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THE EFFECT OF PAST TENSE MARKERS FREQUENCY ON THE SUCCESS OF CROWDFUNDING CAMPAIGNS

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Abstract

According to recent studies, linguistic choices made in crowdfunding pitches have been proved to influence the fundraising ability of their campaigns.
The pitch can be considered the prime tool startups' founders have to persuade potential investors to pledge the capital needed.
This research wants to shed light upon the role played by language in capturing backers' attention.
Specifically, it explores the impact that the frequency of past tense markers adopted in crowdfunding pitches has on the success rate of their projects. It is worth noting that, with the expression "success rate" it is meant the probability that the startup reaches the predetermined funding threshold within the expiration date.
Data on 41 crowdfunding campaigns have been collected, 38 from *Seedrs* and 3 from *Crowdcube*, both equity-based crowdfunding platforms.
The empirical findings of this work show that the relation between the above-mentioned frequency and the probability of success is positive and statistically significant.
In concept, this nexus can be explained by seeing that referring often to the past enhances backers' perception of the soundness and the reliability of the startup, by drawing attention to its previous accomplishments. Furthermore, it highlights founders' know-how and experience in the sector.

Introduction

The way in which business ventures attract financial contributions plays a pivotal role in guarantying their future accomplishments.

A new approach to raising capital is represented by the prominent phenomenon of crowdfunding, which saw a sharp increase in popularity in recent years. To convey the idea of the issue, it is appropriate to report Schwienbacher and Larralde's definition they provided in 2010: "[Crowdfunding is] *an open call, essentially through the Internet, for the provision of financial resources either in form of donation or in exchange for some form of reward and/or voting rights in order to support initiatives for specific purposes*."

This research restricts the scope of the investigation to a peculiar form of crowdfunding: the *equity-based* one, in which investors obtain capital in exchange for their initial support.

The *equity-based* model exacerbates the benefits and the risks of walking this path because backers become future shareholders of the business. On one hand, this accelerates and eases the funding process, tests the commercial viability of entrepreneurial ideas and allows investors to grasp higher returns. On the other, however, it addresses to the crowd and so attracts individuals that are less educated on financial topics than those operating in traditional financial institutions.

According to several studies, the language adopted in the pitch to raise capital is a crucial component for ensuring the success of the project.

Thus, the core question that this work attempts to satisfy is whether it exists a relation between the frequency of past verbal forms used in campaigns' pitches and their probability of successfully obtain funds.

This dissertation can be organized in concept in two main sectors.

The first one is theoretical: it provides a description of the topic and highlights the most salient facets. It includes the categorization of the main crowdfunding platforms, along with the most popular websites, with a focus on the equity model. Next, it gives a hint of the historical background and of future potential evolutions.

To give a clue of the extent of the phenomenon, this research provides data on the total global crowdfunding financing volume, along with a comparison with other sources of finance (angel investors and venture capital firms) and a focus on the market size in UK.

Then, it illustrates previous empirical studies in the field. In particular, attention is drawn to those that analyze the impact of linguistic choices in crowdfunding pitches on the probability of success of their campaigns.

Especially relevant to this research is the one conducted by Parhankangasa and Renko (2017) that highlighted the importance of writing in a precise and concise manner, referring to past experiences and challenges tackled and to build a personal connection with the crowd.

This last feature was remarked also by Gorbatai and Nelson (2015): they encourage founders to make use of predictive phrases addressing to the emotional sphere of the human being, rather than the rational one, and to avoid money-related sentences.

The second sector of this dissertation provides an answer to the main research question. It clarifies the objectives and the hypotheses that need to be tested as well as the potential limitations of the study.

As previously mentioned, this work confirms the existence of a positive and statistically significant relation between the frequency of past tense markers and the success rate of crowdfunding campaigns. The methodology section explains how data regarding these variables were collected and describes the relevant statistics. Several regressions were run to confirm the final result, exploiting both the linear and the logistic model. Although some differences can be detected, all of them evidence that, no matter the control factors included in the regression, a larger amount of past forms in the pitch contribute to secure investors' capital.

As reiterated in the final discussion, talking more of past experiences may give backers the perception of solidity of the startup and its accomplishments, or convey the sense that founders are expert in the sector.

Thus, this work recommends entrepreneurs to emphasize past achievements and to sell the idea that they possess the required practice and know-how.

Chapter 1

What is Crowdfunding and Why the world is moving toward it

With one out of two people dropping out of high school and a considerably high rate of criminal activities, the city of Compton, California, can be regarded as one of the most ghetto cities in the area of Los Angeles. (www.roadsnack.net consulted 10/09/2017)
It comes as no surprise, then, that children raised in such a hostile environment have almost no chances to be accepted into renowned universities like Harvard.
Against all odds Elijah DeVaughn, grown up in a single-parent house in Compton, declared it was: "*one of the best moments*" of his life once he found out he'd been accepted into Harvard university class of 2021.
"*I remember the nights with the gun shots*," Devaughn said of his childhood. "*My mom running in my room saying, 'E.J. we need to lay on the floor.'*"
(www.abcnews.go.com consulted 10/09/2017)
Although most of the credits belong to the pupil's diligence and hard work, this one can be included in the crowdfunding most successful stories of 2016.
This is because Elijah managed to collect 21.000$ through a humanitarian fundraising campaign on the crowdfunding platform "GoFundMe".
Although hitting the goal of 16.000$ funds needed, the campaign is still ongoing, seeking financial aid also for books and other schooling expenses. If, at first glance, this may only seem a touching story, it unveils the powerful impact that crowdfunding can have as a new source of financing projects.
Being a relatively new phenomenon and in constant evolution, trying to define it in a complete and fulfilling manner may be too ambitious.
Nevertheless Schwienbacher and Larralde (2010) provided a definition for crowdfunding which became popular and widely used: "*an open call, essentially through the Internet, for the provision of financial resources either in form of donation or in exchange for some form of reward and/or voting rights in order to support initiatives for specific purposes*."
However, this kind of definition would leave out humanitarian initiatives as the one involving Elijah Devaughn as well as peer-to-peer lending (Lin and Viswanathan, 2013) or fundraising actions carried out by fans of a music group (Burkett, 2011).
Thus, As Mollick (2014) points out, a narrower characterization of the concept is preferable, allowing both for specificity and leaving room for the continuous evolution of the notion. "*Crowdfunding refers to the efforts by entrepreneurial individuals and groups – cultural, social, and for-profit – to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries".*
This second definition highlights two important aspects: first that social and humanitarian projects are addressed as well and second that the standard financial intermediaries as investment banks, angel investors and venture capital firms may not play a role in the funding process (at least in the earlier stages).
The latter aspect represents the main innovation brought by the phenomenon and it partly explains why it is becoming so popular and widespread.
In fact, by sourcing *directly* the savings of a large audience, the entrepreneur can: obtain funds in a quicker and easier way relatively to getting a bank loan approved; overcome geographical barriers as investors can

rapidly access the call from all over the world and third, as Mollick (2014) emphasizes, demonstrate demand for a specific project.
The latter point is rather important as, by succeeding in financing an idea, the founder proves that investors believe in the market success of his product and that it will be demanded by future consumers.
Once the entrepreneurs show that their project is commercially viable, they will also get access to more traditional sources of finance and be free to expand or improve their initial concept.
This issue can be clarified through the tangible story of a small startup named Pebble that became Kickstarter's most funded project (Mitra et al., 2014).
Pebble is a "smart watch" that gets notifications from the phone and uses sport and fitness apps. Once the campaign has been uploaded on Kickstarter, it managed to collect $10,266,845 from 68,929 backers (www.kickstarter.com consulted 11/09/2017).
These ones are pretty impressive numbers considering that initially the project was rejected for venture capital funding, and that then it pledged $2.6M in just three days on Kickstarter (Mitra et al., 2014).
After this widespread success, Pebble secured a large amount of venture capital investing, a nice happy ending.
To further draw attention to this last point it is appropriate to report an interview with Indiegogo's cofounder Danae Ringelmann, declaring: "*A lot of people think crowdfunding is just an alternative form of financing – and it totally is – but that's the tip of the iceberg. We're becoming the world's incubation platform, because we're creating an ecosystem and a mechanism where social projects, businesses, (and) creative ideas rise to the top algorithmically and automatically, rather than subjectively and manually*." (www.thenextweb.com consulted 11/09/2017)
Put it differently, today's world is moving toward a different manner of dealing with the bigger financiers as they only represent a second stage leverage to gather more capital once it has been shown that the initial idea is supported by the crowd.
Furthermore, as Gerber et al. reported in 2012, some other drivers push creators to upload their projects on crowdfunding platforms. One of this can be establishing long term relationships with the funders that extend beyond the moment of the transaction, or replicating successful experience of others.
In fact, entrepreneurs' success in launching a project represent a social proof for others who want to take off and can also see the path to follow (Gerber et al., 2012).
There may also be more psychological motivations like receiving validation for one's ability. As Bandura highlights *in The Explanatory and Predictive Scope of Self-Efficacy Theory*: *"people's beliefs in their ability increase when they have successful experiences and receive public recognition of their success".*
In order to gain a better understanding of how, in practice, crowdfunding works it may be helpful to illustrate the categorization of platforms.

1.1.1 Reward-based model

This model finds its maximum actualization in Kickstarter, the most active platform, raising over $2 billion since its launch in 2009. On a typical day, the Kickstarter community pledges over $1.5 million. (www.investopedia.com)
Kickstarter deals with creative projects in a variety of fields such as technology, music and movies but they need to be "projects" in the sense that a clear goal must be specified (for instance the creation of an album). Charity initiatives or scholarships campaigns are excluded.
Backers are motivated to contribute their resources not with the aim of receiving financial profit, but either because of the nature of a project's reward (a copy of the product, a limited edition, a custom experience, credits in a film or book), or because they're simply inspired by the idea. " *Backing a project is more than just*

giving someone money. It's supporting their dream to create something that they want to see exist in the world" (www.kickstarter.com consulted 13/09/2017).
Eventually if the product is successfully funded within the expiration terms the site applies a 5% fee to the final contribution. On the contrary, shall the project fail to reach the target, no fees will be applied, the money will be returned to the backers and fundraisers will get nothing at all.
This model is known as "*all-or-nothing*" and it presents its own advantages: entrepreneurs which are too enthusiastic about their ideas may reconsider the commercial success of their product if it is not financially supported by the crowd and be more careful in evaluating its soundness.
Another popular site exploiting this paradigm is Indiegogo, in which , unlike Kickstarter, fundraisers can opt for the "*Flexible Funding*": they can dispose of the money collected even if the specified threshold has not been reached.[1](*Keep-It-All* model)
Furthermore, charity donations are included in the projects to fund.

1.1.2 Donation-based model

In this case, the dominant belief is "caring is sharing": supporters are animated uniquely by a social cause ranging from charity to medication fees, from travelling expenses to scholarships, as it was in the lucky case of Elijah DeVaughn.
GoFundMe, launched in 2010, is a pioneer in donation-based crowdfunding. As of October 2013, the GoFundMe platform has enabled its users to raise $120 million in 350 campaigns, from 1.4 million donors. (Freedman and Nutting, 2015).

1.1.3 Debt-based model or Peer-to-peer model (P2P)

With the 2008-2009 financial crisis credit has dried up considerably. There come as no surprise then, that debt-based crowdfunding, or "marketplace lending" as it was recently named, has become a simpler, quicker and cheaper alternative to borrowing from a bank.
It is cheaper and quicker because services such as application review, credit check, loan disbursement and payment processing, are all automated, thus resulting in lower overhead. (Freedman and Nutting, 2015)
Debt-based crowdfunding emerged as an investment vehicle in 2006 in the United States, and a year earlier in the UK. The debt version of crowdfunding lets individual borrowers apply for unsecured loans (not backed by collateral) and, if accepted by the platform, borrow money from "the crowd," then pay it back with interest. (Freedman and nutting, 2015).
Lending Club, launched in 2006, is the largest platform in terms of volume and revenue and it shows an approval rate of about 10%. This means that compared to other crowdfunding platform models, just few applications are accepted.
Obviously, this is due to the higher risk inherent in the transactions made, which implies that, unlike the Kickstarter experience, the investor needs to acquire important notions before committing his money.
For instance, it is important to get acquainted with the associated risks and returns for each lending opportunities and with the existence of secondary markets. This can be considered a worthwhile effort since investors can enjoy interest rates that are high enough to generate strong returns and that present a volatility rate lower than stocks (Freedman and Nutting, 2015).
P2P platforms earn by taking a portion of the loan amounts and a loan fee for the services provided from lenders.

[1] A higher fee is charged for this option (www.Indiegogo.com consulted 14/09/2017)

1.1.4 Equity-based model

The last platform model that will be presented is the equity-based one.
This is particularly relevant both for the magnitude of its advantages (and risks) and for its potential to revolutionize entrepreneurial financing. In fact, in his 2012 remarks upon signing the JOBS Act to legalize equity crowdfunding, President Obama stated that "*for start-ups and small businesses, this bill* [equity crowdfunding] *is a potential game changer*" (Mollick,2014). With this approach, investors get *equity shares* in exchange for the money provided, in a way that is proportional to their contribution.
This model has become widespread after the above mentioned 2012 JOBS Act which loosened restrictions on where and how business ventures could finance their activities.
The most remarkable advantage is that entrepreneurs can access resources more easily and fuel the flame of their dreams without incurring in longer procedures, such as asking for a bank loan. However, as a consequence of this, more investors will be present in the marketplace. Since many small shareholders are harder to coordinate than few large ones, there will be higher costs and logistical challenges associated.(www.moneycrashers.com)
However, the most concerning implication, is that by allowing so, the JOBS ACT opened the riskiest area of alternative investing to tens of millions of (uncredited) investors. These investors are less wealthy than the traditional ones and thus way less sophisticated and educated on such topics. (Freedman and Nutting, 2015).
The issue has been subject to contrasting points of view.
In the Harvard Business Review's HBR Blog, Larry Downs said "*crowdfunded equity financing has the potential to cause "Big Bang Disruption"".* Instead, Duncan Niederauer, CEO of NYSE Euronext, stated that equity crowdfunding *"will be the future of how most small businesses are going to be financed."*
Whether this new approach would do more harm than good only time will tell.

Crowdcube is the largest among the equity (and non-equity) crowdfunding platforms out of UK: in 2015 it raised £83,060,180 ($105m) for 166 pitches. (www.medium.com 14/09/2017).
Seedrs has so far raised £210m for around 500 companies and, along with rival platform Crowdcube, dominates the UK's equity crowdfunding sector.(www.forbes.com 14/09/2017).
Some equity crowdfunding platforms such as *PeerRealty* and *CircleUp* operate in the real estate industry. They hold investor's fund in a separate account (escrow) and when the round finishes, they transfer the amounts to the company. (www.moneycrashers.com 14/09/2017).

1.2 Historical roots, present and future trends

Crowdfunding is derived from the broader concept of crowdsourcing. Coined in 2006, crowdsourcing is defined as: *"a way to harness the creative solutions of a distributed network of individuals*". In this specific case crowdfunding harness the power of the crowd to fund small ventures, also exploiting the potential of social networks. (J. Howe, 2008).
However, before the computer mediated version, crowdfunding was mainly associated with personal initiatives such as musicians asking their fans to fund a new album or tour (Gerber et al., 2012).
As a matter of facts, it started gaining attention in 2003, after the launch of ArtistShare: a website where musicians could seek financial help to fund their recordings.
The very first project was Maria Schneider's jazz album where she used a tiered system of rewards. In exchange for modest contributions, backers could get the possibility to download the album upon its release. For more generous ones, they could be listed as participants who "*helped to make this recording possible*". (Freedman and Nutting, 2015).

In order to gain a better understanding of the extent of the phenomenon, it is useful to provide some numbers related to market size and trade volume.
Fig.1.1 shows the total global estimated fundraising volume in 2015 of the whole industry: $34 billion.
As can be seen, the amount has increased considerably in recent years. Of this $34 billion, the biggest chunk comes from P2P Lending, with $25 billion. Then reward and donation-based crowdfunding follow, amounting to $5.5 billion.
Equity crowdfunding exhibits a more exiguous amount (probably due to its riskier nature), equalling $2.5 billion.

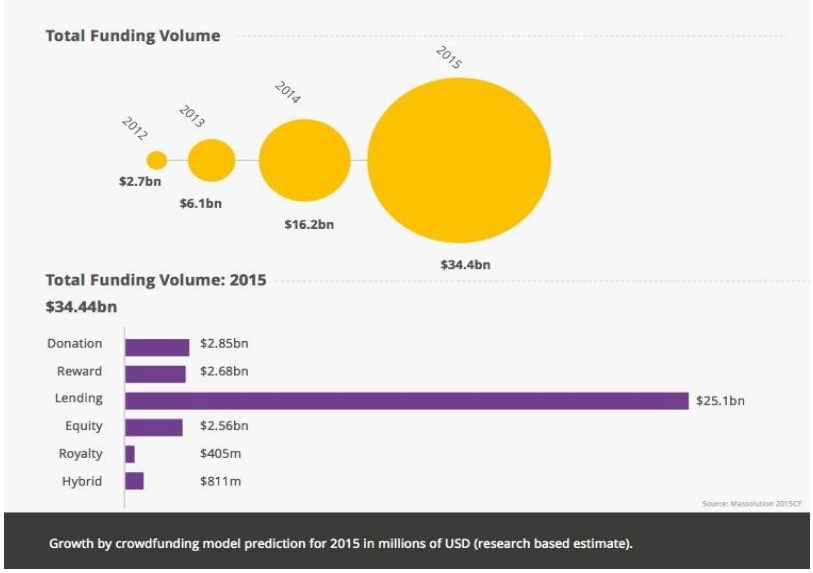


Fig. 1.1: Total Crowdfunding Funding Volume in 2015 Source: www.crowdexpert.com

Fig.1.2 illustrates the evolution of annual funding across years for three popular sources of finance: Venture Capital firms, Angel investors and Crowdfunding.
Although being the least preferred source in 2009, crowdfunding saw a sharp increase in 2013, which allowed it to surpass Angel investing in 2015. As graphs show, it was also on trend to overcome Venture Capital in 2016.

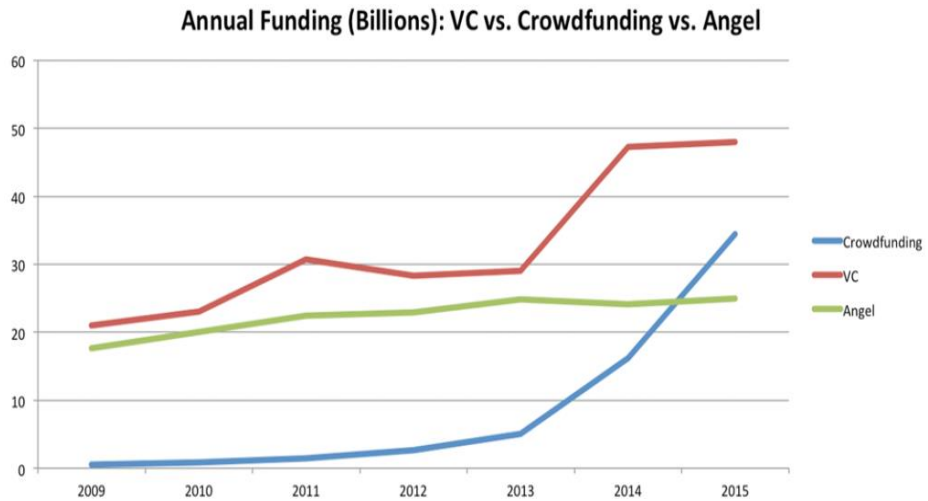
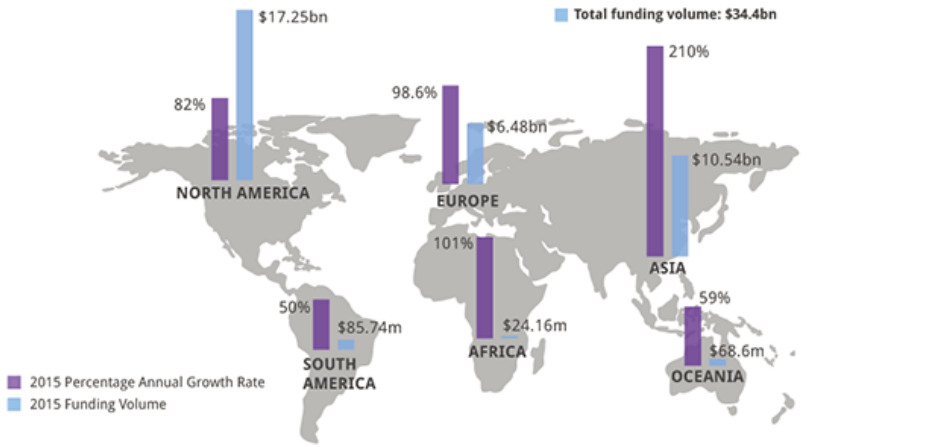


Fig. 1.2 Annual Funding growth: Crowdfunding vs Venture Capital firms vs Angel investors. Source: www.crowdexpert.com

Naturally, this alternative way of financing doesn't affect the regions of the globe all in the same manner. As evidenced by figure 1.3, in 2015, North America had a high total funding volume, amounting to $17.25 billion,

and a growth rate which was not particularly remarkable: 82% per year. This can't be stated for the African continent, which counted a more modest $24.16 million of funding volume but had a steep annual growth rate of 101%. The rationale behind this can be attributed to the large number of donation and humanitarian campaigns that involve this territory.
Finally, worth to mention is the Asian region which, in 2015, exhibited $10.54 billion in total financing volume and an impressive 210% in annual growth rate.



Growth by crowdfunding region prediction for 2015 in millions of USD (research based estimate)

Fig 1.3: Growth by crowdfunding region prediction for 2015. Source: www.crowdexpert.com

Finally, as this research hinges upon UK crowdfunding campaigns, a focus should be made on the English territory.
UK is one of the most involved countries pertaining to the phenomenon: the alternative finance market was valued at £3.2 billion in 2015 (www.consultancy.uk 18/09/2017).
Market size has increased by £1.74 billion since 2014 and by £666 million in 2013, in line with the impressive global trends.
However, some factors may threaten this sharp growth: competition among platforms is high and there are potential risks for platforms to incur in breaches of cyber security. This may eventually lead to the collapse of one or more popular crowdfunding websites (www.consultancy.uk 18/09/2017).

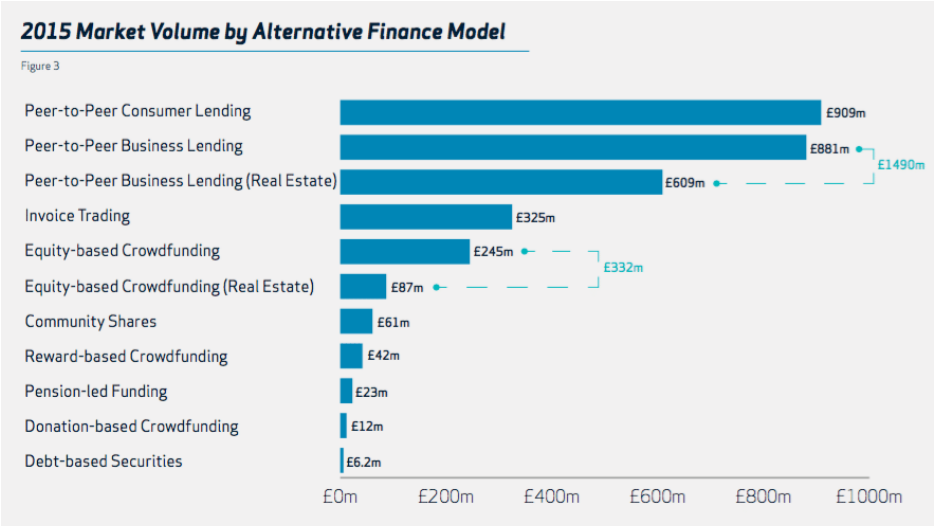


Fig. 1.4: 2015 Market Volume by Alternative Finance Model in UK. Source: www.consultancy.uk

Being a contemporary phenomenon, it may seem spontaneous to investigate crowdfunding future evolution: whether it will be a reinforcing trend or not, or how it will adapt to the constantly changing demand of the forthcoming users.
Indiegogo's cofounder and Chief Development Officer Danae Ringelmann suggests that the future is *niche crowdfunding*: *"Kickstarter and Indiegogo are both amazing platforms, and they're obviously doing something right. But I really do find that the struggles with these types of platforms will always be that they have so many projects going on at one time, that some will be overlooked."* (www.thenextweb.com consulted 18/09/2017)
As she added, it's crucial to identify the targeted audience of the projects and build a platform aimed at specifically address that audience.
The rationale behind this is that backers, in such case, share all the same interest, fueling the perception of being part of a community and, as a natural implication, increasing the level of mutual trust. Eventually this might result in a higher rate of success in funding the projects.
A confirmation of this idea may come from a platform specialized in niche crowdfunding: Seed&Spark.
On the homepage of the website an audacious claim is made: *"75% success rate in crowdfunding"* and immediately below*:" That's better than any other platforms, as independently verified"* . (www.seedandspark.com consulted 18/09/2017).
This site addresses categorically to film and TV projects and a great effort is spent to build a sense of community among users.
In fact Seed and Spark offers workshops bestowing advices to creators on how to receive funds more easily and on how to create a network able to turn backers into fans.
It also displays some extra options, such as the possibility for funders to donate not only money but also equipment used to finalize the project.
Finally, another evolution we may envisage is related to the supportive efforts that crowdfunding platforms will provide to entrepreneurs.
In a 2016 interview Matthew Tagliavia, spearhead of "Fund an Idea" and Director of Marketing for InventHelp, affirms
that the goal of such websites will be to "*change the crowdfunding mindset from: "How do I get these funds?" to "Once I have these funds, how can I best use them to achieve my goals?"* (www.huffingtonpost.com consulted 18/09/2017).
Thus, before long, these websites may cease being merely intermediaries among backers and creators, but will play a more inspirational and educational role towards the latter.

Chapter 2: Related literature and Research

As a relatively novel concept, literature and past empirical research dealing with crowdfunding are quite exiguous.
For this reason and for the potential strong impact that it may have on society, economics and even politics, it represents an intriguing topic to explore.
This research wants to shed light on the role that past tense forms in crowdfunding pitches play in affecting the success of a campaign. Therefore, it is useful to frame the issue in a wider context and take advantage of past studies to see how language and other factors affect the campaigns' fundraising efforts.
The concept that language is able to persuade the way people act has solid roots in psychological and philosophical fields. What is more interesting to discover is that linguistic differences among populations have different impacts on their future behavior.
This hypothesis has been advanced by Chen (2013).

He distinguishes languages in two main branches: strong-FTR (Future Time Reference) languages and weak-FTR ones. The former refers to languages that require future events to be grammatically distinguishable by certain auxiliaries and specific words (e.g. English). The latter do not present this feature, such as German. In other words, a weak- FTR language implies that future and present are spoken identically.
In his paper,[2] Chen presents empirical findings according to which populations characterized by weak-FTR languages are likely to: "*save, exercise, plan more and spend, smoke, and over-consume less*". This means that they exhibit more future-oriented behaviors than people that grammatically remark future forms.

The startup's pitch is the main tool that creators have to grasp backers' attention and to convince them to pledge the capital needed.
For this reason, past literature has tried to find some characteristics of the language used in the pitches of successful projects. For instance, Nihit et al. (2015) aim at finding whether it is possible to use text to effectively predict success of campaigns. The bulk of their work shows that words referring to specific themes play a major role in securing such success. In particular, text needs to address to the following social behaviors:

- *Reciprocity*: "*the tendency to return a favor in exchange for receiving one"*. Many predictive phrases can be adopted to offer a reward or a gift in return for donation funds.
- *Social relationship*: predictive phrases employing networks and community dynamics are important to successfully fund projects (e.g. the words :"community", "friends").
- *Emotional appeal*: "*successful campaigns are emotionally appealing to the readers*". (detected through words such as "passion").
- *Gratitude*: "*successful campaign text conveys gratitude towards the backers"*. For example, phrases such as "thank you" and "thank you so much" are predictive of success.
- *Collective phrasing*: *"project descriptions making use of the singular first-person pronoun 'I' tend to belong to unsuccessful projects, while those using the plural pronoun 'we' are generally successful".*

A very interesting perspective on the topic is offered by Gorbatai and Nelson (2015) who attempt to link gender differences in linguistic content to fundraising outcome.
Their study proves that: "*Crowdfunding proposal success decreases with the use of money-related language*".
As previously explained in this research, crowdfunding is a new tool to raise capital and follows different dynamics from the traditional methods. For this reason, specialized financial language that may be effective in convincing traditional investors such as venture capital firms or banks, can sound formulaic and dry to the general population.
Pitches detailing monetary aspects may not convince people to donate, especially if they don't expect financial gains in return. (Gorbatai and Nelson, 2015). Furthermore, the same study shows that crowdfunding success increases with the frequency of positive emotion terms. An optimistic and confident language is likely to convince people to invest in a business idea, because it appeals to the people's emotional side, making them feeling involved in the cause.
Since: " *women are more likely to use language related to positive emotion, […] and less likely to use money/ business related terms",* the most curious and impressive finding of their research, is that, due to the linguistic differences among genders, women are systematically more successful than men in fundraising projects.
Parhankangasa and Renko (2017) illustrate that a concrete and precise language adopted in the pitches leads to a higher rate of reward. Furthermore, their findings are in line with those of Schwienbacher and Larralde

[2] "*The Effect of Language on Economic Behavior: Evidence from Savings Rates, Health Behaviors, and Retirement Assets*", American Economic Review 2013, 103(2): 690-731

(2010) in saying that entrepreneurs benefit from using styles that build a personal connection with the crowd. Hence an advice can be given to creators to give "*details about situations, objects and people*", describe their experience and challenges and to ask questions to the crowd.

Apart from the language adopted, other characteristics of a crowdfunding campaign pitch impact its probability to pledge money from backers. It may be reasonable to think that visual content is important to attract investors' attention.
In fact, it can be argued that the provision of video and images are effective in the course of communicating project information. In particular, it has been shown that the video material has a positive impact on the success of funding (Koch and Siering, 2015).

Although the pitch is the main point of connection between investors and entrepreneurs, interactions among them can be subject to multiple variables that affect the final outcome.
For instance, one may argue that the geographical proximity between backers and receivers have some relation with the fundraising ability of the latter. Local investors seem to be more willing to finance than distant ones, especially in the very early stages of a financing round (Belleflamme et al., 2012). Geography is also reflected in the nature of the projects, because entrepreneurs of different nationalities create products that match different cultures (e.g. country music in Nashville). Geographical areas seem to be linked to success rate of the campaign. (Mollick, 2014).
As crowdfunding is associated with the rise of Web 2.0, it is easy to see how its pledging ability can also be attributed to social network platforms.
As demonstrated by several studies, a large degree of social connection increases the project's chance of being funded (Agrawal et al., 2010; Mollick, 2014).
Social media play such an important role in crowdfunding because potential investors care about whether they can trust the person to which they are donating money or not. Since they are not professional financers, they have fewer requirements in terms of source or quality of the information. In this context, human contact has a bigger impact than in other sources of finance. (Schwienbacher and Larralde, 2010).
Crowdfunding platforms are highly interactive environments, with no fixed roles: creators of a project can be backers of another one and vice versa. It may be interesting to know how entrepreneurs interact with each others.
Burtch et al. (2011), for instance, indicate that: "*backing other projects, prior to or during the creation of one's current project significantly increases its funding success*".
This can be explained by recognizing that crowdfunding websites provide good learning opportunities for the owners of future startups that participate in platform actions.

Chapter 3: Methodology

3.1 Motivation and Key Research Questions

Given the available research in the field, I found it interesting to dig deeper in the issue and contribute with new findings related to the topic.
Thus, the core of my study hinges upon the following research question: "*Does the frequency of Past Tense Markers have a significant effect on the rate of success in crowdfunding campaigns pitches?".*
Entrepreneurs who are willing to receive financial help to kickstart their project, need to present it in the proper manner.

They do so by uploading the so called "elevator pitch": a brief description of the startup which includes three main sections: "idea", "market" and "team".
The pitch may be regarded as a concise version of the business plan but, unlike this one, it needs to address not only to the rational part of the human being, but also to the emotional one, by telling a persuasive story and by suggesting a solution to the consumer's need.
This is presented in the "idea" section, also displaying the revenue model and past accomplishments. In the "market" section the size of the market, the targeted one, existing competitors and strategy are tackled.
In the last section the team is presented, along with their roles and qualifications and their percentage of equity.
Intuitively, the pitch is a crucial tool to secure the investors' attention and it has a huge impact on the rate of success of the campaign.
It is worth to highlight that with the term "rate of success" I refer to the chance of hitting the funding threshold, that is, a campaign is "successful" if it manages to rise the required funds within the expiration date.
As demonstrated by previous empirical studies, what affects this rate is also the choice of verbal forms and tenses in the pitch.
Thus, this research is focused on finding out whether the frequency of past tense markers used in these pitches has a *significant* impact on the success of the campaigns.
Put it in other words, I want to investigate whether it exists a positive correlation between success rate and frequency and, more importantly, whether such relation is *statistically significant*.

3.2 Sample and Observations

I started my research with a sample consisting of 27 observations corresponding to 27 crowdfunding campaigns[3] that were previously selected.
Later on, the sample size has been expanded to include 14 more observations[4], for a total of 41 startups. This choice was aimed at ensuring the accuracy of the statistical inference.
All the projects taken into account came from *equity* crowdfunding platforms. This is an important factor because individuals who become investors of these campaigns will receive equity in exchange, meaning they will eventually become stockholders and, as such, are more concerned with the future performance of the business.
Projects were taken from two platforms: Seedrs and Crowdcube, with only three of them belonging to the latter[5].
The relevant data have been previously entered in an Excel file with two of the campaigns[6] left "*ongoing*". Thus, my first task was to update and check whether they succeeded or not: both of them reached the funding threshold.
The database displayed, among other[7], information on:

I) Name of each of the 27 campaigns
II) Website from which they were selected

[3] Morpher - Folding Helmet, DEN, Ridelink, Eatsquare, SPCE, Hummus Bros, iBan Wallet, Bijou Commerce, HomeGrown, Mesmo, JuggleJobs, Gather Online, Diamond and Emeral Exchange, Mishergas Energy Recovery, VendorMach, Fanmoji, Maecenas, Talentory, Daylui, SilverCurve, Warehouse Home, Tots Too, Floom, Humble Grape, Manage Your trip, ImpactRi, OzonePlay
[4] *Ding, The Cheeky Panda, Sknhead LTD, Your Sommelier, Pump Audio, Agroop, LiketoBe, Acpad, Zuper, Plum Fintech, Beeline, Unirunners* and *HalalEat*.
[5] *Tots too*, *ImpactRi* and *Floom*
[6] *Ridelink* and *Homegrown*
[7] Other data shown were: *Equity, n° of investors, nationality of the entrepreneurs, team size, days to reach the success, the mean of the top 5 investments, the amount of the top investment, the nationality of the top investor, the total use of future tense markers in the pitch and the frequency of future tense markers in the pitch*.

III) Amount sought
IV) Number of words contained in the pitch
V) Success (yes/no)
VI) File Size of the pitch
VII) Sector to which they belong

Even if the Excel file showed other classes of data, for the purpose of this research, only the seven above mentioned were taken into account.

3.3 Data collection

After updating the ongoing campaigns, I proceeded with collecting the data related to the variable "Frequency of Past Tense markers".
Following the path of earlier literature[8], such frequency has been computed in the following manner:

$$Frequency\ of\ Past\ Tense\ Markers = \frac{Tot.n°of\ Past\ Tense\ Markers}{Tot.n°of\ words}.$$

As previously mentioned, the total number of words of the pitch was already available, while the numerator needed to be computed.
I used the function "finder" on Word to detect all the words referring to past tenses. They can be divided in four groups:

1) *Was*, *were*, *been*, *had, "-'ve":* these auxiliaries *always* detect a past if found.
2) The suffix "*-ed "*. Words ending in "-ed" were analyzed each by each in order to see if they truly were past tenses or represented passive forms.
3) Most frequent irregular past verbs: *found, saw, grew, sold, built, did, went*.
4) Other auxiliaries and words used to spot the remaining irregular past tenses: *have, has, last, once, ago*, months of the year and the prefix "*20*" to find years (e.g.: 2016).

It is worth to enhance that each form found was highlighted in a different color and that the entire sentence was analyzed: this has been done so as to avoid double counting of the same past.
For the sake of the example, in the sentence: " the road has been built in 2015", by typing every word above mentioned, a total of four past tenses would have been found. These would have been spotted by: "has", "been", "built" and "2015". On the contrary, by highlighting only the auxiliary "been", the others are not taken into account.
A table similar to Table 3.1 has been used to export all the data. Such table has been reported as a useful example of the procedure followed. The observation taken into account is the Unirunners campaign.

[8] Karapandza, 2016: "*Stock returns and future tense language in 10-k reports*".

Campaign Name	*Was, were, been, had, 've*	*"- ed "*	*Have, has, last, once, ago*, months, "*-20*"	*Found, saw, grew, sold, built, did, went*	Total
Unirunners	4	+16[9]	+1	+1	22

Table.3.1: table displaying the amount of past tenses found for each group.

Once the total number of past tenses for each project was available, the frequency of past tense markers was computed.

The other set of data needed was the number of "likes" in the facebook page of the campaign.
This is a relevant statistics since, as shown by Koch et al. in 2015, social network activity is positively related to the success rate of the campaigns. The reason for this is that potential investors perceive a large amount of "facebook likes" as a measure of soundness of the product/service sponsored and of trustworthiness of the people who created it.
On each campaign home page there was a link sending the user to the project's profiles on the main social network platforms: facebook, twitter and linkedin.
Once each profile has been checked, the related amounts have been recorded in the Excel file.

3.4 Variables and Data Analysis

In order to clarify the issue in technical terms, it is appropriate to frame the research question in econometric language.
Therefore, the hypothesis to be proved is:

Hp: *A positive and significant relation between the Frequency of Past Tense Markers and the Success of the crowdfunding campaign.*

Thus, I need to test the hypothesis according to which there is *no* relation between the two variables, specifically I need to test:

$H_0: \beta=0$ *vs* $H_1: \beta\neq0$

Where β is the coefficient of the independent variable.
The aim is to reject H_0 and show that results are statistically significant.
To this purpose, it is useful to run a regression with the variables *Success* and *Frequency of Past Tense Markers*.
Success is the binary dependent variable equal to 1 if the project raised the funds and equal to 0 otherwise.
Frequency of Past Tense Markers is the continuous independent variable.
However, other factors affecting the success of a campaign may also show a relation with the frequency, and so, if omitted from the regression, will represent omitted variable bias.

[9] "+" has been added because sixteen *additional* forms of past were detected using the suffix and excluding those ending in -ed but previously found with: "was", "were", "been", "had", "'ve".

To this end, four variables were included in the analysis as control variables:

I) *amount sought*: the amount indicated in the pitch as the funding threshold to be reached
II) *file size*: the size of the files included in the pitch
III) *facebook likes:* the number of "likes" of a project facebook page
IV) *Sector:* the sector to which the campaign belongs

Amount sought. As it is possible to see from exhibit 3.2, funding thresholds data are well spread across observations, with no large outliers.
The maximum amount sought is 1,000,009£, corresponding to the *Humble Grape* campaign, while the minimum is 40,003£ required by *Eatsquare* founders. The average corresponds to 336,040£.
As illustrated by the results of the regressions shown in Section 4.1, the amount of capital asked is negatively related to the rate of success of the campaign[10]. That is, the higher the funding threshold, the lower the probability to successfully funding the business.
It is important to see that when setting the target amount of funding, efforts must be made to be as realistic as possible. Asking for too little capital may not suffice as investment and asking too big of it implies a lower rate of success. (Mollick, 2014).

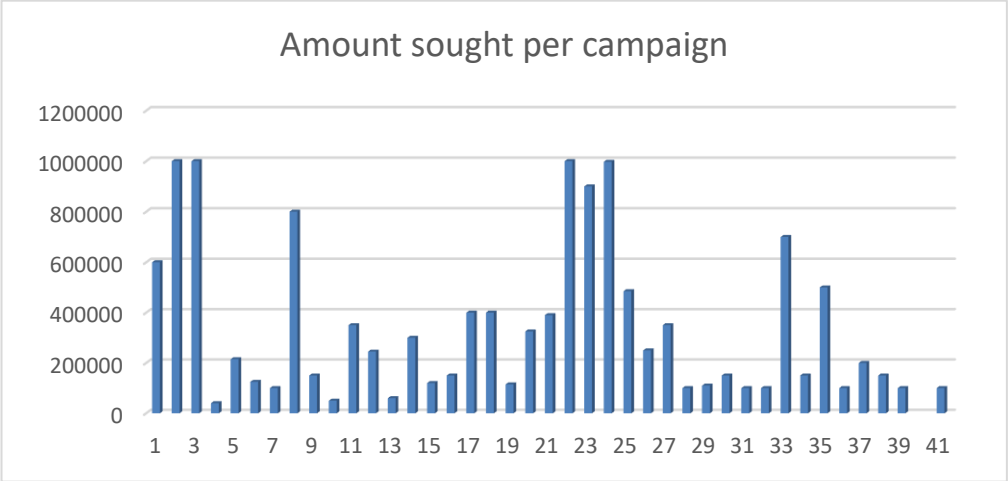


Exhibit 3.2: amount sought for each crowdfunding campaign

File Size. This is a measure, expressed in Megabytes, that takes into account the quantity of content uploaded on the campaign pitch, including both words and images. Some projects are richer in terms of material provided.
For instance, *Fanmoji*'s pitch file is the largest in the database, corresponding to 3 MB, while the smallest size is equal to 300 KB for *ImpactRi* on Crowdcube.
As can be noticed from exhibit 3.3, the sampling distribution shows a smaller variance compared to other indicators such as facebook likes, whose values vary much more.
The average file size of the startups' pitch corresponds to 1.405 MB.

[10] However this correlation is not statistically significant, and doesn't exist if using the Logit model.

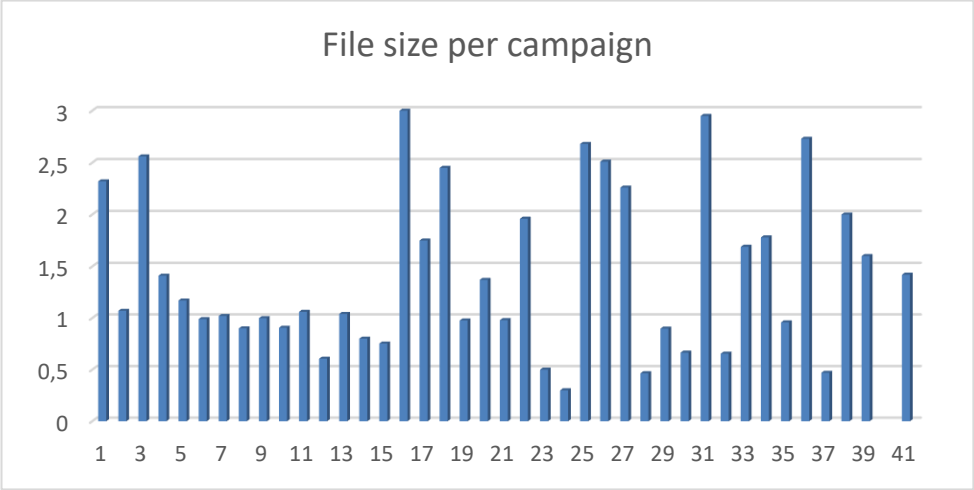


Exhibit 3.3: File size for each crowdfunding campaign

Facebook likes. As mentioned in the previous section, the reason why *facebook likes* was included in the regression is that potential investors perceive projects with a high level of facebook interactions as more consolidated and reliable.

Exhibit 3.4 shows the related statistics.

Values range from *0 likes* (*SilverCurve*, *OzonePlay* and *Sknhead LTD*) to 13281 likes (*Ridelink*), with the average equal to about *2440 likes.*

The value of *0 likes* was attributed to startups which either didn't have a facebook page but were just present as private profile (*OzonePlay*) or were not connected in any ways to facebook (*Sknhead LTD*, *SilverCurve*).

Products or services belonging to certain categories are more likely to be followed (and liked) by facebook accounts, especially those related to social activities like "*Entertainment*", "*Food and Beverages*" and "*Travel, leisure and sport*".

Nevertheless, more than to the sector of belonging, the number of likes seems to be correlated to the project popularity and past accomplishments, and to the level of engagement of the final user.

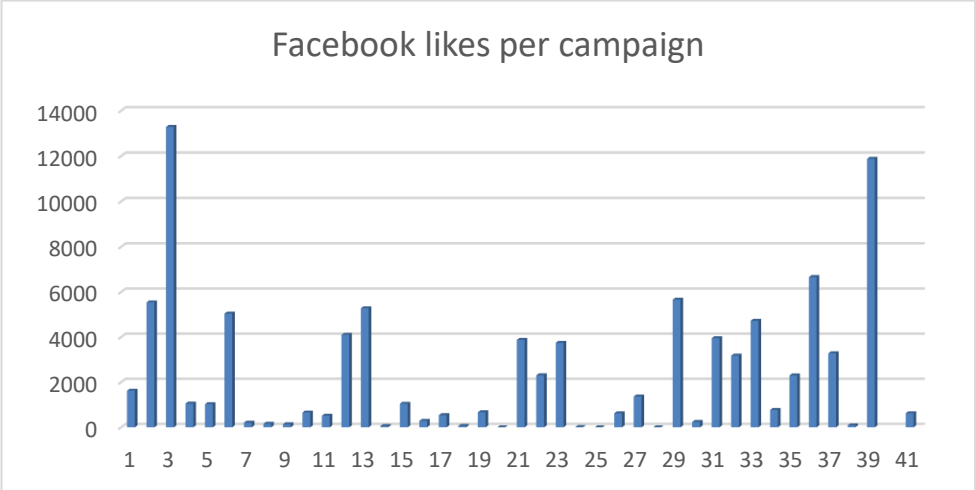


Exhibit 3.4: number of facebook likes for each campaign

Finally, exhibit 3.5 shows that projects displaying the largest amount of likes are those that succeeded in raising funds.

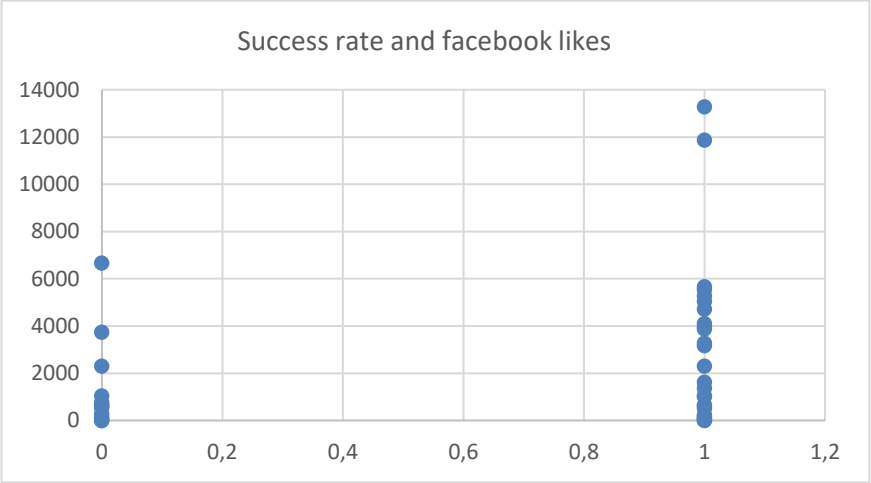


Exhibit 3.5: Success rate and number of facebook likes

Sector. The control variable *Sector* was obtained using Pavitt taxonomy.
The categories in which the startups are grouped are fifteen: *Travel, leisure and sport; Home & Personal; Food & Beverages; Finance & Payment; Saas/Paas; Content & information; Clothing and Accessories; Energy; Entertainment; Recruitment and procurement, Advertising; Delivery; Automotive; Data and Analysis*.
As Koch et al. highlight in their research (2015), " *since categories stand for individual orientations and interests, different types of potential funders may be attracted and different types of visitors may show different funding behavior."*
Furthermore, certain types of categories are more likely to contain a higher rate of past tense markers, so it is appropriate to explicitly control for them.
However, given the size of the sample, it was not possible to include all the fifteen categories.
For this purpose, startups were grouped in four sections following Pavitt taxonomy: *Supplier dominated*; *Scale intensive*; *Specialized suppliers* and *Science based*.
Categories were divided as follows:

I) *Supplier dominated*: Food and beverages; Clothing and accessories; Delivery; Property; Home and Personal
II) *Scale intensive*: Automotive
III) *Specialized Supplier*: Travel and leisure; Advertisement
IV) *Science based*: Finance and Payment; Saas/Paas; Energy; Entertainment; Recruitment and Procurement; Content and information; Data and Analysis; Travel and leisure; Home and personal

Some categories appear in two sectors as the related project sometimes fell in one, sometimes in the other sector.
For instance, some startups in "Home and personal" are high-tech businesses and R&D intensive, so were included in the *Science based* sector, while some others of the same category exploit manufacturing labor and, as such, were added to *Supplier dominated*.
Each observation was regarded as a dummy variable equal to 1 if belonging to a section and equal to 0 otherwise. *Science based* was omitted so as to avoid perfect multicollinearity.

Exhibit 3.6 provides some data for the statistics so far considered.

Variable	Min.	1st Quartile	Mean	Standard Deviation	3rd Quartile	Max.
Success	0.0000	0.0000	0.6585	0.4801	1.0000	1.0000
Frequency of Past Tense Markers	0.00470	0.00818	0.01398	0.0066	0.01842	0.03075
Amount Sought	40003	110005	336040	300312.9	400000	1000009
File Size	0.300	0.900	1.405	0.7633	1.960	3.000
Facebook likes	0	236	2440	3049.708	3874	13281

Exhibit 3.6: descriptive statistics

The software adopted to run the regressions is *RStudio*: an integrated development environment for *R*.
R is an open source environment finalized at statistical computing and graphics.
I decided to adopt it because its reliability is ensured by openly validated governance; it is widely used among statisticians and it's free and open source, meaning that everyone is allowed to use it.
The only disadvantage is represented by the fact that it's not user-friendly.

3.5 Assumptions and limitations

In order to ensure the validity of the results, it is critical to make some considerations:

I) The observations in the sample (campaigns) are drawn by simple random sampling from a relatively large population (the entire set of campaigns available on the crowdfunding platforms). This means that the collection of random variables is independent and identically distributed across observations.
II) Observations with values of the frequency that are far outside the usual range of data are unlikely: results show only two outliers.[11]
III) Factors that may lead to omitted bias have been included in the regression as control variables.

Although the above assumptions allow for the accuracy of the statistical inference, this research presents some potential limitations.
First of all, the sample size consists of 41 observations and it may be considered rather small.
Then, some data collected until the regressions were run are subject to potential updates.
This is true especially for two variables: file size and facebook likes. The former may increase as entrepreneurs can upload new material on the webpage of the campaign, the latter is even more subject to

[11] Outliers: *Tots Too* and *Warehouse Home*

changes as time passes and facebook users are exposed to product advertisement and may be influenced by the success of campaigns.
Third, data is collected from only *equity* crowdfunding platforms. Therefore, attention must be paid when expanding the conclusions to other platforms models.

Chapter 4: Results

4.1 Analysis and interpretation of the results

This empirical study aims at finding a positive and significant relation between the frequency of past tense markers in projects' pitches and their success.
To address the issue, several regressions were run using the statistical software RStudio.
There are two reasons why it was appropriate to make different regressions instead of only one. First, they were made employing different models: the *Linear* model and the *Logistic regression* model. Then, as mentioned before, the sample size is quite small and it was not possible to include all the four control variables in one regression.
The regressions run are the following:

I) *Success* as dependent variable*; Frequency of Past Tense Markers* as independent variable; Amount Sought and File Size as control variables
II) *Success* as dependent variable*; Frequency of Past Tense Markers* as independent variable; Facebook likes and Sectors as control variables

For the two of them, both the Linear and the Logit model was applied sequentially.

	Estimate	**Standard Error**
(intercept)*	$4.954e^{-01}$	$2.1.2e^{-01}$
Frequency of Past Tense Markers*	$2.838e^{+01}$	$1.098e^{+01}$
Amount sought	$-4.270e^{-08}$	$2.382e^{-07}$
Size	$-1.561e^{-01}$	$9.533e^{-02}$

Table 4.1: Results from the first regression. Significance: "." p < 10%; "*" p < 5 %; "**" p < 1%

Table 4.1 illustrates the results obtained by running the first regression with the *Linear Regression Model*.
In the first column of the table it is possible to see the intercept, the regressor and the two control variables. The other two show the estimates of the coefficients of the variables and their standard errors.
It is worth drawing attention to three factors. The first is that the coefficient of the variable Frequency of Past Tense Markers is positive, meaning that there is a positive relation between the success of the project and the frequency of past tense forms: a higher frequency of them implies a higher probability of hitting the funding target.
Second, as highlighted by the asterisk, such relation is statistically significant at the 5% level.

Third, the coefficient of the control variable amount sought is negative. This implies that the larger the amount required by founders, the lower the probability of raising all the capital.
Nevertheless, such relation is not statistically significant.

	Estimate	Standard Error
(intercept)	$1.161e^{-01}$	$1.932e^{-01}$
Frequency of Past Tense Markers*	$2.885e^{+01}$	$1.175e^{+01}$
Facebook likes .	$4.674e^{-05}$	$2.566e^{-05}$
Supplier dominated	$-5.423e^{-02}$	$1.746e^{-01}$
Scale intensive	$3.576e^{-01}$	$3.321e^{-01}$
Specialized suppliers	$3.200e^{-01}$	$2.903e^{-01}$

Table 4.2: Results from the second regression. Significance: "." p < 10%; "*" p < 5 %; "**" p < 1%

Table 4.2 exhibits the results obtained from the second regression, employing the Linear Regression model. As can be noticed, the previous control variables have been substituted by facebook likes and the category of Pavitt taxonomy.
Also in this case, the sign of the regressor coefficient indicates a positive relation between projects' success and the frequency of past tenses. Furthermore, this positive relation also exists between the same dependent variable Success and the control facebook likes.
It is worth noticing that both relations are statistically significant. This is highlighted by the asterisk "*" next to the regressor which indicates a level of significance equal to 5% for the frequency, while the symbol ".", corresponding to facebook likes, indicates that the result is significant at the 10% level.

As clarified earlier, the variable Success is a binary one, which implies that it can take only two values: either 1 (successful) or 0 (not successful). As such, the other variables' coefficients can be interpreted as the probabilities that the dependent variable takes the value 1, that is, that the campaign is successful.
Since predicted probabilities cannot be larger than 1 or smaller than 0, it would be more appropriate to adopt a non-linear model: the Logistic regression model.

	Estimate	Standard Error
(intercept)	$-3.112e^{-01}$	1.081e
Frequency of Past Tense Markers*	$1.711e^{+02}$	$7.344e^{+01}$
Amount sought	$1.076e^{-07}$	$1.273e^{-06}$
Size	$-8.859e^{-01}$	$5.368e^{-01}$

Table 4.3: results from the third regression. Significance: "." p < 10%; "*" p < 5 %; "**" p < 1%

	Estimate	Standard Error
(intercept)*	-2.407e	1.197e
Frequency of Past Tense Markers*	$1.795e^{+02}$	$8.264e^{+01}$
Facebook likes	$3.379e^{-04}$	$2.138e^{-04}$
Supplier dominated	$-7.506e^{-01}$	1.065e
Scale intensive	$1.667e^{+01}$	$2.715e^{+03}$
Specialized suppliers	1.783e	1.450e

Table 4.4: results from the fourth regression. Significance: "." p < 10%; "*" p < 5 %; "**" p < 1%

Tables 4.3 and 4.4 summarize the outcome obtained from running the same regressions but using the logistic distribution.

Although numerically some differences can be detected, the bulk of the result is confirmed: there is a positive and significant relation between the dependent variable Success and the regressor Frequency of Past Tense Markers.

Furthermore, by using the Logit regression model, such relation is significant at a slightly lower level than the Linear model, which must be attributed to the better fit of the Logit regression given the data at hand.

The interpretation of the signs of the coefficients of Pavitt's control variables is as follows: supplier dominated projects have a lower chance of success than those belonging to science based (the omitted category), as the sign is negative. Both scale intensive and specialized suppliers campaigns have a higher probability of success than science based projects.

Nevertheless, it's important to notice that this result is not statistically significant.

As evidenced from the histogram in fig 4.1, 25 observations fall in the Science based category, 12 in Supplier dominated and only 2 in both Scale intensive and Specialized supplier. Therefore, with very few campaigns belonging to the last two categories, we can see that data are not well spread and this may represent a limitation to the last analysis made.

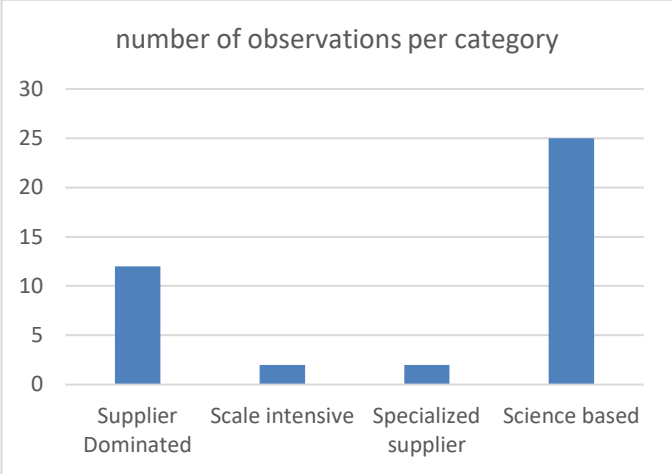


Fig.4.1: number of observations for each Pavitt's category

Figure 4.2 illustrates graphically the outcome obtained so far: a positive relation between the success rate and the Frequency of Past Tense Markers. The x axis indicates the frequency computed, while the y-axis stands for the outcome successfully funded (=1) or not (=0). Of the 41 startups examined, 65% managed to raise the equity, while the other 35% didn't. The average value the frequency takes is 0.01398. The minimum value of the frequency recorded amounts to 0.00470, corresponding to the Daylui startup which failed to get the funds. Instead, PumpAudio successfully funded campaign scored the largest value, with a frequency of 0.03075.

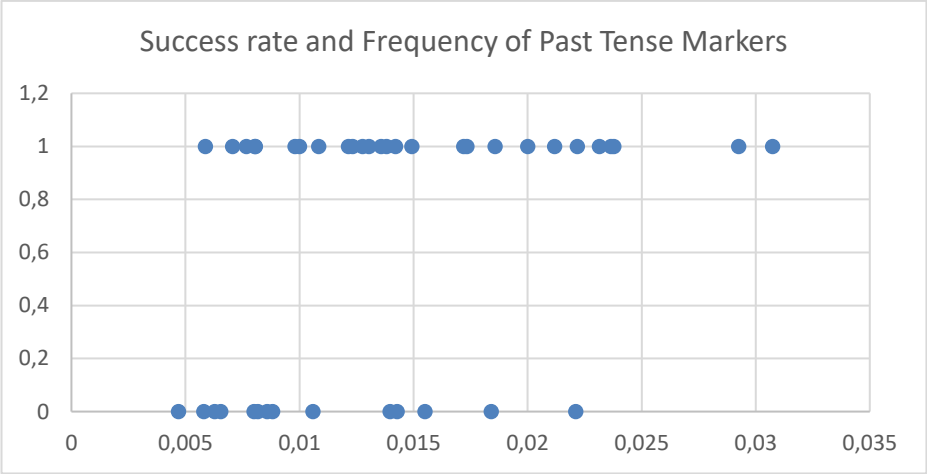


Fig.4.2: Scatter plot showing the relation between the variable "Success" and the variable "Frequency of Past Tense Markers".

Even though successful businesses are generally associated with a higher frequency, data present some exceptions.

For instance JuggleJob's frequency is low (0.00588) even if founders managed to attract investors. On the unsuccessful side, the most outstanding outliers are represented by TotsToo and Warehouse Home, with the correspondent amounts of 0.02212 and 0.01842.

A remarkable element of TotsToo must be highlighted. Unlike all the other campaigns, whose pitches include the "idea", "market" and "team" sections, TotsToo pitch on Crowdcube lacks the description of the market and only comprises the illustration of the idea and the team.

Since this may impact the accuracy of the inference and since this startup is an outlier of the sample, it would be interesting to run a new regression without including it.

Adopting the Logit model, results are shown in table 4.5.

	Estimate	Standard Error
(intercept)	$-6.297e^{-01}$	1.187e
Frequency of Past Tense Markers**	$2.489e^{+02}$	$9.505e^{+01}$
Amount sought	$1.964e^{-07}$	$1.376e^{-06}$
Size	-1.204e	$6.107e^{-01}$

Table 4.5: results without the outlier: *TotsToo*. Significance: "." p < 10%; "*" p < 5 %; "**" p < 1%

The table illustrates that the regressor has now two asterisks. This implies that the relation so far considered is statistically significant at the 1% level, compared to the previous ones whose level of significance was 5%.

4.2 Discussion and conclusions

This empirical study explores the correlation between the use of past tense forms in entrepreneurial pitches and their probability of successfully pledge the required amount of capital.
Statistical findings show that such relation exists and is positive, implying that the more past tense markers contained in the pitch, the higher the success rate of its campaign.
The rationale behind this, is that creators of a project make use of predictive phrases referring to accomplishments to date, previous experience and challenges. When they do so, potential investors may have the impression that the startup has a solid and sound past, with a team of more experienced entrepreneurs who consolidated their know-how across years.
The idea that a careful selection of the language helps to secure backers' money finds its explication in other studies.
Practical conclusions in this work are coherent with those given by Parhankangasa and Renko (2017). They suggest to increase the use of quantifiers and "I" pronouns to provide specific details about personal experiences and challenges related to their campaign.
This work recommends to do the same through phrases containing a high ratio of past tense markers.
Given the "freshness" of the topic, there come as no surprise that literature in this field is rather scarce. Chen (2013) evidenced the connection between linguistic differences among populations and their propensity to engage in future-oriented behaviors. Nihit et al. (2015) establish that it is possible to use text to effectively predict success of campaigns through the use of predictive phrases referring to*: reciprocity, social relationship, emotional appeal, gratitude* and *collective phrasing.*
Gorbatai and Nelson (2015) ascertain that women perform better than men in their fundraising ability, and that this is partially explained by differences in the language employed. In particular, women use more positive emotional terms and less money related sentences, both factors affecting the rate of success.
Nevertheless, to the best of my knowledge, there is no previous research concerning the use of past forms in entrepreneurial pitches.
Thus, this dissertation can give both a practical and a theoretical contribution to the topic. It can represent a practical help in writing the pitch in the early stage of businesses, reminding entrepreneurs that a consolidated past plays a role in drawing investors' attention. Then, it can also be seen as a good starting point to expand the horizon of knowledge and to explore new roads of research.

For instance, an interesting topic to investigate could be the extent to which crowdfunding platforms fix the problem of information asymmetry between pledgers and backers.
In fact, unlike other sources of finance, the relation between the lending and the borrowing party is more direct and carried on a peer-to-peer level. It may be intriguing to see if comments on forums, interactions among backers and rating strategies can reduce the issue of asymmetric information, which constitutes a major hurdle for traditional fundraising institutions.

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