG scores and stock price returns (Belsom and Lake, 2021). However, the lack of standardization in ESG reporting and the well-known low correlation between standard ESG ratings is still a concern (Brandon et al., 2021; Mackintosh, 2018; Subramanian et al., 2019; Lester and McKnett, 2018).

1.2 Weaknesses in ESG Data Sets

Market-leading ESG datasets are distributed by large financial data providers including MSCI, Refinitiv, and S&P Global. These traditional ESG ratings are largely based on the inside-out perspective, *i.e.*, company-reported ESG information. However, despite having overlapping information sources, the methodologies differ, and the traditional ESG ratings can still diverge considerably across companies (Dorfleitner et al., 2015). For example, industry researchers found that “[i]n the United States, a portfolio selecting the top 50% of stocks with the highest social score based on Provider 1’s data produces excess returns that have a correlation of only 0.51 with the portfolio selecting the top 50% of stocks based on Provider 2’s social score” (Li and Polychronopoulos, 2020). The divergences are largely attributable to differences in scope, weight, and measurement methodologies employed during construction of the ratings (Friede et al., 2015). Furthermore, ratings

based on company reports can be updated as infrequently as every 12 months. As a result, the ratings can be considerably backward looking and represent ESG issues and virtues that have long been taken into account by market participants. Hence, as the ESG space evolves, alternative datasets will become ever more important.

1.3 ESG Alt-data

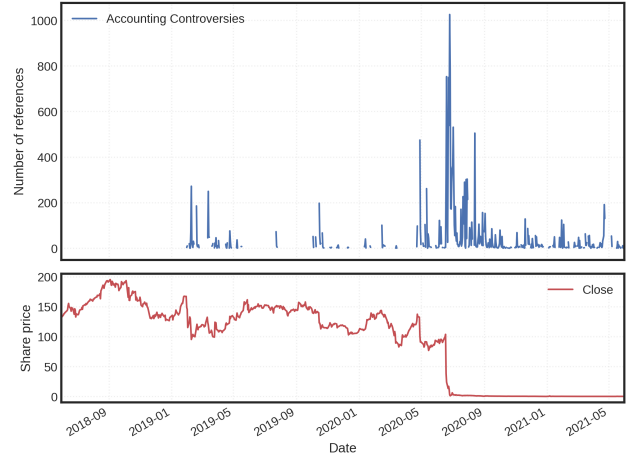


Figure 1: The number of media references to accounting controversies surrounding Wirecard AG from 2018 to 2020 in the news and social media (upper plot); and the share price (lower plot).

Online social media allows concerned citizens, employees, and activists to speak out publicly about illicit corporate activities. For example, concerned citizens discuss toxic consumer products in specific Reddit threads. Activists reveal corporate misdeeds on blogs. Employees whistleblow illicit management activities on job review sites. Sometimes, such concerns attract the attention of mainstream journalists through whom they reach wider news audiences. As a result, news and social media information flow can provide a valuable source of ESG data. This is specially the case for ESG controversies, which are more likely to be discreetly buried in company-reported ESG data. For example, in Figure 1 we show the number of references in the media about accounting controversies surrounding Wirecard AG. The Financial Times (FT) was the first media outlet to report suspicions of accounting fraud on January 30, 2019. The FT article suspected “falsification of accounts” (McCrum, 2019). Wrongdoings were denied by the

company until June 18, 2020, when the CEO revealed a €1.9 billion hole in the books.

Additionally, while investors have been found to react to both positive and negative content that passes through their social networks, negative stories (including ESG content) are shown to have the largest impact on share prices (Uhl, 2014; Li, 2006; Subramanian et al., 2019).

In this paper, a new point-in-time ESG dataset based on the media information flow, the Refinitiv MarketPsych ESG Analytics (henceforth RM-ESG), is utilized to examine the effect of ESG controversies on individual equity returns.

1.4 Refinitiv MarketPsych ESG

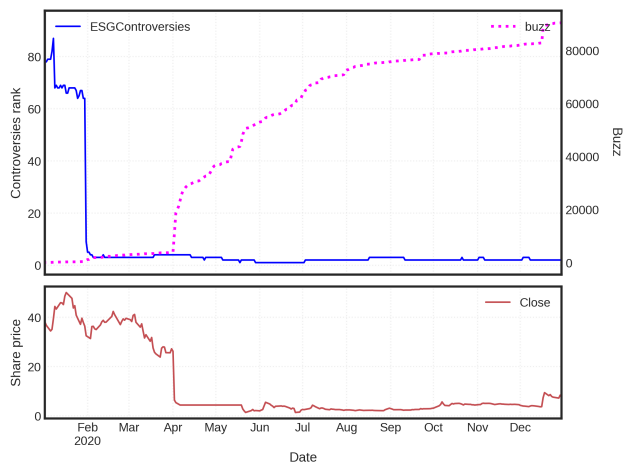


Figure 2: RM ESG Controversies score (blue, right axis), Buzz (magenta, dashed, left axis) and Lukin Coffee share price in 2020 (lower subplot).

The Refinitiv MarketPsych Analytics utilizes natural language processing (NLP) to convert large volumes of textual data posted in news and social media into structured ESG ratings. Each day, approximately 1 million relevant ESG-related articles and comments in 13 languages are filtered out from the most influential media sources. The data history extends back to 1998 with coverage of over 110,000+ companies. The Refinitiv MarketPsych Analytics are used in the portfolio selections of sustainability ETFs and quantitative investors (Wong, 2021), to drive global fixed income

allocations (Utkarsh and van Broekhuizen, 2021), and in consulting and research applications.

The RM-ESG scores are divided into two groups, the so-called Advanced and Core scores. The **Advanced** variant covers 80 ESG topics, with 40 being related to controversies.¹ In aggregate, the scores quantify the hopes, concerns, and criticisms of millions of online voices about specific aspects of each company. The RM-ESG scores are updated every minute according to the content found and analysed in the previous 60 seconds. It is thus a near real-time dataset that quickly reacts to breaking controversies reported in the media. The **Core** dataset is composed of 17 high level ESG ratings, of which one – the RM-ESG Controversies score – is an aggregation of all controversies in the Advanced feed. Core scores consist of intra-industry rankings from 1 (worst) to 100 (best) based on the 365-day exponentially averaged values (with a 90-day half-life) in the Advanced set.² Another important score for the present study is the so-called Buzz. This value (in the Core dataset) refers to the amount of media references to a given company related to ESG topics in the previous 365 days. It is thus a proxy for the media’s ESG-related references to a company. Figure 2 shows the reaction of the RM-ESG Controversies score and Buzz value for Luckin Coffee in 2020, when the company was found to be involved in accounting gimmicks. Similarly to what was observed in the Wirecard case, the first reports of wrongdoing anticipated the disclosed internal investigation. In this case, the accounting fraud story was first mentioned by the short-seller research firm Muddy Waters, whose report on Luckin Coffee was released to clients on January 31, 2020. On the same day, the RM-ESG Controversies scores plummeted due to the increasing chatter in the news and social media about the Muddy Waters report. The results of the investigation were only announced by the company in April of the same year, at which time the story became a trend in global news, as depicted by the Buzz value. This was followed by a drop in share price of 80% and the halting of trading for several days.

In this study, we show that the Wirecard and

¹The ESG themes scored in the data are displayed in the Appendix. More information is available via the data brochure and whitepaper (Refinitiv, 2021)

²See Appendix for a graphical depiction of the relationship between the Advanced and Core datafeeds.

Luckin Coffee cases are not isolated. By analysing the cross-section of a large sample of companies (the Russell 3000 components), we found a positive relationship between the RM-ESG Controversies score and forward stock price performance. The methodology applied in the study is detailed in the next Section. We then present the results and discuss what they mean in terms of portfolio allocation. Conclusions are outlined in the final Section.

2 Methodology

In this study, we analyse the impact of ESG-related controversies on stock returns. The regressor is the RM-ESG Controversies score sampled on the last trading day of each month. The evaluated period is from January 2006 to September 2020. The universe of stocks comprises the components of the Russell 3000 (point-in-time). Returns are computed as the price change, after adjusting for dividends and splits, from close to close on the last trading day of each month.

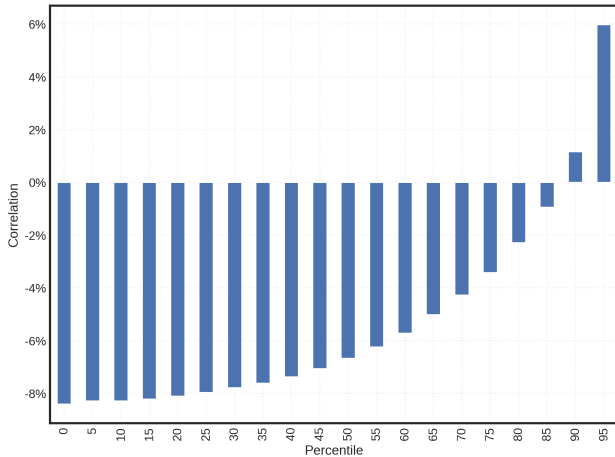


Figure 3: Correlation between the end-of-the-month RM-ESG Controversies score and the market capitalization of Russell 3000 companies when selecting (point-in-time) only the top percentile (x -axis) of companies according to the Buzz value.

To account for the varying levels of media chatter about companies of different sizes, MarketPsych applies a Buzz-weighting method in the computation of the RM-ESG Controversies scores. Companies with a large volume of media controversies are punished more than those with only a

few media reports. This is done by adjusting the raw scores of companies with low Buzz (Refinitiv, 2021). Hence, there is small negative correlation between the RM-ESG Controversies scores and the companies market capitalization (-8% in this study’s universe). To reduce the company size effect in the conclusions to be drawn in this study, we opted for further filtering the base universe (the Russell 3000 components) by only selecting companies with the largest Buzz. Figure 3 displays the correlation between the Controversies score and the market capitalization of only the top N^{th} percentile of companies (by Buzz). As the selection becomes stricter, the correlation approaches zero, as expected. It then turns positive for the 90th percentile and above which may be coincidental given the small number of companies that would be left (less than 300). We thus choose a threshold of 80% for the trade-off between reduced correlation and still having a large number of companies in the universe. Hence, each month, the filtered universe corresponds to a maximum of about 600 companies, which are to the top 20% of companies in the Russell 3000 that had ESG-related media content in the previous 365 days.



Figure 4: Monthly rotation model depicting the equity growth of theoretical portfolios composed Russell 3000 companies with the highest 20% Buzz values. Companies were ranked into quintiles based on their past-month RM-ESG Controversies score. The forward average return of the most controversial 20 percent of companies (P1, red) is compared against the bottom 20 percent (P5, green) and an equally weighted portfolio (MKT, grey dotted line) from January 2006 to September 2020.

The cross-sectional analysis uses rotating port-

folios where the universe of stocks are distributed into quantiles (with equal weight of the components) based on their end of the trading month RM-ESG Controversies score. Further variations are discussed in the following Sections.

3 Results

Table 1: This table displays the average 1-month forward performance (%) of hypothetical portfolios from January/2006 to September/2020 constructed by first selecting companies in the Russell 3000 with the highest values of Buzz (top 20%). The equally-weighted performance of the stocks in the resulting universe is in the MKT row. The indices CNT, MOM, and SIZ refer to portfolios that were long-short in the highest and lowest quintiles (respectively) according to the RM-ESG Controversies score, prior-month performance, or market-capitalization, respectively. The performance of all quintiles when dividing by the RM-ESG Controversies scores is also shown as P1 (most controversial) up to P5 (least controversial). Zero trading costs are assumed.

	mean	std	min	50%	max
P1	0.66	7.0	-23.0	1.4	25.2
P2	0.85	7.2	-22.3	1.5	40.6
P3	0.67	6.3	-20.3	1.3	22.8
P4	0.75	5.7	-21.6	1.2	19.5
P5	1.01	5.7	-25.6	1.7	19.7
CNT	0.35	3.0	-11.9	0.4	12.2
MOM	-0.13	5.0	-25.1	0.3	13.2
SIZ	0.69	6.2	-34.0	0.7	21.3
MKT	0.78	6.2	-21.6	1.4	26.1

Table 1 displays the statistics of the theoretical portfolios constructed as described in the previous Section. The results indicate that the least controversial companies compose the best performing portfolio in both absolute returns and with the lowest variance. On the other hand, companies ranked among the most controversial form the worst performing portfolio (in absolute terms as well as on a risk-adjusted basis). The statistics of the long-short portfolio, P5 - P1, henceforth referred to as CNT, is also shown.

Figure 4 displays the equity curve of portfolios

1, 5, and CNT. At a first look, it may seem like the outperformance of the least controversial companies only appears after the early 2010s, which would be in line with research by Bank of America Merrill Lynch (Subramanian et al., 2019). On the other hand, Figure 5, which shows the per-year performance of the CNT portfolio, tells a more nuanced story. It is true that in the first five years of this analysis, 2006 to 2010, the P1 portfolio had outperformed P5 by only 5%, while the outperformance in the following quinquennial periods was 52% (2011-2015) and 15% (2016-2020), respectively. However, the initial underperformance from 2006 to 2010 is primarily caused by the 2009 market rally following the global financial crisis.

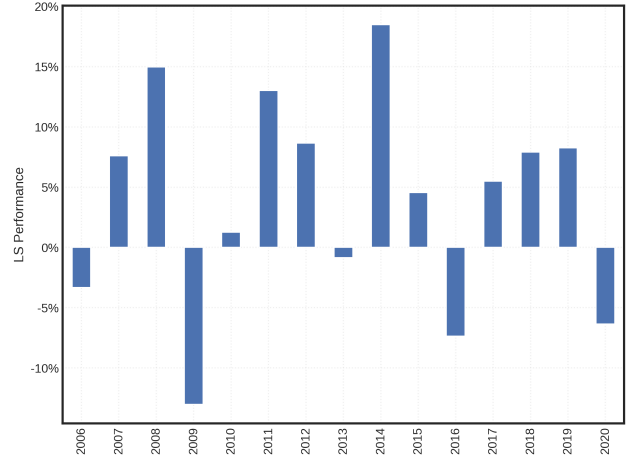


Figure 5: Annual difference in performance between portfolios P5 and P1 as depicted in Figure 4, which is also the long-short RM-ESG Controversies portfolio, CNT.

Interestingly, the worst and third worst yearly performance of the CNT portfolio occurred in 2009 and 2020, respectively, both of which experienced US stock bear market bottoms (Chiappini et al., 2021). To better understand this behavior, we analysed the average daily volatility of the stocks composing P1 and P5. As Figure 6 shows, the quintile P5 is less volatile than P1, and the individual components are also less volatile. Considering this finding and taking into account the leverage effect (Bouchaud et al., 2001), the 2009 and 2020 strategy underperformance could indicate that the ESG scores are somewhat reactive to past performance. This would be expected, as the market will have at least partially incorporated ESG contro-

versities that have recently appeared in the media. To test this relation we perform a linear regression with the performance of the CNT portfolio as dependent variable and two other long-short portfolios, SIZ and MOM, as regressors:

$$CNT_t = \alpha + \gamma SIZ_t + \delta MOM_t + \epsilon_t \quad (1)$$

SIZ represents the market neutral portfolio formed from the top and bottom quintiles by market capitalization, while MOM uses a similar pair of quintiles but formed on basis of the prior month's stock price performance.

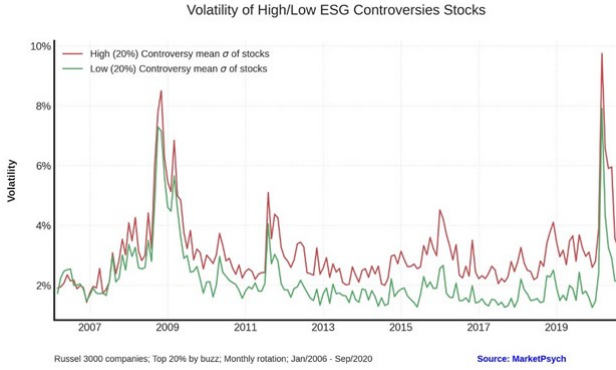


Figure 6: Monthly rotation model depicting the average volatility of theoretical portfolios composed Russell 3000 companies with the highest 20% Buzz values. Companies were ranked by their past-month RM-ESG Controversies score. The forward average standard deviation of the most controversial 20 percent of companies (P1, red) is compared against the bottom 20 percent (P5, green) over 2006 to 2020.

Results displayed in Table 2 indicate that changes in the momentum (MOM) factor indeed partly relate, although weakly, to the CNT returns. The results also indicate that despite reducing the effect of size by selecting only companies with high buzz, SIZ is still a significant explanatory variable. Nevertheless, the coefficient of the regression is still about 55% of the average return of the CNT portfolio.

³As a reminder, a high RM-ESG Controversies rating indicates that the company has been *less* involved in ESG controversies than its peers. This is for consistency with other Core ratings produced by MarketPsych.

Table 2: Result of the linear regression in Eqn. 1. The dependent variable is the CNT portfolio as described in Table 1. SIZ and MOM represent two long-short portfolios constructed by the highest vs the lowest quintile according to the market capitalization and the prior month's return, respectively. $R^2 = 0.34$; F-statistic = 44.37; N. observations = 174.

	coeff.	std	t
c	0.0019	0.0019	0.9973
SIZ	0.2589	0.0344	7.5251
MOM	0.0583	0.0422	1.3815

3.1 Exclusion by Controversies

The results shown so far indicate a positive relation between the RM-ESG Controversies and future returns.³ To demonstrate how this affects portfolio construction, we take the perspective of an equity ESG fund that "greens" its portfolio by excluding highly controversial companies. Figure 7 shows the results of such an experiment. The leftmost point in the plot refers to the average performance of a portfolio that selects the top 20% of companies by Buzz in the Russell 3000 (point-in-time). As one moves to the right in the plot, the results refer to portfolios that remove the worst offenders (according to the level of RM-ESG Controversies) in the quantile shown in the x -axis. For example, a vertical line on the x -axis representing the 80th quantile intersects with the performance of the P1 portfolio in Figure 4. As expected given the prior results, excluding the worst offenders boosts the average return while reducing the volatility of the portfolio. This is the case with up to the 80th quantile. After that point, while returns still rise until the 90th quantile, volatility slightly increases. The peak risk-adjusted return would occur at the 90th quantile. However, at this point, the portfolio would be composed of less than 60 companies. On the other hand, the construction of the RM-ESG Controversies scores ensure a high level of sector diversification. Thus, despite the low number of stocks in the 90th quantile portfolio, volatility is still lower than when all ~ 600 stocks were included. The risk-adjusted return of

the 90th quantile portfolio is 46% higher than that of the MKT portfolio. Finally, after the 90th quantile, as fewer stocks are included, the performance quickly degrades as volatility rises steeply and the average return falls.

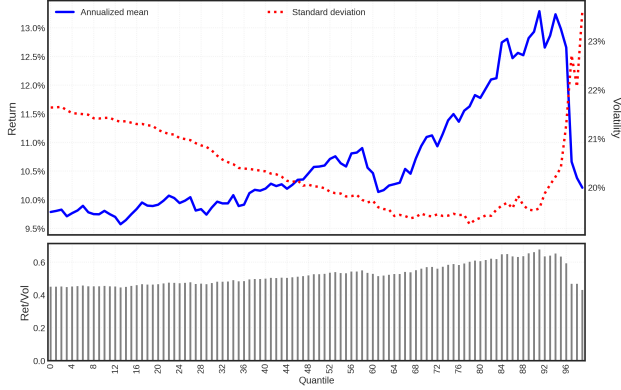


Figure 7: Average annualized return (left, blue), annualized standard deviation (right, dashed red), and Sharpe ratio (lower subplot, assuming 0% interest rate during the entire period) of a long only portfolio which uses the top 20% Buzz companies in the Russell 3000 as universe while excluding the respective quantile (x -axis) according to the level of the RM-ESG Controversies. All portfolios assume zero trading costs.

4 Discussion

The argument over the share price impact of corporate social responsibility has remained unresolved since the 1970s. While recent research seems to indicate a positive relationship, methodological differences, data quality issues, publication bias, and industry bias all confounded reliable data construction and research. In this paper, we studied the Refinitiv MarketPsych ESG Analytics, a dataset which uses natural language processing to score ESG-themed content in digital media articles. The data is generated with a consistent methodology applied to all ESG media articles from 1998 to the present. Furthermore, we focused on ESG controversies, as negative news has been shown to be more impactful on share prices. Additionally, rigorous research about the impacts of ESG controversies is still lacking.

In studying this dataset, results show that among US stocks, there is a relation between the percentage of ESG controversies reported in

the media coverage of a company and its future share price performance. A portfolio composed of less controversial companies outperforms a variant portfolio composed of more controversial ones. Underperformance occurred in only five of the 15 years analysed in this study: 2006, 2009, 2013, 2016 and 2020, which suggests that the effect is not concentrated only in recent years, as some ESG industry research indicates. It is important to note that the RM-ESG Controversies score applied in this study uses intra-industry rankings, which avoids industry biases that are commonly found in other ESG studies.

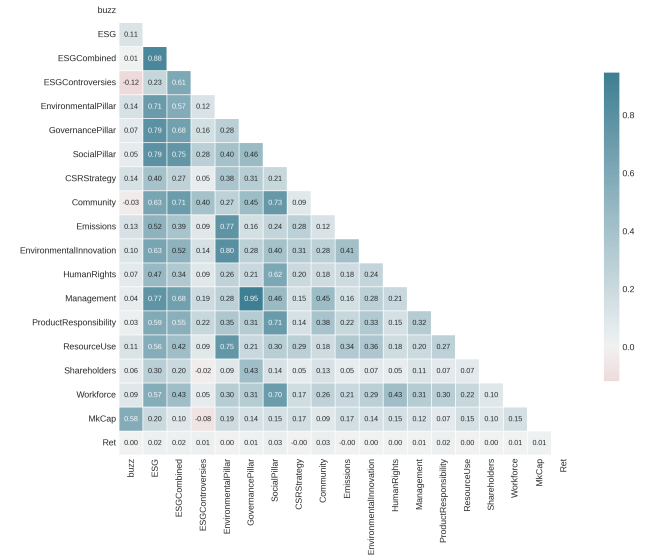


Figure 8: Correlation between end-of-the-month RM-ESG Core scores, contemporaneous monthly return and market capitalization of Russell 3000 components point-in-time from January 2006 to September 2020.

Finally, we are aware that there is an obvious and inescapable conflict of interest in this paper. All authors were involved in the creation of the RM-ESG dataset and financially benefit from its sale. Nonetheless, the hope is that the information provided here is useful for informing and guiding future, more objective, third-party research. For example, while we focused only on the RM-ESG Controversies scores, MarketPsych offers a plethora of data on high-level ESG ratings and granular ESG themes. In Figure 8 we show the correlation between the Core scores, market capitalization and contemporaneous returns of the companies in the Russell 3000. The RM-ESG

Controversies scores generally display low correlation with the individual Category scores. The lowest correlation is -2% (with Shareholders) and the highest is 40% (with Community). The correlation with the so-called Pillar scores and the ESG score itself is also relatively low (from 12% to 28%). As a teaser, we show in Figure 9 results for the three Pillar and overall ESG scores using the same methodology applied to derive the results in Table 1. The spread between the top and bottom quintiles with the Social pillar scores is interesting. Social controversies are particularly difficult to quantify with more traditional datasets, while being particularly fit for data structured from news and social media. Also, as seen in Figure 8, Social scores have the highest correlation (among the Pillar scores) with the Controversies scores, which gives an indication of a starting point in a further study about controversies.

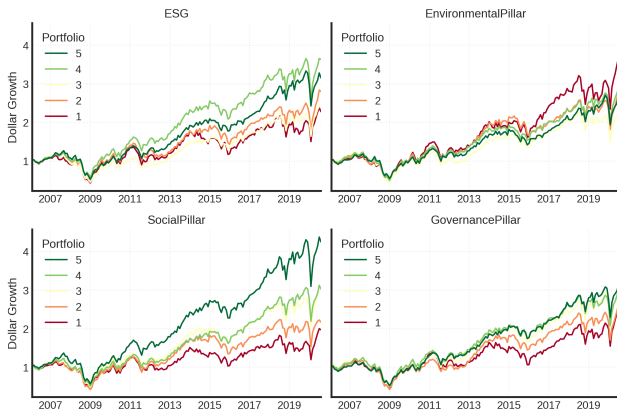


Figure 9: Monthly rotation models depicting the equity growth of theoretical portfolios composed of Russell 3000 stocks with the highest 20% Buzz values in each month. Companies were ranked into quintiles according to the ESG (top left), Environmental Pillar (top right), Social Pillar (bottom left) and Governance Pillar (bottom right) scores. The quintiles constituents are equally-weighted, and each study assumes zero transaction costs. The period analysed is from January 2006 to September 2020.

5 Conclusion

Based on this research, there is evidence of consistent share price underperformance for US companies entangled in ESG controversies reported

in news and social media. The effect of excluding highly controversial companies on the expected portfolio performance is nearly monotonic. We found that a long-only portfolio aimed at reducing the risk from such controversies by excluding highly controversial companies could have achieved an increase in risk-adjusted returns of up to 46% in the period from 2006 to 2020. These findings indicate that funds and companies with a focus on social responsibility (or at least avoiding controversial behavior), regardless of their industry, achieve higher share price performance, adding to the volume of evidence negating Friedman’s hypothesis.

References

- Belsom, T. and Lake, L. (2021). ESG factors and equity returns – a review of recent industry research. *PRI Blog*.
- Bloomberg Intelligence (2021). ESG assets may hit \$53 trillion by 2025, a third of global AUM. *Bloomberg*.
- Bouchaud, J.-P., Matacz, A., and Potters, M. (2001). Leverage effect in financial markets: The retarded volatility model. *Physical review letters*, 87(22):228701.
- Brandon, G., R., Krueger, P., and Schmidt, P. (2021). ESG rating disagreement and stock returns. *Financial Analysts Journal*, 77(4):104–127.
- Chiappini, H., Vento, G., and De Palma, L. (2021). The impact of COVID-19 lockdowns on sustainable indexes. *Sustainability*, 13(4).
- Clark, G., Feiner, A., and Viehs, M. (2015). From the stockholder to the stakeholder: How sustainability can drive financial outperformance. *Arabesque*.
- Compact, U. (2004). Who cares wins: Connecting financial markets to a changing world. *International Finance Corporation*.
- Dorflleitner, G., Halbritter, G., and Nguyen, M. (2015). Measuring the level and risk of corporate responsibility—an empirical comparison of different esg rating approaches. *Journal of Asset Management*, 16(7):450–466.

- Friede, G., Busch, T., and Bassen, A. (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4):210–233.
- Friedman, M. (1962). *Capitalism and freedom*. University of Chicago Press.
- Friedman, M. (1970). A Friedman doctrine - the social responsibility of business is to increase its profits. *The New York Times*.
- Hale, J. (2018). Sustainable funds, U.S. landscape report. *Morningstar Research*.
- Lester, A. and McKnett, C. (2018). Harnessing ESG as an alpha source in active quantitative equities. *State Street Global Advisors*.
- Li, F. (2006). Do stock market investors understand the risk sentiment of corporate annual reports? *SSRN*.
- Li, F. and Polychronopoulos, A. (2020). What a difference an ESG ratings provider makes. *Research Affiliates*.
- Mackintosh, J. (2018). Is Tesla or Exxon more sustainable? It depends whom you ask. *Wall Street Journal*.
- McCrum, D. (2019). Executive at Wirecard suspected of using forged contracts. *Financial Times*.
- Refinitiv (2021). Refinitiv Marketpsych ESG Analytics: Quantifying sustainability in global news and social media.
- Schwab, K. (2021). Stakeholder capitalism: A global economy that works for progress, people and planet. *John Wiley & Sons*.
- Subramanian, S., Kabra, M., Chopra, S., Yeo, J., Strzelinska, P., and Huang, L. (2019). ESG matters ESG from A to Z: a global primer. *Bank of America Merrill Lynch Research*.
- Uhl, M. W. (2014). Reuters sentiment and stock returns. *Journal of Behavioral Finance*, 15(4):287–298.
- Utkarsh, A. and van Broekhuizen, R. (2021). Responsible investing and asset allocation. *NN Investment Partners*.
- Wong, G. (2021). Quantitative investing gets sentimental. *AGF Investments*.

Appendix

Emissions	Innovation	Management	Community	Human Rights
ClimatePolicy AirborneEmissionsImprovement AirborneEmissionsControversy CarbonEmissionsImprovement CarbonEmissionsControversy Recycling EnvironmentalInvestment RenewableEnergy RenewableEnergyPolicy PollutionImprovement PollutionControversy IndustrialAccident	SustainabilityImprovement SustainabilityControversy SustainableInnovation SustainablePackaging	ManagementSentiment ManagementDiversity QualityMgmtSystems ManagementTrust ManagementControversy	Trust PublicHealthSupport Charity AccessAffordability Anger AntiCompetitiveActs Lobbying PublicHealthControversy EthicsControversy CorruptionControversy RegulatoryIssues ClassActionLawsuit IPControversy LegalPenalty Litigation CrimeControversy	HumanRightsEfforts HumanRightsControversy ChildLabor LaborExploitation CriticalCountriesControversy
Resource Use	Shareholders	CSR Strategy		Workforce
EnvironmentalControversy SupplyChainSustainability EnergyEfficiencyEfforts	AntiTakeoverDevices AccountingSentiment AccountingControversy AccountingRestatement ShareholderRightsControversy CreditControversy SecuritiesControversy TaxFraudControversy ProfitWarning EarningsDecline InsiderDealingControversy ActivistInvestorActivity ProxyFight	CSRActivities		WorkplaceSentiment WorkplaceSafetyEfforts WorplaceSafetyControversy WorkplaceDevelopment DiversityEfforts DiversityControversy Benefits WorkLifeBalance WageFairness Layoffs LaborDispute WageControversy BenefitsControversy
		Product		
		ProductSentiment ProductControversy PrivacyEfforts PrivacyControversy Innovation AdvertisementDeceptive RnDControversy CustomerSatisfaction		

Figure 10: The current set of scores is displayed. The specific themes characterized by the 80 Advanced scores underlie the 10 Category scores (in bold headers). The latter 10 categories underlie the 3 Environmental, Social and Governance Pillars, which add up to a final ESG score. A composite Controversy score is also produced (see Figure 11). The combination of ESG and Controversy scores give rise to a ESG Combined score.

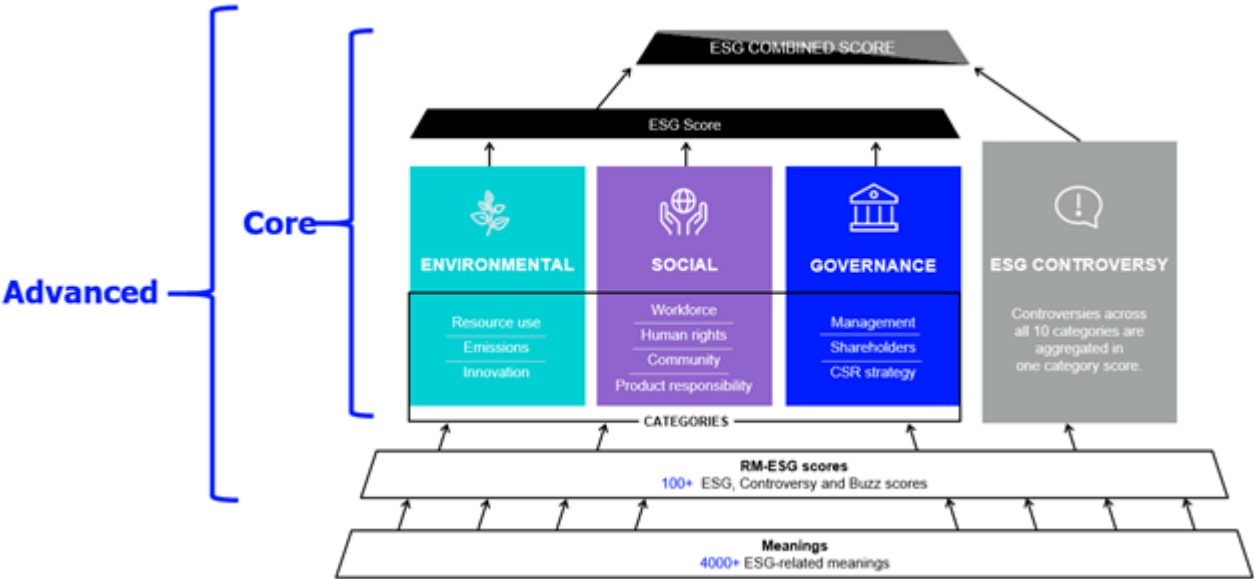


Figure 11: The relationship between the RM-ESG Advanced (see Figure 10) and Core feeds.