Cultural Distance's Effect on Short-Term Acquisition Performance - Evidence from Swedish Acquirers



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Abstract

This quantitative study aims to investigate whether cultural distance has any significant effect on short-term acquisition performance, measured as abnormal returns for Swedish cross-border acquisitions. This study adds to previous literature through filling the gap where there has been a lack of a sample of Swedish acquirers, using a multi-measurement approach, and having a broad sample of acquisitions conducted in Europe between the years 2000-2022. Short-term performance is measured through cumulative average abnormal returns (CAAR) within a [-2, 2] event window while cultural distance is measured through the Euclidean index, built on Hoftstede's cultural dimensions. Further, we aim to investigate whether individual dimensions of Hofstede's cultural distance index has more importance for generating abnormal returns during acquisitions than others. By analysing cultural distance, masculinity and uncertainty avoidance, using a multivariate regression model, the study does not find any significant effect upon cumulative average abnormal returns, or short-term acquisition performance. None of the independent variables has any significant statistical effect upon CAAR. The results therefore questions the significance of cultural distance for short-term acquisitions performance in Europe but opens up for new research using alterations of measurements used for this study.

Keywords: Cultural distance, Masculinity, Uncertainty Avoidance, Short-term acquisition performance, Cumulative average abnormal returns, Cross-border acquisitions

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1. Introduction

The alluring size of the global economic market, and perpetuating progress in transportation and communication technologies, orchestrated the opportunity for a further international empire building by corporate executives (Bartlett and Ghoshal 1991; Buckley and Casson 1976; Kogut and Zander 1993). After a provisional stagnation during the global recession in early 1990s, cross-border mergers and acquisitions (M&A) reached record high value of \$181.7 billions in the initial nine months of 1996 and recently in 2021, it hit \$2.11 trillions with an all-time-high number of 17,849 deals being made (Irwin-Hunt 2022). This implies that M&A rapidly grew both in terms of number of deals and total deal value making as a crucial strategic growth tool for multinational enterprises (MNEs) (Deloitte 2017).

Through cross-border M&A, companies tap into the local knowledge of the acquired firm and seize new capabilities from the target (Reus and Lamont 2009; Chakrabarti,

Gupta-Mukherjee and Jayaraman 2009). Additionally, entities with significant competitive advantages may also expand internationally in order to leverage their existing capabilities in new markets (Li, Li and Wang 2016). Disregarding the motive, MNEs need to successfully integrate with different organisations in order to maximise advantages from cross-border M&As and ultimately increase performance (Reus and Lamont 2009). Nevertheless, despite the rapid growth of M&A as a strategic growth tool, almost 70- and 90% of acquisitions fail in the long-term, and there are several factors that could turn the tables around (Kenny 2020). However, due to long-term acquisition performance being very difficult to measure, most studies measure short-term acquisition performance with abnormal returns, which shows the effect M&A has on shareholder value.

As global cross-border M&A activity has increased for the past years, the relationship between cultural distance and abnormal returns has been getting more attention in academics. National cultural distance constitutes the distance in conventions, routines, and repertoires for organisational design, new product creation, and other aspects of management found in the acquirer's and target's countries of origin (Kogut and Singh 1988). However, while a wide range of studies have documented the effects of cultural distance on cross border M&A performance, the previous research within the field is inconclusive. Indeed, a number of literature argue that cultural distance can be a source of value creation for shareholders and increased performance (Morsini, Shane and Singh 1998; Page 2008; Chakrabarti, Gupta-Mukherjee and Jayaraman 2009; Beugelsdijk et al. 2017), while others argue that cultural distance leads to declined performance and negative abnormal returns (Datta and Puia 1995; Chatterjee et al. 1992; Li, Li and Wang 2016; Boateng et al., 2019; Akkani and Ahammad (2015).

Due to the contradicting results of previous studies on this correlation, one can assume that one big factor of why the results differ a lot from study to study could be that acquisition performance is affected differently by cultural distance depending on the acquisitions home and target markets. However, there is an absence of empirical studies examining the correlation between cultural distance and the performance of Swedish cross-border acquisitions. This highlights the need for further research in this area since it is crucial for Swedish decision-makers given the increasing eminence of M&A as an expansion means in today's international business landscape.

Historically, the Kogut and Singh index (1988) is the most commonly used measurement of cultural distance (Voigt and Stahl 2008; Konara and Mohr 2019). Although, due to an increasing consensus among researchers that the Kogut and Singh index (1988) is outdated and

constitutes an inaccurate measurement of cultural distance, other measurements are recommended instead - especially the Euclidean Distance formula (Manev and Stevenson 2001; Brouthers and Brouthers 2001; Voigt and Stahl 2008; Konara and Mohr 2019). Accordingly, the Euclidean Distance formula, based on Hofstede's cultural dimensions (power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, indulgence) will be applied in this research paper.

When evaluating Sweden's scores in Hofstede's six cultural dimensions, one can establish two dimensions in which Sweden's score relative to the target countries' is very low. Firstly, masculinity, which refers to the degree that traditional masculine characteristics, such as competitiveness and decisiveness, drives the country's business climate. However, research states that being a feminine country should be prominent in internationalising successfully (Bartel-Radic and Giannelloni 2017; Ghauri and Usunier 2003; Jona and Iman 2008). Secondly, uncertainty avoidance, which refers to the degree that people accept and deal with ambiguity, uncertainty, and unpredictability. Previous research claims that uncertainty avoidance has a negative impact on the acquiring company's abnormal returns (Keswani et al. 2020; Frijns et al. 2013). Based on this background, this study will examine masculinity and uncertainty avoidance as two separate independent variables on cross-border acquisition performance, as well as the combined cultural distance of all six of Hofstede's cultural dimensions. Thus, the research question of this study is: "How does cultural distance affect short-term Swedish cross-border acquisition performance in European targets?"

We aim to answer this question through applying an event study methodology with daily stock returns due to its purpose of assessing a particular event's impact on a security, with the event being a particular acquisition for this study. Previous papers have measured acquisition

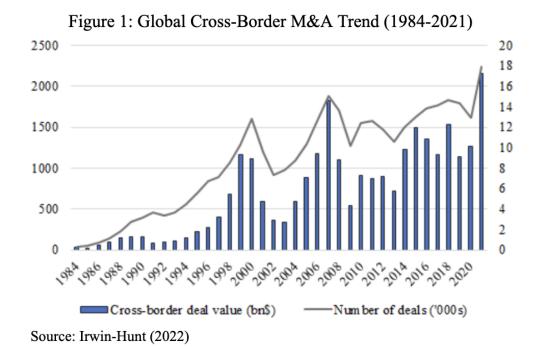
performance both via accounting- and market-based measures. However, this paper will focus on evaluating the short-term acquisition performance which is measured through abnormal returns, i.e. the difference between expected returns and actual returns. Due to previous literature identifying a range of other variables being likely to affect abnormal returns, the study controls for a range of other variables, such as firm size and geographical proximity, in the model that have been found to affect abnormal returns besides cultural distance (Moeller, Schlingemann & Stulz, 2004; Chakrabarti and Mitchell, 2016). In background to this, a multiple regression model is used for testing the three hypotheses, with three models being tested with different independent variables for each hypothesis.

This study aims to further add and enrich previous and rather limited research studies with a special focus on Swedish acquirers and provide in depth insights as to how national cultural distance affects the cross-border acquisition performance of Swedish acquirers.

2. Literature Review and Hypotheses

2.1 Value Creation in Acquisitions

Corporate acquisitions have increased rapidly during the most recent decades and have become a significant part of many corporations' strategy for growth. Thus, M&A has quickly emerged as an effective and popular way for companies to grow beyond national borders (Deloitte 2017; Glaister and Ahammad 2010). Shown in Figure. 1 below, in 2021, cross-border M&A deals reached a record-high level of \$2,1 trillion with an all-time-high number of 17,849 deals being made (Irwin-Hunt, 2022). This is due to a range of reasons varying from different acquisitions, industries and market conditions that could be further expanded to a corporation's market share through eliminating competition, accessing new markets and customer segments, diversifying the product portfolio, and acquiring new technology and intellectual property (Johansson and Huilt 2002).



There are, however, different views on the value creation in corporate acquisitions. Capron and Pistre (2002) researched when acquirers earn abnormal returns through conducting an event study on a sample of 101 acquisitions within different industries in the Western part of the world. They stated that acquirers did not receive abnormal returns when only importing new resources from the targets. However, they did find that acquirers could earn abnormal returns when being able to transfer their resources to the target business. Thus, value creation does not necessarily imply profitability through abnormal returns. Hackbarth and Morellec (2008) also found, in their study on 1086 U.S. acquisitions, that the announcement of the acquisitions had a negative effect on the acquirers' shareholders through negative abnormal returns, while having a significantly positive effect on the targets' abnormal returns.

On the other hand, Ma, Pagan and Chu (2009) performed a study on ten Asian stock markets with a sample of 1477 acquisitions. They concluded that a big majority of the acquirers received abnormal returns in the event windows of [0, 1], [-1, 1], and [-2, 2] days prior to and after the acquisition. As a result, they concluded that corporate acquisition is a highly recommended expansion path for managers since it generally provides the financial investors with abnormal returns. Additionally, Dranev, Frolova and Ochirova (2019) found in their study on the Fintech industry that abnormal returns on average were significantly positive for acquirers in the short-term. They stated that acquisitions in developed countries proved to be more profitable compared to acquisitions in emerging countries, which is partly due to established corporations in developed countries being better at integrating the targets' technology and operations. Also, the authors found that corporations with less experience in acquisitions tended to outperform corporations with more experience and that corporations that are not part of the Fintech sector outperform corporations already established in the sector, probably due to new

technology being accessed. Their findings are in line with the conclusions of Uddin and Boateng (2009). They found in their study on evaluating short-term performance of 373 UK cross-border acquisitions that cultural distance and acquisition strategy had a big impact on the short-term performance of acquisitions. However, they did not find any statistically significant abnormal returns for the acquirers in general.

2.2 Cultural Distance

Cultural distance is a well-known and widely used construct within international business research. It describes how countries differ from each other which directly affects corporations decisions in regards to entry mode, investments, marketing campaigns, et cetera. (Schenkar 2001). Beugelsdijk et al. (2017) state that cultural distance plays a crucial role in corporations' decision-making when expanding and operating internationally. They state that understanding cultural differences is essential for businesses to succeed in international markets since it can gain and harm them in regards to communication, trust, and relationships with partners, customers and employees.

There are, however, different opinions on how one should measure cultural distance since there exists many important aspects that need to be accounted for. Currently, the Kogut and Singh index (1988) on cultural distance is the most commonly used measurement in international business research (Konara and Mohr 2019; Voigt and Stahl 2008). The index measures cultural distance between two countries based on Geert Hofstede's dimensions on cultural differences. More specifically, the dimensions of power distance, individualism, masculinity, and uncertainty avoidance (Kogut and Singh 1988). However, due to the index being established in 1988, i.e., more than 30 years ago, it has faced increased criticism for not constituting an accurate

measurement of cultural distance. Indeed, Maseland, Dow and Steel (2018) state that researchers have simply replicated the measurement through the years when evaluating cultural distance rather than further developing the index. This becomes of increased importance since our world is under constant changes. Additionally, Håkansson and Ambos (2010) constructed a study on psychic distance based on original data from the world's 25 largest economies. They concluded that cultural distance is of high importance when evaluating managerial decisions within international business, but that the Kogut and Singh index (1988) proved to be a poor predictor of the results of their study.

Furthermore, the Kogut and Singh index (1988) is inaccurately calculated since extreme values in any of the four dimensions exaggerates the results of the cultural distance comparison. Due to this, the more accurate approach of measuring cultural distance is through the Euclidean Distance formula, as stated below, since it weighs the dimensions more trustworthy (Konara and Mohr 2019; Vogit and Stahl 2008).

$$d_{pq} = \sqrt{\sum_{k=1}^{n} (P_k - q_k)^2}$$

 d_{pq} : Euclidean Distance

P: Country 1

q: Country 2

n: number of dimensions

Brouthers and Brouthers (2001) explains the advantages of the Euclidean Distance formula in their research paper "Explaining the Natural Cultural Index Paradox". They conclude that the Euclidean Distance formula is the most accurate formula in calculating cultural distance currently, primarily due to two reasons. First, simplicity. The formula can and has been used in various fields, such as psychics and mathematics, when measuring distance between two points

due to it being easily understood and being straightforward in its implementation. Second, it is easy to apply Hofstede's cultural dimensions in the formula. This establishes a cultural index in which it becomes easy for the interpreter to understand the relative cultural distance between two countries. This reasoning is further strengthened by Manev and Stevenson (2001), who also used the Euclidean Distance formula in measuring cultural distance between countries in their study on how nationality and cultural distance affects managerial networking.

As mentioned, the Kogut and Singh index (1988) is only based on four of Hofstede's cultural dimensions; power distance, individualism, masculinity, and uncertainty avoidance. This is since Hofstede added the dimensions of long term versus short term orientation as well as indulgence versus restraint in 2001 and 2010 respectively, thus after the index was already established. However, the Euclidean Distance formula allows for the two newer dimensions to be easily integrated into the equation too. This paper, as well as much other recent research on cultural distance correlation with international business performance (Gupta, Veliyath and George 2018), will include all six dimensions.

2.2.1 Hofstede's Cultural Dimensions

Geert Hofstede has established six dimensions of national culture from which comparisons betweens countries can be done. This enables understanding for how values, behaviours, and beliefs differ between cultures and how this will affect international business practices. The dimensions of power distance, individualism, masculinity, and uncertainty avoidance, were introduced in 1980 (Hofstede 1980). The dimension of long-term versus short-term orientation was added in 2001 (Hofstede 2001), and the dimension of indulgence versus restraint was

computed in 2010 (Hofstede 2010). Each dimension will be included in this paper and thus be explained (see Table 1.).

Table 1: The Six Cultural Dimensions of Hofstede

Dimension	Explanations
Power Distance	The extent people in a culture accept power to be distributed unequally. In high power distance cultures, there exists and expects to be a clear hierarchy of power distribution, while in low power distance cultures decision-making is on a more equal basis.
Individualism vs collectivism	To what extent individuals in a society prioritise their own interest compared to the collective interests of the society. This entails that people living in a high individualistic culture tend to value individual achievement and freedom, while in more collectivist societies people tend to rather prioritise cooperation, social cohesion, et cetera.
Masculinity	Refers to the degree that specific and traditional masculine characteristics occur and emphasised in a culture. For instance, assertiveness and competitiveness. In a more feminine society, traits such as cooperation and kindness are more valued.
Uncertainty avoidance	Explains the extent to which people in a culture perceive uncomfort in regards to uncertainty and how they rely on rules as benchmarks on how they should behave. Accordingly, in high uncertainty avoidance cultures, people demand structure and predictability, whereas in low uncertainty avoidance cultures people are more tolerant towards unexpectancy and unpredictability.
Long-term vs short-term orientation	Demonstrates the extent to which a society prioritises long-term planning and future growth compared to more immediate actions with a shorter time perspective. Thus, in long-term oriented cultures people value persistence and saving, while in a short-term oriented society, people are more likely to strive in achieving more direct pleasure and satisfaction.
Indulgence vs restraint	The extent a population is willing to act on their natural desires and impulses. In indulgent societies, people tend to be more relaxed and enjoy life through allowing themselves to listen to their individual desires. In more restrained societies however, people are more likely to comply with strict social norms through restraining and controlling themselves in regards to their personal wants.

2.3 Cultural Distance and Acquisition Performance

Due to the increasing significance of M&A transactions for corporate growth in recent years, academic research in this topic is weighty. Hence, how cultural distance, i.e. how distant the

acquired and acquiring company is in terms of cultural values from each other, affect acquisition performance. Morosini, Shane and Singh (1998) found that cross-border acquisitions in more culturally distant countries, from the acquirer, was able to generate higher acquisition performance, than when the acquiring country is culturally close. Morsini's (1998) study was carried out by surveying executives who emphasised the importance of routines and repertoires in other cultures, something which is usually very hard to copy across cultures. However, the executives in the survey emphasised how cross-cultural acquisitions in culturally distant cultures make firms able to replicate these routines and repertoires by learning from acquisitions, leading to better performing acquisitions in culturally distant firms. In opposing view, Akanni and Ahammad (2015) researched the acquisition performance of a sample of English companies, which found that cultural distance negatively affected acquisition performance as it obstructs integration capabilities. The study also emphasised the importance of allocating resources for preparing the integration of an acquisition with higher cultural distance, incurring higher costs which also ultimately reduce the final acquisition performance of more culturally distant firms (Akanni and Ahammad 2015).

Slangen (2006) investigated the acquisition performance of a sample of 102 acquisitions made by 30 Dutch firms where they found that the level of post integration is what is important, rather than the cultural distance. In this study, cultural distance is measured using Kogut and Singh's (1988) index based on Hoftede's cultural dimensions, and acquisition performance was measured using growth of sales. Similarly to Morosini, Shane and Singh (1998), the study found that acquisition performance was high when cultural distance was high at low levels of post-acquisition integration, but lowly performing when the post-acquisition integration was high together with high cultural distance. This study signifies the difficulty of integrating culturally

distinct entities into one corporate level (Slangen 2006). Additionally, Voigt and Stahl (2008) found, in their meta-analysis on 46 studies with a combined sample of 10,710 M&A deals, that whether cultural distance has a positive or negative effect on acquisition performance, depends on the dimension of cultural differences between the firms. Particularly the study by Voigt and Stahl (2008) found that the ability to manage sociocultural differences is a key factor in realising potential synergies. In the study, acquisition performance was measured via shareholder value and synergies realised.

Empirical research is split regarding the findings about cultural distance and its effect on acquisition performance. On the one hand, numerous studies seem to suggest that the integration process is of significance, and not cultural distance, for the performance of an acquisition (Voigt and Stahl 2008; Slangen 2006). Some research also posit that cultural distance is positive for acquisition performance (Morsoni, Shane and Singh 1998). But on the other hand, Akkani and Ahammad (2015) states that it has a negative effect on the acquisition performance due to the difficulty of integration. However, to our knowledge there is a lack of empirical research investigating the relationship between cultural distance and Swedish acquiring firm's cross-border acquisition performance. This highlights the necessity for future research about this as it is important for Swedish decision-makers due to the emergence of M&A within business as a strategy for growth and innovation. Given this background, the following hypothesis is developed:

Hypothesis 1: There is a negative relationship between cultural distance and cumulative average abnormal returns.

2.4 Significant Dimensions

Previous research has attempted to analyse cultural distance based on all of Hofstede's dimensions rather than evaluating the dimensions separately. Consequently, all dimensions are of the same importance for the total outcome. For Sweden, however, there are two of these six dimensions that stand out (masculinity and uncertainty avoidance) for having very low scores relative to the target countries (Hofstede Insights 2023). Therefore, we will try to add to existing research about cultural distance and acquisition performance where results are ambiguous by investigating Hofstede's cultural dimension further by researching these two on a more detailed level.

2.4.1 Masculinity

Masculinity is Hofstede's third cultural dimension, and it states the degree that traditional masculine or feminine characteristics are present in a country's culture. Sweden has a score of 5/100 in this dimension. Thus, traditional feminine characteristics, such as collaboration, inclusiveness, relationship building, teamwork et cetera, are emphasised in a Swedish business context (Hofstede 1980). Ghauri and Usunier (2003) argue that negotiations, and hence acquisitions, are more difficult the more masculine a country is since they are worse at compromising. Subsequently, negotiations are preferred with countries that are more feminine.

Moreover, Bartel-Radic and Giannelloni (2017) reviews personality traits that are vital in achieving cross-cultural competence, which is necessary when expanding internationally. Among the attributes that are most important according to the authors are open-mindedness, empathy, absence of ethnocentrism, and tolerance for ambiguity. Hence, characteristics that are considered feminine, suggesting masculinity would negatively impact acquisition performance.

Additionally, Lundberg and Nouri (2008) conducted a study with a sample size of 488 US

acquirers in which they found an inverse relationship between masculinity and acquisition performance. Thus, suggesting that differences in this dimension complicate things and clashes between companies from masculine and feminine cultures may yield negative financial effects for the acquiring firm. This could imply that Sweden, a country with a very low score in masculinity, would rather pursue acquisitions with countries that are more similar in this regard and that there would be a cultural clash when doing acquisitions in countries high in masculinity. Accordingly, we developed the following hypothesis:

Hypothesis 2a: Abnormal returns will be lower for Swedish acquirers from acquisitions done in countries with higher masculinity scores.

2.4.2 Uncertainty Avoidance

Uncertainty avoidance is the fourth dimension in Hostede's framework, describing how much people prefer order and stability in a culture, whereas in low uncertainty avoidance cultures, people are more acceptable towards unpredictability. Sweden has a score of 29 in this dimension, where 0 is the lowest (least amount of uncertainty avoidance) and 100 is the highest (most amount of uncertainty avoidance), meaning Sweden culturally has a higher inclination towards risk on this scale (Hofstede, 1980). Moreover, in an extensive survey conducted by Rieger et al. (2015), taking place in 53 countries, found significant cross-cultural differences in the degree of risk aversion between countries, as measured by uncertainty avoidance by Hostede's cultural dimensions (2001). It is argued that these findings can serve as a starting point for future research about risk aversiveness. This is due to the fact that differences in economic behaviour is usually a result of different preferences and behaviours when it comes to risk-taking (Rieger et al. 2015).

In a study by Keswani et al. (2020), investigating the relationship of cultural differences on mutual fund conduct around the world, it was found that uncertainty avoidance was significant for a number of the dependent variables. For example, countries where uncertainty avoidance was high were characterised by significantly lower assets under management. Their study concluded that uncertainty avoidance is not only statistically significant but economically as the relationships hold true even when controlling for an exhaustive set of fund- and country-level characteristics. Thus, uncertainty avoidance was deemed significant for mutual fund behaviour across countries, further signifying its importance for economic behaviour according to research.

Further, Frijns et al. (2013) studied the role of uncertainty avoidance in corporate takeover decisions and found that it affects the expected net synergies required by CEOs. CEOs in countries culturally less inclined for risk taking, i.e. countries high in uncertainty avoidance, generally require higher risk premiums paid for the acquisition, as the acquiring company needs to compensate for the acquired company's inclination to take less risk. Hence, doing business in countries with high uncertainty avoidance is shown in this study to potentially be more expensive, as business managers require a risk premium.

In background to the empirical research about uncertainty avoidance, it is theorised that high uncertainty avoidance will have a negative correlation with abnormal returns. This is due to the acquiring company having to pay a premium for compensating for the extra risk averseness associated with high uncertainty avoidance countries. Hence, if acquiring companies need to pay a risk premium for the higher uncertainty avoidance, this will lead to more expensive M&A transactions, something the stock market should consider negative as firms incur higher costs, resulting in lower abnormal returns. In background to this, hypothesis 2b is formulated as:

Hypothesis 2b: There is a negative effect between uncertainty avoidance and cumulative average abnormal returns for Swedish cross-border acquirers.

3. Methodology

This chapter elaborates the overall methodology of the study, namely the research design, event study, sampling, variables controlled for, data collection, multiple regression models which are used to test the hypotheses, and finally assumptions and restrictions that underlie the study. For the Swedish acquirers' value creation upon deal announcement in culturally distant countries, we use the conventional method of investigating deals' short-term effects on stock prices. This is conducted via a sample of acquisitions between 2000-2022 from 7 countries within Europe, excluding Sweden.

3.1 Research Design - Event Study

Event studies are a well-known and widely used methodology within financial research to study the impact of an event on a company's stock, and is a type of a cross-sectional design. The event's impact is studied by examining abnormal returns, which is the difference between actual returns and expected returns (Peterson 1989). In this study, the event selected is the respective acquisition, and its influence on the stock price in the event window, where the selected event window to measure is [-2, 2]. Including daily stock returns in event study methodology was first introduced by Brown and Warner (1985) and how this was to be implemented in the event study methodology. Peterson (1989) stated that although the event study is widely used, there is no standardised model for its application and its different applications in research has variation. However, MacKinlay (1997) further specified the model, through describing its various areas of application and summarised the methodology. Due to the convenience of MacKinlay's (1997) step-by-step approach, it will be applied in this study.

1. Determine the event of interest for the study, the period studied and event window.

- 2. Determine the selection criteria for data, for instance firm specifics or where the firms ought to be listed.
- 3. Define the measure for the impact of the event, i.e. the cumulative average abnormal return in this case.
- 4. Compute the expected returns for each event and event window, in addition to collecting data regarding actual returns.
- 5. Finalise the abnormal returns (difference between expected returns and actual returns for each day over the event window)

In conclusion, to effectively measure the effect of the event on a security, it is first appropriate to compute the expected return, i.e. the return the stock would have under "normal conditions". After completing this, the observed returns are then retrieved within the event window after the specific event has occurred and prior to its occurrence. Once this has been collected, observed returns can be compared to the expected return of the event to determine whether the event has caused any abnormal returns, i.e. the difference between the expected and the actual returns. Consequently, the sum of the abnormal returns for each day is summed together, which is the cumulative abnormal return, CAR, capturing the entire effect of the event. Finally, CAAR represents the average effect per day of the event, and is computed by dividing CAR by the simple average of days within the event window.

3.2 Sampling

The random sample was drawn using Zephyr, Capital IQ, and OECD databases. First, Zephyr was used to extract Swedish national and cross-border acquisitions. Zephyr's UI is one of the most prominent data providers when it comes to M&A data integrated with detailed company

information. Zephyr is part of Bureau van Dijk, a Moody analytics company, that gathers private company information. Table 2 below specifies the selection criteria used in Zephyr.

 Table 2: Selection Criteria

Category	Criteria
Time Period	01/01/2000 to 01/01/2022
Company Status	Listed
Acquirer Nation	Sweden
Target Geo Zone	7 countries fit for testing (ex. Sweden)
Deal Type	Acquisition
Deal Status	Completed / Assumed Complete

This table provides the requirements that have been set for the M&A deals used in the study.

The first sample selection criteria consists of deals that were classified as 'Acquisition' in Zephyr's database. We further restricted the sample by choosing acquisition deals with announcement dates between 01/01/2000 to 01/01/2022. The main reason behind choosing a long time period was to have a large enough sample and also the chance to be able to evaluate the abnormal return behaviour in times of crisis such as the 2008 financial crisis, the Covid-19 Pandemic, and the Ukraine War, and how they differ compared to returns from periods with stable economic conditions. Additionally, we could not extract data prior to 01/01/2000 because the majority of the data necessary for calculating abnormal returns simply does not exist in the databases.

The other selected criteria was to collect acquisitions of only listed companies due to lack of Beta, Enterprise Value and historical return data availability for private companies in the next step of our data collected with Capital IQ.

The next criteria was to focus solely on European countries as our target geo zones, which was due to several reasons. Firstly, the European region has a substantial population of M&A deals, making it an ideal area to examine the impact of cultural distance on the value created through acquisitions. Additionally, our research revealed that there is a greater amount of data available on European deals compared to Swedish acquisitions in regions such as Asia or Africa, as supported by various data providers. To ensure a well-distributed sample of countries for testing purposes, we further refined the sample by excluding countries with fewer than 30 deals. Consequently, we were left with seven countries, excluding Sweden, to thoroughly investigate our research question.

The fifth criterion is that the study is restricted to completed deals only, to avoid possible effects from withdrawn bids misleading the results of the study. Zephyr's user interface provides the option to choose between 'Rumoured, Announced, Assumed Complete, Complete, and all' deal types. To further strengthen the reliability of our sample, we restricted the sample to only 'Completed' and 'Assumed Complete' deals.

Overall, we received a sample size of 493 including both Swedish cross-border and national acquisitions from Zephyr after applying the criteria mentioned above.

Table 3: Sample Target Countries

Target country code	Count of Target country code		Percentage
Belgium		31	6%
Germany		96	19%
Spain		38	8%
Finland		72	15%
France		74	15%
Italy		46	9%
Netherlands		67	14%
Sweden		69	14%
Grand Total	4	93	100%

3.3 Dependent Variable - Cumulative Average Abnormal Returns (CAAR)

The dependent variable in this study is the CAAR, and the two main components for computing the dependent variable, the CAAR, are the daily expected return and daily actual return. The expected return will be calculated using the capital asset pricing model (CAPM) by Fama and French (2004). The CAPM model is one of the most widely used measurements today in financial research for estimating cost of capital, and the risk in relation to expected performance of a stock. The CAPM model says that stocks are driven by systematic risk, namely correlation to the market. Within the CAPM model, the company beta (β_{iM}) is the correlation to the market, and is used in this study for deriving the expected return. The standard CAPM model says that the expected return of a stock over time period t, $E(R_{it})$ is equal to:

CAPM model: $E(R_{it}) = R_{ft} + \beta_{iM}(R_{Mt})$ $E(R_{it}) = \text{expected return of asset } i, \text{ over time period } t$ $R_{ft} = \text{risk free rate of an asset, over time period } t$ $(R_{Mt}) = \text{return of the market portfolio, over time period } t$

The Stockholm OMX PI index was used as the market portfolio due to constituting all securities on the Stockholm stock exchange, hence being a suitable proxy for this study as every acquiring company is listed on that particular exchange. The company beta (β_{iM}) for each acquiring firm, for the time of each acquisition, was retrieved via Capital IQ, where the betas could be collected in a single instance from their database. The company beta is the stock's sensitivity to market fluctuations, and its correlation with the market. If firm X has a beta of 0.5, this indicates that if the market portfolio returns 10%, the expected return of firm X is 5%. Capital IQ was also used for retrieving historical stock returns both for the market portfolio, and also for each acquiring

firm for [-5, 5] days around the event. However, as previously stated, the [-2, 2] window was then used. After retrieving the historical returns for each stock, and the Stockholm OMX PI index within the event windows, which change for each acquisition, the expected returns was computed by multiplying the beta with the index return during that window, which leaves us with the expected return for the stock during that event window (Fama and French, 2004). After having computed the expected return, E(R_{ii}), the abnormal return, AR_{it}, is calculated simply by subtracting actual return from expected return.

$$AR_{it} = R_{it} - E(R_{it})$$

This calculation is done for every day within the event window and derives the abnormal return per day. This is then summed up as the CAR needs to be calculated as the last step before computing the CAAR. This is done for each event window measured. Once this has been done, the CAAR is simply computed by dividing the CAR over the number of days, n, in the event window. This measures the daily effect of the acquisition upon the firm in the event study.

$$CAR_{it} = \sum_{n=t}^{n} AR_{it}$$

$$CAAR_{it} = CAR/n$$

If the CAAR is positive, it implies a positive daily effect of the event on shareholder value due to abnormal returns. Adnan and Hossain (2016) find that both acquiring and acquired companies' stock price shows an upward trend before the announcement of an acquisition, indicating information leakage. Hence, to isolate from this, an event window of X days prior to the event, and X days after the event is applied in event studies. Originally three event windows were computed when doing the study, firstly [-5, 5] days for the largest event window, then [-2, 2]

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days and finally [-1, 1] days for maximum isolation of the event. Ultimately the [-2, 2] days event window was selected as this was considered the best combination of isolation while taking into account potential information leakages. Henceforth, the [-2, 2] event window will be used when explaining the CAAR and results of this study.

3.4 Independent variables

3.4.1 Cultural distance

To measure culture distance, we have used the Euclidean Distance formula based on previous research (Konara and Mohr 2019; Håkansson and Ambos 2010; Beugelsdijk, Ambos and Nell 2018; Maseland, Dow and Steel 2018). This is since the Euclidean Distance formula provides a straightforward implementation of Hofstede's cultural dimension, and since the results are easy to interpret. Additionally, an absolute majority of previous studies has used the Kogut and Singh index (1988) as the cultural distance measurement (Voigt and Stahl 2008; Konara and Mohr 2019). Therefore, this study distinguishes itself from other similar studies. The Euclidean Distance is calculated through the following formula.

$$d_{pq} = \sqrt{\sum_{k=1}^{n} (P_k - q_k)^2}$$

Where:

 d_{pq} : Cultural Distance p_k : Country $1 \rightarrow$ Sweden

 $q_k \hbox{: Country 2} \to Target \ country$

n: number of dimensions: 6

Since this paper evaluates short-term acquisition performance among Swedish acquirers, p_k = Sweden and q_k =Target country throughout the calculations. The result that the formula equals is then the target country's relative cultural distance to Sweden.

Sweden and all target countries have been appointed a number between 0-100 in all six of Hofstede's dimensions, according to Hoftstede's (1980) findings. Consequently, bigger differences in the dimensions between Sweden and the target country will result in a bigger total cultural distance. The biggest possible difference between two countries is 245 since that would be the result of the Euclidean Distance formula if the relative difference in each dimension would be maximised at 100. However, since each country has its respective scores, the intervals of cultural distance differ from country to country. Table. 4 represents Sweden's and each target country's scores in all six dimensions and based on the possible relative differences of those scores, the interval of cultural distance relative to Sweden is 0-150. Based on the scores in Hofstede's cultural dimensions (Table 4.), we have calculated the relative cultural distance of the selected target countries, which can be seen in Figure. 2.

Table 4: Hofstede's Cultural Dimensions Scores of Sample Countries

	Power Distance	Individualism	Masculinity	Uncertainty avoidance	Long-term orientation	Indulgence
Belgium	65	75	54	94	82	57
Germany	35	67	66	65	83	40
Spain	57	51	42	86	48	43
Finland	33	63	26	59	38	57
France	68	71	43	86	63	48
Italy	50	76	70	74	61	30
Netherlands	38	80	14	53	67	68
Sweden	31	71	5	29	53	78

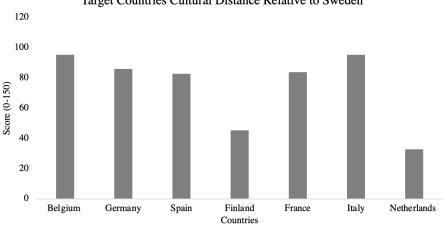


Figure 2: Target Countries' Cultural Distance Relative to Sweden, Score (0-150)

Target Countries Cultural Distance Relative to Sweden

The scores in each of Hofstede's cultural dimensions are imported via Hofstede Insights (2023), an online database with Hofstede's research findings. They have gathered their data on the first four dimensions, i.e. power distance, individualism versus collectivism, masculinity, and uncertainty avoidance, based on Geert Hofstede's book "Culture's Consequences" (1980). The fifth and sixth dimension, i.e. long-term versus short-term orientation and indulgence versus restraint, Hofstede Insights (2023) based their data on the research of Micheal Minkov which was published in the book "Software of the Mind" from 2010, written by Geert Hofstede, Gert Jan Hofstede, and Micheal Minkov. Besides these sources of data, Hofstede Insights' cultural experts have performed studies and projects too, which has contributed to the reliability of their scores further.

3.4.2 Masculinity

To measure the Hofstede dimension of masculinity, we have also used the Euclidean Distance formula. However, to solely measure masculinity we have set the other dimensions equal to zero.

Accordingly, this adjusted Euclidean Distance calculation equals the difference between Sweden and the target country's masculinity. Thus,

$$d_{pq} = \sqrt{\sum_{k=1}^{n} (P_k - q_k)^2} = X_S - X_T$$

Where:

d_{pq}: Cultural Distance

 p_k : Country 1 \rightarrow Sweden

 q_k : Country $2 \rightarrow Target$ country

n: number of dimensions: 6

X_S: Specific Dimension Sweden

X_T: Specific Dimension Target Country

Sweden has a score of 5 in masculinity and due to this, the result of the adjusted Euclidean Distance formula will be within the interval of 0-95, in which 0 states no difference in masculinity and 95 states maximum possible difference. Table. 5 represents each target country's masculinity relative to Sweden. As can be seen in the table, the Netherlands are similar to Sweden in this dimension, Spain, Finland, France and Belgium are moderately different, and Italy and Germany are significantly more masculine than Sweden.

Table 5: Sweden's Relative Masculinity Score for Target Countries

Country	Relative Masculinity Score (0-95)
Belgium	49
Germany	61
Spain	37
Finland	21
France	38
Italy	65
Netherlands	9

3.4.3 Uncertainty Avoidance

Similarly to the masculinity dimension, we have used the adjusted Euclidean Distance formula to measure the relative uncertainty avoidance between Sweden and each target country too. Due to Sweden having a score of 29 in uncertainty avoidance the result of the adjusted Euclidean Distance formula will be within the interval of 0-71, in which 0 states no difference in uncertainty avoidance and 71 states maximum possible difference. Table. 6 represents each target country's uncertainty avoidance relative to Sweden. As can be seen, Sweden differs from most of the other countries considerably in uncertainty avoidance.

Table 6: Sweden's Relative Uncertainty Avoidance Score for Target Countries

Country	Relative Uncertainty Avoidance Score (0-71)
Belgium	65
Germany	36
Spain	57
Finland	30
France	57
Italy	46
Netherlands	24

3.5 Control Variables

In addition to cultural distance, empirical research has found other factors likely affect the performance of an acquisition. Due to this, this study applies a range of control variables which literature has identified as likely to affect abnormal returns. To better evaluate the precision of cultural distance, uncertainty avoidance and masculinity as predictors for abnormal returns when doing cross-border acquisitions, a range of control variables will be included in the regression tests. There does not seem to be a clear consensus regarding which are the most significant variables affecting acquisition performance, however some have been mentioned more frequently and will therefore be applied in this study.

The first control variable included is firm size on the acquiring company as this has been found to impact abnormal returns. Firm size is defined as total assets of the acquiring company as this accounts for the book value of the company. Had we instead used enterprise value for measuring size, this would also constitute the market value which differs a lot between sectors on the stock exchange. Moeller, Schlingemann and Stulz (2004) found that smaller acquirers had the ability to generate higher abnormal returns around the announcement date than larger acquiring companies. Larger firms tend to pay a premium in acquisitions compared to smaller acquirers which is believed to negatively affect the abnormal returns. In opposing view, Boateng et al. (2019) found that larger firms possess more resources and capabilities to manage challenges associated with global acquisitions, indicating firm size should be positively associated with abnormal returns.

Secondly, industry relatedness is considered as the second control variable. Industry relatedness is defined as the similarity of the acquiring company's industry and the target company's industry (Markides and Ittner 1994). Industry relatedness has been found to positively

correlate with acquisition performance. This is due to when the acquirer and the target company are similar, it is easier to realise potential synergies, economies of scale and gain market share (Lien and Klein 2006). Industry relatedness will be assigned a dummy variable which depends on if the acquirer and target operates in the same sector or not.

Thirdly, Masulis et al. (2007) found Tobin's Q to have a likely effect on acquisition performance. Tobin's Q is defined as the acquiring company's total market value of assets over the book value of assets, computed by: (market capitalization + total liabilities) / (equity capital and reserves + total liabilities. Lang et al. (1991) finds a positive relationship between Tobin's Q and acquisition performance, while Moeller, Schlingemann and Stulz (2004) finds a negative relationship.

Fourthly, free cash flow ratio is considered as a control variable, defined as the free cash flow/total assets. It is defined as this to account for how much free cash flow a firm possesses relative to its size (Dogru et al. 2020). Dogru et al. (2020) studied the effect on free cash on abnormal returns around announcement dates and found it to have a negative effect upon abnormal returns. This seems to be due to shareholders viewing acquisitions as a mechanism for overinvestment problems.

The fifth control variable checked for is the geographic proximity of the acquiring company's market and the acquisition. Chakrabarti and Mitchell (2016) found that geographic distance has a strong impact on due diligence measures and acquisitions failing, as this makes integration more difficult. This metric is taken from Zephyr as a GEO zone. This variable was then coded 1-8 depending on its proximity within Europe to Sweden, given a temporary ID for the regressions.

Lastly, target GDP was implemented as a control variable in the last regression. This control variable indicates the size of the home market GDP of the firm being acquired. Kummer (2006) also found that relative size of a region, defined by GDP, is of significance for M&A activity. Acquiring a company operating in a larger economy gives access to a larger economy for the acquirer to grow in.

3.6 Data Collection

After collecting the sample of acquisitions from Zephyr, we started collecting the data for our dependent and control variables from Capital IQ and OECD databases. Capital IQ is one of the most detailed databases for listed companies' financial data available. The company gathers data from diverse sources, including financial statements, press releases, and other available public and private data.

Data about the CAAR [-2, 2], the dependent variable, including the acquiring company's beta during the announced date of acquisition, and the historical stock and index prices following the acquisition were collected using the Capital IQ Excel plug-in. Initially, we collected the return data five days prior and five days after the deal announcement data. After testing the data and careful consideration of the [-1, 1], [-2, 2], and [-5, 5] event windows, we decided to pick up [-2, 2] as the study's event window due to receiving the most convincing results, while also being the best combination of isolation while taking into consideration possible information leakages.

The data for control variables such as Tobin's Q Ratio, Cash Flow, Total Assets, and Free Cash Flow (FCF), was also carried out through the Capital IQ Excel plug-in. The collected data were then subjected to a thorough analysis to provide a comprehensive understanding of the

company's financial position and performance, as well as identify possible risks and opportunities for informed decision-making.

Additionally, the data for control variables Target and Acquirer Gross Domestic Product (GDP) in millions USD were collected using the OECD database. The OECD database collects data from national statistical offices in member countries and other international organisations. They also conduct surveys and other data collection efforts to supplement the official statistics and provide additional insights into economic trends and issues. Thus, it is considered a very valid and reliable source of information.

For the Relatedness control variable, we extracted the primary major sectors for both the acquirer and target companies from Zephyr. To get the relatedness data, we assigned a relatedness ID of 0 for acquisitions within the same industry and 1 for acquisitions within different industries, applying a dummy variable for the multiple regression tests.

3.7 Regression Model

Previous literature has found that a multitude of factors affect abnormal returns around acquisitions, and as such it is appropriate to use a regression model, as specified by MacKinlay (1997). Further, to test how much of the variance in the CAAR that could be explained by our independent variables, specifically cultural distance, masculinity and uncertainty avoidance, multiple regression test is applied.

For the first hypothesis, a regression without any control variables was first conducted to test cultural distance predictive power on its own. Successive tests included all the control variables too. After correctly defining all the control variables and including all the independent

and dependent variables, the multiple regression models became as follows Model (1) and (2) respectively:

$$\widehat{CAAR} \pm 2 = \mathfrak{D} + \beta_1$$
 Cultural distance_i

$$\widehat{CAAR} \pm 2 = \mathfrak{v} + \beta_1 \text{ Cultural distance}_i + \beta_2 \text{ Size}_i + \beta_3 \text{ Industry relatedness}_i + \beta_4 \text{ Tobin's Q}_i + \beta_5 \text{ Free Cash Flow}_i + \beta_5 \text{ Geographic proximity}_i + \beta_6 \text{ Target GDP}_i + \varepsilon_i$$

Secondly, for testing hypothesis 2a, the dependent variable was changed in the multiple regression model from the cultural distance metric to the masculinity metric. Model (3):

$$\widehat{CAAR}\pm 2 = \mathfrak{v} + \beta_1 \text{ Masculinity}_i + \beta_2 \text{ Size}_i + \beta_3 \text{ Industry relatedness}_i + \beta_4 \text{ Tobin's } Q_i + \beta_5 \text{ Free Cash Flow}_i + \beta_5 \text{ Geographic proximity}_i + \beta_6 \text{ Target GDP}_i + \varepsilon_i$$

Lastly, for testing hypothesis 2b, the dependent variable was changed in the multiple regression model from the cultural distance index to the uncertainty avoidance index. Model (4):

$$\widehat{CAAR} \pm 2 = \mathfrak{v} + \beta_1 \text{ Uncertainty avoidance}_i + \beta_2 \text{ Size}_i + \beta_3 \text{ Industry relatedness}_i + \beta_4 \text{ Tobin's Q}_i + \beta_5 \text{ Free Cash Flow}_i + \beta_5 \text{ Geographic proximity}_i + \beta_6 \text{ Target GDP}_i + \epsilon_i$$

Hence, we have three different multiple regression models with the same dependent variable, short term acquisition performance, measured as CAAR in the [-2, 2] event window. Additionally, descriptive statistics and standardised correlation tests were used in excel to further test our variables.

3.8 Reliability and Validity

Bryman and Bell (2015) defines reliability as the extent to which results of a study are repeatable or not. Due to this being a quantitative study, reliability in this case is of particular importance for credibility. Evaluating the reliability is done by looking at the data collection and the method used for measuring the particular event in this case due to it being an event study.

Firstly, Zephyr was used for the initial part of the data collection, where access was gained through Lund University. Zephyr is one of the most comprehensive and acknowledged databases for research regarding M&A and corporate finance, owned by Bureau van Dijk, one of the most prominent publishers of business information worldwide, which is further owned by Moody's. Due to it being one of the leading databases today, Zephyr is considered reliable and a leading source for the type of data used in this study. Additionally, a majority of information comes from the nation's official registries, further strengthening the reliability of this source.

Second part of the data collection comes from Capital IQ, which is owned by S&P Global Market Intelligence. Its parent firm, S&P Global, is one of the leading companies in the world regarding financial information and analytics with \$11 billion in yearly turnover, and the Capital IQ database includes millions of data points. This database was also accessed via Lund University. Additionally, the Capital IQ database is widely recognized and considered to be trustworthy.

Event studies and the usage of abnormal returns for measuring an event's impact has been implemented in research about M&A and short-term acquisition performance consistently ever since it was first introduced by Brown and Warner (1985). It is today a widely used and accepted methodology for studies where impact of M&A is analysed and included in numerous leading journals. This is similar to the multiple regression which was used and is also one of the more

common methods when looking at an independent variable, with a range of control variables and the dependent variable being abnormal returns. Hence, there is no reason to doubt the reliability of the data, methodology or statistical tests conducted within this study.

There are two types of validity, namely internal and external validity. Internal validity refers to whether the study answers the research question without bias, while external validity refers to whether the study's findings can be generalised to other situations (Bryman and Bell 2015). Due to the large sample size used for this type of study, and again to the extent the methodologies used in this study can also be found in prestigious financial journals, it is concluded that there is a good amount of external validity for this study.

The internal validity for this study is also considered to be high. Due to the quantitative and technical nature of this study, a quite strict framework was used for evaluating the research question and the hypotheses, strengthening the internal validity as this leaves little room for bias. Lastly, the method used has been applied by a range of accredited financial journals which evaluates the impact of an M&A event. Consequently, again due to the recognized application of this methodology, the internal validity is seen to be further strengthened.

4. Results

In this section, the data goes through various statistical tests to explain their characteristics in the sample, and relation of the variables with one another. We first explain the results from descriptive statistics followed by correlations and then move on to the multiple regression results for hypothesis testing.

4.1 Descriptive Statistics

Table. 7 on page 40 represents the descriptive statistics of the tests. As can be seen, the mean of the CAAR is 0.26%, hence an average 5 days return of 1.3%. This indicates that firms in the sample experience a slightly positive cumulative return. However, the daily standard deviation of the acquisitions was 1.2%, indicating that there is a significant amount of variation in the data. This is since some firms experienced very high cumulative abnormal returns, with a maximum daily return of 10.61%, while other firms experienced very negative abnormal returns, with the minimum daily return of -9.94%. It is worth noting that the largely negative minimum return and the daily standard deviation concludes that several acquisitions of the sample resulted in negative abnormal returns for the shareholders.

Moreover, evaluating the independent variables, i.e., cultural distance, masculinity, and uncertainty avoidance. Firstly, cultural distance. The mean value for cultural distance is 61.76 which suggests that, in general, firms in the sample are relatively culturally distant to Sweden. The standard deviation is 32.97 which indicates that the cultural distance in the sample varies quite a lot. In regards to the masculinity dimension, one can establish that both the mean and standard deviation is lower. However, with a mean value of 38.87 and a standard deviation of 22.83, masculinity in the sample is moderately low but that it varies notably in the sample. This implies that much data in the sample belong to countries with high masculinity while other to

more feminine countries. Thirdly, the uncertainty avoidance. This has a mean value of 64.98 which implies that the sample in general has a high level of uncertainty avoidance. This is further strengthened by the standard deviation which is 19.22 since this states that, although significant variation in the sample occurs, there are still high values of uncertainty avoidance.

For the control variables, as shown in the Table. 7, the industry relatedness has a mean value of 0.44 which suggests that acquiring and target firms have a moderate level of relatedness to their industry. The standard deviation of 0.50 indicates that there is a significant amount of variation in the data, with some firms having very high levels of relatedness and others having very low levels.

In regards to Tobin's Q, the mean value of 0.397 suggests that companies in the sample, in general, are investing less than the replacement cost of their assets. Although there is a significant amount of variation in the data which is demonstrated by the standard deviation of 0.31. This is further strengthened by the minimum and maximum values of the Tobin's Q, which are 0.02 and 2.33 respectively.

Target GDP has a mean value of \$48101.14 millions, which implies that the average target GDP is around this value. However, the Target GDP has a standard deviation of \$10503.76 millions indicating that there is significant variation within the data, which demonstrates that some Target GDPs are much higher or lower compared to the mean.

The mean value of the Geographic Proximity is 4.65 out of 8. This entails that firms in the sample are located relatively close to each other geographically. Although, the standard deviation of 2.24 indicates that there exists a moderate amount of variation in the data, hence that some firms in the sample are very distant from each other geographically.

The free cash flow variable has a mean of 0.045 which demonstrates that, on average, the free cash flow in the sample is 4.5% of their total respective assets. The standard deviation of this is 0.097, indicating that there is moderate amount of variation in the data, with some firms having very high cash flows while other firms in the sample have very low cash flows. This is further strengthened by the minimum cash flow, which is -68%, and the maximum cash flow, which is 50%.

Lastly, the descriptive statistics shows that the sample of firms has on average total assets worth of \$6467.04 millions with a significant level of variability demonstrated in the standard deviation of \$42846.69 millions. This indicates that the firm sizes in the sample differ a lot, which is further demonstrated by the minimum and maximum values of total assets in the sample, which is \$0.87 millions and \$940841.83 millions respectively.

 Table 7: Descriptive Statistics and Correlations

Variables	Variable Type	Vean	S.D.	Variance	Minimum	Maximum	Confidence Level(95.0%) CAAR Correlation CAAR Covariance	AAR Correlation CAA	R Covariance
CAAR	Dependent	0.0026	0.0120	0.0001	-0.099	0.106	0.001	1.000	0.000
Cultural Distance	Independent	61.7633	32.9674	1086.8477	0.000	95.368	2.917	-0.021	-0.008
Uncertainty Avoidance	Independent	64.9817	19.2188	369.3635	29.000	94.000	1.701	-0.045	-0.010
Masculinity	Independent	38.8702	22.8324	521.3205	5.000	70.000	2.020	-0.002	-0.001
Industry Relatedness	Control	0.4402	0.4969	0.2469	0.000	1.000	0.044	0.056	0.000
Tobin's Q	Control	0.3973	0.3089	0.0954	0.020	2.334	0.027	0.047	0.000
Target GDP	Control	48104.1366	10503.7589	110328951.1757	21595.595	64914.190	929.478	0.032	3.981
Geo Zone	Control	4.6511	2.2370	5.0040	1.000	8.000	0.198	1.000	0.000
FCF Control	Control	0.0453	0.0973	0.0095	-0.684	0.499	600.0	-0.100	0.000
Firm Size	Control	6467.0373	42846.6943	1835839208.7793	0.870	940841.831	3791.505	-0.052	-26.493

Note: n = 493, 0.05% level of significance

4.2 Correlations

Correlation is a statistic that measures the degree to which two variables move in relation to each other. Thus, it is of crucial importance in finance due to it affecting asset allocation decisions.

The measure is demonstrated in what is known as the correlation coefficient, ranging between [-1, 1]. We tested the correlation between the dependent variable, which in this study in CAAR within the [-2, 2] days event window, with all the remaining three independent and six control variables shown in Table. 7 above.

Hypothesis 1 suggests that there is a negative relationship between cultural distance and CAAR. As shown in Table. 7 above, the Cultural Index, which measures the national cultural distance between Swedish acquirers and European target companies, has a correlation of -0.021 indicating that Swedish acquisitions in countries with a higher cultural distance have lower abnormal returns.

Proceedingly, Hypothesis 2a suggests that abnormal returns will be *lower* for acquisitions conducted in countries with higher masculinity scores. The data show a -0.002 correlation between uncertainty avoidance and CAAR [-2, 2]. Hypothesis 2b that suggests that abnormal returns will be lower for acquisitions done in countries with higher uncertainty avoidance. Here, the correlation coefficient results showed a correlation of -0.045 between uncertainty avoidance and CAAR [-2, 2] window frame which indicates that the more risk averse an acquiring company's country is, the less profitable the cross-border acquisitions.

The six control variables used in testing all three hypotheses also have their correlation coefficient figures in the Table. 7. Industry Relatedness, Target GDP, Tobin's Q, and Geo Zone have correlation coefficients of 0.056, 0.032, 0.047, and 1 respectively. Thus, the higher the size of the economy of the target country, the Tobin's Q of the acquirer company prior to acquisition,

and distance of the target country, the higher the abnormal returns would be. Although the first three control variables have a positive correlation above 0 yet not over 0.03, there is a very weak relation in between the three variables and CAAR [-2, 2]. When it comes to Geo Zone, the two variables with a correlation of 1 have a very strong positive relationship. Thus, the larger the geo distance, the higher acquisition performance we receive. This partly goes against the principle of the Gravity Model of international trade that states that the volume of trade between two countries is proportional to their economic sizes and distance between the two units (Baier & Standaert, 2020).

Additionally, Total Assets, and FCF have correlation coefficients of -0.052, and -0.100 respectively. Thus, the lower the total value of the company, the total assets of the acquiring company, and the cash flow over total assets of the acquiring company prior to the acquisition, the higher the CAAR [-2, 2].

However, one should not over-emphasize the correlation and covariance of the control variables. Different microeconomic factors affect different assets differently, especially during periods of higher volatility (Singh, 2021). Hence, while correlations have predictive value, the measures have limitations in its use and we need a combination of both fundamental and technical analysis to overcome the risk associated with the stocks.

4.3 Regression Models

Table 8: Regression results from each model

	Model 1	Model 2	Model 3	Model 4
t-statistic	280,757.0	0,97985	-111,901.0	-0,33438
p-value	0,00519*	0,299918	0,263688	0,738234
N	493	493	493	493
R square	0,000419	0,022398	0,024947	0,020512
Adjusted R square	-0,00162	0,008289	0,010874	0,006375

Note: Significance levels: p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001.

As noted in the results from the descriptive statistics, it is first concluded that there exists abnormal returns within the event window [-2, 2], which consequently leads to correlation tests and now regression tests. The main results for the hypotheses to support or reject the hypotheses are presented in Table. 8, while the significance and relationships for each individual variable is presented in Table. 9, at the very end of this section.

Hypothesis 1 was that there is a negative relationship between cultural distance and abnormal returns at acquisitions. The first model tests the first hypothesis without any control variables and as can be noted from Table. 8, model 1 shows a p-value of 0.0051 which is below the significance level of 0.05, supporting the first hypothesis with control variables not included. However, with an R square constituting 0.04%, the model is shown to be rather insignificant in projecting the variance. The second model tests the first hypothesis but includes all control variables. In this case, we get a p-value of 0.299 which is higher than the level of significance meaning that we do not have enough evidence to support the hypothesis. As the R square increases from 0.04% to 2.2%, the model is more precise in explaining the variance in the cumulative average abnormal returns compared to model 1. Nonetheless, with a p-value below significance, the first hypothesis is not supported from the multiple regression conducted.

Hypothesis 2a suggests that abnormal returns will be *lower* from acquisitions conducted in countries with higher masculinity scores, and tested in model 3 where all variables are controlled for. As can be seen, the model shows insignificance for hypothesis 2a with a p-value of 0.26 which is above the 0.05 level of significance for masculinity. This implies that we do not possess enough evidence to support the hypothesis. Moreover, an R square of 2.5% also shows the model to be rather insignificant for projecting CAAR.

Hypothesis 2b suggests that abnormal returns will be lower for acquisitions done in countries with higher uncertainty avoidance and tested in model 4. As can be seen in the Table 8 above, the p-value for uncertainty avoidance is 0.738. This implies that we again do not have enough evidence to support the hypothesis and thus accept the null hypothesis. Moreover, with a R square of 2.1%, the model is similar to previous ones, rather insignificant for explaining the variance in cumulative average abnormal returns.

Besides relationships for the selected dependent and independent variables, all models show that firm size has a negative relationship, although very low, with CAAR. This is in accordance with previous research like Moeller, Schlingemann and Stulz (2004) but contradicting research such as Boateng et al. (2019). Additionally, industry relatedness shows a slightly positive coefficient with CAAR, something which is in line with previous research as it is argued that acquiring a similar company makes it easier to realise synergies and gain economies of scale (Lien and Klein 2006).

Further, Tobin's Q showed a small positive coefficient with CAAR, in line with Lang et al. (1991) who found it to have a positive effect on abnormal effects, but opposing Moeller, Schlingemann and Stulz (2004). Moreover, the most significant coefficient in all three models was that of free cash flow as can be seen in Table 9. This was in accordance with existing

empirical research, which suggests that free cash flow has a negative effect on abnormal returns. Additionally, geographic proximity was shown to have a very low positive coefficient with CAAR. This is similar to target GDP, which was found to also have a very minor positive coefficient with CAAR.

Table 9: Regression results for each variable(s) tested

Y		Model 1	Model 2	Model 3	Model 4
Cultural distance	Coefficients	-1,2E-05	2,82E-05		
	p value	0,650348	0,327648		
Masculinity	Coefficients			6,44E-07	
	p value			0,135974	
Uncertainty avoidance	: Coefficients				1,1E-07
	p value				0,876581
Firm size	Coefficients		-1,8E-08	-1,9E-08	-1,8E-08
	p value		0,150273	0,143945	0,151456
Industry relatedness	Coefficients		0,001434	0,001543	0,001481
	p value		0,18783	0,155489	0,173911
Tobin's Q	Coefficients		0,002044	0,001757	0,001674
	p value		0,296619	0,357776	0,387859
Free Cash Flow	Coefficients		-0,01178	-0,01209	-0,01133
	p value		0,03859*	0,033765*	0,046216*
0 1 1 7	Coefficients		0,000417	0,000377	0,000152
	p value		0,293238	0,218359	0,652321
Target GDP	Coefficients		8,54E-08	6,25E-08	6,08E-08
76	p value		0,170383	0,235591	0,41974

Note: Significance levels: p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001.

5. Discussion

5.1 Analysis of Findings

For the first hypothesis, the correlations and multivariate regression analysis correlation of -0.021 and an R squared and adjusted R squared of 0.04% and 0.16% respectively supports the negative relationship between the two variables with the application of the control variables. The results, however, also are not significant meaning that cultural distance does not have huge implications on the abnormal returns and thus acquisition performance. Finally, with a p value above significance, the first hypothesis is not supported.

This results goes in line with the previous research conducted by Morosini, Shane and Singh (1998) who found that cross-border acquisitions in more culturally distant countries, from the acquirer, was able to generate higher acquisition performance, than when the acquiring country is culturally close. Akanni and Ahammad (2015) also studied the relationship between cultural distance and acquisition performance for English countries and concluded that the two variables have a positive relationship. However, since Morosini, Shane and Singh (1998) consider target countries across the globe, it would imply that M&As outside Europe would get very high cultural distance thus explaining the much clearer effects of national cultural distance on acquisition compared to our study which encompasses only Europe that are similar to each other in one way or another. Additionally, while the results go in line with the previous research, one thing worth mentioning is that the sample in this study was not only limited due to the number of target countries but also the inconsistent number of deals for each target country and the overall sample. This in turn, can have huge effects in the final results.

For the second hypothesis, the correlations and multivariate regression analysis correlation of -0.002 and an R squared and adjusted R squared of 2.49% and 1.09% respectively

does not support the negative relationship between the two variables with the application of the control variables. Also, with a p value above significance, not supporting hypothesis 2a. This goes against the results from previous studies conducted by Ghauri and Usunier (2003) and Jona and Iman (2008) who suggested that undertaking acquisitions are easier in countries low in masculinity. However, if we go deeper into the two previous research studies, Ghauri and Usunier consider the targets across the whole world and Jona and Iman also conduct the study on United States' M&As worldwide. Since the United States is considered a very masculine country compared to Sweden, and a majority within the sample consists of European companies, there is a difference in relative masculinity within the sample used in that study.

Previous research conducted by Ghauri and Usunier (2003), however, suggests that acquisitions are more difficult the more masculine a country is since they are worse at compromising. Additionally, Jona and Iman (2008) studied 488 US acquirers and concluded an inverse relationship between masculinity and acquisition performance. Thus, suggesting that differences in this dimension complicate things and clashes between companies from masculine and feminine cultures may yield negative financial effects for the acquiring firm. Given that we tested only 7 countries and that the target countries are all European and in close proximity to Sweden, one can think that the effects of cultural distance in a Swedish acquisition to a culturally much more different country such as India or USA, would be much more significant.

The third hypothesis states that there is a negative effect between uncertainty avoidance and CAAR. Contrary to the expectations, the regression results showed a 2.05% and 0.64% for R squared and adjusted R squared respectively, and it is not significant enough to support the hypothesis. This does not go in line with the previous research conducted by Keswani et al. (2020) who found that uncertainty avoidance was significant for a number of the dependent

variables and Frijns et al. (2013) who concluded that uncertainty avoidance affects the expected net synergies required by CEOs. Additionally, Sweden has a score of 29/100 in this dimension meaning that culturally it has a higher inclination towards risk on this scale (Hofstede, 1980).

5.2 Limitations and Future Research

Firstly, this study's sample consisted of acquisitions solely done within 7 European countries excluding Sweden. According to Moravcsik (2012) the region of Europe is close culturally to each other and hence an actual effect upon cultural distance might be difficult to observe within this sample, affecting the generalisability of the results. If larger cultural differences would have been included in the sample, the cultural distance effects might have been more visible.

Additionally, Swedish firms are today very internationalised and the study would have hence been more useful if it studied cultural distance in acquisitions in a global sample. The study was also limited only to Swedish acquirers. Also, due to conducting an event study where abnormal returns is a main component, the study only considered public companies which affects the impact of the results by this study as public and private companies vary in many aspects.

Moreover, there can be other variables that affect abnormal returns which we are unaware of and hence have not controlled for. In addition to this, we were limited by not being able to retrieve some variables which empirical research has identified as likely to affect acquisition performance. For instance, the method of payment for acquisitions has been found to impact abnormal returns, where it has been found that acquirers experience negative abnormal returns when the acquisition is done in equity sales, while cash financed acquisitions have been found to generate positive abnormal returns. (Servaes, 1991; Yook, 2003).

Procedingly, a review of previous literature about the relationship between cultural distance and abnormal returns shows empirical research is somewhat ambiguous. After conducting the study and reviewing the methodology section, it is clear that both of these are complex measurements. Previous studies have measured acquisition performance differently. For instance, via management surveys or including both accounting- and market-based measures which make the measure for acquisition performance more holistic, thus positively affecting the generalizability of the study. Lastly, abnormal returns only measure short-term performance, and only the effect on shareholder value, hence further affecting the generalizability for managers. Shenkar (2001) laid out criticism of cultural distance as a construct and its widespread usage within research. Recently Correa da Cunha et al. (2022) also further criticised the cultural distance construct due to linearity, symmetry and discordance with the measurement.

The results of this study has implications in facilitating the understanding of how cultural distance impacts short-term cross-border acquisitions performance through abnormal returns. However, due to p-values below significance levels for all three hypotheses, these are not supported. Additionally, due to low R squares in the models, the independent variables applied do not explain a significant amount of the variance in the study. Accordingly, other factors that are not considered in the models that affect abnormal returns for shareholders in cross-border acquisition may exist.

The combined cultural distance, based on all six of Hofstede's cultural dimensions, as the independent variable showed a very weak impact on acquisition performance. Thus, Swedish acquirers' abnormal returns on cross-border acquisition to other European countries are not affected by cultural distance. Evaluating the dimensions of masculinity and uncertainty avoidance separately, they did not seem to have any significant impact on acquisition

performance either. Future research in this field is needed to improve the understanding of how cultural distance affects acquisition performance through abnormal returns. This could be done in numerous ways.

Firstly, additional dimensions of cultural distance could be measured, such as power distance or individualism. Indeed, our independent variables of masculinity and uncertainty avoidance were based on previous research but due to the complexity of this correlation, other dimensions would also be of high interest to measure. Secondly, exploring the effect of other variables, such as legislation, religion, et cetera would also have significance for this topic (Elnahas, Kabir Hassan and Ismail 2017). Thirdly, our sample was acquisitions in several different industries which establishes the adaptability of the results as rather general. Due to this, more industry specific research could be of high interest for managers and decision-makers to rely on in cross-border acquisition decisions. Fourthly, integrating qualitative research methods, such as interviews or case studies, in a study on cultural distance effect on acquisition performance could be of interest since this would provide more detailed insights into factors that impact this. Lastly, the study measures cultural distance between Sweden and other European countries, which are rather similar in their business practice (Moravesik 2012). Accordingly, to improve generalisability, future research could include more global and comprehensive samples.

6. Conclusion

This study aimed to investigate the relationship between cultural distance and short-term acquisition performance of Swedish acquirers with the research question: "How does cultural distance affect short-term Swedish cross-border acquisition performance in European countries?". There are a range of existing studies today with the purpose of investigating the relationship between cultural distance and short-term acquisition performance (Irwin-Hunt 2022; Deloitte 2017). The results of the previous studies have varied, with some studies claiming that the effect of cultural distance on cross-border acquisition performance is positive (Morsini, Shane and Singh 1998; Page 2008; Chakrabarti, Gupta-Mukherjee and Jayaraman 2009; Beugelsdijk et al. 2017), while others claim that it is negative (Datta and Puia 1995; Chatterjee et al. 1992; Li, Li and Wang 2016; Boateng et al., 2019; Akkani and Ahammad (2015). However, due to an absence of empirical research performed on Swedish cross-border acquirers on this subject, this study aimed to provide research which was of interest to Swedish managers and decision-makers as this subject is of increasing importance.

To answer the research question, the study provided a comprehensive analysis of the effect of cultural distance on abnormal returns with a sample of 493 Swedish cross-border acquisitions between 2000-2022. The study included an event methodology where abnormal returns signify the impact of the event, more specifically the acquisitions within an event window of [-2, 2] days. The independent variables which was theorised to affect CAAR was firstly cultural distance, secondly masculinity and thirdly uncertainty avoidance. The results from a multiple regression analysis find no significant effect of any of the three independent variables measured on cumulative average abnormal returns. Additionally, the analysis finds that these

variables are insignificant in explaining the variance in cumulative average abnormal returns, hence being a predictor of small importance.

A range of control variables were also included which previous literature has found likely to affect acquisition performance. These included acquirer size, industry relatedness, Tobin's Q, FCF, geographic proximity and target GDP. The results of the study found that the effect of these control variables was mostly in line with previous literature, such as FCF negatively impacting abnormal returns while Tobin's Q and target GDP has a positive impact. However, for future research, more control variables could be included as factors affecting M&A are widespread.

However, we argue that the true effect of cultural distance within this study could be limited by the sample solely including acquisitions done within Europe where business practices are similar to those of Sweden (Moravcsik 2012). This would make the actual effects of cultural distance invisible in the study as the differences are small between countries in the sample. Due to this, it is recommended that future research include a more global sample where Asian and American acquisitions are included too. This would further improve the generalizability of the study as Swedish companies are increasingly global and export-heavy, making the study of more interest for managers and stakeholders. Additionally, the study is limited by abnormal returns only being measurable on public companies, hence not including any private companies, further affecting the generalizability of the study.

7. References

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8. List of Abbreviations

CAR Cumulative Abnormal Return

CAAR Cumulative Average Abnormal Return

M&A Mergers and Acquisitions

MNE Multinational Enterprise

GDP Gross Domestic Product

FCF Free Cash Flow