

THE NEXUS BETWEEN ESG AND INITIAL COIN OFFERINGS: EVIDENCE FROM TEXT ANALYSIS

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ABSTRACT: Initial Coin Offerings (aka ICOs) have gained a prominent interest in the FinTech world as an alternative way to fundraising for innovative and cutting-edge business ideas. So far, academics have studied drivers of success without posing specific attention to the products or activities proposed by the ICOs. In this paper, we investigate the possible nexus between ICOs and Environmental, Social and Governance (ESG) indicators, by studying a set of 621 ICOs. Specifically, we extract keywords related to ESG from whitepapers associated with each ICO and build a variable which acts as a signal of attention to sustainability topics. Our research hypothesis concerns the evaluation of whether ICOs oriented towards ESG are more likely to raise expected funds successfully. Preliminary results confirm such a hypothesis.

KEYWORDS: Initial coin offering (ICO), ESG, Sustainability, Blockchain-based crowd-funding, Machine learning

1 Introduction

Nowadays themes like Environment, Social Change, and Governance are becoming more and more important. We could state that, for a company, Environmental, Social, Governance investments and reporting represent one of the ways to keep up with the market. As a matter of fact, companies with stronger ESG propositions tend to have higher growth, higher worker efficiency, lower volatility, cost decrease, and fewer institutional interventions. Furthermore, in recent years, start-ups and the most innovative businesses turn to alternative sources of capital instead of classic channels, such as Initial Coin Offerings (ICOs). An ICO is a new way to fund businesses and initiatives, it is one of the blockchain-based processes that allow the emission of a utility token rather than a security or equity token. The growing popularity of the ICOs is clearly due to several related benefits, such as the high level of offered return on investment, high liquidity, fast financing, cost minimization and high availability, which are increasingly encouraging innovative investors and busi-

nesses to abandon traditional financing methods. However, it is also a young and ever-changing market full of significant risks.

Our paper puts a special emphasis on whether ESG dimensions influence ICOs performances. Thus, we propose to investigate the role played by an ESG flag covariate, appropriately built as described in the following section, in predicting the probability of success when collecting the expected amount of funds during the funding round. To this end, we use textual analysis techniques for creating a proper sustainability flag variable; afterwards, we fit logistic models with several specifications along the ESG dimensions and controls.

2 Data

For the database, we scraped data from the website `ICOMARKS.COM` and downloaded 7574 Initial Coin Offerings (ICO). The available information includes *ICO details*, such as Website, Whitepaper, Whitelist and MVP, Bounty and Bonus, start/end date, country, *ICO classification*, such as Category (Tech, Finance, Energy, Infrastructure), *ICOMARKS rating*, *Token details*, such as Ticker, Platform, Amount available for sale, Technology involved, *Financials*, such as ICO's Token price, (crypto)-currency accepted, Total funds raised, Hard/Soft cap for the funding round, *Team and Advisors size* and *Social Media details*, such as media on which the ICO is advertised or where the investors can discuss. We decided to focus only on ICO and we downloaded all the available whitepapers. Then, we cleaned the downloaded data because of typos and different decimal/thousands separator and we converted all ICO prices reported in fiat or crypto money or in terms of ICO's tokens to U.S. Dollars, using the average FX rate of the ICO's start date.

Our target variable *ICOSUCCESS*, similar to previous literature (for example Meoli & Vismara, 2022), is the binary flag of ICOs success/failure, evaluated as the ratio of raised funds and the hard cap, i.e. the maximum amount of funding expected to be raised. If the ratio is above 0.5, we assign success, failure otherwise.

The whitepapers have been analyzed through advanced textual analysis techniques based on Bidirectional Encoder Representations from Transformers (BERT) architecture (Devlin *et al.*, 2019), to extract information about the characteristics of the proposed business idea. In particular, we use pre-trained models specifically tailored to ESG indicators and financial-related vocabularies (Huang *et al.*, n.d.). The outcome of the model is a probability score for each classification class, e.g. Environmental, Social, Governance, estimating how much pertinent the whitepaper's text is to the topic. Such a step is cru-

cial for building the *ESGFLAG* covariate used in the analysis: we assign the value of 1 if at least one of the three probabilities (E, S or G) is greater than the probability of non-relevance with the topics. Additionally, the length of the whitepaper *LOGWORDS* indicates the logarithm of the number of words in each paper.

3 Methodology and Results

We fit a logit model with OLS estimation, taking into account year-quarter, country and sector fixed effects, as well as clustering the error by country. Given the imbalance in the target variable, we opt for a weighted logit model, to mitigate the impact of the "failure" class. Table 1 reports the results. Results are stable over the two scenarios. In particular, we observe that the success of an ICO is promoted when the project shows an interest in the ESG topic.

Thus, preliminary results appear to confirm the nexus between ICOs' success and ESG. The attention towards sustainability-related topics in general seems to favour fundraising activities. This is in line with a public audience's tendency in evaluating better every activity connected to ethics and responsible behaviour. Such analysis will be further improved and robustified by enlarging the dataset and evaluating more control variables and scenarios.

References

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Table 1: Predicting ICOs success with logistic model.

Variable	1	2
ESGFLAG	0.129** (0.0727)	0.159** (0.0723)
DURATION	-0.461** (0.192)	-0.442* (0.230)
RATING	0.126*** (0.0403)	0.105** (0.0473)
TEAMSIZ	0.0461*** (0.00756)	0.0362*** (0.00787)
ADVISORSIZE	0.0441*** (0.0144)	0.0356* (0.0186)
WHITELIST	0.149*** (0.0553)	0.162 (0.138)
BOUNTY	-0.238** (0.109)	-0.195 (0.121)
BONUS	-0.0916 (0.148)	-0.0281 (0.116)
PRESALE	-0.273*** (0.0894)	-0.0950 (0.0801)
LOGWORDS	0.177 (0.162)	0.194 (0.156)
Observations	871	869
Pseudo R^2	0.043	0.067
Quarter-Year effects	No	Yes
Country effects	No	Yes
Category effects	No	Yes
Clustered Std. Err.	Country	Country

Notes: The table reports coefficients and their standard error (in parentheses). The outcome variable is the binary flag of ICO's success/failure and all variables are defined in Section 2. Data span over the period 2014-2019. Estimation method is OLS with standard errors clustered by ICO's country. The bottom part of the table reports which fixed effects are used in each model specification. The *, ** and *** symbols denote the p-values at 10th, 5th and 1st significance level, respectively.