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THE ROLE OF CORPORATE ART COLLECTIONS: THE EFFECT OF COLLECTIONS' ATTRIBUTES ON COMPANY PERFORMANCE

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Abstract

The aim of this work is to shed more light on the phenomenon of Corporate Art Collections and to justify the collecting of arts in companies. Art is considered to be a valuable resource for the company. The theoretical model of the resource-based view builds the framework and collection's attributes and art-related behavior are analyzed in terms of their impact on corporate performance. 124 companies from different countries and sectors form the sample. All of the analyzed companies have Corporate Art Collections. Although, significant relationships were not found for any of the hypotheses raised throughout the analysis, relevant implications for management can be drawn.

Keywords: Corporate Art Collection; Resource-based View; Intangible Resources; Creativity; Reputation; Performance

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CAC = Corporate Art Collection

IR = Intangible Resource

RBV = Resource-based view

ROA = Return on Assets

TR = Tangible Resource

Introduction

> *"Actually, there is no reason for art in companies. It only costs money and distracts from work. And if you also collect it, it even makes work and ties up resources."*
>
> *Armin Nassehi, PhD*

This quote looks at the arts from a critical point of view and in the eyes of society, art and business often appear to be at odds with each other. Yet the relationship between creative and economic activity is more complementary than it might be assumed at first glance. In the last years, a new understanding has emerged that art can also promote and support business, managers and employees (Lehmann 2017). Corresponding publications on this topic have existed for around 20 years. Various fields of research, such as cultural studies, sociology, and marketing, are dealing with art in business.

Most papers address art-based initiatives in terms of cultural programs and sponsorship (Campa and Zijlmans 2019; Daellenbach, Thirkell, and Zander 2013; Dell'era 2010). Although the collecting of art is considered to be the oldest form of engagement with arts, the research around this phenomenon is rare (Kottasz et al. 2007; Sköldberg, Woodilla, and Antal 2018) Many are not aware that companies collect art, but the numbers give a different idea: Over the past fifty years corporations play an important role in the art market and have been the major benefactors (Howart 2017). In 2019, Corporate Art Collections (CACs) include multiple million pieces and their values account for billions. This is comparable to the volume in public and private museums (Deloitte 2019). But why do companies collect art and what are the underlying motives?

It is necessary to justify art collecting within companies not only to the top management and stakeholders but also to shareholders. Past literature has tried to shed light on the role of art collections within companies. Schiuma (2011) states that art as a resource is highly beneficial for companies both internally and externally. Different motives and benefits were outlined to come along with collecting: art as investment, art as passion of the company CEO, art to provide a certain corporate image or identity and to signal a type of corporate culture, art as philanthropic or altruistic engagement, art as decoration and to enhance the work environment, art as stimulus for employees, and art as a communication tool in marketing (Kottasz et al. 2008; Goodrow 2015).

While past research made use of qualitative methods in form of surveys and interviews this work wants to quantitively analyze the relevance of a collection in terms of its attributes. The central assumption of this thesis is that art works are a valuable resource for the company. Therefore, the framework of the resource-based view (RBV) will build the theoretical foundation. The RBV theory can be connected to art collections in two ways: one is through considering art as tangible resource and the other is by looking at the art-related benefits as intangible resource.

The focus of recent RBV research shifted towards intangible resources (IR) considering them to be relevant for the overall firm performance (Barney 1991; Galbreath and Galvin 2006). Art affects the company's internal level in terms of identity building and employees' attributes, as well as on an external level in terms of the company's image (Melewar, Sarstedt, and Hallier 2012). This paper addresses the question of whether and to what extent corporate art collecting can be considered in terms of value creation. The size of the collection and the company performance will be the two main variables of this thesis to answer the central research question whether the size of the CAC matters in terms of performance?

Furthermore, variables depicting the art-related behavior will be included. One variable indicates whether the company makes the art available to the public creating a good corporate reputation, which is considered to be relevant for performance (Raithel and Schwaiger 2014). The other one measures for how long the company has been collecting arts, as the value of intangible resources accumulates over time (Sicoli 2018).

The relationship between collection attributes and performance has not been analyzed by any previous research. Neither has the role of corporate art collections been highlighted to any great extent within the RBV framework. The thesis can be considered as pioneering work in the field of CAC research. The theoretical framework of the RBV will be superimposed on the phenomenon of CACs and contribute to the literature in two ways:

(1) The first goal is to support previous findings across literature that highlight the benefits of Corporate Art Collecting with a quantitative analysis.
(2) The second goal is to contribute to the theory of the RBV by connecting it to the phenomenon of CAC.

The thesis aims to shed more light on the role of CAC in order to raise awareness and advance future research. With the aim to be as representative as possible the analysis will include

companies of different industries across countries. The thesis is divided into different parts to analyze and answer the research question: The phenomenon of CAC will be described in terms of its historical development and the underlying motives and benefits. The theoretical framework of the RBV will build the basis for this thesis. It is thus necessary to illustrate this theory. Thereafter, the framework of the RBV will be applied to CAC with a focus on a company's intangible resources. From this the hypothesis will be developed taken art-related attributes into account. The following chapter will include the methodology part, explaining how the data collection and hypotheses testing was conducted. The results will be presented, and managerial implications will be given. Finally, limitations and recommendations for future research will close the thesis with a conclusion.

Theoretical background

The following subchapters aim to provide a good understanding of previous literature. First, CAC and their benefits are briefly described. In a next step the theoretical framework of the RBV will be superimposed on the phenomenon of CAC. From this the hypotheses of this work will derive.

Corporate Art Collection – A Phenomenon

This chapter will look at the phenomenon of CACs. A brief overview of CAC in general will be given in terms of the historic development. Afterwards an overview of the motives found in previous literature will follow.

The History of Corporate Art Collections

There is a long tradition behind CACs and their origins date back to the 19th century (Lindenberg and Oosterlinck 2010) - according to some sources even to the Renaissance. In the mid-1990s the economic environment for companies changes and it is a time where many mergers on an international scene are taking place with the consequence that firms are downsizing, restructuring and regrouping. This also affects the corporate collecting and the involvement in the arts are rare during this period (Jacobson 1996). During the 2008 financial crisis, a small break in art sales can be observed, but companies continue to actively collect (McAndrew 2019). The financial industry was one of the first sector to create art collection programs. This dominance can still be seen today as companies from the banking sector are not only the most represented when looking at companies that collect art, but they also have the largest collections (Campa and Zijlmans 2019; Kottasz et al. 2007).

Since the early twentieth century, companies from other industries have also invested in art (Chong 2003). However, each company focuses differently on art collection. The type of art that can be found across companies depends on various factors. These factors include the length of time the company has been acquiring art, the motivation or reason why management buys art but also on the company values (Lindenberg and Oosterlinck 2010).

It is difficult to clearly delineate the company's art collecting from other cultural activities because companies often summarize their cultural engagements in their reports or on their websites. In recent years the phenomenon, nevertheless, developed to a more structured construct (Kottasz et al. 2007). The terms that scholars use when looking at the integration of art into companies differ. They mainly address the interaction of employees with the arts and

artists through art programs. Schiuma (2009) introduces the term of “arts-based initiatives” which includes the corporate collecting of arts. Although, CACs represent "the oldest type of artistic intervention in organizations" literature mostly exists from the 2000s upward (Sköldberg, Woodilla, and Antal 2018). Scholars look at art from various perspectives and take different stakeholders into consideration. Therefore, many different motives and benefits emerge throughout literature (Kottasz et al. 2008).

The Motives and Benefits

Overall, the literature presents well the promotion of art- and culture-related programs (Lindenberg and Oosterlinck 2010). Research regarding CAC is not so common (Kottasz et al. 2008) but various reasons can be found to why art is collected in different publishings.

In early times art was seen as investment and the works were mainly kept inside the company. Boardrooms were decorated with art and CEOs exhibited the pieces in their offices to demonstrate power (Conzen and Salié 2012). Depending on the type of company, CEOs with an interest in arts brought their own collections into the company and enlarged them (Charles 2002; Wu 2003). As a result, the collections still reflect the personal tastes of top management (Bohlen 2013). Later, companies started to actively engage with their art collections and recognized an opportunity to use them externally as well. They were used for marketing purposes, for example, to promote their own products (Estes et al., 2018). Another benefit for companies can be seen in the pleasant working environment created through art pieces on the wall. Art can positively stimulate employees and thus has a positive impact on their creativity and productivity (Conzen and Salié 2012; Shane 1996). Furthermore, certain values are communicated through the arts creating an identity inside the company (Kottasz et al. 2007) and providing also a certain image to the outside (Popoli 2011). This includes among others the aspect of being a good corporate citizen by supporting artists. Based on Kottasz et al. (2007) “Table 1: Motivations for collecting Corporate Art” and the motives found across “Global Corporate Collections” and “Corporate Collections” the following figure was created to provide an overview of the different motives and benefits of CAC. The arrow moving from motives to benefits indicates that they are interrelated and that benefits result from motives. Furthermore, the motives and benefits can be assigned to different company levels which is indicated by the vertical arrow ranging from internal to external.

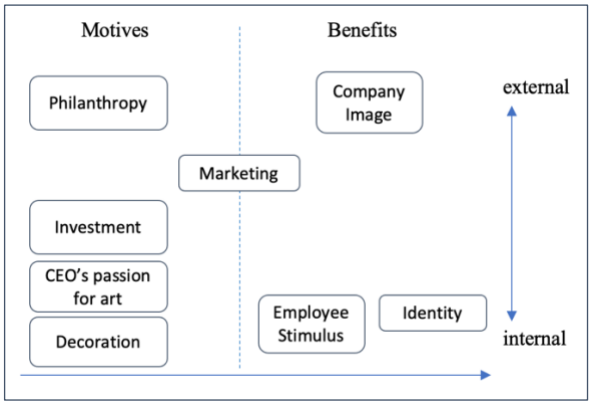

Figure 1: The Motives and Benefits of CAC

Corporate Art Collection as Company Resource

A company has both tangible and intangible resources. Art works are tangible in their nature but the benefits they create for the company on the internal and external level are intangible. The theoretical model of the RBV considers companies' resources as valuable drivers for performance through which a company can gain competitive advantage (Barney 1991). The next subchapters will provide an understanding of the RBV theory and connect it to CAC.

The Resource-based View – A Theoretical Model

In the previous literature, different assets of a company were collected in terms of their strategic contribution to value creation (Hitt and Ireland 1986; Thompson and Strickland 1987). Researchers have divided the resources of the company into different categories. Williamson (1983) considers a company's tangible resources, e.g. the equipment, but also the geographic location as physical capital. Becker (1994) describes intangible attributes of managers and employees, e.g. intellectual capital and creativity as human capital. Tomer (1987) considers the firm's structure and system, but also the relationships within a company and between a company and its environment as organizational capital. Looking now on the theory of the RBV explained by Barney (1991) in a Journal of Management article, which builds on the preliminary ideas of Wernerfelt (1984), the rationale for creating a sustainable competitive advantage is as follows: a firm's resources must be valuable, scarce, and difficult to imitate. This created competitive advantage can then lead to superior performance (Barney 1991). Studies have established a link between resources and performance, demonstrating the existence of a significant resource–performance relationship (Crook et al. 2008). According to Barney (1991) however, not all resources will have the same effect on performance and some will have no influence at all.

In recent years the RBV has been viewed from a different angle and research started to focus more on intangible assets. IR cannot be acquired and replicated as easy as TR and can, therefore, provide an even greater effect on the company's performance (Ambrosini and Bowman 2009; Molloy and Barney 2015). Nevertheless, it is important to mention that companies' competitive advantage is based on a bundle of IRs and TRs (Sirmon et al. 2011).

Corporate Art Collection and the Resource-based View

This subchapter will now apply RBV theory on CACs. The assumption is made that companies derive benefits from their commitment to art. This benefit can be assigned to the IR of a company. This is where the theory and phenomenon overlap. On an internal level CACs positively impact employees and support creating corporate identity. On the external level, art can provide a certain corporate image and increase a company's reputation.

The Internal Effect of Corporate Art Collections

This sub-subchapter will further illuminate the effects that CAC have on the internal level of the company. Art plays an important role as resource that can provide a specific experience and evokes a corresponding perception with the viewer (Linstead 2000). Previous qualitative literature state in this regard that CAC can stimulate employees. Employees and their attributes are valuable resources to the company and art works foster innovative thinking and creativity (Hansika and Amarathunga 2016). Employees that are surrounded by art works are inspired by the art and thus more creative (Darsø 2009). Paintings create a pleasant environment where employees enjoy working (Wu 2003; Shane 1996). This affects not only the employees' mental well-being (Frey and Eichenberger 1995) but also their productivity (Brill 1984; Hansika and Amarathunga 2016).

Art works can, furthermore, help to build but also manage the corporate identity (Olins 1989; Simonson and Schmitt 2014). The identity is situated at the internal level of a company's communication process and the creation of an identity is happening within the company (Christensen and Askegaard 2001). Melewar and Karaosmanoglu (2006) have defined different elements of corporate identity, including the corporate culture with a company's philosophy and values. The broad term has been defined as *"the attitudes and beliefs of those within the organisation"* (Balmer 2001).

The literature about corporate identity points out that aesthetic artefacts can enhance a business by providing the corporate identity in a visual way (Klamer 1996;). The choice of artists, epochs

and motives vary across companies depending on their history, taste, core business and internationalization (Goodrow 2015). The company's identity is mirrored in the arts and art collections can, furthermore, communicate certain values and create a specific corporate culture (Klamer 1996). When the company purchases local art values like being philanthropic and socially engaged are communicated to the employees who identify with these values and feel more connected to the company (Lindenberg and Oosterlinck 2011).

The External Effect of Corporate Art Collections

CAC not only create benefits on the internal level of the company but also on the external level. It is important to mention that although this works presents the effects separately, they are interconnected. A CAC can impact the way a company is being looked at from the outside. Compared to the identity, the companies' image is situated at the opposite end of the communication process and is created outside the company across all stakeholders and the company's environment (Christensen and Askegaard 2001). The terms reputation and image are closely related and will be used interchangeably throughout this work.

A CAC serves as promotion of company's corporate image by communicating certain values to the outside (Kotler and Scheff 1997). Lindenberg and Oosterlinck (2011) address further positive associations that are aligned with a certain focus across collected art works, such as being dynamic or innovative, which are considered relevant attributes by shareholders.

Another image that is projected to the outside world is the company's social responsibility. From the 1960s onwards a shift takes place in the USA, followed by Europe (Bohlen 2013) Through its CAC a company can communicate its core values and strengthen the image of being a good corporate citizen (Pomering and Dolnicar 2009). One approach is that companies use their art as one element to increase their reputation (Dell'ere 2010). This is done for example by supporting (local) artists through the purchase of art works and companies show their contribution to the community and as such their corporate social responsibility (Howarth 2017). Another example is that they can donate or lend their corporate art to art institutions and museums. Paolino (2019) points out that companies that engage with the arts and invest in a CAC will be viewed from a different angle by stakeholders. Their view of the company is positively influenced by the corporate engagement in society and the resulting social component in the form of art engagement.

From the previous two sub-subchapters, it can be concluded that a CAC can be connected to several intangible resources which are located at different company levels effect different shareholders. The framework shown in Figure 1 summarizes the internal and external effects of CACs which build valuable resources for the company.

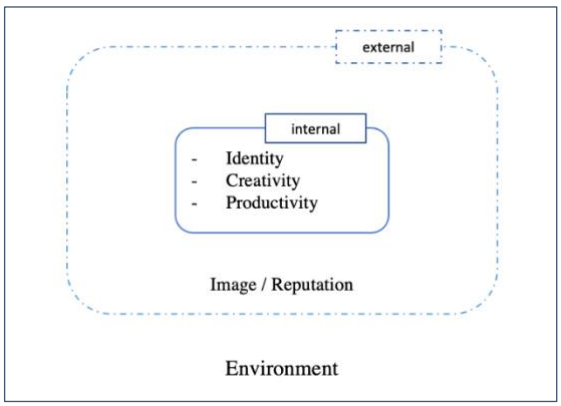

Figure 2: Intangible Resource Framework

Hypothesis Development

Building on the previous chapter, which illustrated the connection of the theoretical framework of the RBV and the phenomenon of CAC, the main hypotheses of this work will be developed in this chapter. From connecting RBV to CAC the idea derived that art collections could be relevant for performance. In the first subchapter CAC will be linked to performance by relying on the theoretical framework of the RBV analyzing a direct effect of the CAC on performance (with "invisible" mediators). The second and third subchapter will look at art-related attributes and consider the availability of the collection to the public and the duration of the collection as moderating effects.

Corporate Art Collection and Performance

The theoretical framework of the RBV implies that a company's resources are valuable and if used correctly increase performance. A shift towards intangible resources take place considering them to be more relevant for the company's performance (Galbreath and Galvin, 2006). TR can be relevant for the development of IR (Schriber and Löwstedt 2015). Although, art works are tangible in their nature they generate benefits for the company and its stakeholders that are intangible (see figure 1). A company's organizational and human capital are valuable intangible resources to a company and the focus across scholars on them increased. The company's identity as well as the image can lead to lasting company success because they are only partly imitable and even though competitors may be able to copy the resources they will not achieve the same value (Barney 1991).. Darsø (2004) points out that arts can transform

organizational capital, which includes, among others, the company's identity and image. A CAC fosters attributes like creativity and innovation. This makes an identity unique and builds a competitive advantage (Gupta, Briscoe, and Hambrick 2017).

A company's positive image, which helps corporations to sustain a competitive advantage, was linked to performance by different scholars (Wei, Ouyang, and Chen 2017; Raithel and Schwaiger 2015). Dowling (2016) points out that corporate image results from the evaluation of a company's behavior by externals and creates stakeholder value. The RBV has been applied to conceptualize a company's image and linked it to performance in the literature (Roberts and Dowling 2002). Altogether, it can be concluded that the identity as well as the image of a company play an important role for company performance.

Furthermore, the effects that CACs have on employees can be linked to performance. In former research papers creativity is defined as the production of new and useful ideas andhis factor is critical for the company existence as well as its competitiveness (Yamin 2020). Several studies have argued that increasing the creative performance of employees is a crucial step for a company to achieve competitive advantage (Madhani 2012).

In the paper of Citrayasa and Subawa (2022) the Hypothesis of employee's creativity and its positive effect on the performance of the firm is examined. The outcome shows a relation between these two aspects and comes to the conclusion that employee's creativity is important if the firm wants to increase its revenues and as such a link to company performance can be drawn. Moreover, it has been empirically assessed that building creative environments has a positive effect on the employee's well-being (Miao and Cao 2019). Muwardi et al. (2020) have looked at the employee's well-being and how this positively influences performance.

The main relationship that is analyzed in this thesis is the effect of the size of a company's collection on performance. All the beforementioned benefits that derive from a CAC can be found in the RBV literature and were analyzed to be relevant for a company's performance and it can be, thus, expected, that art is relevant for the firm's performance. A company with a larger art collection is more involved with the arts (Goodrow 2015). The assumption derived that the size of the CAC matters in terms of the effects of the CAC on the internal and external benefits and that it will be stronger for companies with larger art collections which will lead to a better performance. For the mean of this thesis the mediating roles of the internal and external benefits will not be measured quantitively. The positive relationships are assumed as given, as previous literature has already verified this. The mediating roles are only hypothesized in theory

and included in the model as "invisible" variables and indicated by dashed frames and arrows in the conceptual model. The benefits that are created through the art works build the intangible resources that are the underlying main connection between the CAC and performance, which was hypothesized with the help of literature in the previous paragraphs. The main hypothesis of this work thus analyzes only the direct effect of CAC on CFP and is stated as follows:

H1: *The size of the Corporate Art Collection is positively related to performance through the internal and external benefits it creates.*

The Moderating Effect of Availability

Companies that own CAC show different behaviors towards the collection (Conzen and Salié 2012). Some keep the art works only inside the company and some make it available to the public. The extent to which a company makes its art available to the public varies between permanent and temporary. Barry and Meisiek (2010) point out that if a company does not actively engage with the art, the collection simply serves as decoration. A firm can make the art works available to the public through exhibitions or guided tours or through loans to a museum or other institutions (Goodrow 2015). Lindenberg and Oosterlinck (2011) state the importance to invest in an exhibition or lend art pieces to make it visible to the public and improve the brand image. Companies can communicate with different stakeholders and project certain images (Ninetto 1998). A Company can build a favorable image among different groups when they make their art pieces available to the public (Conzen and Salié 2015). The moderation only happens on the external level which is indicated by the arrow pointing on the external mediating effect (see figure 3). The assumption that derived from this is that the extent to which a company makes the art available to the public will strengthen the relationship between the size of the art collection and performance. Furthermore, a stronger effect on the relationship is expected from making the art available temporary or permanent than not at all. The strongest effect is expected when a company makes the art available permanent. From this assumption the following hypotheses was developed:

H2: *The effect of company's CAC volume on performance will be strengthened if the company makes the collection available to the public.*

H2a: *The extent to which a company makes it CAC available to the public will have a different moderating effect on the relationship.*

H2b: *The effect will be stronger when the arts are made available to the public permanently.*

The Moderating Effect of Duration

Resources develop over time and IRs become inimitable through different characteristics that accumulate over time (Dierickx and Cool 1989). The company's identity as well as its reputation evolve over time and with its specific assets it is difficult to replicate (Lockett, Thomson, and Morgenstern 2009). The longer the CAC resides within the company, the better developed the internal effect on employees and the external created image and thus, the better the performance. The duration of the CAC is important to consider and is expected to reinforce the effect of the collection on the performance, meaning that the effect is stronger for companies that own the collection for longer. As the effect is expected on the internal level (identity) and on an external level (image), the moderating arrow points on the internal and external mediating effect (see figure 3). The third hypothesis was formulated as follows:

H3: *The duration of the art collection in the company has a positive effect on the relationship of corporate collections volume on performance.*

The Conceptual Model

The following model sums up the developed relationships and hypothesis and builds the basis of this thesis.

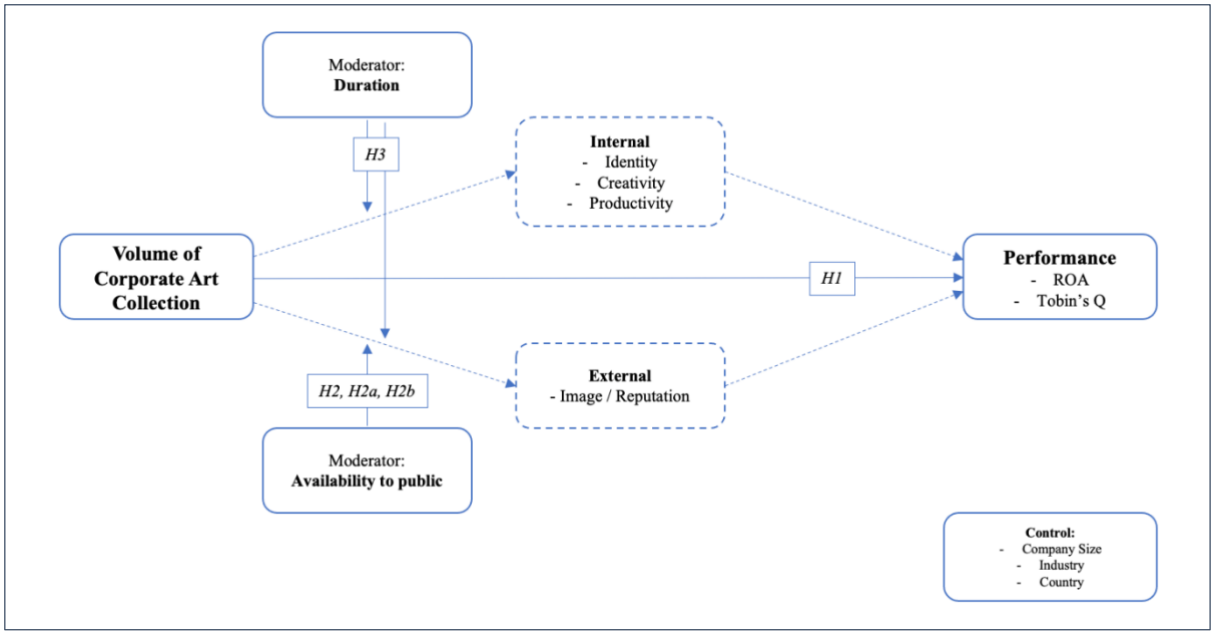

Figure 3: Conceptual Model

Methodology

This chapter will illustrate the methodology that has been used to assess the main research questions. Firstly, the characteristics of the sample and how the data was collected will be described. Secondly, the underlying variables of this work will be operationalized. Lastly, the method and model that is used to test the hypothesis will be defined.

Sample and Data Collection

The purpose of this thesis is to shed more light on the role of CAC in companies. Thus, only companies that own a CAC were included in the analysis. As the author steps into a big research gap with this thesis, it was necessary to make the sample as representative as possible. The sample is neither limited to one country nor to one industry or the company size but covers a wide range of different firms. Furthermore, the author aimed to include as many industry leaders as possible (see Appendix D). The analysis is based on the company figures for 2019 in order to present a picture as stable as possible. On the one hand, 2019 was a stable year in terms of economic developments and, on the other hand, not influenced by the pandemic effects of subsequent years.

Three books on CACs built the basis for this work: The "International Directory of Corporate Art Collections", "Corporate Collections" and "Global Corporate Collections". The books are only available as paperback and in form of a continuous text. The data collection about the CACs was done manually. The collection of the data was conducted in multiple steps. Based on Braun and Clarke's (2006) approach to analyze data, it was first necessary to get familiar with the data and get an idea of what information are available. The information about the size of the art collection was collected first as it was stated clearly throughout the books. Same for the year when the company started to collect art. For the art-related behavior it was more difficult to get the data because the information was stated with different phrases and wording for the companies. It was necessary to create a coding key to make the data collection consistent. As this work breaks new ground in the field of CACs, there is no literature available for a coding key on companies' art-related behavior. The author thus created her own (see Appendix A). When a new information came up or new wording was found, the previous chapters needed revision. Braun and Clarke (2006) call this a thematic analysis. The information on CACs was transferred to an excel spreadsheet. Afterwards, companies with at least one missing value that is relevant for the analysis were excluded from the sample. About 160 companies remained in the document.

Further data about the companies is needed. Capital IQ by S&P was used to get information on the net income, total assets and market capitalization, which are the needed values to calculate the two performance measures ROA and Tobin's Q. The remaining information was conducted manually from the annual reports, Statista and OnVista. It was possible to access data for almost all companies to calculate ROA. In the end, there were still values missing for some firms. All these companies were excluded from the sample and 124 companies remain. Due to the company ownership or governance the value for the market capitalization could not be collected for all the 124 companies. For the performance analysis with Tobin's Q the sample was reduced to 77 companies.

Variable Operationalization

The following sub-sections will operationalize the dependent variable performance measured in ROA and Tobin's Q, the independent variable size of CAC and the moderating variables: availability to public and duration. Furthermore, the control variables will be defined, including the company's country, sector and size.

Dependent Variable

Performance. Corporate financial performance can be measured with the help of different values and indicators, which focus on different aspects and can thus affect the findings of the research. On the one hand it can be measured through accounting-based measures, which reflect the historical performance of the firm (McGuire, Sundgren, and Schneeweis 1988). On the other hand, market-based measures, which focuses rather on the investor's appraisal of the company's ability to generate future earnings, can be used (Wang and Berens 2014; Michelon, Boesso and Kumar 2013). This study will make use of both. For the accounting-based measure return on assets (ROA) and return on equity (ROE) are the most common ones in empirical research. ROA and ROE are in some industries, e.g. financial sector, highly correlated (Simpson and Kohers 2002). Companies from the financial sector are highly represented in the sample. It was, thus, decided to make use of ROA, which is calculated by dividing the net income by the total assets. For the market-based measure Tobin's Q will indicate the company's performance. The value indicates a ratio of the market value to the total assets.

Independent Variable

Volume. The volume of a company's collection is indicated in the number of art pieces owned by the company. The absolute number can be found in the "International Directory of Corporate

Art Collections", "Global Corporate Collections" and "Corporate Collections". If the author refers to the size with "about 1,000" or "over 1,000" the value of 1,000 was added to the data set. Another way to measure size would be the monetary value of artworks. Artworks can have a monetary value (Kaufman 2002) but the price generally fluctuates from year to year according to external and economic conditions (Agnello and Pierce 1996). The information about the monetary value of the collection was not available for this study. Thus the number of art works that each company indicated is used as measure for the size of the collection.

Moderator Variables

Availability. Some companies make their collections available to the public, some keep them inside of the company's buildings and some give parts of their collection as loan to a museum. The variable was divided into three categories. The information about the availability was generated through a thematic analysis across the three books. The first category was chosen when the company does not make the art available to the public and is stated as "no" and coded as "1". The second category indicates that a company makes the art available "temporary" and is coded as "2". The last category states that the collection or parts of the collection is available to the public permanently and stated as "yes" with the numerical value "3".

Duration. The duration of the company's collection indicates since when the company collects art. The year 2019 builds the basis for this work and, thus, the year stated in the three books is subtracted by 2019. The difference then indicates how long the company already collects art.

Control Variables

Sector. The company's industry is used as one control variable. The different industries might be an explanation for different engagement with the arts and thus different collections sizes. Some scholars have found a relationship between the business area of a corporation and its art collecting behaviour (Kottasz et al. 2008; Wu 2003). Corporations in the financial industry are known to have large collections (Lindenberg and Oosterlinck 2011). Globally, international banks like JP Morgan Chase and UBS are known to be leading players in the world of corporate art collecting (Wu 2003). It is thus necessary to control for the company's industry. The information on the sector was collected through Capital IQ from S&P.

Country. The company's ability to invest in arts could be influenced by different market conditions. Economic events can impact the firm's financial performance and as a result its

ability to engage with activities that are not directly linked to the core business (Catalao-Lopez and Branca 2016). Companies in different countries might have invested in the arts to a different extend. In the United States, e.g., the dollar was strong throughout the 1970s and 1980s, which could have led to a higher engagement with the arts. It makes sense to account for country specific conditions which cannot be influenced by the firm itself. The variable is coded numerical in ascending alphabetical order.

Size. Different measures for the firm size can be found across literature: total assets, net sales, net income (Hillman and Keim 2001). The number of employees can be either included as absolute value, as logarithm function or natural logarithm (Michelon, Boesso and Kumar 2013). This study transfers the number of employees into their natural logarithm. This can also counteract the unfulfilled requirement of a normal.

Table 2 provides an overview of all the above-mentioned variables:

Type	*Variable**	*Definition / Attributes*	*Measure*
Dependent	ROA	Measures the company's performance.	ROA = net income / total assets * 100
	Tobin's Q	Measures the company's performance.	TOBIN'S Q = total market value / total assets
Independent	Volume	Indicates the size of the CAC by the count of the art works.	Absolute number.
Moderator	Availability	States to what extend a company makes the collection available to the public.	1 = no ; 2 = temporary ; 3 = yes
	Duration	Indicates the years for how long a company has been collecting art.	2021 – year of first collection = duration (absolute number)
Control	Country	The country where the HQ of the company is located.	Numerical values from 1-25 in ascending alphabetical order
	Sector	States the sector to which the company belongs.	Numerical values from 1-17 in ascending alphabetical order
	Size_Log	Indicates the size of each company	Natural logarithm of the number of employees in 2021

Note. *see Appendix D for the company overview.

Table 1: Variable Overview

Research Design and Model

Firstly, the sample was tested for normality and the characteristics of the sample were analyzed with the help of the descriptive statistics looking at each variable. In a next step the correlation between all variables was tested to gain insights about the strength and direction of the relationships between the variables. Then regressions analysis is divided into two parts as the sample for ROA and Tobin's Q differ. The two subchapters are organized as follows: first, two simple linear regression models including the independent variable volume and the dependent variable performance measured the direct effect. Afterwards, a multiple regression analysis was

conducted including all control and mediating variables. The regression model looks as follows and will include ROA and Tobin's Q as performance measure:

$$Performance_i = \alpha + \beta_1 * Volume_i + \beta_2 * CAC_i xAvailability_i + \beta_3 * CAC_i xDuration_i + \beta_4 * Country_i + \beta_5 * Sector_i + \beta_6 * Size\_Log_i + \varepsilon$$

Figure 4: Multiple Regression Model

Data Analysis and Results

The following subchapters will present the statistical results of the analysis with SPSS with the aim to verify or falsify the stated hypothesis – if they are statistically significant. The section is divided into two parts with three subchapters each. The first part looks at the company's performance with the accounting-based measure ROA. In the second part a market-based measure indicated as Tobin's Q will be used as dependent variable. The two parts each contain three subchapters with the first describing the descriptive statistics, the second looking at the correlation and the last analyzing the regression results. For this thesis it makes sense to set the significance level at 10% because the study steps into a rarely researched territory.

ROA as Performance Measure

In this part ROA is used as indicator for the company's performance. The sample contains 124 companies. Based on the multiple regression model, figure 5 is adjusted as follows and referred to as Model 1:

$$ROA_i = \alpha + \beta_1 * Volume_i + \beta_2 * CAC_i xAvailability_i + \beta_3 * CAC_i xDuration_i + \beta_4 * Country_i + \beta_5 * Sector_i + \beta_6 * Size\_Log_i + \varepsilon$$

Figure 5: Model 1: ROA as Performance Measure

Descriptive Statistics

The statistical analysis includes 124 companies from the year 2019. First, it was tested whether the variables are distributed normally. The Kolmogorov-Smirnov, as well as the Shapiro-Wilk test was used. Both tests state in their null hypothesis that a normal distribution is present. The p-values of all variables are above a significance level of 0.01, 0.05 and 0.1. Thus, the null hypothesis cannot be rejected indicating that none of the variables shows a normal distribution (Appendix B).

An overview of descriptive statistics of the respective variables is provided in Table 4. The mean, standard deviation (SD), minimum and maximum value and skewness can for each variable of the model are included.

Variable	*Mean*	*SD*	*Minimum*	*Maximum*	*Skewness*
ROA	3.36	6.71	-10.77	45.02	3.38
VOLUME	3621	8042	25	60000	4.35
AVAILABILITY	1.96	0.83	1	3	0.076
DURATION	45.34	32.348	8	169	2.05
COUNTRY	11.93	6.3	1	25	0.814
SECTOR	8.72	3.599	1	17	0.009
SIZE	63409.53	83627.427	80	479200	1.91
SIZE_LOG	9.8	1.96	4.38	13.08	-.49

Table 2: Descriptive Statistics – Model 1

The performance measured as *ROA* ranged from a minimum of -10 to a maximum of 45 with a mean of 3.36 within the observed companies. The negative minimum can be explained by a company's negative net income in 2019. *ROA* was, furthermore, tested for outliers but it was decided to keep them in the model to not distort the results. The SD from the mean are 6.71 units. This supports the high differences in the values. The average collection size is 3,621 with the smallest size counting 25 art works and the largest counting 60,000. The SD from the mean are over 8,000 units which is due to the high difference in the values. Both variables show a high positive skewness. This also supports the previous findings of the absence of a normal distribution because they exhibit a strong right skewness.

The mean of the *availability* variable shows a value of 1.96, which means that more values of 2 and 3 are present ("temporary" and "yes") than 1 ("no"), as the variable takes only one of the three values. The *availability* to the public is a categorical variable, whereby 32.3% of the companies make their collections available to the public, 31.5% make it available temporary and 36.3% do not make it available to the public (see Appendix D). The duration varies from a minimum of 8 years to a maximum of 169 years with a mean of around 45 years. The SD is 32 from the mean, which also represents the high differences in the duration.

The *size* of the company, measured as the number of employees, has an average value of 63.4 thousand, with a minimum of 80 employees and 479,200 for the maximum. The assigned log has a value of 9.8. It is, furthermore, interesting to look at the distribution of countries. The sample shows a great international scope with 25 countries (maximum = 25), while companies from Germany account for the largest part of the sample with 39.5%, followed by the US with 12.1 %. Other countries that are represented in the sample are France, The Netherlands, Great-Britain, and Switzerland, but also countries from the Asian-Pacific region (see Appendix D). When considering the region, European countries make up over two-third of the sample. The sample includes 17 different sectors, with the financial sector accounting for more than one

third of the sample (35.5%), followed by insurance and industrial, both with 10.5% (see Appendix D). As Country and Sector have been coded for the analysis in ascending alphabetical order the numbers in the statistic output need no further recognition. Although the variety of countries and industries represented in the sample is broad, the unequal distribution could lead to a limitation concerning the robustness of the model.

Correlation Matrix

The Pearson product-moment correlation coefficient gives information about the linear relationship between all included variables. The correlation coefficient r varies between -1 and 1 and indicates either a positive or negative relationship. This subchapter presents the correlation results. Cohen's (2013) guidelines are used for interpretation. The confidence interval of 90% was picked for the analysis for the same reason as stated before. The data does not fulfill the assumption of normality and, thus, bootstrapping with a sample size of 1,000 was included in the correlation analysis. The bootstrapping sample corroborates the point estimate of the correlation if the lower and upper confidence interval are on the same side.

The analysis was run in SPSS and the output can be found in Table 3.

Variable	1	2	3	4	5	6	7	8
1. ROA	--							
2. VOLUME	-.074	--						
3. AVAILABILITY [a]	-.010	.229*	--					
4. DURATION	-.027	.281**	-.026	--				
Control Variables								
5. COUNTRY [b]	-.087	.030	-.079	.111	--			
6. SECTOR [c]	.053	.014	.007	-.089	.018	--		
7. SIZE	-.038	.170	.189*	.067	.325**	.057	--	
8. SIZE_LOG	-.146	.258**	.262**	.181*	.247**	-.010	.779**	--

Note. N = 124, * p < .05. ** p < .01. Two-tailed.
[a] no = 1, temporary = 2, yes = 3; [b] number specifies the country of headquarter; [c] number specifies the sector.

Table 3: Correlation Matrix – Model 1

The analysis shows a small negative relationship between the dependent variable *ROA* and the explanatory variable *volume* with r = -0.074, but it is not significant (p = 0.414). The correlations for *ROA* are all, besides the *sector* slightly negative, but none of them is significant. The Pearson Correlation for *volume* is positively significantly correlated to *availability* (r = .229 ; p < .05), *duration* (r = .281 ; p < .01) and *size_log* (r = .258 ; p < .01). *Availability* and *duration* show a significant positive correlated with *size_log* with a Pearson correlation of .258 and (p < .01) and .181 (p < .05) respectively. None of the other included variable show a

significant linear relationship with *ROA* at a 0.01 and 0.05 level of significance. *Country* shows a positive correlation with r = 0.17 at a significance level of 0.1.

The results from the bootstrap sample does not differ from the small sample size in terms of significance. The upper and lower confidence intervals are all on different sides.

The model was, furthermore, checked for multicollinearity as this can lead to skewed results. Multicollinearity is strong when r is greater than 0.7. The measured correlations from the model variables are all below the critical value of 0.7. The risk of multicollinearity can, thus, be excluded. Another value that supports this finding is the Variance Inflation Factors which lies below the critical value of 10.

Regression Results

This subchapter will present the regression results and state whether the hypotheses are supported. First, a simple linear regression was run between the dependent variable *ROA* and the explanatory variable *volume*. The standardized coefficient is negative with b = -.074, which means that no positive relationship exists. As expected from the correlation matrix (see Table 3), no significant impact at all three common significance levels can be found (p = .414). Additionally, the natural logarithm was built for the independent variable. The negative coefficient further increased and although, the level of significance slightly improved (p = 0.17), the results remain insignificant.

With the help of the process model 2 developed by Andrew F. Hayes a moderated regression analysis was conducted in SPSS. The moderating variable *availability* is multicategorical with three categories. It was, thus, necessary to code the variable into W1 and W2. Being not available to the public ("no = 1") built the basis and W1 compares the temporary availability to not being available and W2 the permanent availability to not being available (see Appendix C). The moderating variable W (*availability*) is due to its three categories represented with two interaction terms in the regression. Altogether, three interactions variables can be found in the regression output. The output with *ROA* as dependent variable can be found in Table 4:

Variable	*Coefficient*	*SE*	*p-value*
Constant	7.534	3.676	.043
Volume	-.000	.000	.695
W1	-.935	1.804	.606
W2	.565	1.760	.851
Int_1	.000	.000	.851
Int_2	.000	.000	.931
Duration	-.000	.025	.992
Int_3	.000	.000	.664
Country	-.075	.110	.498
Sector	.113	.176	.524
Size_Log	-.412	.366	.264

Note. Outcome variable = ROA ; R^2 for overall model .037 ; p-value for overall model .932

Table 4: Regression Output – Model 1

The overall model is not significant (p = .9318). The R^2 is very small which means that the explanatory power of the model is low and that the chosen variables do not explain much of the variation in the dependent variable *ROA*. *Volume* shows a small negative coefficient, which was not expected from the hypothesis development. Furthermore, the independent variable is not significant with a p-value of .695. The *size* of a company's CAC does not have a significant positive effect on the company's performance, in this regression measured as *ROA*. Hypothesis 1 cannot be supported.

Int_1 and *Int_2* represent the moderating effect of *availability*. Both variables are not significant with p-values of .851 and 0.931 respectively. The expectation that the availability of the collection to the public moderates the effect between the size of CAC and performance was not fulfilled, which means that Hypothesis 2 is not supported. Furthermore, Hypothesis 2a and 2b, which state that the intensity to which a company makes the art collection available to the public has a different effect, could be not supported.

Int_3, which represents the moderating effect of *duration*, has a high p-value (.664) and is not significant. The assumed moderating effect of the *duration* of the CAC on the relationship between the size of the CAC and performance is not present. This indicates that no support for Hypothesis 3 was found. Furthermore, all control variables show very high p-values. None of them is significant at any common level.

It is important to additionally address the issue of the absence of a normal distribution. The regression was, thus, run again with a bootstrap sample of 5,000. The results can be found in Table 5:

Variable	*Coefficient*	*BootSE*	*BootLLCI*[a]	*BootULCI*[b]
Constant	7.534	3.844	1.269	13.826
Volume	-.000	.000	-.000	.000
W1	-.935	2.211	-4.843	2.315
W2	.565	1.766	-2.632	3.136
Int_1	.000	.000	-.000	.001
Int_2	.000	.000	-.000	.0007
Duration	-.0003	.020	-.031	.035
Int_3	.000	.000	.000	.000
Country	-.075	.080	-.199	.065
Sector	.113	.200	-.209	.443
Size_Log	-.411	.457	-1.177	.322

Note. Size of bootstrap sample 5,000 ; [a] lower-limit confidence interval ; [b] upper-limit confidence interval.

Table 5: Regression Output with Bootstrapping – Model 1

With the bootstrap sample of 5,000 the findings do not change for all the variables. The findings do not give any support for the three Hypothesis. Altogether, it can be said that none of the three main and none of the two sub-Hypotheses could be verified. The findings for the developed hypotheses are stated in the table below:

Hypothesis	*p-value*	*Conclusion*
H1	0.695	Not supported
H2	0.851 / 0.931	Not supported
H3	0.664	Not supported

Table 6: Hypotheses Overview – Model 1

Tobin's Q as Performance Measure

Tobin's Q was used as market-based measure for performance. The multiple linear regression model was run with Tobin's Q as dependent variable. Figure 6 is adjusted as follows and builds model 2:

$$Tobin's\ Q_i = \alpha + \beta_1 * Volume_i + \beta_2 * CAC_i xAvailability_i + \beta_3 * CAC_i xDuration_i + \beta_4 * Country_i + \beta_5 * Sector_i + \beta_6 * Size\_Log_i + \varepsilon$$

Figure 6: Model 2: Tobin's Q as Performance Measure

Due to the composition of companies in the sample, which do not all have a market value, the Tobin's Q could not be calculated for each of the previously included companies. Companies with missing market value and no Tobin's Q were excluded from the analysis. 77 companies remained in the sample.

Descriptive Statistics

The new sample was again tested for normality with the Kolmogorov-Smirnov and the Shapiro-Wilk test. The condition for normality remains unfulfilled with significant p-values

for all variables for both tests Appendix B. The size of the sample decreased and therefore the attributes of the variables changed. The descriptive statistics can be found in Table 7.

Variable	*Mean*	*SD*	*Minimum*	*Maximum*	*Skewness*
TOBIN'S Q	.658	1.01	.002	5.764	2.792
VOLUME	4892	9792	25	60000	3.521
AVAILABILITY	2.05	.84	1	3	1.786
DURATION	51.04	36.72	8	169	1.786
COUNTRY	13.44	6.82	1	25	.330
SECTOR	8.78	3.	1	17	.163
SIZE	91449	92073	237	479200	1.470
SIZE_LOG	10.61	1.632	5	13	-.940

Note. N = 77

Table 7: Descriptive Statistics – Model 2

The mean of *Tobin's Q* is .658 with a standard deviation of 1.01. The lowest calculated value accounts for .002 and the highest calculated *Tobin's Q* is 5.76. The means of all variables slightly increased. Furthermore, the new sample covers less countries. Denmark ("DK" =9), Portugal ("PT" = 20) and Sweden ("SWE" = 22) were excluded. Furthermore, no companies from the sectors "Law" (=13) and "Real Estate" (=15) are represented in the *Tobin's Q* sample. The different number of countries and sectors explains the different means. The minimum value for size changed which means that some smaller companies were excluded from the sample.

Correlation Matrix

This work includes two measures for the dependent variable performance: *ROA* and *Tobin's Q*. The analysis with *ROA* was already covered in the previous chapter. Before the correlation analysis with *Tobin's Q* was conducted, the correlation between the two performance measures was done. *ROA* and *Tobin's Q* show a significant correlation with a Pearson Correlation coefficient of .441 at a significance level of 0.01. Therefore, no major differences to the previously stated findings regarding the hypotheses are expected.

Here again, Cohen's (2013) guidelines are used for interpretation and the confidence level was set at 90%. Afterwards, the correlation with *Tobin's Q* and all other variables was run with a bootstrap sample of 1,000 to compensate the absence of the normal distribution for all variables. The results can be found in Table 8.

Variable	1	2	3	4	5	6	7	8
1. TOBIN'S Q	--							
2. VOLUME	-.200	--						
3. AVAILABILITY [a]	.015	.229*	--					
4. DURATION	-.036	.239*	-.051	--				
Control Variables								
5. COUNTRY [b]	.117	-.045	-.168	-.041	--			
6. SECTOR [c]	.144	.002	-.064	.022	.085	--		
7. SIZE	.042	.084	.167	-.054	.251*	-.002	--	
8. SIZE_LOG	.104	.166	.297**	-.001	.147	-.010	.798**	--

Note. N = 77, * p < .05. ** p < .01. Two-tailed.
[a] "no" = 1, "temporary" = 2, "yes" = 3; [b] number specifies the country of headquarter; [c] number specifies the sector.

Table 8: Correlation Matrix – Model 2

The correlation between the dependent and independent variable remains negative (r = -.20) and insignificant. All other variables, besides *duration*, show a positive correlation with *Tobin's Q*, but all are insignificant at all common levels. *Availability* and *duration* show a positive significant correlation with *volume* at a significance level of .05 two-tailed with r = .229 and r = .239 respectively. Furthermore, the natural logarithm of the company size is strongly positively correlated to *availability* (r = .297 ; p < .01). Neither *volume*, nor *duration* is significantly correlated to *size_log* like in the ROA sample. Some correlations that were negative with the *ROA* sample and are positive with the *Tobin's Q* sample and vice versa, but none of them is significant. The bootstrapping results show no different results.

The model 2 was also checked for multicollinearity as this can lead to skewed results. The measured correlations from the model variables are all below the critical value of 0.7. The risk of multicollinearity can, thus, be excluded. Furthermore, the Variance Inflation Factors which lies below the critical value of 10

Regression Results

A multiple linear regression analysis based on Figure 3 was run again in SPSS with process model 2 by Hayes. *Tobin's Q* is used as measure for performance and builds the dependent variable. First, a simple linear regression analysis was conducted with *Tobin's Q* and *volume*. With a p-value of .081 an unstandardized beta of -.00002 was found.

Afterwards, the multiple regression based on model 3 was conducted. The same explanatory (country, sector and the natural logarithm of size) and mediating variables (availability and duration) as before are used. Again, three interaction terms are included due to the multicategorical moderating variable availability with three categories coded in two interaction terms. The regression analysis gave the following output:

Variable	*Coefficient*	*SE*	*p-value*
Constant	-.7350	.8710	.4018
Volume	.0000	.0000	.3844
W1	.2352	.3565	.5117
W2	.0687	.3496	.8449
Int_1	.0000	.0001	.6763
Int_2	.0000	.0000	.6763
Duration	.0010	.0041	.8113
Int_3	.0000	.0000	.9531
Country	.0183	.0216	.3989
Sector	.0378	.0342	.2733
Size_Log	.0785	.0807	.3341

Note. Outcome variable = Tobin's Q ; R^2 for overall model .1057 ; p-value for overall model .6475

Table 9: Regression Output – Model 2

The p-value for the overall model decreased but remains insignificant at all common levels (p = .65). The R^2 for the overall model increased compared to model 1 but is still low with .1057. This means that the variables in model 2 explain more of the variance in the dependent variable than in model 2, although the ROA sample is larger. Furthermore, it can be stated that all coefficients are now positive and all p-values decreased, although none of the variables are significant at any common level. The lowest p-value can be found with *sector* (p = .2733), followed by *size_log* (p = .3341) and *volume* (p = .3844).

Volume shows a very low coefficient which is not significant. This means that no effect of the collection size on performance is present and thus hypothesis 1 cannot be supported. *Interaction term 1 and 2* show very low coefficients (β = .0000) and high p values (p = .6763) which gives no support for hypotheses 2 and the two sub-hypotheses. Furthermore, the coefficient for the third interaction term, measuring the moderating effect of duration is very low and insignificant (p = .9531). Hypothesis 3 cannot be supported by the run model.

To compensate the absence of normality across the variables the regression was run again with a bootstrapping sample. The output can be found in table 10.

Variable	*Coefficient*	*BootSE*	*BootLLCI*[a]	*BootULCI*[b]
Constant	-.7350	.7797	-2.0012	.5079
Volume	.0000	.0001	-.0001	.000
W1	.2352	.4627	-.4256	1.0534
W2	.0687	.3461	-.4514	.6619
Int_1	.0000	.0001	-.0003	.0000
Int_2	.0000	.0001	-.0001	.0001
Duration	.0010	.0042	-.0060	.0077
Int_3	.0000	.0000	.0000	.0000
Country	.0183	.0199	-.0138	0517
Sector	.0378	.0406	-.0253	.1087
Size_Log	.0785	.0744	-.0463	.1971

Note. Size of bootstrap sample 5,000 ; [a] lower-limit confidence interval ; [b] upper-limit confidence interval.

Table 10: Regression Output with Bootstrapping - Model 2

The bootstrapping with a sample of 5,000 do not change the results for any of the variables. It can be thus concluded, that with *Tobin's Q* as measure for performance all three main hypotheses cannot be supported at any common significance level.

The results for the tested Hypotheses with *Tobin's Q* are summarized in Table 11:

Hypothesis	*p-value*	*Conclusion*
H1	0.3844	Not supported
H2	0.6763	Not supported
H3	0.9531	Not supported

Table 11: Hypotheses Overview - Model 2

Discussion and Conclusion

This chapter will conclude the thesis by further illuminating and discussing the results presented in the previous chapters and will provide managerial implications in terms of the three main hypotheses but also include sample characteristics and further statistical findings like correlations. Afterwards, the limitations and suggestions for future research will be provided.

Theoretical Contribution and Managerial Implications

The thesis can contribute to the theory in many ways and different implications for managers can be concluded from the finding across the regression analyses. The aim of this thesis was to substantiate the benefits of CACs with a quantitative analysis and pave a new way for future research. This work contributes to the theory with a research method, a company sample and analyzed relationships that is pioneering in the field of CAC research.

The first hypothesis analyzed the direct relationship between the size of the companies' collection and performance. Although, there is evidence in the literature that art brings benefits that are considered as intangible resources and these intangible resources are relevant for performance, Hypothesis 1 was not supported by the statistical findings. This means that the size of the corporate collection has no significant direct effect for the company's performance. From this finding several implications can be drawn. If the hypothesis would have been supported, the implication had been that companies need to collect more art. But the actual finding implies that the size of the collection does not matter for the overall company performance. This means that a company does not need to invest in a great amount of art pieces, but that already a small collection could be of strategic relevance. Furthermore, the finding of no significant relationship does not mean that companies should stop collecting art. Previous qualitative literature has found evidence for the relevance of arts within companies and for the companies' support for the arts for society. Frey and Eichenberger (1995) state that CAC do not directly increase corporate performance but that they create benefit through which better performance is expected. Although, the size does not seem to matter, previous literature states that arts in general do. Therefore, managers should continue to incorporate the arts into the strategy. But they do not need to take the evaluation of the arts into consideration if they make performance analysis. The finding can be also looked at from a different angle. If the size of the collection does not matter in terms of performance, why do companies continue to collect arts? The underlying reason that is indicated by, e.g. the arts department is not based on performance but must contain other arguments. Madhani (2012) considers intangible IRs to be

the main source of competitive advantage and theorizes that TRs contribute to none or only to a limited extend to the overall firm performance. It is thus recommended for management to measure the effect of arts in terms of their intangible value creation rather than looking at them as tangible asset.

The second hypothesis aimed to capture the effect of companies' art-related behavior. It was expected that the extent to which a company makes the art available to the public will reinforce the effect on performance. The company can keep the collection only inside their own buildings or make it available to the public temporary through exhibitions or temporary loans. Some companies give parts of their collections to museums on a permanent basis. No reinforcing effect was found with the regression analysis and furthermore, no difference between the three levels of the extent of availability could be drawn. Although, the analysis provided no significant findings in terms of the hypothesis, the availability to the public should continue to be considered important as previous literature states the effect on the company image. Making the art available to the public is important for the communication of a certain image (Lindenberg and Oosterlinck 2011; Ninetto 1998) and a company can build a favorable image across different groups (Goodrow 2015).

Hypothesis 3 considered the duration of the CAC as moderating effect on the relationship between collection size and performance. The duration indicates the years since when the company has been collecting art. Previous literature indicated that companies' intangible resources develop over time (Lockett, Thompson and Morgenstern 2009). The assumption that the effect that the collection has on the intangible resources of a company will be stronger the longer the collection resides within the company could not be supported by the regression analysis. The implication that results from this is that not only companies that have been collecting art for several decades will profit from it. This can be an incentive for more companies to start collecting art, as the years do not seem to be relevant as moderating effect. The positive correlation of the duration with the collection size can be simply explained by the cumulation of the number of art works over time and indicates that collection volume increases.

The positive correlation between the collection volume and company size can be explained with regard to the measure of size, namely employees. First, companies with more employees have multiple locations and branches and accordingly more space for the art works. A company with limited room might not collect as many art pieces. Second, a company with more employees probably has more departments with different responsibilities. A company that has its own art

department is probably more concerned with purchasing art and does it on a regular basis. Furthermore, larger companies tend to be more present to the public and might receive external pressure from shareholders to be socially engaged. One form of this engagement could be with the arts.

The positive significant correlation that was found between the collection volume and the availability indicates that companies with larger collections tend to make their art available to the public rather than companies with smaller collections. This can be explained by the fact that companies first hang their art works inside the company (Conzen and Salié 2012). If they do not own many art pieces they do not have the capacities to place the art publicly. Nevertheless, the positive image that is created through the public display of the arts indicates the implication for managers of all companies, regardless the size of the collection, to engage with the public. Temporary exhibitions provide a good option without the need to lend art works permanent to museums. Furthermore, the shift towards the increasing focus by multiple shareholders on the social engagement of companies should be considered. Not only the support of the artists by purchasing the art but also the commitment to society by providing the public with cultural heritage sheds a different light on companies (Popoli 2011).

Moreover, this thesis made use of two different indicators for performance, ROA as accounting-based measure and Tobin's Q as market-based measure. The accounting-based measure rather reflects the past performance of the firm (McGuire et al. 1988), while the market-based measure rather indicates how investors evaluate the future performance of the company (Boesso, Favotto and Michelon 2015). When looking at the two measures of the dependent variable, no different results were found for all three Hypotheses, which indicates that the choice of measure is not relevant in terms of the size of CAC. Nevertheless, substantial evidence needs to be found, not only by further quantitative research, but also by managers to justify the investment in arts to stakeholders and shareholders. Especially, with no direct effect on performance managers need find other measures to state the importance. This could, e.g., be surveys that question employees in terms of their perception towards the arts.

Limitation and Suggestion for Future Research

The thesis faced several limitations which provide opportunities for future research. The first limitation is the sample in general. The sample consists only of companies that own art collections and are listed in the three books. Thus, the companies that could be included were predefined. Different limitations result from this: First, the dominance of certain sectors, e.g. financial services, cannot be bypassed. The same applies to countries. Germany and the US were very present in the sample. Second, the collection for the financial data was limited because many small and family-owned companies are listed in the books. The sample size was thus reduced considerably as companies with missing values were excluded before the statistical analysis. To overcome this limitation, future research could include companies that do not own art collections in the sample and rather consider the effects and differences between having a CAC and not having one rather than considering the art collection and its different attributes.

The size of the collection was picked as explanatory variable. No significant relationship was found towards performance and thus another suggestion for future research is to develop the conceptual model towards other dependent variables. Performance is very broad and includes many other factors that cannot all be controlled. An analysis that looks at CAC in a smaller frame could be more promising. With regard to this limitation, it also needs to be mentioned that the two mediating variables were included as "invisible" variables due to limited access to data. Future research could analyze the direct effects on companies' IRs rather than considering them as mediators.

Furthermore, the reason for no significant relationship could also be traced back to the choice of the performance measure. This thesis made use of ROA and Tobin's Q. Nevertheless, these measures might not capture the effect of arts as total assets are the denominator of both quotients. It will be interesting to relate CAC to another measure that is considered to be relevant for managerial decisions and see whether a significant relationship can be found.

Although, 25 different countries and 17 different sectors are covered the unequal distribution in the sample is a limitation in terms of the robustness of the model. The sample mainly covers European companies, from which German are represented the most, and furthermore many from the US. One third of the sample are countries from the financial services sector. To make future research more representative it is necessary to ensure that companies are distributed more equally across countries and sectors. The wide range of company size is interesting to consider,

nevertheless, not many industry leaders are included. This is another implication for future research.

The thesis only looked at one year for observations. Moreover, the year of 2019 was picked to exclude any effects that the covid pandemic could have had. Future research could on the one hand consider a development over multiple year. The big limitation here, remains that the information regarding art collections and their development over time is too limited. On the other hand, a comparison between two years could be interesting, covering pre and post pandemic effect.

The Covid pandemic opens new doors for different research topics and as this work addresses the benefits that CAC address internally while being displayed in corporate offices and externally while being exhibited in museums, the effect would be interesting to consider. Employees work from home and are not surrounded by the arts which are hung across company branches and museums had to close which limits the positive effect of CAC in terms of good reputation for being a good corporate citizen.

Altogether, this work faced many limitations which can be mainly explained by the sample and by the major research gap this work steps in. It, furthermore, reveals many opportunities for future research and incites to approach the phenomenon of CAC from a different angle. The findings of this work gave interesting insights and show that the research regarding the role of corporate art collections in companies are still in the early stages. It is now important for future research to substantiate the findings by qualitative research and connect CAC to value-based measure to justify the collecting of arts.

„We believe that art has the potential to provide insight into our complex world, to challenge the status quo, and to offer global perspectives.“

Mark H. Haefele
Chief Investment Officer at UBS, Global Lead Partner of Art Basel

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Appendices

Appendix 1: Coding for Text Analysis

Coding	*Phrases / wording*
"no" = 1	"not accessible to the public"; "located in the building"; "located at the branches"; "on display at the offices"; "accessible for employees"; etc.
"temporary" = 2	"not generally open to the public"; "open to the public only on a very limited basis"; "organizes exhibitions"; "regular exhibitions"; "regularly offered tours"; "loaned to museums for exhibitions"; "temporary exhibits"; loaned to public institutions", etc.
"yes" = 3	"publicly accessible"; "located continuously in the Museum"; "on display as loans"; "own art gallery"; "works on permanent loan"; etc.

Appendix B: Test of Normality

Variable	*Kolmogorov-Smirnov*		*Shapiro-Wilk*	
	ß	*p*	*ß*	*p*
ROA	.219	<.001	.658	<.001
Volume	.327	<.001	.458	<.001
Availability	.239	<.001	.787	<.001
Duration	.173	<.001	.790	<.001
Country	.252	<.001	.851	<.001
Sector	.195	<.001	.947	<.001
Size	.224	<.001	.758	<.001
Size_Log	.106	.002	.955	<.001

Variable	*Kolmogorov-Smirnov*		*Shapiro-Wilk*	
	ß	*p*	*ß*	*p*
Tobin's Q	.273	<.001	.637	<.001
Volume	.317	<.001	.519	<.001
Availability	.247	<.001	.783	<.001
Duration	.195	<.001	.803	<.001
Country	.166	<.001	.905	<.001
Sector	.172	<.001	.956	.009
Size	.155	<.001	.917	<.001
Size_Log	.161	<.001	.856	<.001

Appendix C: Multicategory Coding for Availability

Availability	*W1*	*W2*
1 = "no"	.00	.00
2 = "temporary"	1.00	.00
3 = "yes"	.00	1.00

Appendix D: Company Overview

COMPANY	COUNTRY[a]	SECTOR[b]	SIZE[c]	ROA	TOBINSQ	VOLUME	YEAR[d]	AVAILABILITY[e]
ABBOTT LABORATORIES	US	HEALTHCARE	113000	5.44	2.26	252	1930	no
ABN AMRO N.V.	NDL	FINANCIAL SERVICES	26481	0.55	0.04	5500	1977	yes
ADOLF WÜRTH GMBH & CO KG	DEU	INDUSTRIAL	83200	4.71	/	16000	1960	yes
AEGON NV	NDL	FINANCIAL SERVICES	17936	0.35	0.02	1500	1991	no
AENGELVELT IMMOBILIEN GMBH & CO. KG	DEU	REAL ESTATE	110	34.94	/	124	1990	temporary
AHLERS AG	DEU	APPAREL AND LUXURY GOODS	1425	-2.42	0.22	3000	1955	yes
AKZO NOBEL N.V.	NLD	CHEMICALS	32800	4.44	1.39	1750	1996	temporary
ALCOA INC.	US	MATERIALS	12200	-5.85	0.27	300	1966	no
ALFRED RITTER GMBH	DEU	FOOD, BEVERAGE AND TABACCO	1500	2.03	/	800	2005	yes
ALLIANZ SE	DEU	INSURANCE	155411	0.82	0.09	5800	1992	yes
ALPHA SERVICES AND HOLDINGS	GRC	FINANCIAL SERVICES	8939	0.17	0.05	5180	1980	no
ANHEUSER-BUSCH INBEV	BEL	FOOD, BEVERAGE AND TABACCO	169339	4.41	0.68	300	1890	temporary
ARCELORMITTAL SA	LUX	MATERIALS	158000	-0.27	0.2	600	1990	temporary
ASPEN INSURANCE HOLDINGS LTD	UK	INSURANCE	910	-1.93	0.2	275	2002	no
ASTRAZENECA PLC	GBR	HEALTHCARE	83100	2	2.15	1000	1955	no
AT&T	US	TELECOMMUNICATION	203000	2.72	0.52	8000	1973	yes
ATTIJARIWAFA BANK	MA	FINANCIAL SERVICES	20600	1.3	0.18	2000	1975	temporary
AXA GROUP	FRA	INSURANCE	149000	0.54	0.08	15380	1984	yes
B. BRAUN MELSUNGEN AG	DEU	HEALTHCARE	66234	1.96	/	600	1989	no
BANK JULIUS BAER & CO	CHE	FINANCIAL SERVICES	6727	24.68	/	5000	1981	temporary
BANKHAUS DONNER & REUSCHEL	DEU	FINANCIAL SERVICES	540	0.17	/	60	1959	no
BANQUE NATIONALE DE BELGIQUE	BEL	FINANCIAL SERVICES	2123	0.45	0.01	1857	1972	no
BANQUE PICTET & CIE SA	CHE	FINANCIAL SERVICES	5040	0.23	/	600	2004	no
BASF SE	DEU	CHEMICALS	108718	9.77	0.7	2000	1968	yes
BAYER AG	DEU	HEALTHCARE	95950	3.26	0.57	2000	1950	temporary
BELFIUS BANK SA	BEL	FINANCIAL SERVICES	6531	0.39	/	4500	1960	temporary
BERGÉ Y COMPANIA S.A.	ESP	INDUSTRIAL	4500	2.41	/	112	1980	yes
BMW AG	DEU	AUTOMOTIVE	118909	2.2	0.21	420	1973	yes
BORUSAN HOLDING	TR	INDUSTRIAL	7500	1.15	0.18	670	1990	yes
BRIDGESTONE CORPORATION	JPN	INDUSTRIAL	135636	7.57	1.75	500	1952	yes
BRITISH AMERICAN TABACCO PLC	GBR	FOOD, BEVERAGE AND TABACCO	54365	4.01	0.52	63	2000	temporary
CALLEZIONE MARAMOTTI - MAX MARA	ITA	APPAREL AND LUXURY GOODS	5500	3.55	/	1000	1960	yes
CANARYWHARF GROUP PLC	GBR	REAL ESTATE	1217	11.48	/	65	1987	yes
CARMIGNAC GESTION S.A.	FRA	AGRICULTURE	168	7.18	/	250	1980	no
CARTIER INTERNATIONAL SA	FRA	APPAREL AND LUXURY GOODS	7500	14.44	/	1400	1984	yes
CITIGROUP INC.	US	FINANCIAL SERVICES	223000	1	0.09	20000	1946	no
CLIFFORD CHANCE LLP	GBR	LAW	6482	45.02	/	800	1992	no
COMMERZBANK AG	DEU	FINANCIAL SERVICES	46218	0.15	0.01	1000	2010	yes
CREDIT SUISSE AG	CHE	FINANCIAL SERVICES	50110	0.38	0.07	6000	1975	yes
DEERE & COMPANY	US	AGRICULTURE	75500	4.43	0.74	2200	1960	yes
DEKABANK DEUTSCHE GIROZENTRALE	DEU	FINANCIAL SERVICES	4854	0.22	/	1400	2003	yes

DEUTSCHE BANK AG	DEU	FINANCIAL SERVICES	82969	-0.41	0.01	60000	1979	yes
DEUTSCHE BÖRSE AG	DEU	FINANCIAL SERVICES	10200	0.75	0.19	1600	1999	temporary
DEUTSCHE BUNDESBANK	DEU	FINANCIAL SERVICES	10383	0.33	/	5000	1957	temporary
DEUTSCHE TELEKOM AG	DEU	TELECOMMUNICATION	216528	3.09	0.4	25	2010	temporary
DSV-GRUPPE	DEU	FINANCIAL SERVICES	2372	3.75	/	320	1980	no
DWS GROUP GMBH & CO KGAA	DEU	INSURANCE	193000	3.11	/	200	1990	temporary
DZ BANK AG	DEU	FINANCIAL SERVICES	32271	0.34	/	7500	1993	temporary
E.ON SE	DEU	ENERGY SERVICES	72169	1.83	0.25	1800	1980	temporary
EFG BANK AG	CHE	FINANCIAL SERVICES	2932	0.24	0.05	2000	2000	yes
ELICA SPA	ITA	CONSUMER GOODS	3108	1.91	0.31	50	2007	no
ENGIE SA	FRA	ENERGY SERVICES	154364	1.03	0.22	8000	1858	temporary
EQUINOR ASA	NOR	ENERGY SERVICES	21126	1.54	0.56	1350	1992	no
ERGO GROUP AG	DEU	INSURANCE	24974	0.1	/	3500	1980	no
EUROPEAN CENTRAL BANK	DEU	FINANCIAL SERVICES	3500	0.52	/	300	1998	temporary
EUROPEAN PATENT ORGANIZATION	DEU	INDUSTRIAL	6300	0.8	/	400	1980	temporary
EVN AG	AUT	ENERGY SERVICES	7453	3.99	0.38	310	1990	yes
EVONIK INDUSTRIES AG	DEU	CHEMICALS	31571	9.66	0.58	500	1900	no
FABER-CASTELL AG	DEU	INDUSTRIAL	8000	5.02	/	300	1980	yes
FORD MOTOR COMPANY	US	AUTOMOTIVE	183000	0.03	0.14	250	1975	no
FUNCACIÓN BANCARIA LA CAIXA	ESP	FINANCIAL SERVICES	49760	2.78	/	1000	1985	yes
GAZPROMBANK	RUS	FINANCIAL SERVICES	479200	0.65	0.05	650	2011	no
GENERAL ELECTRIC COMPANY	US	INDUSTRIAL	168000	-1.86	0.37	250	1979	yes
GENERALI DEUTSCHLAND VERSICHERUNG AG	DEU	INSURANCE	9200	0	5.76	32	2008	temporary
GIZ GMBH	DEU	INDUSTRIAL	25000	1.5	/	177	1996	no
GLAXOSMITHKLINE PLC	GBR	HEALTHCARE	90000	4.64	0	10000	2007	yes
GOTTFRIED SCHULTZ AUTOMOBILHANDELS SE	DEU	AUTOMOTIVE	2400	6.81	/	150	1972	no
HANNOVER RÜCK SE	DEU	INSURANCE	3000	1.92	/	265	1984	no
HISCOX LTD	BMU	INSURANCE	3000	0.39	0.43	1000	1970	no
HSBC TRINKHAUS & BURKHARDT GMBH	DEU	FINANCIAL SERVICES	2911	1.7	/	120	1985	no
ING GROEP NV	NDL	FINANCIAL SERVICES	57000	0.55	0.05	15000	1974	temporary
INTESA SANPAOLO SPA	ITA	FINANCIAL SERVICES	97698	0.51	0.05	30000	1870	yes
ITAÚ UNIBANCO SA	BR	FINANCIAL SERVICES	87341	1.74	0.22	13000	1969	temporary
JÄCKERING-GROUP	DEU	FOOD, BEVERAGE AND TABACCO	1000	11.14	0	200	1969	no
JOHNSON & JOHNSON	US	HEALTHCARE	142000	9.57	2.42	3000	1980	no
JP MORGAN CHASE & CO	US	FINANCIAL SERVICES	271025	1.36	0.16	30000	1959	no
KONINKLIJKE DSM NV	NDL	CHEMICALS	21054	5.68	1.45	1088	1952	temporary
KWS SAAT SE & CO KGAA	DEU	AGRICULTURE	6000	4.92	/	130	2000	temporary
LB HESSEN-THÜRINGEN GIROZENTRALE	DEU	FINANCIAL SERVICES	6000	0.23	/	1300	1996	temporary
LVMH	FRA	APPAREL AND LUXURY GOODS	157953	8.06	2.16	400	1980	yes
MACQUARIE GROUP LIMITED	ASTL	FINANCIAL SERVICES	16000	1.47	0.23!	700	1987	no
MAPFRE SA	ESP	FINANCIAL SERVICES	32341	1.32	0.1	2500	1989	temporary
MERCEDES-BENZ GROUP	DEU	AUTOMOTIVE	172425	0.9	0.14	2600	1977	yes
MICROSOFT CORPORATION	US	TECHNOLOGY	122000	13.66	4.26	5000	1987	yes

MONTBLANC DEUTSCHLAND GMBH	DEU	CONSUMER GOODS	3300	15.64	/	200	2002	no
MUNICH RE	DEU	INSURANCE	39281	0.94	0.13	2500	1880	temporary
NASSAUISCHE SPARKASSE	DEU	FINANCIAL SERVICES	1600	0.33	/	2300	1990	temporary
NATIONAL-BANK AG	DEU	FINANCIAL SERVICES	605	0.32	/	300	1993	temporary
NEIMAN MARCUS GROUP	US	APPAREL AND LUXURY GOODS	10500	-0.4	/	2500	1951	no
NN GROUP N.V.	NDL	INSURANCE	15417	0.8	0.05	1000	1979	no
NORDDEUTSCHE LB GIROZENTRALE	DEU	FINANCIAL SERVICES	3976	-0.05	/	600	1990	temporary
NORSK HYDRO ASA	NOR	MATERIALS	3493	-1.44	0.41	150	1910	no
NOVO BANCO	PT	FINANCIAL SERVICES	3890	-2.35	/	1000	2004	yes
OSRAM LICHT AG	DEU	INDUSTRIAL	26130	-10.77	0.96	200	2001	temporary
PANASONIC CORPORATION	JPN	ELECTRONIC	240198	4.88	0.46	228	1997	yes
PEPSICO INC	US	FOOD, BEVERAGE AND TABACCO	309000	9.35	2.42	45	1970	yes
PROVINZIAL VERSICHERUNG AG	DEU	INSURANCE	4600	0	/	200	1995	no
QUINTET PRIVATE BANK (EUROPE) SA	LUX	FINANCIAL SERVICES	2000	-0.36	0.07	130	1980	temporary
RABOBANK GROUP	NDL	FINANCIAL SERVICES	43000	0.37	/	1200	1976	no
RENAULT SA	FRA	AUTOMOTIVE	170158	0.02	0.09	320	1966	temporary
RITTER GMBH & CO KG	DEU	FOOD, BEVERAGE AND TABACCO	1500	2.03	/	800	2005	yes
ROLLS ROYCE HOLDINGS PLC	GBR	AUTOMOTIVE	44000	-3.93	0.41	600	1975	temporary
ROYAL BANK OF CANADA	CAN	FINANCIAL SERVICES	85301	0.88	0.1	4000	1929	no
SANLAM LIMITED	ZAF	INSURANCE	21180	0.95	0.19	1800	1965	temporary
SAP SE	DEU	TECHNOLOGY	107415	5.6	2.38	2000	1972	yes
SAXO BANK A/S	DK	FINANCIAL SERVICES	2224	0.05	/	500	2008	no
SCHUFA HOLDING AG	DEU	FINANCIAL SERVICES	900	24.05	/	25	2006	no
SHISEIDO COMPANY LIMITED	JPN	CONSUMER GOODS	35318	6.34	/	2550	1919	temporary
SIEMENS AG	DEU	INDUSTRIAL	303000	3.76	0.62	3000	1960	yes
SOCIETE GENERALE GROUP	FRA	FINANCIAL SERVICES	146000	0.29	0.02	400	1995	temporary
SÜDHAUSBAU	DEU	REAL ESTATE	80	5.94	/	350	2004	temporary
SWISS RE GROUP	CHE	INSURANCE	13985	0.73	0.29	3500	1986	no
TELEFONICA SA	ESP	TELECOMMUNICATION	104150	1.4	0.27	2832	1980	yes
THE BOEING COMPANY	US	INDUSTRIAL	141582	-0.48	1.37	500	1985	no
UBS GROUP AG	CHE	FINANCIAL SERVICES	71385	0.44	0.05	35000	1962	yes
UNICREDIT BANK AG	DEU	FINANCIAL SERVICES	11406	0.41	2.61	500	1950	temporary
UNILEVER PLC	GBR	CONSUMER GOODS	148012	9.3	2.09	400	1980	no
UNIPLAN GMBH & CO KG	DEU	TECHNOLOGY	600	-0.41	/	500	1990	no
VAN LANSCHOT NV	NDL	FINANCIAL SERVICES	1654	0.69	0.83	1400	1850	no
VATTENFALL AB	SWE	ENERGY SERVICES	18149	3.27	/	4700	1909	no
VILLEROY & BOCH AG	DEU	INDUSTRIAL	6907	8.92	0.45	30000	1850	yes
VRANKEN POMMERY MONOPOLE	FRA	FOOD, BEVERAGE AND TABACCO	237	0.01	0.14	40	2003	no
WELLS FARGO & COMPANY	US	FINANCIAL SERVICES	247848	1.05	0.12	7500	1967	yes
WESTFARMERS LIMITED	ASTL	INDUSTRIAL	114000	10.58	/	1000	1980	temporary

Note. [a] Numeric coding for analysis from 1-25 in ascending alphabetical order; [b] Numeric coding for analysis from 1-17 in ascending alphabetical order; [c] natural logarithm was used for analysis; [d] 2019 was used as basis year to calculate duration; [e] categorical coding for analysis with 1 = “no”, 2 = “temporary” and 3 = “no”.

Statement of Originality

By signing this statement, I hereby acknowledge the submitted thesis titled:

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