Whitepaper-Based Analysis of Success Factors for Token Offerings

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Abstract.

Token offerings, such as initial coin offerings (ICOs) and security token offerings (STOs), are an increasingly popular method to raise funds. This applies especially to small and medium-sized enterprises as these financing options entail low access barriers and minimal friction costs. For this paper, an investigation into whitepaper-based success factors is conducted. Utilizing automated routines, quantitative analyses of 326 whitepapers, issued for ICOs, are conducted. These analyses are concerned with the usage of stylistic devices, such as alliterations, onomatopoeias and allusions. Also, direct addresses of the reader, references to the project's staff and the sentiment of the whitepapers are analyzed. For all analyses, the dependent variable is the amount of funds raised for the respective project. The prevalence of the mentioned text features varies strongly across the analyzed data sets. The results show that none of the analyzed text features of the whitepapers have a significant impact on the amount of funds raised with the token offering. Other current research indicates that reducing information asymmetry is a property of whitepapers, that is valued by investors. The current findings are in line with this research, as the analyzed text features do not contribute to this objective. This research paper is of high relevance to the field of research of distributed ledger technology in the financial industry as text and sentiment analyses are not widely utilized thus far.

Keywords: security token offering, blockchain, distributed-ledger-technology, financial innovation, digital assets

1 Introduction

Since the first initial coin offering (ICO) in 2013, which is globally attributed to a company then referred to as MasterCoin, ICOs and other token offerings experienced rapid growth in popularity. This intense growth applies to the number of token offerings and the amount of funds raised this way. Until the end of 2019, the funds raised by token sales amount to over 31 billion US dollars spread across over 2100 recognized offerings (Ante & Fiedler, 2020; PwC, 2020). The single largest ICO to date ended in June 2018 and raised 4.1 billion US dollars for a new blockchain software development architecture called EOS.IO (block.one, 2018).

These large amounts of raised capital result in interest in token offerings from various parties. On the one hand, projects and firms are looking for new ways to finance their

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operations. Especially for small and medium-sized enterprises (SMEs), token offerings provide an attractive new opportunity to raise funds without the high friction costs of, for example, a conventional initial public offering (IPO) (Carpenter & Petersen, 2002; Mazzorana-Kremer, 2019). On the other hand, investors of all kinds are always interested in investment opportunities that promise high returns, which is a commonly advertised property of ICOs (Debler, 2018). For both sides, it is crucial to know be able to estimate which token offering projects are most promising. To this end, it is necessary to analyze the corresponding parameters that contribute to offering success.

Consequently, this paper aims to identify success factors for token offerings based on analyses of text features of documents published by the projects' initiators, so-called whitepapers. Research into the field of token offerings is progressing rapidly. Therefore, a combination of analysis and data basis was chosen that is not featured in research reports so far.

2   Literature review

Research into success factors for token offerings has intensified in recent years (Gächter & Gächter, 2021). Possible reasons here are the increased public attention to the topic of token offerings and the potential for an increased amount of capital raised by enterprises planning a token offering if the relevant success factors are known beforehand.

Several teams of researchers in the field of financial sciences and economics like Gächter & Gächter (2021), Hartmann et al., (2019) and Lambert et al. (2020) have compiled lists of success factors for token offerings. Usually, these listings include an assessment of the importance of the success factors. Further models are developed that show the relations and unidirectional or bidirectional influences between these success factors (Hartmann, Wang, et al., 2019).

In the following only information and success factors are discussed that have a direct reference to the token offerings' whitepaper. After an introduction for the whitepapers the identified success factors will be discussed in seperate sub-chapters.

2.1 Main tool for informing investors – whitepaper

An important part in preparation for the analysis of the core literature regarding the success factors for token offerings is a fundamental explanation of whitepapers.

For ICOs and security token offerings (STO), it is common that a so-called whitepaper is prepared by the offering firm. This document is created to provide the potential investors with information on the offer, such as the business idea, financial requirements and -planning, introduction of the personnel or leadership team and the anticipated duration of the project (Deloitte, 2020). To this end, the firms creating a whitepaper often apply well-proven concepts and formats. These choices of content, wording, characteristics and illustrations are often derived from documentation used to advertise IPOs, such as prospectuses, business plans and marketing documents (Samieifar & Baur, 2021).

Whitepapers are an essential tool to reduce the existing, and for ICOs especially prevalent, information asymmetry between the offering firm and potential investors. Fittingly the publication and contents of a whitepaper are often discussed in reference to signaling theory

(Di Matteo, 2020; Fisch, 2019; Shin et al., 2019). High-quality businesses planning a token offering can differentiate themselves from the competition through voluntary disclosure of information. Low-quality or even fraudulent issuers, due to the lack of a business plan or time-consuming in-depth preparation, will not be able to produce equivalent levels of relevant information in their whitepapers. Consequently, whitepapers are referred to as a signaling device (Florysiak & Schandlbauer, 2018).

For ICOs or the offering of utility tokens in general, issuing a whitepaper is common but not regulated or mandatory, contributing to the issues mentioned above regarding illegal activities. Whitepaper content is unregulated as well and, therefore, often not sufficiently comprehensive or precise. Additionally, issuers may change whitepapers at any time, even while an offering is ongoing (Bundesanstalt für Finanzdienstleistungsaufsicht, 2019; Rodríguez, 2021). Information presented in a whitepaper commonly can not be verified by potential investors as there are no additional or alternative sources for the contents (Tiwari et al., 2020). These factors combined warrant high levels of attention and caution on the side of the investors when evaluating an investment opportunity based on a whitepaper.

For STOs, as soon as the tokenized asset is classed as a security and a certain capital threshold is passed, EU law mandates creating and publishing a standardized prospectus. German law requires this process regardless of a capital threshold. Each EU member state is allowed to set a separate limit. These requirements for a prospectus apply regardless of the identification of the token by the offering party as an equity-, security, investment-, asset- or other- token (Bundesanstalt für Finanzdienstleistungsaufsicht, 2019; Fries, 2021; The European Parliament And The Council Of The European Union, 2017). The national differences of regulatory frameworks for crypto assets will be unified with the introduction of the Markets in Crypto Assets Regulation. "A number of crypto-specific disclosures" will become mandatory for the required prospectus (Clifford Chance, 2020, p. 9).

In addition to other documents, in the case of STOs, issuing a whitepaper is commonly supplementary to the mandatory publishing of the prospectus. Offering parties sometimes include a section in the whitepaper that underlines the distinction between the two documents (Mt Pelerin Group SA, 2018; Reit BZ Limited, 2018).

The decision to include a whitepaper for the offering documentation is potentially based on the poor suitability of a standalone standardized prospectus as advertising material. Highly optimistic statements regarding future business developments or profits without simultaneous risk assessment are not permissible in an official prospectus (Zook & Grote, 2020). The contents of the prospectus are legally binding and allow for legal measures on the part of investors in the event of misrepresentation (Maume & Fromberger, 2019).

Due to the resulting high effort to prepare the document, the scope is potentially and actively limited to the minimum legal requirements. According to multiple sources, no ICO has provided such a legally binding prospectus along with their offering (Hacker & Thomale, 2018; Maume & Fromberger, 2019). At times, whitepapers for ICOs contain statements that explicitly exclude that the documents might be referred to as a prospectus or otherwise legally binding (DOVU, 2017).

Lastly, whitepapers usually contain disclaimers or separate sections that are included to avoid legal scrutiny from certain regions or governments that restrict token offerings and participation in this type of investment. As briefly mentioned before, these regions include the

US and China, but also South Korea, Canada and Isreal for the examples of whitepapers checked (Celsius Network, 2018; Jinbi, 2018). Contrary to the non-legally binding setup of the whitepaper, formulations such as "the Fund will not accept investments from any U.S. person and this presentation is not for use by any U.S. person other than those who have been specifically approved by the Fund" are utilized with specific reference to laws and regulations whose applicability is to be circumvented (SPiCE Venture Capital, 2017, p. 2).

At times a paragraph is included that forbids participation in the token offering from any region where this type of investment is restricted. This even extends to restriction of further distribution and communication of the whitepaper contents itself (Celsius Network, 2018; Jinbi, 2018; Neufund, 2017).

These disclaimers also contain warnings to the risky nature of the underlying token offering, with performance and profit targets being subject to change without notice or the potential for a total loss of the capital invested (SPiCE Venture Capital, 2017).

2.2 Whitepaper availability

In the respective specialist literature, strongly differing research results are discussed and presented whether the mere existence of a whitepaper has a significant influence on the success of a token offering. The differentiation between STOs and ICOs is necessary for this first success factor as available information is not uniform across both offering types.

Ante et al. (2018) describe a strong positive influence of wallpaper existence on ICO success. Fisch (2019) attests a similar influence of whitepaper availability on ICO success with the additional limitation that the respective whitepaper needs to qualify as a technical whitepaper, meaning that at least 50 % of the pages contain technical information of the project or underlying utilized technologies. Failure of an ICO is less likely when, among other information requirements towards the investing side, a whitepaper is published (Howell et al., 2019).

Contrary to the information presented in the previous paragraph, a frequently cited research article by Adhami et al. (2018) specifies that the success probability of an ICO is not affected by the availability of a whitepaper. These findings are based on an analysis of 253 offering campaigns. The insignificance of publishing a whitepaper is argued with the lack of verified information or certified features and, therefore, little trustworthy content to base an investment decision upon (Adhami et al., 2018).

For STOs, several teams of researchers, such as Ante & Fiedler (2020) and Jüntgen et al. (2021), found no significant effect on whitepaper availability on the success of the offering. In this case, the findings for ICOs and STOs are contrasting, with Ante & Fiedler actively pointing out the difference in success factor significance between offering types, referring to their analysis of ICOs of 2018.

2.3 Whitepaper content and quality

An essential factor referenced when the significance or requirement of a whitepaper is discussed, is the reduction of information asymmetry between the offering side and the investing side. According to Campino (2021), Chod & Lyandres (2018) and Kranz et al. (2019), a whitepaper is a necessary instrument in this effort. According to the signaling

theory, signals sent from the offering side to the investing side need to show two distinct characteristics. On the one hand, the signs need to be observable by the receiving side, here this is the investing party, and on the other hand, signals need to be costly to realize and imitate to carry value (Fisch, 2019). Low-quality ICO projects directly pick up easy-to-imitate information and incorporate it into their respective whitepapers. This process extends to services that generate whitepapers to be used in scams by copying existing whitepaper contents (Yen et al., 2021). Therefore, the mentioned signaling characteristics are direct requirements for the quality of the whitepaper's content.

Yen et al. (2021) provide information that whitepapers with more unique or less common content correlate with ICO success. This success is characterized by a larger amount of funds raised in the ICO itself as well as a higher trade volume and overall price level post-ICO for the tokens sold.

The term technical whitepaper, as defined by Fisch (2019), fits the previously mentioned criteria of signaling theory. A technical whitepaper is more challenging to create and therefore more difficult to replicate than a standard whitepaper, which could, for example, refer more to the team behind the token offering instead. Consequently, a high degree of technical content is positively correlated with the amount of funds raised in an offering (Bourveau et al., 2018; Fisch, 2019). Feng et al. (2019) provide similar research results. A technical whitepaper is more successful regarding immediate funds raised in the offering and has a higher chance of being listed on cryptocurrency exchanges.

Florysiak and Schandlbauer (2018) have found that the amount of informative content in a whitepaper is significantly positively correlated with funding success of a token offering. Additionally, the importance of this influence factor is underlined, as the positive effect of whitepaper information on the amount of funds raised is almost a third larger than the influence of expert ratings of the offering.

Contrary research findings exist regarding the postive influence of complexity and technicality of whitepaper contents on offering success.

Rui Chen and Chen (2020) refer to the existing information asymmetry and its causes. Most investors lack the required professional skills to interpret and evaluate the information provided. This applies especially to increasingly technical information and information regarding blockchain technology and, therefore, to technical whitepapers. According to Yen et al. (2021), it is possible that unique content in whitepapers at times has no effect on investors and offering success. Ante et al. (2018) found no correlation between the amount of funds raised and their whitepaper score. This parameter is composed of the whitepaper's number of pages and the number of citations it contains. It can be concluded that it is possible that increasing the amount of technical information in a whitepaper reaches a certain threshold after which further increases achieve no positive effect on offering success.

According to Momtaz (2021b) the morally questionable habit of entrepreneurs exaggerating project information in their whitepapers positively correlates with offering success. Investors are often unable to identify these exaggerations when making investment decisions. Fittingly, Gächter and Gächter (2021) identify that project transparency is not related to the respective project's success. Their research also indicates that contrary to the information provided in this chapter, whitepaper characteristics, in general, are not a relevant success factor for total funds raised in a token offering.

A recent research publication by Deveux (2021) adds further insights into the whitepaper content's relevance towards offering success. Utilizing automated text analysis and a large data basis of 1848 ICOs, it was identified that the thematic content is a significant success factor. Including the findings that technical and security aspects of blockchain technology positively affect offering success. Including descriptions of legal framework in whitepapers has a negative effect. While this automated text analysis allows for conclusions regarding the offering's success, the utility does not extend to detecting fraudulent token offerings.

2.4 Whitepaper length

Contrary information exists in the relevant technical literature whether the overall length and page count of a whitepaper qualifies as a significant factor for token offering success.

As briefly mentioned before, Ante et al. (2018) employ a whitepaper score, a parameter that incorporates the number of pages and the number of citations in the respective whitepaper. No correlation of that parameter with offering success was determined. Jüntgen et al. (2021) found no significant influence of an above-average number of pages on STO success.

Contrary to these findings, Fisch (2019) as well as Samieifar and Baur (2021), attest a positive correlation between whitepaper length or whitepaper number of pages and funds raised during a token offering. Matching results for the opposing effect direction, Amsden and Schweizer (2018) found that fewer pages in a whitepaper, together with other factors, contribute to a higher level of venture uncertainty which, in turn, is negatively correlated with the amount of funds raised in an ICO.

2.5 Whitepaper wording and language

The choice of wording in a whitepaper can significantly impact the respective token offering's success. Monaco et al. (2021) found that the usage of precise language, meaning language that suggests specific logical thought patterns, is positively correlated with the amount of achieved funding. At the same time, the usage of more numerical terms and more concrete language, concrete here being defined as the sum of the number of articles, quantifiers and prepositions, is negatively correlated with the offering's success.

This last success factor information contrasts other research. On the one hand, more numerical terms would indicate a more technical whitepaper, for which a positive correlation was described before. On the other hand, text written with more concrete language is easier to process and remember (Monaco et al., 2021). A text that is easier to process could also be easier to read. Regarding this text property, Samieifar and Baur (2021) found that a higher readability grade correlates with overall funds raised by the offering project.

Di Matteo (2020) found a negative correlation between the usage of emotionally positive words and the amount of funds raised by a token offering. It is argued that the emotional level has only a minor influence on the information asymmetry reducing intent of a whitepaper while potentially increasing investor skepticism towards the offering.

Lastly, ICO projects that publish a whitepaper in multiple languages are significantly more likely to succeed. A potential reason is token offerings' global accessibility (Lee et al., 2018).

3   Data basis, hypotheses and methodology

Existing data is utilized for the quantitative analyses in this paper. The Token Offerings Research Database (TORD) is compiled and maintained by researcher Paul P. Momtaz (Momtaz, 2021a). In its third version, this database consists of 6415 data sets that includes information on area of business, token main sale time span, funds raised, hard cap and information on the current trading situation of the issued tokens. Additionally, information is included on the country of origin, whether the offering is classified as an ICO or STO, on the accepted currencies and if country-specific restrictions are in place. Most importantly, some data sets include a link to the project's whitepaper.

Due to the, in-part, contradicting information in recent technical literature and the relatively small amount of information available, compared with the quantity of research on whitepaper content, the area of whitepaper text analysis was chosen for analysis in this paper. In order to fill the identified research gaps, three null-hypotheses are introduced here:

Hypothesis 1: Token offering success is unrelated to the usage of stylistic devices in the corresponding whitepaper.

The stylistic devices referenced in this hypothesis are specific words or specific arrangements of words within a document. For the analyses in this paper, only English text is processed. The stylistic devices that are to be identified and their number of occurrences counted and analyzed are allusions, onomatopoeias and alliterations. Allusions are references to unrelated context. Onomatopoeias are words that imitate and express sound. Alliterations are arrangements of words in which consecutive words start with a similar sound pattern (Assaneo et al., 2011; Azari & Sharififar, 2017; Coombs, 1984; Irwin, 2002; Kaneko, 2011).

Hypothesis 2: Token offering success is unrelated to the usage of wording that carries positive or negative sentiment in the corresponding whitepaper.

The basis for confirming or rejecting this hypothesis will be a list-based sentiment analysis of the available whitepaper text data. In any sentiment analysis, words or sentence structures that convey a positive or negative mood or intention are identified (Neethu & Rajasree, 2013; Sánchez-Rada & Iglesias, 2019). Subsequently, the data set as a whole is given a sentiment score which then can be compared to the respective project's success.

Hypothesis 3: Token offering success is unrelated to the usage of wording that directly addresses or references personnel or investors in the corresponding whitepaper.

The last text features that will be analyzed to assess this third hypothesis are deliberate wording choices by the whitepaper's authors. Direct reader addresses involve the usage of the pronoun you and associated formulations. References to personnel will be measured by the count of the usage of words like we, our and team in the data sets.

For all introduced hypotheses, the alternative hypotheses are the respective opposite. This means finding a significant correlation between the mentioned text features and token offering success.

Quantitive analyses will be utilized to verify the null-hypotheses introduced here. The planned methodology for this analysis is briefly discussed in this paragraph. As a first step, all the available whitepaper PDFs need to be accessed and downloaded. Afterward, the entirety

of the text data needs to be converted into a format that can be analyzed automatically. After this initial processing, the text data is checked for the features mentioned in the hypotheses and the occurrences in the text are counted and summed up for each data set. The data values gained from this analysis are then processed so that the number of pages of the whitepaper has no influence on the results and that t he results are normalized between the limits of 0 and 1. Finally, with the processed data available, after a test for normality, the correlation between the multiple independent variables, for the analyzed text features, and the dependent variable, the amount of funds raised in the token offerings, is analyzed and the proposed null-hypotheses tested.

4   Analysis results and discussion

4.1   Data overview and test for normality

Table 1 and table 2 show a small section of data sets and the corresponding calculated values for all text features mentioned before. Table 1 contains absolute values in the columns Funds Raised and Words, the other columns contain normalized values. Table 2 contains normalized values in all columns.

Table 1: Data collected and calculated for an example section of token offering projects (1/2)

Project	Funds Raised [USD]	Words	Allusions	Onomato-poeias	Alliterations
Coinerium	17.000	7.455	0,068	0,017	0,079
DICE Money	1.465.856	5.493	0,037	0,047	0,060
Hashgard	20.000.000	3.201	0,189	0,060	0,062
Rate3	17.500.000	11.398	0,097	0,023	0,074
IoTeX	14.030.000	11.840	0,493	0,201	0,058
Bridge Protocol	25.000.000	4.819	0,063	0,000	0,052
DREP	20.512.132	7.650	0,039	0,025	0,073
Moonlight	2.254.365	9.899	0,153	0,006	0,091
Ulticoin	360.000	1.795	0,393	0,000	0,001
VideoCoin	50.000.000	4.780	0,190	0,067	0,056

Source: Own table

Table 2: Data collected and calculated for an example section of token offering projects (2/2)

Project	Positive Words	Negative Words	Direct Reader Addresses	Team Addresses / Team References
Coinerium	0,292	0,374	0,131	0,124
DICE Money	0,131	0,333	0,194	0,062
Hashgard	0,447	0,532	0,000	0,364
Rate3	0,353	0,737	0,114	0,120
IoTeX	0,336	0,408	0,000	0,073
Bridge Protocol	0,131	0,999	0,375	0,075
DREP	0,477	0,344	0,055	0,071
Moonlight	0,167	0,335	0,127	0,079
Ulticoin	0,445	0,389	0,491	0,447
VideoCoin	0,213	0,488	0,000	0,042

Source: Own table

In order to provide insight into the data basis for further analysis, table 3 and table 4 provide the key statistic parameters, such as the overall number of data sets, minimum, maximum, mean and median values. The minimum and maximum values represent the performed normalization between 0 and 1.

Table 3: Descriptive statistics (1/2)

Dependent Variables	Count	Minimum	Median	Maximum
Funds Raised [USD]	326	0	5.669.390	320.000.000
Independent Variables				
Allusions	326	0	0,133	1
Onomatopoeias	326	0	0,032	1
Alliterations	326	0	0,073	1
Positive Words	326	0	0,327	1
Negative Words	326	0	0,295	1
Direct Reader Addresses	326	0	0,049	1
Team References	326	0	0,129	1

Source: Own table

Table 4: Descriptive statistics (2/2)

| Dependent Variables	Mean	Std. Dev.	Kurtosis	Skew
Funds Raised [USD]	12.886.896	27.296.603	70	7
Independent Variables				
Allusions	0,165	0,137	9,388	2,560
Onomatopoeias	0,051	0,088	51,690	6,219
Alliterations	0,080	0,070	112,428	9,667
Positive Words	0,343	0,167	0,696	0,725
Negative Words	0,318	0,170	2,794	1,264
Direct Reader Addresses	0,113	0,158	8,708	2,629
Team References	0,172	0,138	6,681	2,138

Source: Own table

In order to assess wether the data for the independent and the dependent variables are distributed normally, histograms can be utilized. Figures 1 and 2 show histograms for the amount of funds raised and the values for the variable Positive Words for all analyzed data sets.

Figure 1: Histogram of the amount of funds raised for all data sets
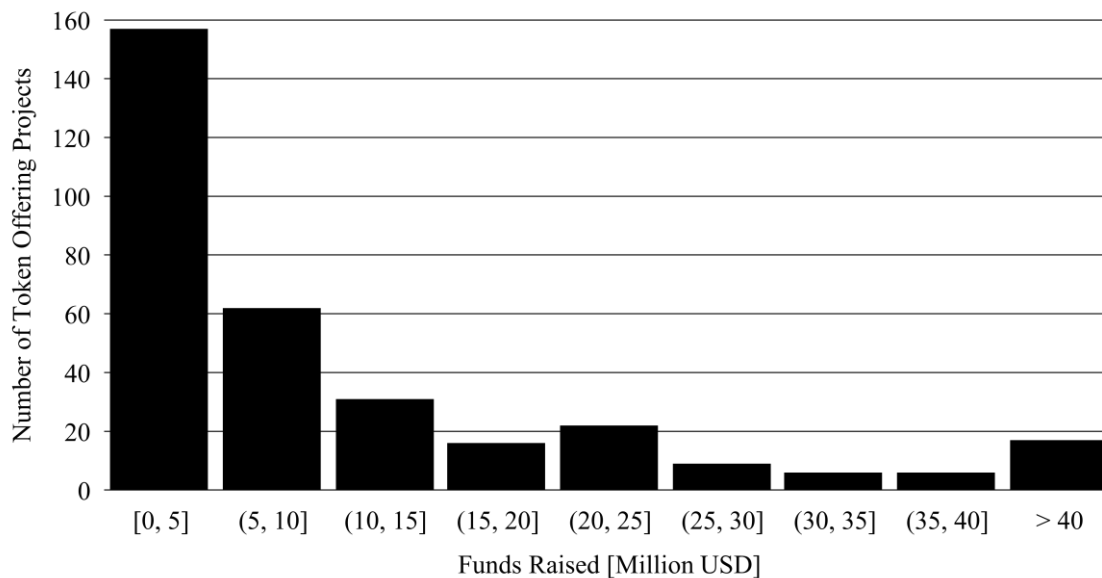
Source: Own figure

Figure 2: Histogram of the values for the variable Positive Words for all data sets
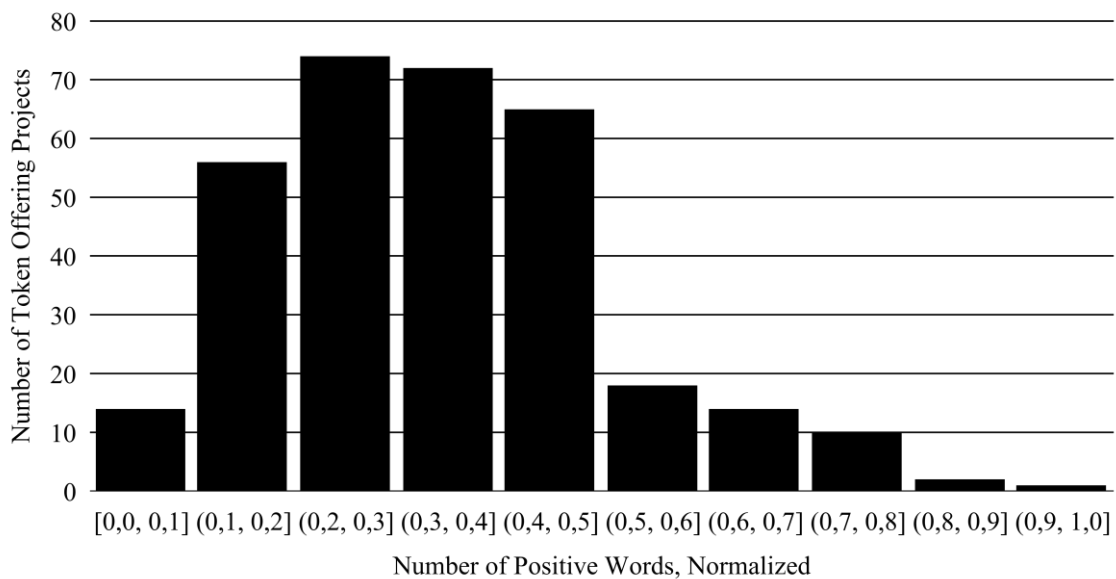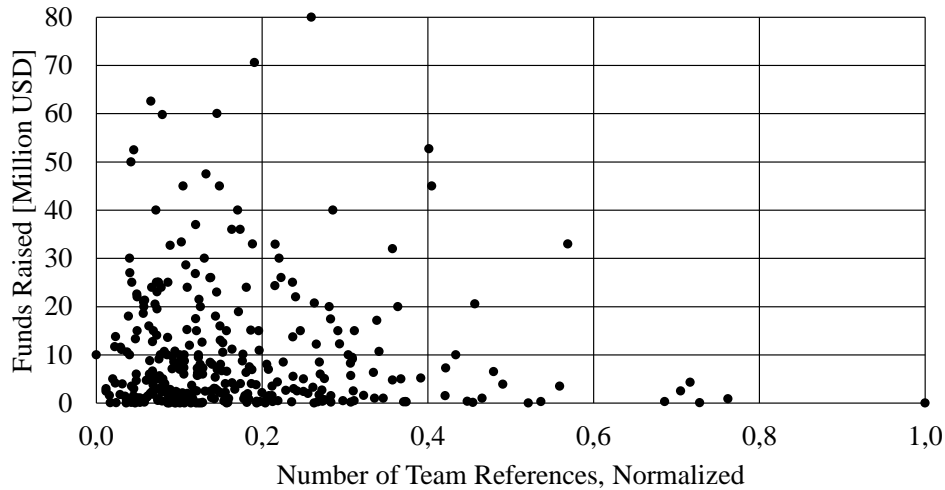
Source: Own figure

I order to achieve a definitive numerical result, a statistical test for normality was utilized. The Shapiro-Wilk test is the most prominent for checking for normality. The test's null hypothesis was rejected for all seven independent variables. This means that the values of the independent variables are not distributed normally.

4.2 Hypotheses testing

The first step to check for a significant effect of the independent variables on token offering success is identifying a correlation in data plots. To this end, scatter plots are utilized in which the dependent variable is displayed over the various independent variables.

Figures 3 and 4 show scatter plots of the amount of funds raised over the normalized variables Team References and Positive Words. In none of the plots of the dependent variable over the independent variables, a clear correlation, whether positive or negative, could be identified.

Figure 3: Scatter plot of the amount of funds raised over the variable Team References

Source: Own figure

Figure 4: Scatter plot of the amount of funds raised over the variable Positive Words
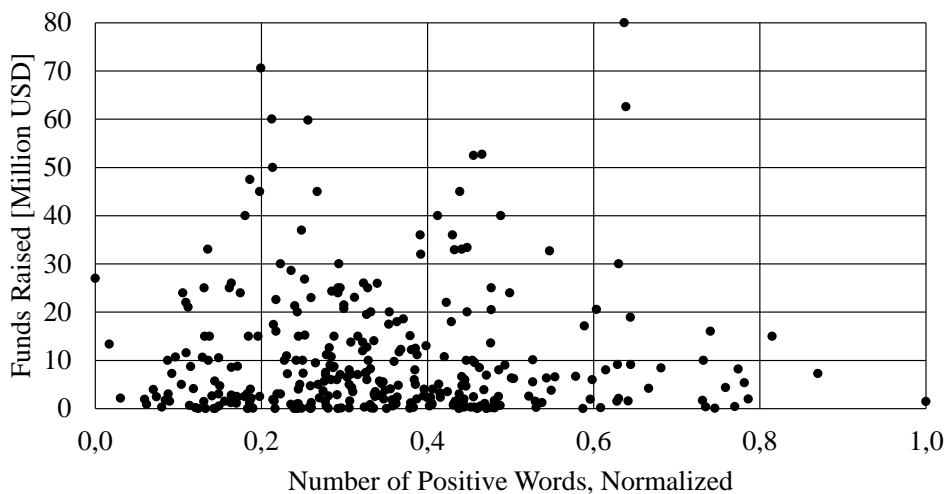
Source: Own figure

Table 5 shows the results of the Spearman Correlation analysis and the significance testing for the seven independent variables and the dependent variable. The resulting correlation coefficients rs are very low, with all absolute values below 0.1 except for the variable Direct Reader Addresses. Only for this variable, a very small negative correlation can be identified. These results are in-line with the problematic visual identification of correlations between the independent and dependent variables.

For all variables that show a very small correlation coefficient, the corresponding p values are so large that with the standard significance level of $\alpha = 0{,}05$, none of the results are

deemed significant. Again Direct Reader Addresses is the exception here, with a very small p value, so the previously identified slight negative correlation can be identified with high confidence. For all variables the data set count is 326, the degrees of freedom 324.

Table 5: Results for the Spearman correlation analysis and significance test

Independent Variables	rs	p
Allusions	0,0488	0,3803
Onomatopoeias	0,0491	0,3773
Alliterations	-0,0154	0,7816
Positive Words	-0,0296	0,5942
Negative Words	-0,0600	0,2797
Direct Reader Addresses	-0,2046	0,0002
Team References	-0,0640	0,2490

Source: Own table

Even though the effect of utilizing Direct Reader Addresses is highly significant, the calculated correlation is very small. As this variable only represents one of two variables on which hypothesis 3 is based, the authors conclude as follows:

All three proposed null-hypotheses can not be rejected based on the calculated values for the data extracted from the token offering whitepapers. These failures to reject the null-hypotheses mean that there is not sufficient evidence to attest a significant influence of the analyzed text features on token offering success, which here is measured as the amount of funds raised.

All three hypotheses, whether the focus lies on stylistic devices, sentiment analysis or specifically addressing certain people within the text, all have in common that the respective text features are fine details within the large amount of text in the whitepaper. Furthermore, in the author's opinion, there are multiple potential explanations why no strong significant effect on token offering success could be identified.

The first possibility is that the addressed readers, the potential investors, cannot identify these text features as deliberate choices within the whitepapers. Consequently, no meaning or value is attributed to these features and no effect on the reader is achieved. Not identifying an allusion correctly could result from the lack of required knowledge of the reference utilized.

Another possible angle to explain the lack of a significant impact of the text features of the three hypotheses is information content. As discussed in the core literature analysis, the objective of reducing the information asymmetry between the offering and investing side makes whitepapers necessary (Campino, 2021; Chod & Lyandres, 2018; Kranz et al., 2019). The analyzed features all have in common that no contribution towards this objective is made. While a certain mood or sentiment might be conveyed or emphasis put on certain parts of the text, inherently, no information is carried by these features. Several sources show that whitepapers with larger informative content, more technical whitepapers and whitepapers with information that is costly to imitate are more successful (Bourveau et al., 2018; Deveux,

2021; Feng et al., 2019; Fisch, 2019; Florysiak & Schandlbauer, 2018). Again, the analyzed features do not contribute to any of these text properties affecting offering success.

Overly positive or negative wording within the whitepapers could be interpreted as an intention to connect to the investors emotionally, which previous research already found to negatively influence token offering success (Di Matteo, 2020).

Lastly, a high quantity of utilized stylistic devices, specific addresses or overly positive or negative wording could cause the impression that the project team's primary focus lies on the formulation of the whitepaper instead of the work on the project behind the offering.

5   Conclusion

In recent years, token offerings, including intial coin offerings and security token offerings, became an established method for firms to raise funds for their operations. This especially applies to SMEs as the friction losses associated with token offerings are significantly lower than those for an IPO (Mazzorana-Kremer, 2019). Until the end of 2019, over 31 billion US dollars were invested utilizing this form of fundraising (Ante & Fiedler, 2020; PwC, 2020).

The rise in popularity of token offerings also results in an increasingly dangerous environment for investors as the amount of fraudulent offerings increases as well (Moxoto et al., 2021). This danger is amplified by the novelty of the investment type and corresponding lack of experience on the investing side (Debler, 2018). Investors are often led to quick and uninformed investment decisions based on bounded rationality and a prevalent information asymmetry (Ante et al., 2018; Bruckner et al., 2020; Momtaz, 2021b).

A whitepaper is one of the major tools to reduce this information asymetry between the offering and the investing side (Campino, 2021; Chod & Lyandres, 2018; Kranz et al., 2019). The offering firm provides this document to explain the business idea and advertise the investment opportunity, among other content (Di Matteo, 2020; Fisch, 2019; Shin et al., 2019).

For both sides taking part in the token offering, a major concern are the success factors that drive the project's success. One central aspect in the current state of research regarding whitepaper-related success factors is that more technical and more informative whitepapers tend to be more successful (Bourveau et al., 2018; Feng et al., 2019; Fisch, 2019; Florysiak & Schandlbauer, 2018).

In this paper, the success factors for token offerings are analyzed that can be derived from text features in the whitepapers. The analyzed features include stylistic devices, such as allusions, onomatopoeias and alliterations. Additionally, text features that directly address or reference the investor reading the whitepaper or the team engaged with the respective project are analyzed. Lastly, a sentiment analysis of the whitepapers is conducted to assess the influence of positive and negative sentiment on token offering success.

As a basis for the analyses, whitepapers extracted from the token offering research database are used (Momtaz, 2021a). From the initially available data, 326 sets fulfilled the quality requirements to conduct the analyses. The text content of the whitepapers was analyzed and occurrences of the mentioned text features were identified and summed up.

These quantified features were then analyzed for significant correlation to the amount of funds raised by the respective token offering project as a measure for success.

The results of the analyses show that the introduced null-hypotheses can not be rejected. No significant effect on token offering success was found for the usage of stylistic devices, wording that carries a specific sentiment, or direct addresses and references of certain individuals involved.

Future research into whitepaper analysis should distinguish between the different types of token offerings. This differentiation could be important as the investors' focus on specific whitepaper content could differ between different offering types. Also, a more in-depth sentiment analysis utilizing well-established algorithms should be conducted. Lastly, a corresponding quantitive analysis should be conducted based on a larger amount of data sets to increase the significance of the conclusions drawn.

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