

Louvain School of Management

Cultural influence of companies? Analysis of cash level across different countries.

Author: Lucie de Cocquéau des Mottes

Supervisor: Anh Nguyen

Academic year 2023-2024

Dissertation for the master in [120] International Finance INGE2MS/G

Master subject and focus: the impact of corporate culture (profit-making vs. non-profit business) on liquidity reserves

Daytime schedule

Declaration Regarding AI Tool Usage in Master's Thesis

We recognize that AI tools might be valuable aids during the master's thesis work, but they are not infallible. Remember that transparency fosters trust, and acknowledging AI's role enhances the credibility of your work.

Therefore, when deciding to use such a tool, you need to adhere to the following principles of responsible use of AI.

1. Critical Evaluation :

- We critically assessed the AI-generated output, ensuring its alignment with our research objectives.
- Any modifications or corrections were made based on our expertise and domain knowledge.

2. Transparency :

- We acknowledge the use of ChatGPT transparently, emphasizing that it contributed to our work but did not replace human judgment.
- Our commitment to transparency ensures the integrity of this thesis.

3. Ethical Considerations :

- We actively monitored for biases or unintended consequences introduced by the AI tool.
- Our ethical responsibility guided our decisions throughout the research process.

Declaration (This declaration is mandatory and must appear on the first page (after the title page) of the document.

During the preparation of this master's thesis, the author(s) utilized ChatGPT for the following purpose:

1. Spelling and grammar check. The AI tool was used to check that there were no spelling or grammar errors in the text.
2. Reformulations of sentences. It was also used to reformulate and structure certain parts of the work.
3. Interpretations of graphics and code results. Finally, it helped interpret the graphs and results of the R studio codes but only for a comparison purpose.

After using ChatGPT, the author(s) diligently reviewed and edited the content produced by the tool. We take full responsibility for the final content presented in this thesis.

By signing this declaration, we affirm that the content of this master's thesis reflects our original work, augmented by the responsible use of AI.

27/05/2024

L. de Boer

Foreword

I would like to thank all the different people who helped me to realize this work which marks the end of my academic career.

First of all, I am very grateful to my promoter, Professor Anh Nguyen for his support during this research journey. Thanks to his valuable feedback and advice, I was able to significantly improve the quality of my work. I thank him for the encouragement and patience he has shown throughout this journey. Indeed, carrying out work of this magnitude implies that motivation has its ups and downs, but I always felt the encouragement of Professor Nguyen. The fact that he believed in me, and my work also allowed me to give the best of me.

I would also like to thank Mr. Guillaume Wenin and Mr. Briac Dupont for agreeing to answer my questions in a clear and professional manner.

Finally, I am thankful to my whole family for their unconditional support throughout my studies.

Table of Contents

Introduction	1
1. Motivation	1
2. Research question.....	2
3. Contributions	2
4. Methodology and Challenges	2
Part 1: Literature review	4
1. Culture and its components.....	4
2. Corporate cash holdings	7
3. The impacts of national culture on cash holdings	8
3.1. Hofstede's variables.....	8
3.2. Other cultural dimensions	11
4. The impacts of CEO cultural characteristics on cash holdings.....	12
5. Hypotheses	13
5.1. Hypothesis 1.....	14
5.2. Hypothesis 2.....	14
Part 2. Empirical research	16
1. Data selection and methodology.....	16
2. Data description.....	18
2.1. General description.....	18
2.2. Descriptive analysis.....	19
3. Empirical analysis.....	26
3.1. Spearman's correlation matrix and regression model.....	26
3.2. Comparison of cash reserves between US and French nonprofit organizations.....	29
3.3. Comparison of cash reserves between for profit and nonprofit companies.....	30
3.4. Explanation of results using literature	32
3.5. Qualitative complement	33
Part 3. Conclusion	37
1. Limitations of the study	37
2. Conclusion.....	38
Appendices.....	40
Appendix 1. R code for the analysis of the quantitative variables of the profitable companies.....	40
Appendix 2. R code for the analysis of the qualitative variables of the profitable companies	41
Appendix 3. Proportion of majority sectors.....	44

Appendix 4. R code of the descriptive analysis of nonprofit companies.....	45
Appendix 5. Spearman's correlation matrix	52
Appendix 6. Regression model	52
Appendix 7. Alternative regression model	54
Appendix 8. Student test: Comparison of average cash reserves of French and American nonprofit companies.....	56
Appendix 9. Student test: Comparison of average cash reserves between French nonprofit and for-profit companies	57
Appendix 10. Student test: Comparison of average cash reserves between American nonprofit and for-profit companies	57
Bibliography	58

Introduction

1. Motivation

Culture, much like the world itself, is constantly evolving and changing. Technological advancements and globalization are blurring geographic boundaries, fostering a homogeneous cultural exchange across all regions of the globe.

This diversity enriches societies by fostering empathy and respect towards all forms of existing culture but can on the other hand be a source of challenges. Indeed, the challenges are mainly linked to the preservation of traditions and values specific to each community and adaptation to those of others, which can sometimes be vastly different.

Culture permeates every aspect of life, making it impossible to overlook.

The economic sector and its context are subject to a myriad of influencing factors. The upheavals of the past such as the financial crisis and more recently covid 19 and the start of the war in Ukraine have compelled the sector to adapt. The current economic environment is characterized by uncertainties, significant fluctuations, and unforeseen events that can disrupt the economy. Consequently, managing liquidity reserves is of paramount importance for financial players and monetary authorities to withstand these challenges.

However, determining the optimal level of reserves to maintain is complex given that it depends on various factors such as, among other things, the sector of activity and the size of the company.

The decision-making process is influenced by subjective aspects and personal judgements as people bring their unique experiences and opinions to the table when evaluating options and making choices. Therefore, decision-making is not solely based on objective arguments, but it is often influenced by individual beliefs and preferences.

This is precisely where it becomes logical to return to the fundamental concept of culture, as culture is what shapes the beliefs and preferences of individuals. Therefore, this concept has a much greater impact on the choices individuals make than people often realize.

2. Research question

This problematic context leads to the following research question:

“What is the impact of corporate culture on companies’ cash reserves, and does this impact vary according to geographical location?”

This study focuses on corporate culture as the impacts of national culture and CEO’s culture on cash reserves have already been studied by many researchers. Specifically, the research examines whether a company's profit-making objective influences the amount of cash it retains in reserve.

The geographical focus is on the United States and France, selected due to their differing uncertainty avoidance indices, ensuring a significant contrast in national cultural perspectives.

3. Contributions

While the impacts of national culture and decision-makers' culture on decision-making have been well-analysed, a gap exists in understanding how corporate culture influences a company's cash reserve decisions. This study aims to fill that gap by exploring whether a company's profit orientation affects its cash reserve levels and if this relationship varies across different countries.

By addressing these questions, this research contributes to the broader understanding of corporate behaviour in different cultural contexts. It offers insights into how cultural factors shape financial strategies, providing valuable information for both academic research and practical applications in international business management.

4. Methodology and Challenges

Answering the research question entails gathering and analysing financial data from a sample of both profitable and non-profitable companies in France and the United States. The

selection process involves identifying the most profitable companies in each category and extracting key information such as their cash reserves and total assets. As such, the study adopts a quantitative approach.

Before conducting regression analysis and student tests to compare the average cash reserves of companies, the dataset is meticulously described to provide context and ensure transparency in the analysis. Subsequently, the obtained results are justified thanks to existing literature, thereby fostering the credibility and validity of the findings.

In addition to the quantitative method, two interviews come and complete the analysis and constitute a secondary source of information, adding to this work a qualitative perspective.

The main difficulty encountered relates to data accessibility. Indeed, obtaining financial statements from nonprofit organizations is complicated, resulting in a smaller sample size for this category of companies. Moreover, the creation of a comprehensive database with a large number of companies posed its own set of challenges, requiring careful attention to data accuracy and consistency.

Part 1: Literature review

Prior to delving into the core of the subject, the literature review seeks to comprehend the focal points of prior research and identify key findings. Following the definition of cultural and financial elements, the literature review elucidates the influence of national culture on the cash reserves of companies, subsequently delving into the impact of individual behaviors.

1. Culture and its components

Culture is defined as “the sum total of the beliefs, rules, techniques, institutions, and artefacts that characterize human populations” or as “the collective programming of the mind” (Collinson, Narula, & Rugman, 2020, p.150).

According to Arnolds and Thompson (2005), culture is “a common set of behavior patterns that are transmitted and maintained by the members of a particular society through various means” (cited in Nayeem, 2012, p.1).

The key elements of this concept are language, religion, values, attitudes, customs and norms of the group or society. (Collinson, Narula, & Rugman, 2020)

Culture is not about individual behavior but about groups who share same values and meanings, and it is relative to the group people belong to, there is no right or wrong culture (Laine, 2023). Moreover, it is inherited which means that people acquire them as they grow up. Culture evolves thanks to the social environment and experiences acquired along a life (Ferchakhi & Meskeh, 2014; Laine, 2023).

This concept is made of different layers and levels (figure 1). The most global one is the national culture while the less global is the individual behavior. Between these two layers, there are the business culture which is under the national one followed by the company culture. (Laine, 2023)

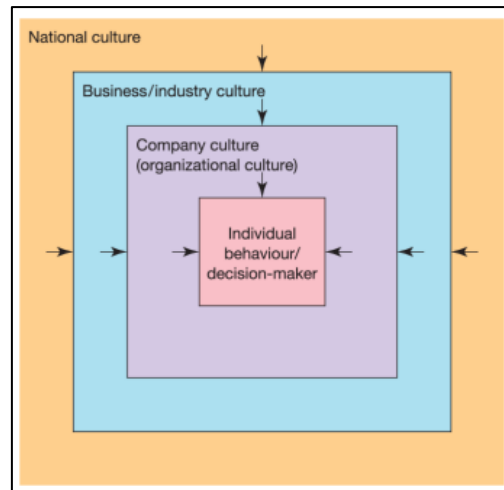


Figure 1. Layers of culture (Laine, 2023)

The national culture includes most of fundamental values that are supposed to be acquired during the ten first years of life at school and home. On the contrary, the company culture is acquired later when people begin their professional life in a company with strong and implemented values. (Ferchakhi & Meskeh, 2014)

The company culture characterizes how the different actors (managers and employees) within a company tend to behave. It is in other words, the shared values, traditions, customs, philosophy, and policies of a corporation. It is also used by human resource managers to put their expectations regarding the kind of behaviors and the professional atmosphere they want to promote in their organization. (Collinson et al., 2020)

The four most famous types of company culture (figure 2) are the clan culture, the adhocracy culture, the market culture, and the hierarchy culture. (Benstead, 2023; Pourron, 2022)



Figure 2. Four common types of company culture (Benstead, 2023)

Clean culture is also called collaborative culture and therefore focuses on teamwork. Managers are seen as advisors instead of authoritarian leaders and the barriers between employees and the executive level are thin. Then, the adhocracy is characterized by a high level of innovation and risk-taking. The environment is entrepreneurial and is generally found in successful startups. In the market culture, the priority is the bottom line. It means that everything should be done with a goal of profitability. Managers focus on results and expect their employees to perform well. Finally, the hierarchy culture is a culture that follows traditional norms and has a well-defined division of tasks to ensure stability and reliability. (Pourron, 2022)

Companies are classified as either nonprofit organizations (NPOs), profit-oriented organizations or not-for-profit organizations (NFPs). Wolf (1999) explains that what distinguishes a nonprofit organization from a profit organization is the fact that they do not aim to generate and share profit (cited in Febriani & Selamet, 2020). Their main focus is to help people in need by providing solutions. The organization needs volunteers in order to support the activities (Febriani & Selamet, 2020). Not-for-profit organizations are organizations that are created to pursue goals other than to make a profit and that is not owned by someone. Therefore, similar to nonprofit ones, they do not give profit to owners but instead use it to run the business. However, the difference between nonprofit and not-for-profit is that nonprofit should imply that there is no profit at all, which is very difficult to achieve in reality. (Scot, 2010)

Regarding the levels of culture, a total of three are identified: the visible daily behavior, the values and social morals and finally the basic cultural assumptions. The visible part includes body language, clothing, lifestyle or even the drinking and eating habits. The values and social morals are constituted among other things of family values, sex role and friendship patterns while the basic cultural assumptions are the national identity, the ethnic and religion. (Laine, 2023)

Contrary to what people might think, culture is reflected in the business practices of companies and to be successful nowadays, it is important that managers develop a cross cultural literacy (Laine, 2023). Indeed, managers coming from a foreign country than that of the firm, must understand that local employees may require different organizational structures and human resources management procedures (Collinson et al., 2020).

2. Corporate cash holdings

Cash is a physical method of payment, and its supply is determined by the government, involving the central bank, the treasury, and specialized printers. (Khiaonarong & Humphrey, 2023)

The cash's substitutes are cards, electronic money and mobile phone payments and cash is gradually becoming less popular than other payment methods. (Khiaonarong & Humphrey, 2019; Khiaonarong & Humphrey, 2023)

However, literature and research discovered that over the last two decades, cash reserves of companies have increased. (Loi, Chen & Qiao, 2022)

There are four reasons why companies hold liquid assets. First of all, it is for transactional reasons as liquid assets are cheaper than fixed assets to finance daily operations. Then, it is precautionary; cash can play the role of a buffer against undesired and unplanned events. The third reason is the speculative uses. When opportunities arise, firms can easily use liquid assets. The last reason is linked to taxation. Firms that make profits abroad have incentives to keep it there in order to avoid repatriation taxes (Fritz Foley, Hartzell, Titman, & Twite, 2007). Jensen and Meckling (1976) argued that there exists an additional motivation stemming from the fact that holding liquid assets implies more discretion than holding debt or equity, which are subject to external monitoring (cited in Ramírez & Tadesse, 2009).

Corporate managers also tend to hold more cash if they face higher and more volatile operating cash flow as well as if they plan to pay dividend to shareholders (Chang & Noorbakhsh, 2009). According to Dittmar et al. (2003), this is also the case if the shareholder's protection is weak in the country of the company (cited in Aftab, Javid & Akhter, 2018).

Rajan and Zingales (1995) as well as Pinkowitz and Williamson (2001) found that among the G7 countries, Japanese firms have the largest cash reserves (cited in Chang & Noorbakhsh, 2009). Additionally, multinationals tend to hold more cash than domestic companies (Ramírez & Tadesse, 2009) and are less subject to the influence of the national culture (Chen, Dou, Rhee, Truong, & Veeraraghavan, 2015).

Creative culture also plays a significant role in a company's financial behavior. Firms situated in a robust creative culture are more inclined to take risks through innovation and investment, leading them to accumulate more cash reserves. (Ucar, 2018)

3. The impacts of national culture on cash holdings

3.1. Hofstede's variables

Geert Hofstede is a Dutch psychologist who mapped key cultural characteristics according to six value dimensions (Chang & Noorbakhsh, 2009; Collinson et al., 2020; Ferchakhi & Meskeh, 2014).

The reason explaining the importance of his work, is that he managed to quantify the cultural dimensions for each country. However, he has been criticized for the fact that he reduced culture in only several dimensions. (Chang & Noorbakhsh, 2009)

The first dimension is power distance which is the degree to which a culture accepts that the power is distributed unequally in the organization. A high-power distance is linked to a structured hierarchy while a low power distance goes with egalitarian. (Collinson et al., 2020; Ferchakhi & Meskeh, 2014; Laine, 2023)

The second one is the uncertainty avoidance. As its name indicates, it is the extent to which people of a society feel uncomfortable with risk and uncertainty. (Collinson et al., 2020; Ferchakhi & Meskeh, 2014; Laine, 2023)

Then there is the individualism referring to how emotionally independent from others, people are. Either people are perceived as collectivist or individualist. (Collinson et al., 2020; Ferchakhi & Meskeh, 2014; Laine, 2023)

The fourth dimension is masculinity related to the concepts of achievement, assertiveness and material success opposed to the stereotypical feminine values of relationships, modesty, caring and the quality of life. (Collinson et al., 2020; Ferchakhi & Meskeh, 2014; Laine, 2023)

The penultimate is orientation either long-term or short-term. A long-term orientation is characterized by a greater planification and long-term vision of different aspects of life. (Collinson et al., 2020; Ferchakhi & Meskeh, 2014; Laine, 2023)

Finally, the last dimension is restraint vs indulgence and is a quite new dimension added in 2010. Indulgence implies that satisfaction is good and free compared to restraints where satisfaction must be controlled and regulated by strong social norms. (Collinson et al., 2020; Ferchakhi & Meskeh, 2014; Laine, 2023)

Four of the six value dimensions influence decision-making regarding cash holding of companies. These are uncertainty avoidance (Chang & Noorbakhsh, 2009; Chen et al., 2015), individualism, (Chen et al., 2015), masculinity (Chang & Noorbakhsh, 2009) and long-term orientation (Chang & Noorbakhsh, 2009).

3.1.1. Uncertainty avoidance

Further research has shown that people belonging to a culture with a low uncertainty avoidance level have a low sense of urgency when ambiguous, surprising, or unstructured situations occurs whereas in high uncertainty avoidance cultures, people feel more anxious when they meet these conditions and then take actions more quickly. (Hofstede, 2001)

This concept is also “linked to preferences such as rules, stability, uniformity, and especially closely related to psychological characteristics such as conservatism and risk aversion” (Chen et al., 2015, p.3).

However, uncertainty avoidance is not the same as risk avoidance. Indeed, risk focus on a specific event and can be associated with a probability of occurrence while uncertainty is a diffuse feeling and has no probability. Uncertainty is when anything can happen. (Hofstede, 2001)

Uncertainty avoidance and cash holdings are positively linked to each other (Chang & Noorbakhsh, 2009; Chen et al., 2015). In other words, companies in a high uncertainty avoidance culture tend to hold more cash than people in low uncertainty avoidance culture.

Moreover, a high level of uncertainty avoidance reduces the firm’s capital expenditures, acquisitions, and repurchases. (Chen et al., 2015)

3.1.2. Individualism

Chui et al. (2010) demonstrate that individualism already has a positive link with trading volume, volatility and momentum profits. In individualistic cultures, people are overconfident and exhibit self-attribution bias (cited in Chen et al., 2015).

The paper “National culture and corporate cash holdings around the world” (Chen et al., 2015) carried out their research in the United States and showed that firms in individualistic states hold less cash than firms in collectivistic states. Contrary to the uncertainty avoidance, individualism increases firm’s capital expenditures, acquisitions, and repurchases. (Chen et al., 2015)

3.1.3. Long-term orientation

Corporate managers in nations scoring higher on the long-term orientation index tend to view qualities such as patience, persistence, thrift, and self-reliance as commendable personal virtues. Economic and investment activities are evaluated with a long-term perspective rather than a short-term one. What matters is the value they create in the future therefore they avoid short-term investment as well as risky opportunities that are not sustainable over time. (Chang & Noorbakhsh, 2009)

Newman and Nollen (1996) also claimed that “this vision is also applicable to the employment as companies with a long-term orientation offer long-term job security to their employees” (cited in Chang & Noorbakhsh, 2009, p.9). Therefore, companies need to have sufficient cash and liquid assets to ensure job security of their employees.

Regarding the cultural dimension of long-term orientation, in the countries where people look at their economic and investment activities with a long-term view, managers decide to hold larger cash reserves. (Chang & Noorbakhsh, 2009)

3.1.4. Masculinity

Countries with a masculine culture exhibits a greater importance dedicated to results and generally reward persons based on performance rather than on equality. Jobs are seen as opportunities for recognition, advancement, and challenge while in a feminine culture they are seen as greater opportunities for mutual help and social contacts. (Chang & Noorbakhsh, 2009)

“Managers are expected to be assertive, decisive and aggressive.” (Chang & Noorbakhsh, 2009, p.8). When investment opportunities arise, they most of the time make decisions only based on their personal opinion. Therefore, they tend to hold sufficient liquidity (that can be available directly) to do investments without having to justify themselves to the outside scrutiny which is a necessary step when external funds are needed. (Chang & Noorbakhsh, 2009)

Overall, companies located in countries characterized by a stronger masculine culture tend to hold larger cash balances. (Chang & Noorbakhsh, 2009)

3.2. Other cultural dimensions

Although, Hofstede’s variables are the most well-known, two other models of cultural dimensions are presented below.

3.2.1. Trompenaars and Hampden-Turner model

The model developed by Trompenaars and Hampden-Turner is based on 7 dimensions. The first one is universalism versus particularism. In universalistic cultures, people prioritize rules before personal relationships. Relationships follow commonly agreed upon laws, rules, general values and obligations. The second is the individualism vs. communitarianism which is similar to the Hofstede's individualist dimension. Afterwards, there are the neutral vs emotional dimension which concerns the degree of expression of emotions in professional relationships. In emotional culture people let their emotions influence their actions and others know what they are feeling. Linked to this dimension, the specific culture vs. the diffuse one, is the degree of involvement. In a diffuse culture, people's personal and professional lives overlap, and they believe that having good personal relationships with colleagues is essential to achieving business goals. The fifth dimension is the achievement versus the ascription which is how status is viewed and accorded. In an achievement-oriented culture, evaluation is based on people’s actions and performances, while in an ascription culture, status is based on who the person is, titles and credentials are what matters the most. The sequential vs. the synchronic culture is a linear approach of time compared to a more flexible approach. Finally, the last dimension is the internal versus the external control. In an internal

control culture, people believe they control their environment, while in an external control it is the environment which controls them. (Balan & Vreja, 2013)

3.2.2. The cultural dimensions of Schwartz

Schwartz developed three other dimensions namely embeddedness versus autonomy, hierarchy versus egalitarianism and mastery versus harmony. However, Ahern et al. (forthcoming) said that the first dimension (embeddedness versus autonomy) is similar to Hofstede's individualistic dimension (cited in Chen et al., 2015). The second dimension differentiates a hierarchical structure from an egalitarian structure favoring cooperation. The last one reflects the degree of control and exploitation of the environment in relation to the culture of harmony which seeks harmony with the nature (Gouveia & Ros, 2000).

Overall, the national culture matters in corporate decisions as they help to explain the behavior of corporate managers regarding cash holdings, in different countries of the world. Neglecting the effects of these cultural variables on cash decisions risks introducing a bias by overemphasizing the impacts of 'corporate governance systems' in countries with diverse national cultures. Cultural characteristics need to be taken into account to effectively analyze financial decisions regarding corporate cash holdings of managers coming from different countries. (Chang & Noorbakhsh, 2009)

However, some researchers draw attention to the fact that Hofstede's scores should be updated from time to time as cultural values do not only reflect traditions, but they are also strongly influenced by the changing economic climate. (Chen et al., 2015)

4. The impacts of CEO cultural characteristics on cash holdings

On another level, cultural characteristics of managers also influence the cash reserves of their companies, and these cultural values are rooted and therefore difficult to change according to Guiso et al. (2009, 2015), Liu (2013) and Nguyen et al. (2018). (Cited in Loi et al., 2022)

Previous studies have analyzed the impact of the managers' attributes on the professional decisions they take. It appeared that they do influence their decisions. According to Doan and

Iskandar-Datta (2020), “gender affects US firms’ cash holdings policy, whereby female chief financial officers (CFOs) exhibit more conservative ethical sensitivities” (cited in Loi et al., 2022, p.2).

Moreover, chief executive officers (CEOs) having a financial background tend to keep less cash, to accept a higher debt level and are more willing to repurchase shares. (Custódio & Metzger, 2014)

The research of Loi, Chen and Qiao (2022) conducted in the UK led to the conclusion that CEOs with cultural values that emphasizes power distance and uncertainty avoidance tend to have higher cash reserve and if their cultural background emphasizes masculinity, they are more likely to hold less cash. (Loi et al., 2022)

The study of Li and Zahra (2012) showed the same results and came to the conclusion that managers with low uncertainty avoidance can tolerate unpredictability and ambiguity, while managers who avoid uncertainty are more anxious about unexpected events and will try to avoid innovative projects or asking for a higher discount rate. (Li & Zahra, 2012)

5. Hypotheses

This literature review highlighted the fact that while the impacts of national culture and individual behavior on the cash levels of companies, have been at the heart of several studies, the impact of the company’s culture on this component has not been studied. Therefore, the work focuses on the impact of a company's culture on its liquidity reserves, and more specifically on the differences and/or similarities in the impact of profit-making companies compared with non-profit ones. To make it easier, the paper brings not-for profit and nonprofit companies together. Here are the two different hypotheses.

5.1. Hypothesis 1

“Among non-profit organizations, those located in France have higher cash reserves than those located in the United States.”

In fact, Hofstede's variables show that France is a much more risk-averse country than the USA, with a score of 86 compared to 46 for the USA (Chen et al, 2015; The culture factor group, 2024). The consequence of this result is that French companies have higher cash reserves than those located in the United States. Therefore, the most logical hypothesis would be that this relationship holds for not-for-profit companies.

The null hypothesis (H0) and the alternative hypothesis (H1) are:

$$H_0: \mu_{Fr} \leq \mu_{US}$$

$$H_1: \mu_{Fr} > \mu_{US}$$

Where μ_{Fr} is the average cash ratio of French nonprofit companies and μ_{US} is the average cash ratio of American nonprofit companies.

5.2. Hypothesis 2

“Non-profit organizations tend to have higher cash reserves than those with a profit-driven culture, in proportion to their total assets.”

The literature has identified a gap in understanding the impact of corporate culture on company decisions, particularly concerning their cash reserves. This assumption is justified by the fact that companies aiming to maximize shareholder profit are more likely to invest surplus cash in other activities, whereas non-profit organizations tend to retain it. Moreover, as nonprofits cannot distribute residual earnings to individuals, the surplus of revenue must be retained in the organization. (Pizzini & Stener, 2023)

For both France and the United States, the hypotheses are represented in this form:

$$H_0: \mu_{NP} \leq \mu_{FP}$$

$$H_1: \mu_{NP} > \mu_{FP}$$

Where μ_{NP} , is the average cash ratio of nonprofit organizations and μ_{FP} , is the average cash ratio of for-profit organizations.

Part 2. Empirical research

1. Data selection and methodology

The objective of the analysis is firstly to compare the liquidity reserves of nonprofit companies in France with those in the United States and secondly to compare within France and the United States whether there are any differences between the liquidity reserves of profit-making companies and those of nonprofit ones. These two countries are chosen due to the high difference existing between their scores for the uncertainty avoidance index.

In order to answer the first hypothesis, the database is composed of 100 for profit companies for both the United States and France as well as 95 nonprofit American companies and 60 nonprofit French ones. All these companies represent businesses with the largest total revenue in their category. However, since French non-profit companies are not obliged to publicly disclose their financial reports, it was more difficult to collect information for 100 companies. Therefore, the total amount is lower than for the United States.

For each company, its total revenue, end cash position, total assets, industry, and total debt have been taken for the year 2022. If a financial report could not be found for 2022, a report of the year 2021 was used but this exception represents only a very slight proportion of the nonprofit French companies. The total revenue and cash position of profitable companies is taken from yahoo finance if available on this website. Otherwise, it was found in the financial statements of the company.

Based on that information, three different ratios were added namely, the ratio between cash position and total revenue, the cash ratio which is the ratio between cash position and total assets and finally the leverage which is the level of total debts compared to total assets. The cash ratio is the most important one as it will be the dependent variable of the regression model (presented in the part 3.1).

After having made some comparisons, the rankings that seemed the closest to the numbers found on yahoo finance come from the fortune 500 list for the US (Fortune 500, 2023) and a website called companies market cap for France, Germany and South Korea (Companies

market cap, 2023). Regarding the nonprofit companies, a ranking is found on the Forbes website (Forbes, 2023) for the US ones and for the French charities, several websites are used (Caroline, 2023; Franck, 2020; Wikimedia, 2024).

Therefore, since the rankings found might not be very reliable, none of the data comes directly from them. As already said, they either come from yahoo finance either audited financial statements or official financial reports from the companies. The rankings are there to have an idea of which companies are the most profitable.

To complete the analysis and check the methodology, 67 and 70 German and South Korean companies are taken to create two new databases. They are also among the most profitable companies in 2022. These two new countries have an uncertainty avoidance index located between the ones of France and the United States. The index of Germany is 65 while the one of South Korea is 85 (Chen et al, 2015; The culture factor group, 2024). The figure 3 illustrates the different UAI.

With a score of 86 and 85 for France and South Korea respectively, they are among the most uncertainty avoiding countries and Germany is considered as a country with a slight preference for uncertainty avoidance while on the opposite, Americans have a score below average and are therefore open to unexpected events and trying new or different things. (The culture factor group, 2024)



Figure 3. Comparison of the Hofstede's variables between France, Germany, South Korea and the US. (The culture factor group, 2024)

2. Data description

2.1. General description

The excel which constitutes the database is composed of different sheets¹. The first sheet contains all the French and American companies and then there are two sheets by country (one for the profitable companies and one for the non-profitable ones). Finally, the last two sheets contain the data for Germany and for South Korea.

For the profitable US companies, data are expressed in thousands of dollars, and they are expressed in dollars for the non-profitable ones. It appeared that some of the charities had negative annual revenues for the year 2022. Hence, these ones are not taken into account in the analysis.

Regarding the French companies, data are expressed in thousands of euros for the for-profit companies and in euros for the non-profit ones. Another column has been created afterwards to have the equivalent in dollars by using the exchange rate of 2022 (0.9497 €/€) (European Central Bank, 2024) available on the European central bank. To take the equivalent of the total revenue (which is generally considered as an operating revenue) available in Yahoo Finance, it is the “produit d’exploitation” which is taken into the income statements of French companies. The choice to take this amount instead of the “Chiffre d’affaires” is explained by the fact that non-profit organizations generally do not have high income generated by the sales of goods and services. Most of their income comes from operating subsidies, royalties and licenses and operational financial products. Hence, it is better to choose the operating income which takes into account these other types of income. Regarding the equivalent of cash and cash equivalents, it is found under the name of “disponibilités”.

All data are expressed in thousands of euros and in thousands of Korean won for Germany and South Korea respectively. The Korean won is then changed in dollar by using the average exchange rate of 2022 (1291.91 KRW/€) (Historique du taux de change du won sud-coréen

¹ The Excel file named "Database" constitutes an additional attachment.

(KRW) en dollar américain (USD) pour 2002, (n.d)) and the euros in dollars with the same exchange rate as France.

For the global sheet, all the French and American data are expressed in thousands of dollars.

2.2. Descriptive analysis

RStudio is used to provide a more complete and visual analysis of data before performing regression and mean tests.

2.2.1. Profitable companies

A. Quantitative variables

When all the profitable American and French companies are taken, a total of 200 observations is analysed.

The quantitative variables which are the centre of interest of the analysis are the ratio between cash position and total revenue, the cash ratio (cash position/total assets) and the leverage because it is these ratios that make it possible to fairly compare different companies.

The code regarding the analysis of profitable companies can be found in the appendices (Appendix 1).

The figure 4 illustrates the basic information of descriptive analysis, namely the minimum and maximum, the first and third quarters as well as the median and mean. The first line is for the ratio between cash position and total revenue, the second is for the cash ratio and the last one for the leverage.

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
0.000024	0.049616	0.134324	0.365604	0.226899	7.085448
Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
0.0000046	0.0477498	0.0820602	0.1007443	0.1325037	1.7845878
Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
0.006449	0.142681	0.263062	0.312346	0.390721	6.099821

Figure 4. Statistical summary of the columns cash position on total revenue, cash ratio and leverage (RStudio code)

For the ratio between cash and revenue and for the leverage, the difference between the minimum and the maximum is great, but it seems that the maximum values are extreme as both means are around 0.34 (34%). The average cash ratio of profitable companies is 10%, meaning that about 10% of the assets are under the form of cash and cash equivalents.

Based on that, the interquartile range (IQR) which is in other words the difference between the third and first quartile is computed. It is a robust measurement dispersion and the larger the IQR, the more dispersed the variables. The interquartile range of cash on total revenue is 0.18, the one of cash ratio is 0.084 and finally the one of the leverage is 0.24. It is the last variable concerning leverage which is the most dispersed and the cash ratio which is the least dispersed.

The three boxplots visually present the data discussed before. The first one (figure 5) allows to confirm that there are significant extreme values, with some companies having a much higher cash position on total revenue, up to 7.08. This indicates that although most of profitable companies maintain moderate cash holdings relative to their revenues, some companies keep cash reserves exceptionally high. Then, the cash ratio boxplot (figure 6) also proves, like the previous boxplot, the presence of extreme values. However, the number of outliers is weak and there is only one of them which is very far from the boxplot. The last one leads more or less to the same conclusions as for the cash ratio. There is one significant extreme value, and the rest of the extreme values are close to the boxplot. The only difference is that there are here more extreme values.

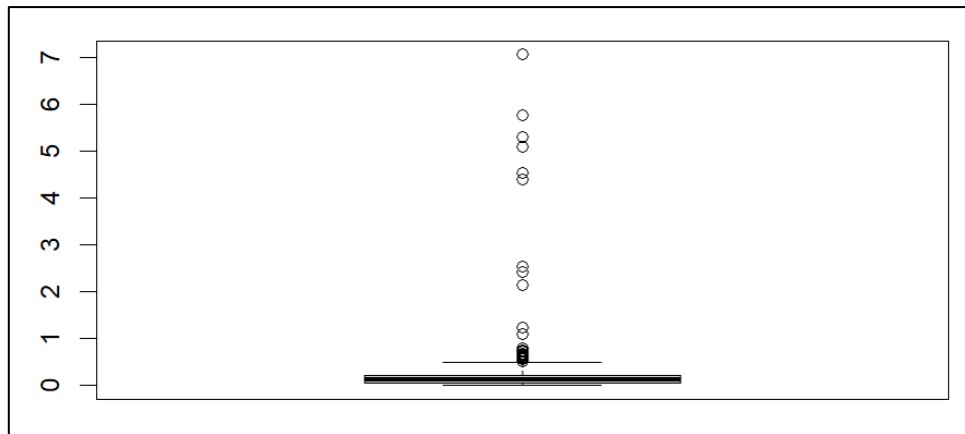


Figure 5. Boxplot of cash position on total revenue (RStudio code)

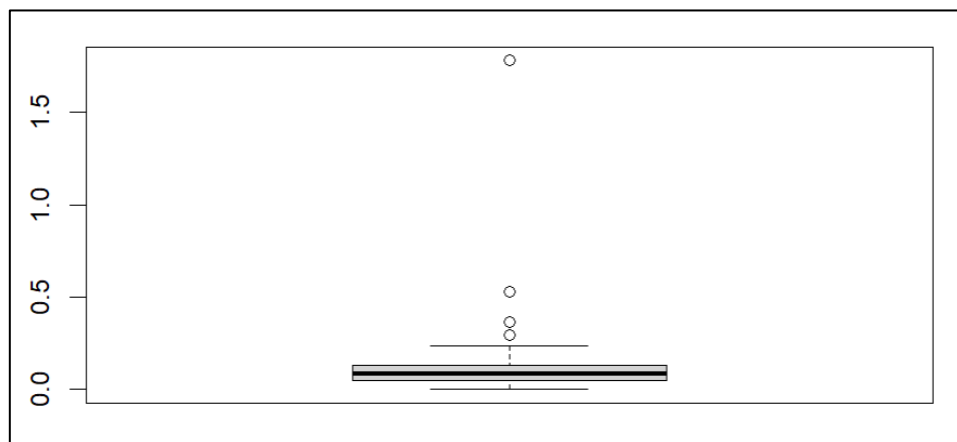


Figure 6. Boxplot of cash ratio (RStudio code)

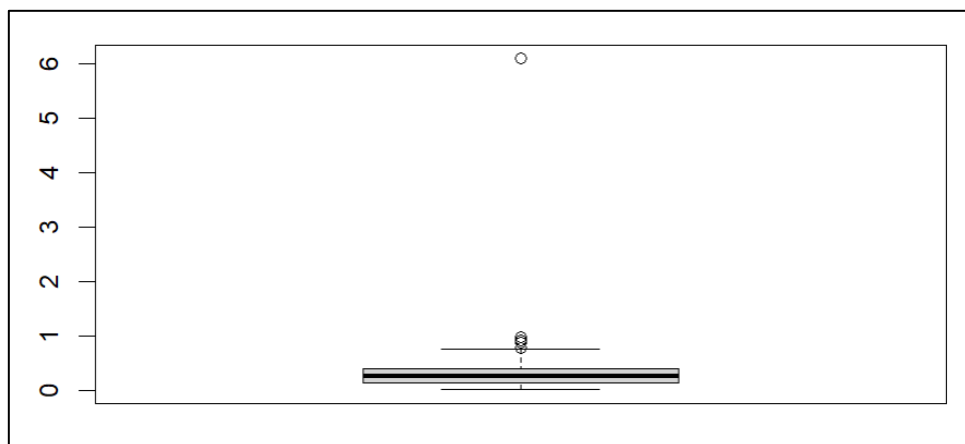


Figure 7. Boxplot of leverage (RStudio code)

The boxplot also allows to already have an idea of the distribution of the data and thus to know whether the variables are symmetrical around the median or not. When looking at the three boxplots, there is every reason to believe that it is not symmetric but rather positively

asymmetric as the median is closer to the first quartile than the third one and the upper moustache is longer than the lower moustache.

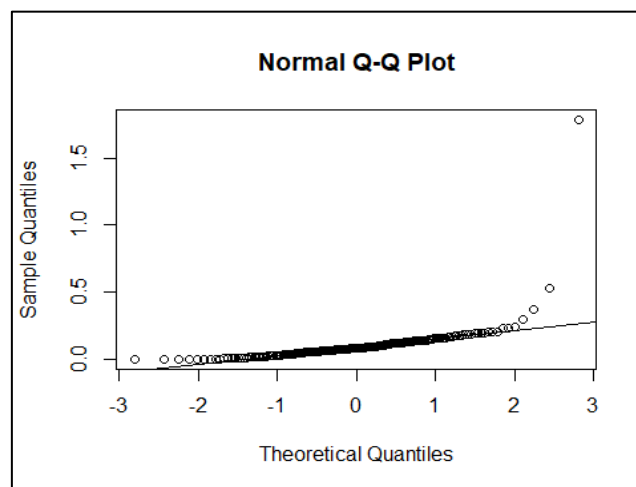


Figure 8. QQnorm plot of the cash ratio (RStudio code)

This is confirmed by the QQnorm plot of cash ratio (figure 8) and in other words, there is no normal distribution.

Afterwards, it is interesting to compare the different boxplots of French and US companies. It is only the cash ratio boxplots which are compared as it is the dependent variable of the regression.

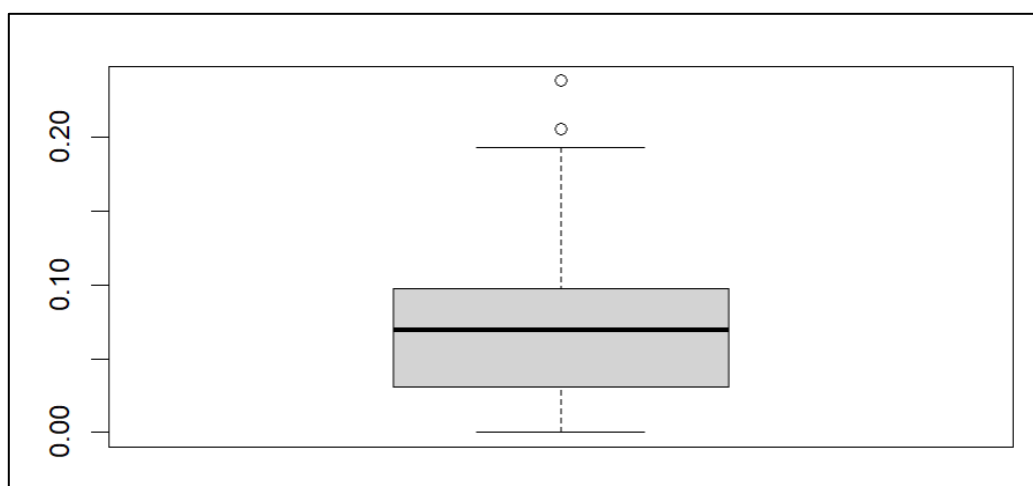


Figure 9. Boxplot of US cash ratio (RStudio code)

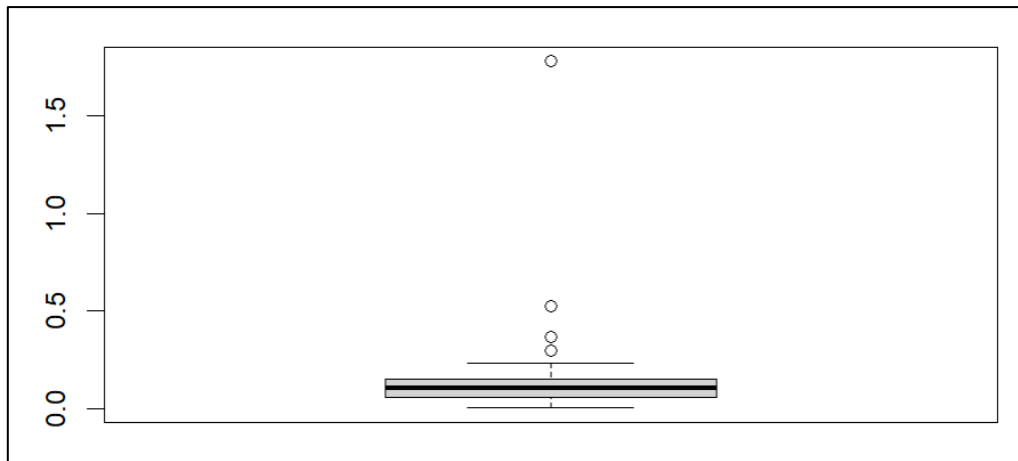


Figure 10. Boxplot of French cash ratio (RStudio code)

The main difference between the boxplot of the cash ratio of French and American companies is the fact that French companies have more dispersed cash ratio and more extreme values. French companies seem to have higher cash ratio than American ones which means in other words, that they are more likely to keep a high part of their assets under the form of cash or cash equivalents.

B. Qualitative variables

Regarding the qualitative variables, it is interesting to identify which industries are represented in the database (Appendix 2).

The most popular sectors by country					
	United States	France	Germany	South Korea	All together
Top 1	Oil & gas (11)	REIT (6)	Automotive industry (14)	Automotive industry (5)	Automotive industry (27)
Top 2	Healthcare (10)	Software (5)	Chemicals (5)	Chemicals (5)	Insurance (18)
Top 3	Retail (10)	Automotive industry (5)	Insurance (4)	Technology (4)	Oil & gas (16)
Top 4	Insurance (10)	Luxury goods (4)	Telecommunications (3)	Oil & gas (3)	Chemicals (14)
Top 5	Pharmaceutical industry (7)		Utilities (3)	Banking (3)	Retail (14)

Figure 11. The most popular sectors by country (Database)

This figure (figure 11) illustrates the results obtained on RStudio by showing the top 5 sectors which have the most companies present in the ranking per country. There is no top 5 for France as 11 industries have a total of 3 companies.

Overall, the automotive industry is in each country except a bit less for the US, an influential sector with a lot of companies generating a huge amount of revenue. The insurance, chemicals and oil & gas industries are three sectors which are found in several countries.

However, these numbers must be analyzed by taking into account the number of companies taken by country. Indeed, 100 companies have been chosen for the US and France but only 67 and 70 have been chosen for Germany and South Korea respectively.

Therefore, it can be seen (Appendix 3) that the automotive industry in Germany owns 21% of companies present in the ranking. For France and South Korea, the dominant sectors encompass only around 6-7% of enterprises while in the United States, the four more frequent sectors have around 10% of them.

In conclusion, the US and Germany are two countries with some sectors having a lot of profitable companies compared to France and South Korea where all the sectors have approximately the same number of companies. Nevertheless, it is not necessarily the sector with the most companies which generate the most revenue or which has the highest cash reserve.

2.2.2. Nonprofit companies

The nonprofit companies are composed of 95 companies from the United States and 60 French companies and so 155 non-profit business are analysed in this part. The code can be found in appendix 4.

A. Quantitative variables

The statistical summary (figure 12) shows the same information as the previous figure 4 for the ratio of cash divided by the revenue, the cash ratio and the leverage of the nonprofit companies within the database.

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
0.000699	0.077965	0.184269	0.384098	0.399447	5.464760
Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
0.001752	0.064731	0.146536	0.231500	0.299063	2.924544
Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
0.000886	0.107477	0.199553	0.306265	0.350279	3.814060

Figure 12. Statistical summary of the columns cash position on total revenue, cash ratio and leverage (RStudio code)

On average, the cash ratio of non-lucrative companies is around 23% which means that the cash and cash equivalents represents 23% of total assets. The average leverage which is the level of debt compared to the total assets is of 30%.

The interquartile ranges are 0.32, 0.23 and 0.24 which is a bit higher than the ones of lucrative businesses. It means that ratios here are more dispersed than the previous ones. The first IQR is almost twice as large as the median which indicates a significant dispersion, and the two other variables can also be considered as dispersed even if it is less dispersed than the first one.

The boxplot of each of the variables (Appendix 4) confirm this dispersion and the fact that there are several extreme values.

Surprisingly, the figure 13 illustrates that globally, the data here follow a normal distribution. The points move slightly away from the diagonal at the ends due to the presence of extreme values, it is therefore a heavy tail.

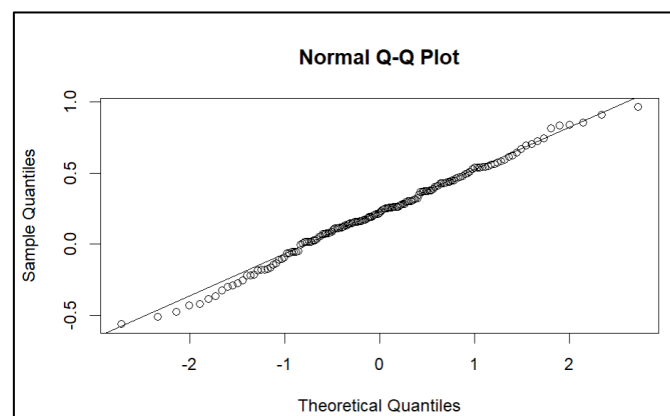


Figure 13. QQnorm plot of cash ratio (RStudio code)

B. Qualitative variables

The Appendix 4 also contains the different sectors existing for the nonprofit companies and the main difference is the fact that compared to profitable companies, there is almost no company in financial and manufacturing sectors. Most of the nonprofit companies are dedicated to either a health or a social purpose.

3. Empirical analysis

The empirical analysis explores the related research questions namely, do the nonprofit organizations in France have higher cash reserves than those in the United States and do they have higher cash reserves than for profit ones in France and in the US respectively.

To ensure the reliability of the results obtained during the analysis, two countries with uncertainty avoidance indexes between France and the United States were added. These are Germany and South Korea. As stated in the literature review, numerous studies have already shown that the higher the level of uncertainty avoidance, the higher the liquidity reserves. Figure 14 shows that this result also holds when analyzing the most profitable companies in each country.

The average cash ratio of the largest profitable companies in 4 different countries represented by different uncertainty avoidance index		
	Average cash ratio	UAI
France	0,129628216	86
South Korea	0,104572475	85
Germany	0,086633264	57
USA	0,071860384	46

Figure 14. Average cash ratio of the largest profitable companies by country (Database)

3.1. Spearman's correlation matrix and regression model

3.1.1. Spearman's correlation

Before analysing the regression, it is important to carry out the Spearman correlation in order to have an overview of the direction and intensity of the correlation between variables. As reminder, if the value obtained is equal to 1, it means that it is a perfect positive correlation meaning that variables evolve together towards the same direction. If the result is -1, it means on the opposite that variables evolve towards opposite directions, and it is called a perfect negative correlation.

The results are shown in the Appendix 5 and the general trend is that most of the variables are weakly correlated with each other (below 0.5) which indicates that the possibility to have multicollinearity is not expected. The strongest correlation is between cash and total assets with a value of 0.73. It means that cash and total assets are very likely to increase together in the same direction. However, as these variables are not directly considered in the regression, it could not create multi-collinearity.

The cash ratio is negatively correlated with the total revenue and the lucrative variable while it is positively correlated with the leverage.

3.1.2. Regression model

The regression model is presented as follows:

$$Cash_i = \beta_0 + \beta_1 Lucrative + \beta_2 Control + \varepsilon_i$$

where i denote the firm and ε is the error term.

The dependant variable is the firm's cash ratio, and the independent variable is the social denomination (whether the company is lucrative or not). Control variables include, the industry, the firm size (by taking the total assets), the uncertainty avoidance index (UAI), the total revenue and the leverage.

It is the cash ratio which is used to represent the cash holdings as it is commonly used in previous research (Aftab et al., 2018; Chen et al., 2015).

The firm size is also commonly used as a determinant of cash holding and it is generally estimated by the total assets or their logarithm (Aftab et al., 2018; Chen et al., 2015).

Afterwards, the profitability is also known to have an impact on cash holdings as firms with more profitability obviously have more money that can be kept in reserve (Aftab et al., 2018).

The leverage is the alternative to financing via cash holdings and empirical research showed it hold a negative relationship with cash holdings (Aftab et al., 2018).

As the variable “industry” is not numerical, sectors have been grouped in 15 more general industries and binary variables were created for each of them. If the company belongs to the sector the value is 1 and otherwise the value is 0.²

The regression model and its results are available in the Appendix 6 and the first observation made is that not a lot of variables are significant. The UAI, leverage, and the financial and mutual societies sectors are significant under a threshold of 0.05 (5%). The lucrative variable (the independent variable) is not significant at this level as the p value is equal to 0.09. It is only significant under a threshold of 0.1 (1%).

The multiple R-squared is equal to 0.2287 which means that the model explains 22.87% of the cash ratio variation and so the quality of the model is not very high.

The interpretation for the lucrative variable is that if the company is lucrative (this variable is equal to 1) then the cash ratio (cash and cash equivalents divided by total assets) decreases by 7.15 units. However, as the variable is not significant at the 5% level, the interpretation is not very reliable.

Regarding the uncertainty avoidance index, its interpretation confirms previous research because when this variable increases of 1, it increases the cash ratio of 0.0022 units.

When the leverage of the company increases by one unit, the cash ratio increases by 0.15 and for the financial sector, when it increases by 1, the ratio decreases by 0.11.

The lucrative and financial sector have a negative relationship with the cash ratio while the UAI and the leverage have a positive relationship.

3.1.3. Alternative regression model

An alternative model of this regression has been tested but by taking the logarithm of cash ratio (Appendix 7). For this regression, there are 3 more sectors namely, retail, energy and natural resources, IT technology and services which are significant below a threshold of 5%. The lucrative variable is still not significant at this level, but it is significant below the threshold of 1%. The multiple R-squared is equal to 0.1654 which means that the model explains 16.54% of the cash ratio variation and so the quality of the model is less good than the previous one.

² As the original excel (“Database”) needed modification to carry out the regression, another excel (“Regression”) has been created and constitutes a second additional attachment.

The interpretation for the lucrative variable is that if the company is lucrative then the cash ratio decreases by 46%. Regarding the uncertainty avoidance index, when this variable increases by one unit, it increases the cash ratio of 1.7%.

Finally, the interpretations for the sectors are the following: If a company is part of the retail sector, its cash ratio is supposed to decrease by 120% and if it is the energy and natural resources sector, it is supposed to decrease by 102%. If the company's industry is the IT sector or the financial one, the cash ratio decreases by 83% and 129% respectively.

The leverage in the initial regression has a positive effect on cash holdings. Contrary to that result, Aftab, Javid and Akhter (2018) explains that the leverage has a negative impact on cash holdings and that other searchers such as Acharya et al. (2008), Al-Najjar (2012), Chen et al. (2014) and Guizani (2017) obtained the same results. (Aftab et al.,2018)

Smith (2010) also found the same results and his explanation is that organizations with large reserves rely less on debt to finance themselves (cited in Grizzle, Sloan, & Kim, 2015) while another reason is that firms having high leverage bear higher costs on investment in liquid assets and so have less cash holding (Aftab et al.,2018). Organizations may also not need high operating reserves if they can easily access to the debt market (Grizzle et al., 2015). However, Bowman (2002) and Calabrese (2012) argued that small nonprofit companies, are not willing or they are unable to assume financial debt (Pizzini & Sterin, 2023).

Dittmar and Mahrt-Smith (2007) add that the level of leverage, the amount of capital expenditures and payment of dividend are interconnected in the way they influence cash holding (cited in Chang & Noorbakhsh, 2009).

3.2. Comparison of cash reserves between US and French nonprofit organizations

As reminder, the first hypothesis is to determine whether in general French nonprofit companies have higher cash reserves than American ones.

$$H_0: \mu_{Fr} = \mu_{US} \rightarrow H_0: \mu_{Fr} - \mu_{US} = 0$$

$$H_1: \mu_{Fr} > \mu_{US} \rightarrow H_1: \mu_{Fr} - \mu_{US} > 0$$

The test to carry out is a Student test and it is a right-sided mean comparison.

Figure 15 illustrates the average cash ratios of the sample. It shows that companies located in France, which has a much higher degree of uncertainty avoidance than the United States, have higher cash reserves than those in the United States.

The average cash ratio of the largest US and French non profit organizations		
	Average cash ratio	UAI
France	0,304014959	86
USA	0,185701193	46

Figure 15. Average cash ratio of the largest nonprofit organizations (Database)

The test is realized with a 95% confidence interval and the p value obtained is 0.02126 which is lower than the 0.05 threshold (Appendix 8). Hence, the null hypothesis can be rejected, and it can be said that the French nonprofit organizations tend to have higher cash reserves than the American ones.

3.3. Comparison of cash reserves between for profit and nonprofit companies

With regard to the second hypothesis, the same test has to be carried out for the two countries and as reminder here is how the null and alternative hypotheses are presented:

$$H_0: \mu_{NP} = \mu_{FP} \rightarrow H_0: \mu_{NP} - \mu_{FP} = 0$$

$$H_1: \mu_{NP} > \mu_{FP} \rightarrow H_1: \mu_{NP} - \mu_{FP} > 0$$

Again, it is a Student test and it is a right-sided mean comparison.

Figure 16 shows that for both countries the average cash ratio is higher for the non-profit businesses than for the profitable ones.

Cash ratio differences between profitable vs non profitable companies		
	Profitable companies	Non profitable companies
France	0,129628216	0,304014959
USA	0,071860384	0,185701193

Figure 16. Comparison of the average cash ratios of the profitable companies vs the non-profitable ones (Database)

The p value for the comparison between the French nonprofit and for-profit companies is equal to 0.00157 with a confidence level of 95%. As the p value is lower than the threshold of 5%, the null hypothesis can be rejected (Appendix 9).

The p value obtained for the comparison of the American companies is also clearly under the threshold of 5% as its value is 4.209×10^{-8} . The null hypothesis can therefore also be rejected in this case (Appendix 10).

Overall, the results obtained thanks to the regression and the student test highlight several key points. First of all, although the regression model shows that several variables are significant in explaining the variation of the cash ratio, such as the uncertainty avoidance index (UAI) and some of the sectors to which companies belong, the main variable of interest which is the lucrative nature of the company, is only significant at a 10% threshold and not the one of 5%. It means that the interpretation made about the impact of the lucrativeness of the company on its cash ratio remains uncertain. Moreover, some variables were significant in one regression model and not the other one which leads to questions about the robustness of results and validity of conclusions.

Afterwards, the first comparative test allowed to reject the null hypothesis and so to consider that non-profit companies in France have significantly higher liquidity reserves than those in the United States, which is in agreement with the idea that France, having a higher UAI index, promotes greater liquidity retention.

Finally, the comparison between for-profit and non-profit businesses within each country led to the conclusion that both null hypotheses can be rejected and that non-profit businesses have higher liquidity ratios than their for-profit counterparts.

3.4. Explanation of results using literature

After these results, the question that arises is: How can literature help to explain that nonprofit organizations (NPOs) have higher cash reserves than profitable ones?

According to Calabrese (2013) and Pizzini & Sterin (2013), the substantial liquidity reserves held by non-profit companies help them to smooth out the inequalities between revenue and expenses, ensuring that fixed costs are covered regardless of fiscal conditions. (Calabrese, 2013; Pizzini & Sterin, 2023). Indeed, as inflows generated by donations is not constant, reserves allow to fill the gaps (Pizzini & Sterin, 2023). If a company lacks sufficient operating margin, it struggles to manage financial distress with its cash (Grizzle, Sloan, & Kim, 2015). Therefore, cash reserves of NPOs are also called “rainy day” funds as they allow them to bear the costs and services during economic downturns (Pizzini & Sterin, 2023).

The ideal amount to be kept in reserve depends on the nature of the nonprofit’s operations. Nevertheless, there is a consensus that maintaining operating reserves equivalent to three months of expenses is considered as prudent for the organization but also acceptable to external investors. (Grizzle et al., 2015)

Research conducted by Pizzini and Sterin (2023) indicates that cash reserves in NPOs are positively related to board size, board independence and board monitoring activities (Pizzini & Sterin, 2023).

Surprisingly to the previous results, Grizzle, Sloan and Kim (2015) demonstrate that cash reserves is negatively correlated with the organization size, highlighting that board size and organization size have different impacts on cash reserves.

If a nonprofit's revenue structure is diverse, its cash holding is expected to be lower because diversification decreases uncertainties and increases the probability that the organization reach its revenue target (Grizzle et al., 2015). Additionally, cash reserves of nonprofits organizations have a positive relationship with administration ratio, profit margin, operating margin and organization age (Grizzle et al., 2015).

According to Calabrese (2013), public funding is negatively correlated with reserves while the amount of donations is not influenced by the level of cash in reserves, as donors generally

understand the importance for NPOs to maintain high cash reserves (Calabrese 2013). Conversely, Pizzini and Stener (2023) as well as Grizzle, Sloan and Kim (2015), found that excessive cash levels negatively affect future donor contributions. Donors prefer not to contribute if they believe their donations will be held for future use rather than spent directly (Pizzini & Stener, 2023).

While some nonprofits choose to maintain high reserves to reduce financial vulnerability, Calabrese (2013) notes that others may on the contrary decide to spend money to ensure that their program expense ratio (the ratio of program spending to total expenses) remains sufficiently high. (Calabrese, 2013)

3.5. Qualitative complement

Although the work is mainly a quantitative study, a qualitative approach via two interviews is added to enrich the analysis and obtain a more nuanced understanding of the results.

The questions discussed with the speakers included the following:

- Do you consider that the social denomination of a company (profitable vs. non-profitable) influences the amount of cash available? How can you explain it?
- Do you think the country where your business is located influences your decision-making on this subject?
- What cultural factors do you think influence your decision-making?

3.5.1. Interview 1

The first person interviewed is called Guillaume Wenin, and he is involved in three different nonprofit organizations.

Firstly, he is the treasurer of “L’ASSOC” in Liège which is a non-taxable student non-profit organization. They therefore do not have to make a VAT declaration, but they must make a financial statement by justifying all their expenses. They report to the Belgian monitor every year and the amount available on the account depends on the events organized and their success.

Secondly, he manages the CB (“comité de baptême”) located in Liège too. It is more or less the same amount which is available on the bank account, but the main difference is that it is not an ONG but rather an informal association which means that they do not have to justify their expenses. They carry out an accounting, but they are not obliged to publish it. However, the big constraint of this type of organization is that if there are financial problems, it is not enough to put the organization into bankruptcy, the responsibility of all those who are registered in this association is engaged which is much riskier. The CB is not subject to VAT either.

The last nonprofit organization is the SLF (“Saint Louis Festival”) which is a non-profit organization which creates a music festival within a secondary school in Namur. This is subject to VAT and therefore quarterly declarations must be made.

Guillaume's answer to the first question is a yes. He explains that the fundamental goal of “L’ASSOC” is to create events that are very affordable for students. The goal is to raise a lot of money at the start of the year through sponsorship and then be able to offer free entries to students. A new account is created after each end of the year and therefore for them the goal is to liquidate it at the end of the year. It is more or less the same thing for the CB. They try to provide almost free initiation (“baptême”) for students but the account is kept from year to year. And so, during the second term they try to carry out activities to replenish the accounts. Given that this structure is riskier, Guillaume explains that they actually have a savings account in which they try to save as much money as possible in order to protect themselves from problems.

For the second question, he said that it was more difficult to find an answer. Guillaume thinks that perhaps unconsciously he has reactions linked to the fact that he is Belgian but that if the company was in the United States, he would act differently. He thinks it depends more on the type of organization, such as CB which is less protected and therefore requires more financial security.

Finally, when thinking about the cultural factors which may influence the decision makings, he first addressed age. Indeed, the two student organizations are managed by students for students and therefore they tend to want to spend to benefit other students as much as

possible. He also adds that each treasurer has his own way of managing even if since there are two of them it somewhat erases the impacts of personal culture.

3.5.2. Interview 2

The second person interviewed is Briac Dupont and he is the manager of two Delhaize franchises.

According to him, non-profit companies have higher reserves than profit-making companies because they essentially depend on subsidies which are uncertain. He therefore assumes that liquidity must indeed serve as protection against risks.

For the second question, Briac mainly talked about the fact that he is of the opinion that there is a gray area in Belgium between the money of the company and the shareholders, in other words the link between the private and the professional seems vague to him. However, he is convinced that national culture has an impact on the financial decisions made. He explained that Anglo-Saxon countries are more fatalistic and that everything is determined at birth, whereas in Belgium this is not really the case. People who own a company view it as a personal asset, so they really don't want to lose it. He does not have many contacts with stores established in foreign countries, but he says that if the Delhaize group lacks liquidity in Belgium, the group present in the United States has no problem mobilizing cash to help Belgium.

Finally, Briac had difficulty answering the last question. He simply said that he suspected that culture, such as his family origins, had an impact on him but he did not know how to concretely explain why and give examples.

These interviews have highlighted the difficulty in truly identifying how cultural factors impact our individual choices. While both interviewees offered insights into their financial management practices, the underlying cultural influences were not always easy to discern. This highlights the complexity of unravelling the multifaceted layers of cultural impact on individual choices.

To truly identify and comprehend these cultural influences, a deeper comprehension of external cultures is necessary. This entails not only acknowledging the cultural backgrounds of individuals but also delving into broader societal norms, values, and historical contexts.

Part 3. Conclusion

1. Limitations of the study

Like any other work, this paper has limitations that it is important to identify.

First of all, as the analysis is based on a total of 200 profitable companies and 155 non profitable ones, it only represents a slight proportion of what exists in the different markets. The results are based on a sample and are generalized afterwards. Therefore, it might be possible that the results obtained are different from those which would have been obtained if all existing companies were taken. The fact that the chosen companies are for each category the most profitable ones could induce the same problem.

Moreover, there is always the inherent risk of omitting certain variables. Through literature, it was impressive to notice all the different regression models analyzed and the more control variables there are, the more precise the model should be. That is why more variables should be added to enhance the quality and avoid the risk of omitting important variables. To address this potential problem, a common solution showed in literature is to estimate the random-effect panel regression by generalizing least squares (GLS) (Chen et al., 2015).

Another limitation comes from the lack of robustness of the model. In addition to the alternative model of the regression, other robustness models and checks could have been done such as the Fama and Macbeth (1973) regression technique which allows to minimize time-series variations (cited in Chang & Noorbakhsh, 2009; Chen et al., 2015).

Finally, the last limitation concerns the analysis of the error term. Specifically, the White test was not conducted to determine the homoscedasticity of the errors, nor was the Jarque-Bera test performed to assess their normality. Consequently, many other tests could have been carried out to ensure the robustness of the analysis.

2. Conclusion

Culture is of central importance in explaining human actions and this study made it possible to understand the impact of an aspect of corporate culture on the choice that managers make regarding the amount of money kept in reserve.

The results obtained revealed a relationship between the lucrative nature of the business and the magnitude of its liquidity reserves. Indeed, by analysing French companies and American companies, it appeared that non-profit companies have higher liquidity reserves than profit-making companies.

Moreover, it showed that just like lucrative companies, the risk aversion of the country in which the non-profit company is located influences its reserves.

This work therefore made it possible to extend this result to non-profit companies and to confirm that the hypothesis that nonprofit companies have higher liquidity reserves than for profit ones is true.

Some caution should be exercised in interpreting the results obtained, recognizing that these conclusions must be contextualized and nuanced. Although the data indicates a trend where non-profit businesses generally have larger reserves than their for-profit counterparts, it is important to recognize that this relation may not always be true in all cases. An enlightening example is provided by Guillaume's interview, where he emphasizes that, in the case of an association in which he participates as treasurer, the financial reserves are accumulated at the beginning of the year to be largely spent towards its fence. This observation highlights the complexity of the financial dynamics specific to each organization, highlighting the diversity of cash management strategies that can be adopted depending on specific needs and contexts. Thus, although the results of this study provide valuable insights into the relationships between corporate culture and cash reserves, they should be viewed as general guidelines rather than hard and fast rules, and the need to recognize the need to 'an in-depth, contextual analysis for a comprehensive understanding of organizations' financial management practices.

Future work could analyze in more depth the impact of corporate culture on companies' liquidity reserves because this work only focuses on a very small part of corporate culture. Other aspects of the culture such as the type of structure and the values promoted by the company could have an impact. The impact of the company's industry on the cash reserves is also an avenue for future research. Indeed, it could be interesting to analyze which sectors tend to have companies with high cash reserves or on the contrary the sectors in which companies do not hold a lot of cash.

Appendices

Appendix 1. R code for the analysis of the quantitative variables of the profitable companies

#Quantitative variables

```
summary(datadescriptionprofitable$`Cash position/total revenue`)

##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 0.000024 0.049616 0.134324 0.365604 0.226899 7.085448

summary(datadescriptionprofitable$`Cash position/total assets`)

##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 0.0000046 0.0477498 0.0820602 0.1007443 0.1325037 1.7845878

summary(datadescriptionprofitable$Leverage)

##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 0.006449 0.142681 0.263062 0.312346 0.390721 6.099821

IQR(datadescriptionprofitable$`Cash position/total revenue`)

## [1] 0.1772826

IQR(datadescriptionprofitable$`Cash position/total assets`)

## [1] 0.08475386

IQR(datadescriptionprofitable$Leverage)

## [1] 0.2480401

boxplot(datadescriptionprofitable$`Cash position/total revenue`)

boxplot(datadescriptionprofitable$`Cash position/total assets`)

boxplot(datadescriptionprofitable$Leverage)

qqnorm(datadescriptionprofitable$`Cash position/total assets`)
qqline(datadescriptionprofitable$`Cash position/total assets`)

USA <- datadescriptionprofitable[1:100, ]
France <- datadescriptionprofitable[101:200, ]

boxplot(USA$`Cash position/total assets`)

boxplot(France$`Cash position/total assets`)
```

Source: RStudio code


```
##          Internet retail          Lodging
##                1                1
##          Lottery                Luxury goods
##                1                4
##      Manufacturing corporation          Media
##                1                1
##      Medical care facilities    Medical instruments & supplies
##                2                1
##      Multifformat retailing          Oil & gas
##                1                11
##          Oil & Gas                Packaged foods
##                2                2
##      Pharmaceutical industry          Pharmaceuticals
##                7                3
##          Railroads                Recreational vehicles
##                2                2
##          REIT                REIT- Diversified
##                1                2
##          REIT- Retail                REIT-Office
##                1                1
##          REIT-Residential                Retail
##                1                10
##      Retail and cloud computing    Semiconductor equipment & materials
##                1                1
##          Software                Software and computer services
##                5                1
##      Specialty business services          Technology
##                1                4
##      Technology and Cloud computing          Telecommunications
##                1                5
##          Textile manufacturing          Travel services
##                1                1
##          Utilities
##                3
```

```
numbofcompybyindusUSA <- table(USA$Industry)
numbofcompybyindusUSA
```

```
##
##      Aerospace and defense          Agriculture machinery
##                3                1
##          Airlines                Automotive industry
##                4                3
##          Banking                Beverage
##                4                2
##      Business services                Capital markets
##                1                2
##          Chemicals                Communication equipment
##                1                1
##          Credit services                Diagnostics & research
##                1                1
##      Electronics industry                Entertainment
##                2                1
##      Farm & heavy construction machinery          Farm products
##                1                2
##          Financials                Food distribution
##                2                2
##          Food industry                Footwear & accessories
##                1                1
```

```
##      Health (medical distribution)      Healthcare
##                                1      9
##      Hotels, restaurants & leisure      Household & personal products
##                                1      1
##            Industrial machinery      Information technology services
##                                1      1
##            Insurance      Integrated freight & logistics
##                                8      2
##            Media      Oil & gas
##                                1      11
##      Pharmaceutical industry      Retail
##                                7      9
##      Retail and cloud computing      Software
##                                1      1
##      Software and computer services      Technology
##                                1      4
##      Technology and Cloud computing      Telecommunications
##                                1      4
```

```
numbofcompbyindusFrance <- table(France$Industry)
numbofcompbyindusFrance
```

```
##
##      Advertising agencies      Aerospace & defense
##                                3      3
##            Airlines      Airport & air services
##                                1      1
##            Aluminium      Asset management
##                                1      3
##            Automotive      Automotive parts
##                                1      3
##      Automotive supplier      Banking
##                                1      3
##            Beverages      Broadcasting
##                                2      2
##      Building materials      Building products & equipment
##                                1      1
##      Business services      Chemicals
##                                2      3
##      Communication equipment      Construction
##                                1      1
##      Construction & maintenance      Consulting services
##                                1      1
##      Credit services      Electrical equipment & parts
##                                1      2
##      Electronic gaming & multimedia      Electronics & computer distribution
##                                1      1
##      Engineering & Construction      Entertainment
##                                3      2
##      Farm & heavy construction machinery      Fleet management, leasing
##                                1      1
##            Grocery stores      Household & personal products
##                                2      1
##      In vitro diagnostics      Industrial machinery
##                                1      1
##      Information technology services      Insurance
##                                3      3
##            Internet retail      Lodging
##                                1      1
```

```

##          Lottery          Luxury goods
##          1          4
##      Manufacturing corporation      Medical care facilities
##          1          2
##      Medical instruments & supplies      Multiformat retailing
##          1          1
##          Oil & Gas          Packaged foods
##          2          2
##          Pharmaceuticals          Railroads
##          3          2
##      Recreational vehicles          REIT
##          2          1
##      REIT- Diversified          REIT- Retail
##          2          1
##      REIT-Office          REIT-Residential
##          1          1
##      Retail Semiconductor equipment & materials
##          1          1
##          Software          Specialty business services
##          4          1
##      Telecommunications          Textile manufacturing
##          1          1
##      Travel services          Utilities
##          1          3

numbofcompbyglobal <- table(datadescriptionprofitable$`Global industry`)
numbofcompbyglobal

##
##      Biotechnology and pharmaceuticals          Care and well-being
##          14          15
##          Consumer goods      Economic and commercial development
##          16          11
##      Energy and natural resources          Entertainment and media
##          13          14
##      Finances and mutual societies          IT technology and services
##          27          24
##          Manufacturing industry          Retail
##          37          15
##      Transport and logistics
##          14

```

Source: RStudio code

Appendix 3. Proportion of majority sectors

The most popular sectors by country (in %)					
	United States	France	Germany	South Korea	All together
Top 1	Oil & gas (11%)	REIT (6%)	Automotive industry (21%)	Automotive industry (7%)	Automotive industry (8%)
Top 2	Healthcare (10%)	Software (5%)	Chemicals (7%)	Chemicals (7%)	Insurance (5%)
Top 3	Retail (10%)	Automotive industry (5%)	Insurance (6%)	Technology (6%)	Oil & gas (4.5%)
Top 4	Insurance (10%)	Luxury goods (4%)	Telecommunications (4%)	Oil & gas (4%)	Chemicals (4%)
Top 5	Pharmaceutical industry (7%)		Utilities (4%)	Banking (4%)	Retail (4%)

Source: Database

Appendix 4. R code of the descriptive analysis of nonprofit companies

#Quantitative variables

```
summary(descriptionnonprofit$`Cash position/total revenue`)

##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 0.000699 0.077965 0.184269 0.384098 0.399447 5.464760

summary(descriptionnonprofit$`Cash position/total assets`)

##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 0.001752 0.064731 0.146536 0.231500 0.299063 2.924544

summary(descriptionnonprofit$Leverage)

##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 0.000886 0.107477 0.199553 0.306265 0.350279 3.814060

IQR(descriptionnonprofit$`Cash position/total revenue`)

## [1] 0.3214814

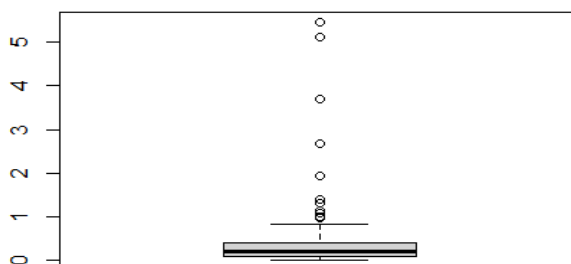
IQR(descriptionnonprofit$`Cash position/total assets`)

## [1] 0.234332

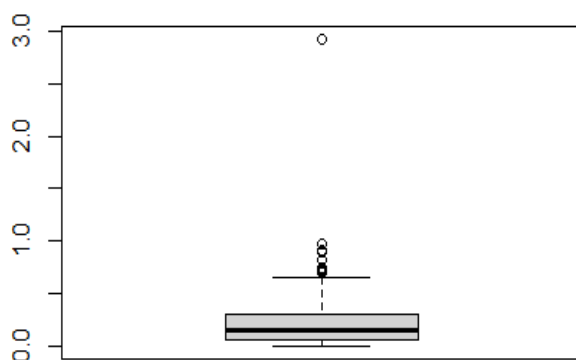
IQR(descriptionnonprofit$`Leverage`)

## [1] 0.2428025

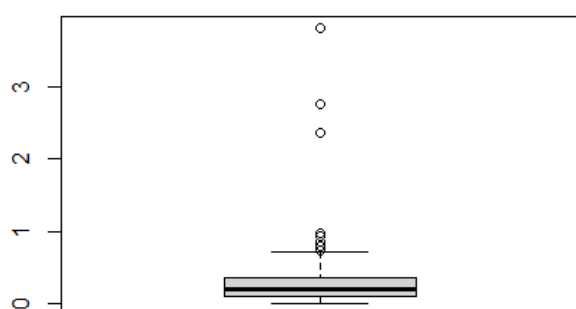
boxplot(descriptionnonprofit$`Cash position/total revenue`)
```



```
boxplot(descriptionnonprofit$`Cash position/total assets`)
```



```
boxplot(descriptionnonprofit$`Leverage`)
```



```
revenue_mean <- mean(descriptionnonprofit$`Cash position/total assets`)
revenue_sd <- sd(descriptionnonprofit$`Cash position/total assets`)

sim_norm <- rnorm(n= descriptionnonprofit$`Cash position/total assets`, mean = revenue_mean, sd = revenue_sd)
sim_norm
```

##	[1]	0.119888406	0.155850300	1.149690965	0.517224234	0.417048212
##	[6]	0.711411181	0.040037010	0.245396337	0.118674276	0.253867065
##	[11]	0.301499317	0.208382610	-0.180051862	0.217729493	0.551375024
##	[16]	0.420443443	0.155351523	0.475499645	-0.230968913	0.123429071
##	[21]	0.874120469	0.422418991	0.068240347	0.038963362	-0.044896875
##	[26]	0.563028640	0.486749010	-0.331999647	-0.060145642	0.550058266
##	[31]	0.532235133	-0.036296050	0.357233537	0.726114250	0.079396864
##	[36]	0.331989222	-0.121140971	0.079439547	0.146581821	0.242591383
##	[41]	0.396534583	0.073672651	0.092054629	0.194445426	0.625972265
##	[46]	0.409557513	0.077766746	-0.239897345	0.084736554	0.321483556
##	[51]	0.258053873	0.170527472	0.436843732	0.266023972	0.104242385
##	[56]	0.210994016	0.211041712	0.299799566	-0.066741096	0.104365802

```
## [61] 0.471599746 0.338958745 0.053361339 0.472473641 0.834155264
## [66] -0.291533527 -0.135444956 0.254586236 0.170457193 -0.118684326
## [71] -0.285314125 0.623647745 0.083881275 0.009099975 0.451007655
## [76] 0.331184818 0.302810348 0.377822075 0.001010623 0.185431428
## [81] 0.140689711 0.376973870 0.375127528 -0.054786664 0.201636856
## [86] -0.257615438 0.613096460 -0.082399288 0.510532881 -0.023765176
## [91] 0.072556481 0.301534681 -0.438231505 0.035374803 0.149292226
## [96] 0.536000643 0.086174930 0.284814977 0.355469269 -0.009203866
## [101] 0.352695048 -0.421699962 -0.072658744 0.415933856 0.208168798
## [106] 0.314011534 0.358570696 0.713863232 0.262184506 0.311319998
## [111] 0.265700713 0.038128386 -0.139494571 0.178928311 0.201637285
## [116] 0.357586072 0.439840527 0.030106308 0.185517254 0.894285788
## [121] 0.354601578 -0.090805925 -0.500407417 0.255656374 0.148012388
## [126] 0.277698380 0.654117717 0.174378236 0.022726640 0.224319711
## [131] 0.389481458 -0.008489559 0.269527028 0.338280070 0.502902970
## [136] -0.012125464 -0.055234615 0.129678813 -0.047226211 0.722179458
## [141] 0.475840886 0.214432157 0.100754323 -0.009653936 0.841391739
## [146] 0.207939762 0.112141217 0.291415313 -0.196591109 0.519276653
## [151] 0.320187440 0.134677605 0.436554493 0.196235067 0.619931374
```

```
qqnorm(sim_norm)
qqline(sim_norm)
```

```
US <- descriptionnonprofit[1:95, ]
FR <- descriptionnonprofit[96:155, ]
```

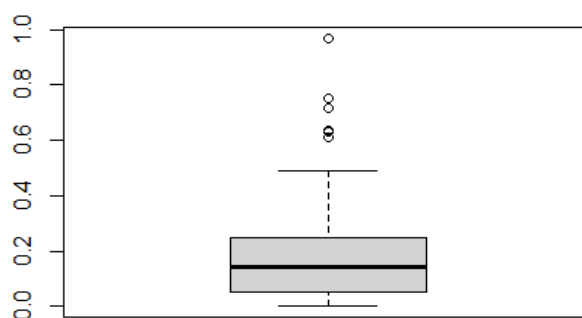
```
summary(US$`Cash position/total assets`)
```

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 0.002146 0.053393 0.143753 0.185701 0.248273 0.968394
```

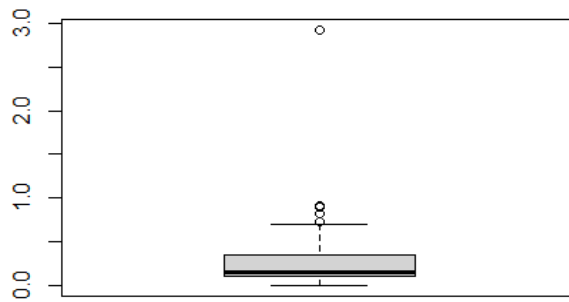
```
summary(FR$`Cash position/total assets`)
```

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 0.001752 0.110532 0.155222 0.304015 0.347920 2.924544
```

```
boxplot(US$`Cash position/total assets`)
```



```
boxplot(FR$`Cash position/total assets`)
```



#Qualitative variables

```
numberofcompaniesbyindustry <- table(descriptionnonprofit$Industry)
numberofcompaniesbyindustry
```

```
##
##           Animals protection
##                5
##           Automotive
##                1
##           Building industry
##                1
##           Business support
##                4
##           Care, beauty and health rituals
##                1
##           Child support
##                1
##           Children's education
##                1
##           Children's poverty
##                7
##           Culture
##                1
##           Disability sector
##                6
##           Disabling sector
##                3
##           Economic cooperation
##                1
##           Economic development
##                1
##           Education
##                6
##           Entertainment
##                1
##           Environmental protection
##                3
##           Fight against exclusion
##                1
##           Fight against hunger
##                7
```

```

##          Fight against poverty
##                      2
##      Fight against poverty and hunger
##                      1
##          Financial aid
##                      1
##          Food bank
##                      3
##          Food rescue
##                      1
##          Food security
##                      2
##          Healthcare
##                      1
##      Healthcare and insurance
##                      1
##          Health
##                      22
##      Health & education
##                      1
##          Healthcare
##                      7
##          Humanitarian
##                      9
##      Humanitarian aid
##                      1
##          Insurance
##                      1
##          Media
##                      3
##          Medical
##                      2
##      Medical research
##                      6
##          Microfinance
##                      1
##          Mutual sector
##                      5
##      Prevention and protection
##                      1
##      Protection of children's rights
##                      1
##      Protection of environment and biodiversity
##                      1
##          Religious
##                      5
##      Scientific research
##                      2
##          Social
##                      2
##      Social (solidarity)
##                      1
##      Social and supportive
##                      1
##          Social enterprise
##                      1
##          Social protection
##                      1
##          Social support

```

```
##          1
##          Solidarity
##          12
##          Sports
##          1
##          Sustainable sector
##          3
##          Veteran assistance
##          1

numbofcompbyindusUS <- table(US$Industry)
numbofcompbyindusUS

##
##          Animals protection          Child support
##          2          1
##          Children's poverty          Culture
##          6          1
##          Disabling sector          Education
##          3          4
##          Entertainment          Environmental protection
##          1          3
##          Fight against hunger          Fight against poverty
##          5          1
## Fight against poverty and hunger          Financial aid
##          1          1
##          Food bank          Food rescue
##          3          1
##          Food security          Healthcare
##          2          1
##          Health          Health & education
##          19          1
##          Healthcare          Humanitarian
##          7          9
##          Media          Medical research
##          2          2
##          Religious          Scientific research
##          5          1
##          Social          Social enterprise
##          2          1
##          Solidarity          Sports
##          7          1
##          Sustainable sector          Veteran assistance
##          1          1

numbofcompbyindusFR <- table(FR$Industry)
numbofcompbyindusFR

##
##          Animals protection
##          3
##          Automotive
##          1
##          Building industry
##          1
##          Business support
##          4
##          Care, beauty and health rituals
##          1
##          Children's education
```

```

##                                1
##          Children's poverty
##                                1
##          Disability sector
##                                6
##          Economic cooperation
##                                1
##          Economic development
##                                1
##          Education
##                                2
##          Fight against exclusion
##                                1
##          Fight against hunger
##                                2
##          Fight against poverty
##                                1
##          Healthcare and insurance
##                                1
##          Health
##                                3
##          Humanitarian aid
##                                1
##          Insurance
##                                1
##          Media
##                                1
##          Medical
##                                2
##          Medical research
##                                4
##          Microfinance
##                                1
##          Mutual sector
##                                5
##          Prevention and protection
##                                1
##          Protection of children's rights
##                                1
## Protection of environment and biodiversity
##                                1
##          Scientific research
##                                1
##          Social (solidarity)
##                                1
##          Social and supportive
##                                1
##          Social protection
##                                1
##          Social support
##                                1
##          Solidarity
##                                5
##          Sustainable sector
##                                2

numbofcompyglobal <- table(descriptionnonprofit$`Global industry`)
numbofcompyglobal

```

```
##
## Care and well-being
## 43
## Economic and commercial development
## 6
## Education
## 7
## Entertainment and media
## 6
## Finances and mutual societies
## 7
## Manufacturing industry
## 2
## Protection of the environment and animals
## 12
## Religious
## 5
## Social and solidarity support
## 67
```

Source: RStudio code

Appendix 5. Spearman's correlation matrix

```
colonnes_spearman <- Regression[, c(2:8, 10:26)]
correlation <- cor(colonnes_spearman, y=NULL, use="everything", method=c("pearson"))

corrtable <- as.data.frame(correlation)
print(corrtable)

write.csv(corrtable, "spearman_correlation_matrix.csv")
```

```

Total revenue  Cash  Cash divided  Cash divide  Total asset  Total debt  Leverage  UAI  Lucrative  Retail  Energy and natural r  IT technolog  Care and w  Finances an  Biotechnolo  Manufactur  Consumer s  Education  Transport ar  Religious  Economic a  Social and  Protection s  Entertainment
1  0.178573871  -0.063460100  0.1757522  0.2151168  0.10777077  -0.05217  -0.306837  0.4403796  0.301817  0.273027511409547  0.16157086  -0.02523985  0.03558096  0.08833708  -0.01102691  0.03001046  -0.07281543  0.01101083  -0.06079181  0.10100823  -0.24304938  -0.06523471  -0.06067922
Cash  0.178573871  1  0.683859249  -0.0348090  0.7362649  0.20477502  -0.06799  -0.065938  0.1884881  -0.01568  -0.0056326891842374  -0.0166816  0.07781501  0.45820886  -0.02164065  -0.03011727  -0.02586145  -0.03072581  -0.03040130  -0.02562845  -0.18041284  -0.04042014  -0.04140000
Cash divided  -0.063460100  0.683859249  1  0.13893480  0.5088302  0.13155898  -0.03582  0.134642  -0.01068  -0.07521  -0.0732889850805096  -0.06821442  0.03877023  0.40302926  -0.05525103  -0.06880391  -0.06154515  -0.00306063  -0.05004313  -0.02751280  0.02282263  -0.06559061  0.13562519  -0.01528458
Cash divide  -0.175752218  -0.034809001  0.1389348031  1  -0.0810591  -0.06384388  0.288533  0.1441671  -0.277581  -0.06680  -0.071784772874019  -0.08213087  -0.06072460  -0.10687455  -0.06040088  -0.06721142  -0.05441448  0.01435186  -0.06116282  0.00280568  -0.00788442  0.28431751  0.06088621  0.10858448
Total asset  0.2151168638  0.736264986  0.508830286  0.0810593  1  0.68729786  -0.04752  -0.118159  0.231248  -0.02219  -0.005785872365818  0.00371378  0.08630896  0.55467050  -0.01997741  -0.04703041  -0.03773238  0.03786250  0.03172516  0.05163863  -0.12738148  -0.04934470  -0.05231928
Total debt  0.1077707774  0.20477502  0.131558988  0.0638439  0.6872978  1  0.45306  -0.088347  0.128414  -0.00484  -0.007351030434417  0.01363208  0.05042793  0.27012108  -0.00805921  -0.01682064  -0.01346017  0.02116114  -0.01274659  0.01762472  0.02601580  0.07177857  -0.02774868  -0.02683540
Leverage  -0.052171700  -0.0679978  -0.035822437  0.28853385  -0.047528  0.04530885  1  0.103383  0.008841  0.00858  -0.0297131163060871  -0.0184868  0.02478554  -0.0786604  -0.02618876  -0.00925977  -0.01408182  -0.00828202  0.06171898  -0.04496822  0.08977491  -0.03703018  -0.02633117  0.11973185
UAI  -0.306837813  -0.0659363  0.134642244  0.14418761  -0.118159  -0.08934755  0.103383  1  0.112540  -0.04954  -0.116321110844815  -0.04096876  -0.15528624  0.03224390  -0.00901309  0.22489750  0.04881312  -0.00630876  -0.00901309  -0.10826638  0.22107091  -0.10413098  0.01853123  0.07331471
Lucrative  0.440379323  0.18848895  -0.01068801  0.2775818  0.2312482  0.12841418  0.008841  0.112540  1  0.184808  0.17183640853534  0.23705137  -0.27154428  0.15409229  0.17837651  0.27284662  0.19125429  0.17837651  0.27284662  0.19125429  0.17837651  0.27284662  0.19125429
Retail  0.301817137  -0.01568793  0.075219641  0.086029  0.0221301  -0.00484541  0.00858  -0.048547  0.184808  1  -0.040951026651077  -0.05655448  -0.06262088  -0.06826855  -0.04255915  -0.07378958  -0.04561186  -0.02078984  -0.04255915  -0.02510482  0.04710557  0.10113963  -0.05023707  -0.05132143
Energy and nat  0.2730275114  -0.00563268  0.07288850  0.0717847  0.0057858  -0.00735103  -0.02971  -0.116321  0.171836  -0.04089  1  -0.05248896  0.08615775  -0.06345201  -0.03850439  -0.08488318  -0.04235637  -0.02765145  -0.03850439  -0.02330288  -0.04372448  -0.08407721  -0.05646718  -0.04763774
IT technology a  0.025239851  -0.07781501  -0.08214427  -0.0821008  0.0037317  0.01382225  -0.01849  -0.040968  0.237051  -0.05685  -0.0524889602325611  1  -0.11894863  -0.087632515  -0.05456051  -0.08459781  -0.05848944  0.03818011  -0.05456051  -0.032218415  -0.06038898  -0.12867771  -0.05036573  -0.06579388
Care and wellb  -0.025239851  -0.07781501  -0.08214427  -0.0821008  0.0037317  0.01382225  -0.01849  -0.040968  0.237051  -0.05685  -0.0524889602325611  -0.11894863  1  -0.14382113  -0.08854113  -0.15526747  -0.09605545  -0.06267511  -0.08854113  -0.05281858  -0.09910644  -0.21314587  -0.08265684  -0.10787628
Finances and m  0.03558096  0.03001046  0.03072581  0.06154515  0.00306063  0.05004313  0.02751280  0.02282263  0.06559061  0.13562519  0.01528458  0.01528458  -0.01528458  1  -0.07074501  -0.04615793  -0.05848944  0.03818011  -0.05456051  -0.032218415  -0.06038898  -0.12867771  -0.05036573  -0.06579388
Biotechnolog  0.06079181  0.10100823  -0.24304938  -0.06523471  -0.06067922  -0.06523471  -0.06067922  -0.06523471  1  -0.07118288  -0.04401968  -0.02873731  -0.04105571  -0.02421797  -0.04544152  -0.05773001  -0.03788923  -0.04850848
Manufacturing  -0.01102691  0.03001046  -0.03072581  -0.06154515  0.00306063  0.05004313  0.02751280  0.02282263  0.06559061  0.13562519  0.01528458  0.01528458  -0.01528458  -0.07118288  1  -0.07322185  -0.04882505  -0.07118288  -0.04198840  -0.07878705  -0.16844545  -0.06571012  -0.08583834
Consumer good  0.03001046  -0.03072581  -0.03072581  -0.06154515  0.00306063  0.05004313  0.02751280  0.02282263  0.06559061  0.13562519  0.01528458  0.01528458  -0.01528458  -0.07322185  -0.04882505  1  -0.03061197  -0.04401968  -0.02873731  -0.04105571  -0.02421797  -0.04544152  -0.05773001  -0.03788923  -0.04850848
Education  0.07281543  -0.03072581  -0.03072581  -0.06154515  0.00306063  0.05004313  0.02751280  0.02282263  0.06559061  0.13562519  0.01528458  0.01528458  -0.01528458  -0.07322185  -0.04882505  -0.03061197  1  -0.02873731  -0.04401968  -0.02873731  -0.04105571  -0.02421797  -0.04544152  -0.05773001  -0.03788923  -0.04850848
Transport and  0.01102691  0.03001046  -0.03072581  -0.06154515  0.00306063  0.05004313  0.02751280  0.02282263  0.06559061  0.13562519  0.01528458  0.01528458  -0.01528458  -0.07322185  -0.04882505  -0.03061197  -0.02873731  1  -0.04401968  -0.02873731  -0.04105571  -0.02421797  -0.04544152  -0.05773001  -0.03788923  -0.04850848
Religious  -0.06079181  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  1  -0.07118288  -0.04401968  -0.02873731  -0.04105571  -0.02421797  -0.04544152  -0.05773001  -0.03788923  -0.04850848
Economic and  -0.01102691  0.03001046  -0.03072581  -0.06154515  0.00306063  0.05004313  0.02751280  0.02282263  0.06559061  0.13562519  0.01528458  0.01528458  -0.01528458  -0.07322185  -0.04882505  -0.03061197  -0.02873731  -0.04401968  1  -0.03061197  -0.04401968  -0.02873731  -0.04105571  -0.02421797  -0.04544152  -0.05773001  -0.03788923  -0.04850848
Social and soli  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  1  -0.07118288  -0.04401968  -0.02873731  -0.04105571  -0.02421797  -0.04544152  -0.05773001  -0.03788923  -0.04850848
Protection of  -0.06079181  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.07118288  1  -0.07118288  -0.04401968  -0.02873731  -0.04105571  -0.02421797  -0.04544152  -0.05773001  -0.03788923  -0.04850848
Entertainment  0.06079181  0.10100823  -0.24304938  -0.06523471  -0.06067922  -0.06523471  -0.06067922  -0.06523471  0.06079181  0.10100823  -0.24304938  -0.06523471  1  -0.06079181  -0.02523471  -0.02523471  -0.02523471  -0.02523471  -0.02523471  1  -0.06079181  -0.02523471  -0.02523471  -0.02523471  -0.02523471

```

Source: RStudio code

Appendix 6. Regression model

```
## Call:
## lm(formula = Cash_divided_assets ~ Lucrative + UAI + Total_revenue +
## Leverage + Retail + Energy_and_natural_resources + IT_technology_and_servic
```

```

es +
##   Care_and_wellbeing + Finances_and_mutual_societies + Biotechnology_and_phar
maceuticals +
##   Manufacturing_industry + Consumer_goods + Education + Transport_and_logisti
cs +
##   Religious + Economic_and_commercial_development + Social_and_solidarity_sup
port +
##   Protection_of_the_environment_and_animals + Entertainment_and_media,
##   data = Regression)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.75089 -0.08607 -0.01939  0.04331  2.51589
##
## Coefficients: (1 not defined because of singularities)
##
##              Estimate Std. Error t value
## (Intercept)      8.603e-02  7.190e-02   1.197
## Lucrative        -7.156e-02  4.292e-02  -1.667
## UAI              2.074e-03  6.525e-04   3.179
## Total_revenue    1.286e-10  1.981e-10   0.650
## Leverage         1.507e-01  2.597e-02   5.802
## Retail          -1.223e-01  7.616e-02  -1.606
## Energy_and_natural_resources -1.055e-01  7.918e-02  -1.333
## IT_technology_and_services -1.157e-01  6.599e-02  -1.754
## Care_and_wellbeing -8.640e-02  5.890e-02  -1.467
## Finances_and_mutual_societies -1.214e-01  6.035e-02  -2.012
## Biotechnology_and_pharmaceuticals -1.034e-01  7.505e-02  -1.378
## Manufacturing_industry -1.137e-01  5.946e-02  -1.912
## Consumer_goods   -1.057e-01  7.212e-02  -1.466
## Education        -7.894e-02  9.744e-02  -0.810
## Transport_and_logistics -1.304e-01  7.462e-02  -1.747
## Religious        -3.986e-02  1.108e-01  -0.360
## Economic_and_commercial_development -1.375e-01  7.016e-02  -1.960
## Social_and_solidarity_support 3.430e-02  6.186e-02   0.555
## Protection_of_the_environment_and_animals -2.636e-02  8.280e-02  -0.318
## Entertainment_and_media      NA          NA      NA
##
##              Pr(>|t|)
## (Intercept)      0.23234
## Lucrative         0.09637 .
## UAI               0.00162 **

```

```
## Total_revenue                0.51645
## Leverage                     1.51e-08 ***
## Retail                       0.10927
## Energy_and_natural_resources 0.18352
## IT_technology_and_services   0.08034 .
## Care_and_wellbeing           0.14334
## Finances_and_mutual_societies 0.04502 *
## Biotechnology_and_pharmaceuticals 0.16910
## Manufacturing_industry        0.05671 .
## Consumer_goods               0.14350
## Education                    0.41847
## Transport_and_logistics       0.08149 .
## Religious                    0.71926
## Economic_and_commercial_development 0.05081 .
## Social_and_solidarity_support 0.57960
## Protection_of_the_environment_and_animals 0.75044
## Entertainment_and_media      NA
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.2109 on 336 degrees of freedom
## Multiple R-squared:  0.2287, Adjusted R-squared:  0.1874
## F-statistic: 5.534 on 18 and 336 DF,  p-value: 1.955e-11
```

Source: RStudio code

Appendix 7. Alternative regression model

```
##
## Call:
## lm(formula = log(Cash_divided_assets) ~ Lucrative + UAI + Total_revenue +
##      Leverage + Retail + Energy_and_natural_resources + IT_technology_and_servic
es +
##      Care_and_wellbeing + Finances_and_mutual_societies + Biotechnology_and_phar
maceuticals +
##      Manufacturing_industry + Consumer_goods + Education + Transport_and_logisti
cs +
##      Religious + Economic_and_commercial_development + Social_and_solidarity_sup
port +
##      Protection_of_the_environment_and_animals + Entertainment_and_media,
```

```
##      data = Regression)
##
## Residuals:
##      Min        1Q    Median        3Q        Max
## -8.6728 -0.4992  0.2004  0.7713  2.4930
##
## Coefficients: (1 not defined because of singularities)
##
##              Estimate Std. Error t value
## (Intercept)    -2.835e+00  4.442e-01  -6.383
## Lucrative      -4.646e-01  2.651e-01  -1.752
## UAI            1.724e-02  4.031e-03   4.276
## Total_revenue  1.987e-09  1.224e-09   1.624
## Leverage       7.912e-02  1.604e-01   0.493
## Retail        -1.202e+00  4.705e-01  -2.554
## Energy_and_natural_resources -1.029e+00  4.891e-01  -2.103
## IT_technology_and_services -8.327e-01  4.076e-01  -2.043
## Care_and_wellbeing -7.040e-01  3.639e-01  -1.935
## Finances_and_mutual_societies -1.290e+00  3.728e-01  -3.461
## Biotechnology_and_pharmaceuticals -6.757e-01  4.636e-01  -1.457
## Manufacturing_industry -4.998e-01  3.673e-01  -1.361
## Consumer_goods -7.650e-01  4.455e-01  -1.717
## Education      -2.655e-01  6.020e-01  -0.441
## Transport_and_logistics -8.124e-01  4.610e-01  -1.762
## Religious       6.740e-02  6.845e-01   0.098
## Economic_and_commercial_development -8.228e-01  4.334e-01  -1.898
## Social_and_solidarity_support -1.255e-01  3.822e-01  -0.328
## Protection_of_the_environment_and_animals -3.456e-01  5.115e-01  -0.676
## Entertainment_and_media      NA          NA      NA
##
##              Pr(>|t|)
## (Intercept)    5.77e-10 ***
## Lucrative      0.080661 .
## UAI            2.48e-05 ***
## Total_revenue  0.105300
## Leverage       0.622173
## Retail         0.011078 *
## Energy_and_natural_resources 0.036196 *
## IT_technology_and_services 0.041850 *
## Care_and_wellbeing 0.053848 .
## Finances_and_mutual_societies 0.000608 ***
## Biotechnology_and_pharmaceuticals 0.145921
```

```
## Manufacturing_industry      0.174520
## Consumer_goods              0.086881 .
## Education                   0.659485
## Transport_and_logistics     0.078904 .
## Religious                   0.921628
## Economic_and_commercial_development 0.058514 .
## Social_and_solidarity_support 0.742878
## Protection_of_the_environment_and_animals 0.499743
## Entertainment_and_media      NA
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.303 on 336 degrees of freedom
## Multiple R-squared:  0.1654, Adjusted R-squared:  0.1207
## F-statistic: 3.699 on 18 and 336 DF,  p-value: 9.092e-07
```

Source: RStudio code

Appendix 8. Student test: Comparison of average cash reserves of French and American nonprofit companies

#average cash ratios of France and the USA

```
by(hypo1$`Cash position/total assets`, hypo1$France, mean)

## hypo1$France: 0
## [1] 0.1857012
## -----
## hypo1$France: 1
## [1] 0.304015

Francedata <- subset(hypo1, hypo1$France == "1")
USAdata <- subset(hypo1, hypo1$France == "0")

t.test(Francedata$`Cash position/total assets`, USAdata$`Cash position/total assets`, alternative = "greater", mu = 0, conf.level = 0.95)

##
## Welch Two Sample t-test
##
## data:  Francedata$`Cash position/total assets` and USAdata$`Cash position/total assets`
## t = 2.0641, df = 73.967, p-value = 0.02126
## alternative hypothesis: true difference in means is greater than 0
## 95 percent confidence interval:
##  0.02283665      Inf
## sample estimates:
## mean of x mean of y
## 0.3040150 0.1857012
```

Source: RStudio code

Appendix 9. Student test: Comparison of average cash reserves between French nonprofit and for-profit companies

```
FPFR <- subset(hypo2,hypo2$Lucrative == "1")
NPFR <- subset(hypo2,hypo2$Lucrative == "0")

t.test(NPFR$`Cash position/total assets`, FPFR$`Cash position/total assets`, alter
native = "greater", mu = 0, conf.level =0.95)

##
## Welch Two Sample t-test
##
## data: NPFR$`Cash position/total assets` and FPFR$`Cash position/total assets`
## t = 3.0555, df = 72.845, p-value = 0.00157
## alternative hypothesis: true difference in means is greater than 0
## 95 percent confidence interval:
##  0.07929933      Inf
## sample estimates:
## mean of x mean of y
## 0.3040150 0.1296282
```

Source: RStudio code

Appendix 10. Student test: Comparison of average cash reserves between American nonprofit and for-profit companies

```
FPUS <- subset(hypo2,hypo2$Lucrative == "1")
NPUS <- subset(hypo2,hypo2$Lucrative == "0")

t.test(NPUS$`Cash position/total assets`, FPUS$`Cash position/total assets`, alter
native = "greater", mu = 0, conf.level =0.95)

##
## Welch Two Sample t-test
##
## data: NPUS$`Cash position/total assets` and FPUS$`Cash position/total assets`
## t = 5.7513, df = 107.5, p-value = 4.209e-08
## alternative hypothesis: true difference in means is greater than 0
## 95 percent confidence interval:
##  0.08099941      Inf
## sample estimates:
## mean of x mean of y
## 0.18570119 0.07186038
```

Source: RStudio code

Bibliography

- Aftab, U., Javid, A. Y., & Akhter, W. (2018). The Determinants of Cash Holdings around Different Regions of the World. In *Business & Economic Review: Vol. Vol. 10* (Issue No. 2, pp. 151–182). DOI: [dx.doi.org/10.22547/BER/10.2.7](https://doi.org/10.22547/BER/10.2.7)
- Balan, S., & Vreja, L. O. (2013). The Trompenaars' Seven-Dimension Cultural Model and Cultural Orientations of Romanian Students in Management. *ResearchGate*.
https://www.researchgate.net/publication/349988269_The_Trompenaars'_Seven-Dimension_Cultural_Model_and_Cultural_Orientations_of_Romanian_Students_in_Management
- Benstead, S. (2023, December 27). 4 different types of company culture explained. *breathe*. <https://www.breathehr.com/en-gb/blog/topic/company-culture/4-different-types-of-company-culture-explained>
- Calabrese, T. (2013). Running on Empty: The operating reserves of U.S. nonprofit organizations. *Nonprofit management & leadership*, 23(3), 281–302. <https://doi.org/10.1002/nml.21064>
- Candelon, B. (2023). Principles of banking, regulation and supervision. Syllabus, Université Catholique de Louvain.
- Caroline. (2023, February 21). Les plus grandes ONG françaises. *Actualités Françaises*.
<https://www.actualitefrance.com/actualites/ong-francaise-top-10-associations/>
- Chang, K., & Noorbakhsh, A. (2009). Does national culture affect international corporate cash holdings? *Journal of Multinational Financial Management*, 19(5), 323–342.
<https://doi.org/10.1016/j.mulfin.2009.07.001>
- Chen, Y., Dou, P., Rhee, S. G., Truong, C., & Veeraraghavan, M. (2015). National culture and corporate cash holdings around the world. *Journal of Banking and Finance*, 50, 1–18.
<https://doi.org/10.1016/j.jbankfin.2014.09.018>
- Collinson, Narula, & Rugman (2020). *International Business*, 8th Edition, Pearson Education (chapter 5)
- Contributeurs aux projets Wikimedia. (2024, February 28). Liste des organisations de solidarité internationale françaises.
https://fr.wikipedia.org/wiki/Liste_des_organisations_de_solidarit%C3%A9_internationale_fran%C3%A7aises

Custódio, C. & Metzger, D. (2014) Financial expert CEOs: CEO's work experience and firm's financial policies. *Journal of Financial Economics*, 114(1), 125–154.

Doan, T. & Iskandar-Datta, M. (2020) Are female top executives more risk-averse or more ethical? Evidence from corporate cash holdings policy. *Journal of Empirical Finance*, 55, 161–176.

European Central Bank. (2024, May 22). *Euro exchange rates charts*. https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/eurofxref-graph-usd.en.html

Febriani, D., M., & Selamet, J. (2020). College Students' intention to volunteer for non-profit organizations: does brand image make a difference?. *Journal of nonprofit & public sector marketing*, 32(2), 166-188. <https://doi.org/10.1080/10495142.2019.1656136>

Ferchakhi, W., & Meskeh, M. (2014). XVIII. Geert Hofstede. Cultures nationales et pratiques managériales. In *EMS Editions eBooks* (pp. 343–356). <https://doi.org/10.3917/ems.mayrh.2014.01.0343>

Fortune 500 full list (2024). (n.d.). <https://www.50pros.com/fortune500>

Franck, A. (2020). Liste ONG et associations humanitaires. Solidarités Infos. <https://solidarites.info/liste-ong-humanitaires.php>

Fritz Foley, C., Hartzell, J.C., Titman, S., Twite, G. (2007). Why do firms hold so much cash? A tax-based explanation. *Journal of Financial Economics*, 86, 579-607.

Gouveia, V. V., & Ros, M. (2000). Hofstede and Schwartz s models for classifying individualism at the cultural level: their relation to macro-social and macro-economic variables. *Psicothema*, 12(Su1), 25-33.

Grizzle, C., Sloan, M. F., & Kim, M. (2015). Financial factors that influence the size of nonprofit operating reserves. *Journal of public budgeting, accounting & financial management*, 27(1), 67-97. <https://doi.org/10.1108/JPBAFM-27-01-2015-B003>

Historique du taux de change du won sud-coréen (KRW) en dollar américain (USD) pour 2022. (n.d.). <https://www.exchange-rates.org/fr/historique/krw-usd-2022>

Hofstede, G. (2001). Culture's consequences: comparing values, behaviors, institutions, and organizations across nations. Sage Publication, Beverly Hills, CA.

IMF. <https://www.imf.org/en/Publications/WP/Issues/2023/03/17/Measurement-and-Use-of-Cash-by-Half-the-Worlds-Population-531077>

Khiaonarong, T., & Humphrey, D. (2019, March). Cash use across countries and the demand for central bank digital currency. IMF Working Paper.

Khiaonarong, T., & Humphrey, D. (2023, March 17). Measurement and use of cash by half the world's population. IMF Working Paper.

Laine, I. (2023). Global business environment: National environmental differences. Syllabus, University of Lappeenranta.

Loi, F. L., Chen, J. J., & Qiao, Z. (2022). CEO cultural background and corporate cash holdings. *Accounting & Finance*, 63(S1), 1069–1100. <https://doi.org/10.1111/acfi.13019>

Nayeem, T. (2012). Cultural influences on consumer behaviour. *International Journal of Business and Management*, 7(21). <https://doi.org/10.5539/ijbm.v7n21p78>

Pizzini, M., & Sterin, M. (2023). The relation between cash reserves, governance, and donations in nonprofit organizations. *Journal of accounting, auditing & finance*, 148558-. <https://doi.org/10.1177/0148558X221142953>

Pourron, A. (2022, November 24). What are the Four Types of Corporate Culture? (And How to Choose Yours). LumApps. <https://www.lumapps.com/employee-experience/types-of-corporate-culture/>

Ramírez, A., & Tadesse, S. (2009). Corporate cash holdings, uncertainty avoidance, and the multinationality of firms. *International Business Review*, 18(4), 387–403. <https://doi.org/10.1016/j.ibusrev.2009.02.013>

Scot, L. (2010). *The Simplified Guide to Not-for-Profit Accounting, Formation & Reporting*. Hoboken, N.J: John Wiley & Sons

The culture factor group (2024). Country comparison tool. (n.d.). <https://www.hofstede-insights.com/country-comparison-tool>

The 100 Largest U.S. Charities 2023 RANKING. (n.d.). Forbes. Retrieved May 22, 2024, from <https://www.forbes.com/top-charities/list/#tab:rank>

Top publicly traded French companies by revenue.

(s. d.). <https://companiesmarketcap.com/france/largest-french-companies-by-revenue/>

Top publicly traded German companies by revenue.

(s. d.). https://companiesmarketcap.com/germany/largest-german-companies-by-revenue/#google_vignette

Top publicly traded South Korean companies by revenue.

(s. d.). <https://companiesmarketcap.com/south-korea/largest-south-korean-companies-by-revenue/>

Ucar, E. (2018). Creative culture, risk-taking, and corporate financial decisions. *European Financial Management*, 25(3), 684–717. <https://doi.org/10.1111/eufm.12198>

Yong, L., & Zahra, S. A. (2012). Formal institutions, culture, and venture capital activity: A cross-country analysis. *Journal of Business Venturing*, 27(1), 95–111. <https://doi.org/10.1016/j.jbusvent.2010.06.003>

UNIVERSITÉ CATHOLIQUE DE LOUVAIN
Louvain School of Management

Place des Doyens, 1 bte L2.01.01, 1348 Louvain-la-Neuve
Boulevard Emile Devreux 6, 6000 Charleroi, Belgique
Chaussée de Binche 151, 7000 Mons, Belgique

www.uclouvain.be/lsm