Radboud Universiteit

Master Thesis

Practice what you preach?

The influence of strategic dissonance on the stock market reaction

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August 10, 2020

Management summary

High volatility in the technology industry requires companies to be able to quickly adjust to changes. This often calls for strategic actions that are not in line with the original strategic intent, leading to strategic dissonance.

Technological acquisitions are a common strategic action companies engage in, in order to adapt to those changes. In this research, it is assumed that strategic dissonance through technological acquisitions is represented in the extent to which the strategic intent is reflected in the motives for an acquisition. Although regarded as very important, the pre-deal phase and the effect strategic dissonance has on the stock market has not been researched much until now. Therefore, the aim of this thesis is to analyze the effect of strategic dissonance on the stock market. Accordingly, the research question answered in this thesis is *"To what extent does the presence of strategic dissonance influence the stock market reaction to a technological acquisition and how does this effect change with different levels of R&D intensity?".*

Secondary data collected by Aalbers, McCarthy, and Huisman (2020) is combined with data gathered through a quantitative content analysis. The sample consists of 1415 technological acquisitions conducted between 2001 and 2006. Three hypotheses are tested: Hypothesis 1 stating that there is a negative effect of an acquisition announcement on the stock market reaction; hypothesis 2 claiming that this relationship is moderated by strategic dissonance; hypothesis 3 stating that the moderating effect of strategic dissonance differs under different levels of R&D intensity.

A t-test and a multiple regression analysis are conducted to test these hypotheses.

Inconsistent with literature, the effect of an acquisition announcement on the stock market is not found to be significant. However, contrary to expectations, there seems to be a U-shaped relationship between strategic dissonance and stock market reaction. This indicates that companies should either engage in technological acquisitions that completely differ from the strategic intent, or in technological acquisitions that are in line with the original strategy. Moderate levels of strategic dissonance are considered to lead to negative results.

R&D intensity is not found to significantly moderate this relationship.

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1 Introduction

The implementation of a formulated strategy into practice is regarded to be key in business. This is due to the fact that the realization of a strategic intent, which is about what the company wants to achieve with its strategy, will lead to competitive advantage (Hamel & Prahalad, 1990; Prahalad & Hamel, 2010; Speculand, 2014).

Strategic intent is defined as the "intentions of the organizational members concerning the creation of a competitive advantage in the particular environment in which the business operates" (Hardy, 1996, p. 4), and expresses where the company wants to be in the future and how it will compete against its rivals. Strategic action is the translation of this strategic intent into several actions undertaken by the organization. Ideally this will lead to the desired future state, which is reflected in the strategic intent (Hardy, 1996). Therefore, strategic action is about the different steps and measures that need to be taken in order to realize the strategic intent.

As strategic intent defines an organization's desired future state, literature conveys that for competitive advantage, it is very important that the strategic actions of that organization are in line with its strategic intent so that the organization is able to reach its envisioned state (Burgelman & Grove, 1996; Fawcett, Smith, & Cooper, 1997).

Yet, recent research shows that despite plentiful research on how to put a strategy in practice (e.g. Floyd & Wooldridge, 1992; Okumus, 2001), it is still often the case that the strategic intent is not implemented properly. This leads to a divergence between intent and action (Cândido & Santos, 2019; Hrebiniak, 2006; Ranjbar, Shirazi, & Blooki, 2014; Smith & Soonieus, 2020; Speculand, 2014). In practice, this is shown by managers not putting as much effort into the execution process as they put into the formulation phase of strategies (Ranjbar et al., 2014).

Burgelman and Grove (1996) define this incongruity of strategic action and intent as strategic dissonance.

Following the arguments from above, strategic dissonance should be disadvantageous to companies as it would not lead them to their desired future state.

However, according to Burgelman and Grove (1996) strategic dissonance is not negative but rather essential in response to environmental changes.

Others have touched upon this notion in the context of emergent strategy (e.g. Andersen & Nielsen, 2009; Mirabeau et al., 2018), which arises through initiatives that are not planned and are therefore dissonant with strategic intent (Andersen & Nielsen, 2009; Mirabeau, Maguire, & Hardy, 2018). This leads to strategic renewal, which defines the change of the strategic path a company has been

following before based on its original strategic intent (e.g. Schmitt, Raisch , & Volberda, 2018). Supporting Burgelman and Grove (1996), these authors consider the incongruence between strategy and action to be essential for keeping up with changes in the environment.

This is because research has shown that in order to adapt to those external changes, companies often tend to engage in acquisitions (King, Bauer, & Schriber, 2019). Especially adapting to technological innovations leads to many acquisitions of companies that show high knowledge or capabilities in the domain of technology, according to McCarthy and Aalbers (2016), (p. 1819).
These technological acquisitions facilitate an adaption to environmental changes, leading to strategic renewal. This can happen when the acquisition has another strategic focus than the company's original strategy (King et al., 2019). In this case, strategic intent and strategic action would not be aligned with each other and acquisitions would lead to strategic dissonance.

Although technological acquisitions help the company to achieve strategic renewal (Tuncdogan, Lindgreen, Volberda, & Van Den Bosch, 2019) and can lead to enhanced performance (Stettner & Lavie, 2014), investors have been found to react negatively on the announcement of such an acquisition (Aalbers & McCarthy, 2016).
Nevertheless, Aalbers and McCarthy (2016) found that there are characteristics of the announcements that positively moderate this effect. Thus, top management can influence strongly how the stock market reacts on an acquisition they announce with the acquisition announcement itself. Still, the role of top management and the signals they send by means of acquisition announcements has not been researched much yet (Welch, Pavicevic, Keil, & Laamanen, 2019).
In order to fill this knowledge gap, the aim of this thesis is to analyze the effect of the presence of strategic dissonance signaled through an acquisition announcement on the stock market.

This is based on the assumption that according to signaling theory, investors on the stock market react to publicly available information and signals sent by a firm (Vasudeva, Say, & Nachum, 2018).
Therefore, strategic dissonance may be perceived as either a positive signal, leading to abnormally higher stock prices, or vice versa, as a negative signal leading to abnormally lower stock prices.

It is especially interesting to explore the effect of strategic dissonance in the context of technological acquisitions, as during acquisitions the asymmetry of information is high (Connelly, Certo, Ireland, & Reutzel, 2011). Therefore, investors will rely on all the information available in order to make their decisions. This suggests that investors would also draw on acquisition announcements signaling strategic dissonance in their decision-making process. As higher levels of research and development

(R&D) will lead to an increase in information asymmetry (Aboody & Lev, 2000; Cormier, Houle, & Ledoux, 2013), outsiders would rely even more on information sent by the companies (Connelly et al., 2011). The present research therefore expects that the effect that the signal of strategic dissonance has on the stock market will be even stronger under higher levels of R&D intensity.

As strategic dissonance is defined as the divergence between strategic intent and action (Burgelman & Grove, 1996), the present research assumes that the presence of strategic dissonance can be determined by the extent to which the motives for certain strategic actions, in this case technological acquisitions, are reflected in the stated strategy. Consequently, if a technological acquisition is not in line with the company's strategic intent, this would signal strategic dissonance to investors on the stock market.

Therefore, this research will look at how the stock market reacts to the presence or absence of such strategic dissonance.

In order to do that, the sub question *"How does the presence of strategic dissonance signaled through an acquisition announcement influence the stock market reaction to a technological acquisition?"* will be answered.

Subsequently, this relationship will be further studied by answering the second sub-question *"How does the level of R&D intensity influence the effect of strategic dissonance on the stock market reaction to an acquisition announcement?"*

Answering these sub questions will then lead to the answer of this thesis's research question, namely ***"To what extent does the presence of strategic dissonance influence the stock market reaction to a technological acquisition and how does this effect change with different levels of R&D intensity?"***

1.1 Academic relevance

Although there is much literature on emergent strategy, the effect of strategic dissonance and emergent strategy on firm performance has not been thoroughly discussed in literature. There is research on for example the effect of strategic dissonance on sales (Slevin & Covin, 1997). However, firm performance in terms of the stock market reaction has not been looked at until now. This research will close this gap in research by looking at how the stock market reacts on emergent strategy.

By answering this research question and investigating the effect an acquisition announcement signaling strategic dissonance can have on the stock market, this thesis looks more closely at the role of top management and the acquirer in general in the pre-deal phase of an acquisition and their interaction with investors. That way, this research contributes to strategic management literature by

looking more closely at how the motives for an acquisition relate to the strategic intent of the firm. It also fills a research gap by responding to the call of Welch et al. (2019) for a more detailed analysis of the different actors involved in the pre-deal phase of an acquisition and their interaction.
According to Welch et al. (2019), this is particularly important as mistakes in the pre-deal phase, which includes acquisition announcements, can negatively impact the post-merger integration. Although they are the first strategic action with which the acquirer gets into contact with investors (Aalbers & McCarthy, 2016), acquisitions announcements have not been researched much until now (Welch et al., 2019). Answering the above-mentioned research question is therefore highly relevant in order to close this gap.
Additionally, by looking at strategic dissonance between strategic intent and strategic acquisition actions, this research also contributes to the literature on mergers and acquisitions.

1.2. Practical relevance

The stock market reaction is often used as an indicator of a firm's future performance since shareholders evaluate a firm's future competitiveness based on the information that is available to them (Klassen & McLaughlin, 1996).
Therefore, it is particularly important to research the interactions between acquirer and investors. Especially looking at the investors' behavior in terms of how they react on specific properties of an acquisition announcement, such as the signaling of strategic dissonance, is essential. This is because it will give an indication on the future performance of a firm engaging in acquisitions that are dissonant or consonant with the strategic intent.

Furthermore, by having voting rights on the strategic actions top management wants to undertake (Bethel, Hu, & Wang, 2009), shareholders nowadays have a more active role in rejecting merger and acquisition activities they do not approve (Jansen & Stuart, 2014). This makes it crucial for management to know how shareholders will react to acquisition announcements. Accordingly, if top management knows about the immediate results their acquisition announcement will have, they can adjust decisions about the acquisitions and how to communicate it. If they decide not to change anything, the knowledge will at least give them time to prepare for the stock market reaction and for possible questions by media, investors and analysts (Jansen & Stuart, 2014).

In the following chapters, the different concepts and their relations will be explained in more detail and by doing that the hypotheses will be derived. After that, the design of this research will be discussed, including how the different concepts will be measured and what steps will be taken in

order to test the hypotheses. Subsequently the hypotheses will be tested, followed by the conclusion and discussion of this research.

2 Theoretical framework

This thesis is going to investigate the relationship between technological acquisitions, stock market reaction and strategic dissonance under different conditions of R&D intensity. In this second chapter, these different concepts subject to this research will be looked at, and definitions will be provided. Moreover, the different relations that are expected between the concepts will be analyzed which will ultimately lead to the formulation of three different hypotheses.

The underlying theories, assumptions and relationships are quite complex. Therefore, a short summary and conceptual model are included in the end of this chapter. The conceptual model also roughly indicates which chapter explains which relationships, with the intent to further facilitate the understanding of the theoretical framework.

2.1 Technological acquisitions

In business and economics literature, an acquisition refers to the purchase of a company by another company (Hassan, Ghauri, & Mayrhofer, 2018). A concept similar to the one of an acquisition is a merger. Often, mergers and acquisitions are used as synonyms although they refer to two different transactions. While during a merger two companies become one and both loose independence, an acquisition refers to a strategic action in which a company (i.e. the acquirer) buys another – usually smaller— company (i.e. the target company) and becomes its owner. Here, only the target company loses independence (Chakrabarti, Hauschildt, & Süverkrüp, 1994; Hassan et al., 2018).

Acquisitions are very popular strategic actions of companies (Chakrabarti et al., 1994; Gamache et al., 2019; Makri, Hitt, & Lane, 2010; Rossi, Yedidia Tarba, & Raviv, 2013), in order to realize their strategic intent (Rui & Yip, 2008), and to get access to new resources and capabilities (Brueller, Carmeli, & Drori, 2014; Makri et al., 2010; McCarthy & Aalbers, 2016).

One can distinguish between technological and non-technological acquisitions. Non-technological acquisitions are acquisitions not related to technology. During a technological acquisition, technology is one of the assets of the target company and therefore brings the acquiring company technological knowledge and capabilities (Ahuja & Katila, 2001; McCarthy & Aalbers, 2016).

In the present research, the focus is on technological acquisitions. This is because they are very popular nowadays in general, and especially prominent in high tech industries. They give immediate access to knowledge, technologies and innovations, positively influencing innovative performance of the acquirer (Puranam & Srikanth, 2007). That way, they can help to respond to uncertainty and constant environmental changes (Makri et al., 2010; Puranam & Srikanth, 2007; Rossi et al., 2013).

2.2 Signaling theory

According to financial economists, investors are perfectly rational (Connelly et al., 2011; Schijven & Hitt, 2012). Therefore, the efficient market hypothesis proposes that all information about a company is reflected in the stock prices (Malkiel, 2003). The semi-strong form of market efficiency, which is a more relaxed version of the market efficiency initially assumed by the efficient market hypothesis (Khan & Ikram, 2010), as well as Yaes and Bechhoefer (1989), acknowledge the fact that investors do not have much information available. According to them, investors therefore might react rationally to the information available, but cannot make fully informed decisions because of a lack of information. This lack of information arises because there is much information not available to the public, leading to information asymmetries (Connelly et al., 2011; Reuer, Tong, & Wu, 2012). Information asymmetries on the stock market thus arise when different parties have different information on the value of a firm (Lu, Chen, & Liao, 2010).

Signaling theory is rooted in research done in information economics and looks at information asymmetries, adverse selection and how signals can be used to prevent those problems from happening (Reuer et al., 2012).

In traditional signaling theory, there are two key players involved: the sender and the receiver. The sender can be a person, a product or a firm, sending a signal to the receiver, who is an outsider of the firm. The receiver receives the signal and based on his or her interpretation needs to decide how to react to it by choosing a person, product or firm (Connelly et al., 2011; Vasudeva et al., 2018). The signal is usually an action from an insider (i.e. the sender) for deliberately communicating information to outsiders (i.e. the receiver) in order to reduce information asymmetries. However, a signal sent will only have an effect if the receiver is actively looking for more information and signals (Connelly et al., 2011).

On the stock market, the company or, more specifically, top management is the sender while investors are the receivers (Connelly et al., 2011). Announcements about strategic actions serve as signals, in which they announce the action and give more information on its motives (Zhang & Wiersema, 2009).

According to the semi-strong form of market efficiency, the stock prices reflect historical and publicly available information. This also means that as soon as new information, for example in the form of signals, reaches the market, stock prices might fluctuate (Khan & Ikram, 2010).

2.3 Acquisition announcements as a signal to the stock market

An example for a situation of high information asymmetry is a merger or acquisition. This is because outsiders do not have any insight into the negotiations taking place (Connelly et al., 2011). Therefore, companies will send signals, such as acquisition announcements, to the stakeholders in those situations in order to reduce this information asymmetry (Zhang & Wiersema, 2009).

An acquisition announcement is the first strategic action with which the acquirer gets into contact with investors during the acquisition process (Aalbers & McCarthy, 2016), and publicly announces the deal (Welch et al., 2019). Companies use these announcements as a means of legitimizing the change the acquisition will lead to by explaining and justifying why they engage in the deal (Demers, Giroux, & Chreim, 2003). Also, acquisition announcements give information about motives and the deal itself to stakeholders (Aalbers & McCarthy, 2016; Demers et al., 2003; Welch et al., 2019), that way reducing information asymmetries.

Despite the fact that according to Welch et al. (2019) acquisition announcements play an important role in acquisition deals, they have not been researched much until now (Welch et al., 2019). Most of the research that has been done in the context of acquisition announcements is about what companies communicate with their announcement (Demers et al., 2003), information leakage (Welch et al., 2019), stock market reaction to such announcements (e.g. Aalbers & McCarthy, 2016; Jansen & Stuart, 2014; Yang et al., 2019) and impression management used when negative reactions on the acquisition announcement are expected (Graffin, Haleblian, & Kiley, 2016; Welch et al., 2019).

Critical in M&A announcement research and especially in research about its influence on the stock market was the rise of the Event Study Methodology. This is because it allowed for research into the effect an announcement can have on stock prices (MacKinlay, 1997).

In event studies, findings have been contradictory (Rossi et al., 2013). However, most often, negative abnormal returns have been found for acquirers (e.g. Kiymaz & Baker, 2008), while for the targets positive abnormal returns were found (e.g. Yang et al., 2019). Sirower (2000) hypothesized that the falling prices show shareholders skepticism about whether the acquiring company will be able to keep the values of the businesses and whether the acquirer will be able to realize the synergies expected.

Nowadays technological acquisitions are especially prominent in response to environmental changes (Heeley, King, & Covin, 2006; Puranam & Srikanth, 2007). Thus, the present research looks at technological acquisition announcements in more detail. Technological acquisition announcements in this research refer to acquisition announcements of technological acquisitions.

Stock market reaction to technological acquisition announcements also has been found to be negative (Aalbers & McCarthy, 2016). Aalbers and McCarthy (2016) identified skepticism about potential synergies with the target as a main problem on why investors react negatively on the technological acquisition announcement. Also high failure rates of technological acquisitions, that have been found in previous research (see Puranam & Srikanth, 2007), may be a reason for the negative response.

Based on the findings of Aalbers and McCarthy (2016), also in this research setting, the stock market reaction to an announcement of a technological acquisition is expected to be negative.

Hence, the first hypothesis is

> **Hypothesis 1:** A technological acquisition announcement leads to negative stock market reaction.

Nevertheless, the question arises why the stock market reacts negatively on technological acquisition announcements, when in theory there are good reasons for engaging in such acquisitions and whether there are different factors that can influence the investors' perceptions about those kinds of acquisitions.

Aalbers and McCarthy (2016) propose that signaling theory and the way how an acquisition is communicated to the stock market offers an explanation to this question. The theory also offers an explanation on why investors react to some announcements more positively than to others, which has led to contradictory results in literature.

For developing the next hypotheses, the response of the stock market will be looked at more closely by analyzing how and whether strategic acquisitions lead to the fulfilment of companies' strategic intents.

2.4 The alignment of strategic intent and strategic actions

Strategic intent was mentioned by Hamel and Prahalad (1990) for the first time and is about what the organization wants to achieve with its strategy**.** Generally, it is formulated by the top management of a firm and reveals what they think is best for the long-term performance of the firm. Strategic intent

can be used to make sure the whole organization knows about the desired future state which would help to ensure that everyone contributes to reaching it (Lovas & Ghoshal, 2000; Mantere & Sillince, 2007; Rui & Yip, 2008). Usually, the strategic intent expresses the wish to gain competitive advantage and to be a successful company in the future (Hamel & Prahalad, 1990). As the strategic intent gives the organization a direction and something to aim for, it is seen as a very important element determining the success of the company (Lovas & Ghoshal, 2000).

Strategic action is about the realization of that strategy and strategic intent, which in the best case leads the company to its desired future state (Hardy, 1996). Therefore, strategic actions are very important for organizations, as they are about what the organization is ultimately doing in order to realize the strategy and eventually to sustain or create competitive advantage. According to Schaede (2012) this is why strategic actions are one of the most important aspects for achieving competitive advantage.

As strategic actions ideally lead to the realization of the strategic intent (Hardy, 1996), it is very important that strategic actions and strategic intent are in line with each other. Usually, companies formulate their strategic intent before deciding about the course of action (Hamel & Prahalad, 1990). Companies therefore have to make sure that the strategic intent of the company is always taken into account when making these decisions about actions. In the best scenario, the alignment of intent and action generates a course of action which ultimately leads to the desired state defined in the strategic intent. If actions are not in line with the strategic intent, the company would not be able to reach the desired future state. The misalignment could also lead to the loss of opportunities or inefficiencies because of a lack of fit between an organization's structure and processes (Burlton, 2010). A misalignment therefore should be avoided.

2.5 Environmental changes and the need for strategic renewal through technological acquisitions

There are, however, many articles that state that it is important that actions differ from the planned strategy from time to time to be able to adapt to major environmental changes to ensure future competitiveness (Burgelman, 2020; Burgelman & Grove, 1996; Mintzberg, 1994b; O'Donovan & Flower, 2013). It is strategic management's challenge to do so (Acur & Englyst, 2006).

Adapting to the environment can happen through emergent strategy, which is about strategic actions that differ from the strategic intent (Andersen & Nielsen, 2009; Mirabeau et al., 2018). This eventually leads to strategic renewal (Burgelman, 1991).

Strategic renewal is an ongoing process (Pettit & Crossan, 2020), which is about a company changing its strategy and strategic intent in order to re-establish the strategic fit between company and

environment (Agarwal & Helfat, 2009; Schmitt, Raisch, & Volberda, 2018). It involves a refreshment or replacement of different attributes of a strategy, that form the basis for future growth of the company. This makes strategic renewal very important for the long-term prospects of a firm (Agarwal & Helfat, 2009).

Strategic renewal is necessary because with a changing environment, the original strategy of the company does not fit the new environment anymore (Burgelman & Grove, 1996). Subsequently, its current activities based on the original strategy would not be sufficient for the firm's survival (Warner & Wäger, 2019). Hence, the developments in technology lead to the necessity for changes in the business (e.g. the business model, strategic actions), which are dependent on strategic renewal (Warner & Wäger, 2019).

However, firms often develop path dependency in their strategy by focusing on either exploration or exploitation (King, Schriber, Bauer, & Amiri, 2018). This often makes them unable to adapt to changes (King et al., 2018; Koch, 2011).

While exploration is about looking for alternatives that differ from the activities already done, exploitation leads to more efficiency and effectiveness through getting better at what the organization is already doing. Terms associated with exploration are "search, variation, risk taking, experimentation, play, flexibility, discovery, innovation" (March, 1991, p. 71). "Refinement, choice, production, efficiency, selection, implementation, execution" are terms defining exploitation (March, 1991, p. 71). However, in order to become or stay successful, both ways of knowledge creation are deemed to be necessary for creating the crucial competitive advantage. Literature therefore advises organizations to employ an ambidextrous strategy, focusing on both, exploratory and exploitative knowledge creation at the same time (Stettner & Lavie, 2014; He & Wong, 2004; March, 1991). This is because an organization focusing too much on exploitation may encounter structural inertia and could cause inability to adequately respond to changes in the environment (He & Wong, 2004, p.482). In addition to that, organizations may not be able to see profitable business opportunities, which is why concentrating too much on exploitation might cause competitive disadvantages. If an organization focuses too much on exploring other opportunities, they would not develop their current competencies further. Subsequently, this might lead to inefficiencies in, for example, production, which is why the probability of getting market leadership while only focusing on exploration is rather small. Thus, a focus only on exploration might lead to competitive disadvantages as well (He & Wong, 2004).

According to King et al. (2018), companies can involve in acquisitions to actively break path dependency on either exploration or exploitation and take on an ambidextrous strategy. This is

because acquisitions can be exploratory, when leading to exploration of new activities or exploitative, when leading to exploitation of certain operations. Acquisitions can also be employed to pursue various aims at the same time (King et al., 2018). Therefore, the present research assumes that, when some of the aims of an acquisition are about exploration, and other aims of that same acquisition about exploitation, that acquisition can be categorized as an ambidextrous acquisition.

Leading to exploration, exploitation or ambidexterity, acquisitions can be employed by firms to support a strategic focus on exploration or exploitation. In addition, they can also be employed to provoke a change in strategic orientation and that way break path dependence allowing them to adopt an ambidextrous strategy (King et al., 2018).

A firm with a strategy focused on exploitation, may employ an exploitative acquisition in order to reinforce that strategy, or, by engaging in an exploratory acquisition, change its strategic focus.

Exploratory and exploitative learning as well as the reconfiguration of capabilities can also happen internally and does not need to happen through acquisitions to realize strategic renewal (Schmitt et al., 2018). However, often, companies do not have the capabilities to develop the needed knowledge, capabilities or key technologies themselves and therefore engage in technological acquisitions of companies that can develop or already have them (Ranft & Lord, 2000). Companies may also perceive their own development as too slow or expensive, and therefore decide to acquire a company (King et al., 2018; Lynch & Lind, 2002; Ranft & Lord, 2000).

That way, companies can realize strategic renewal, which is why technological acquisitions are often used as strategic actions to initiate strategic renewal (Agarwal & Helfat, 2009; Birkinshaw, Zimmerman, & Raisch, 2016).

An example for such technological acquisitions done in response to technological innovations is the financial industry where FinTech companies are gaining importance and are often acquired by traditional financial institutions (Lee & Shin, 2018).

2.6 Strategic dissonance

2.6.1 Strategic inflection points

Mathematically, inflection points describe the change from a convex curve to a concave curve and vice versa (Grove, 1996; Kranenburg & Ziggers, 2012).

In businesses, strategic inflection points describe a point in time where a company needs to replace one strategy and strategic intent by another in order to stay competitive in the future. Thus, a strategic inflection point is a “fundamental change in a business” (Kranenburg & Ziggers, 2012, p. 4). Important to note is that a strategic inflection point is not just a normal change, as changes nowadays happen all

the time and are omnipresent. A strategic inflection point differs from that omnipresent change as it refers to a change that is much bigger (Grove, 1996).

Usually, they are evoked through environmental changes, such as the introduction of new technologies, changes in regulations and changes in customers' demands (Grove, 1996). Strategic inflection points (SIPs) are therefore significant for an organization's development since they make companies change their vision, formulate new strategies and change their course of action (Davies & Davies, 2007). The technology industry is especially often affected by SIPs (Burgelman & Grove, 1996; Grove, 1996; Schaede, 2012), because of constant technological innovations and disruptive technologies (Makri et al., 2010; Rossi et al., 2013; Zanni, 2019).

In reality, however, strategic inflection points are very difficult to detect, which is why adjustments to the environment are often made by changing strategic actions without changing the strategic intent (Burgelman & Grove, 1996; Grove, 1996).

Often, this is because of inertia and not wanting to change because the current strategy was the one leading the company to success. Or top management does not want to change the strategy as they do not know what the outcomes of such a change will be (Burgelman & Grove, 1996).

2.6.2 Strategic dissonance

Not changing strategic intent but changing strategic actions will lead to strategic actions not being aligned with the original strategic intent of a firm anymore, evoking strategic dissonance (Burgelman & Grove, 1996). Thus, strategic dissonance is caused by "divergences between intent and action" (Burgelman & Grove, 1996, p. 9), which means that it arises if the firm does something else than what it states in its strategy.

Dealing with strategic dissonance the right way is important because it can indicate a strategic inflection point (Burgelman & Grove, 1996; Grove, 1996). Thus, according to Burgelman and Grove (1996), good managers will acknowledge the strategic dissonance after some time and formulate a new strategic intent in order to realign it with the strategic actions. This will ultimately contribute to a firms competitive advantage.

Other contexts in which authors have touched upon this notion, are emergent strategy and strategic renewal.

2.6.2.1 Strategic dissonance, emergent strategy and strategic renewal

The concept of emergent strategy was introduced in 1985 by Mintzberg and McHugh together with the concepts of intended strategy, deliberate strategy, unrealized strategy and realized strategy

(Mirabeau et al., 2018). *Intended strategy* is about the strategic actions that are planned in advance by strategic management (Andersen & Nielsen, 2009; Mirabeau et al., 2018). However, not all aspects of the intended strategy are put into practice which is why there is always some *unrealized strategy*. *Deliberate strategy* refers to that part of intended strategy that is put into practice (Mirabeau et al., 2018). Since companies nowadays are confronted with a highly dynamic environment, companies need to adapt to changes by involving in strategic actions that are not prescribed by intended strategy (Andersen & Nielsen, 2009; Mintzberg, 1994a, 1994b; Mirabeau et al., 2018). This is called *emergent strategy*, which is defined as an "organizational action over time in the absence of or even despite prior strategic intent" (Mirabeau et al., 2018, p. 584).

Deliberate strategy and emergent strategy together form *realized strategy*, which is about all the strategic actions actually put in practice by the company (Mirabeau et al., 2018).

Thus, realized strategy often includes strategic actions of emergent strategy which diverge from strategic intent which is the same phenomenon Burgelman and Grove (1996) call strategic dissonance. In the same way strategic dissonance leads to a change in the strategic intent when dealt with properly, emergent strategy may lead to strategic renewal.

The same way Burgelman and Grove (1996) see strategic dissonance as inevitable in response to changes in the environment, also strategic renewal is seen as response to major changes (Agarwal & Helfat, 2009).

Strategic renewal refers to an ongoing process (Pettit & Crossan, 2020) of refreshing or replacing current organizational attributes such as strategy and strategic actions which might affect the future of that company (Agarwal & Helfat, 2009). The outcome will be a new strategic intent and strategy with a better fit to the new environment (Agarwal & Helfat, 2009), as it is also the case after strategic dissonance, when dealt with correctly (Burgelman & Grove, 1996).

Thus, emergent strategy leads to strategic dissonance. Strategic renewal, which involves formulating a new strategic intent is the right response to it to ensure future competitiveness.

By advancing the discussion of strategic dissonance and merging it with literature on acquisition motives (Welch et al., 2019), the present research views on the divergence between strategic intent and action (Burgelman & Grove, 1996) as being reflected in the extent to which the motives for the technological acquisition (i.e. the strategic action) are in line with the company's overall strategy.

2.6.3 Strategic dissonance and technological acquisitions

As discussed in chapter 2.5 of the present thesis, according to King et al. (2018), often, firms' strategies are focused on either exploration or exploitation although a focus on only one of both is not recommended (He & Wong, 2004; Stettner & Lavie, 2014).

The same chapter discussed how acquisitions can either build on an existing strategy or help change this strategic focus by making the company move in new directions. Strategic dissonance would be present in the second option, when the motives for a technological acquisition differ from the company's strategic intent.

This might be the case when the technological acquisition was used as a tool to break path dependence and realize strategic renewal to react to an environmental change, as elaborated on earlier. Such changes of strategic actions in response to strategic inflection points are often done without a change of the strategic intent (Burgelman & Grove, 1996; Grove, 1996). In that sense, the action of acquiring another firm exemplifies emergent strategy leading to strategic dissonance. This strategic dissonance, however, can be described as unavoidable and necessary for staying competitive in a dynamic environment.

One example for strategic dissonance arising through a SIP is Deutsche Bank. It was their vision to become a "leading client-centric global universal bank" (Deutsche Bank, 2015, p. 24). This required their strategy and subsequently also their strategic actions to be more focused on exploitation which is why Deutsche Bank focused on efficiency, cost reduction and implemented programs such as the Operational-Excellence-Program ensuring for example cost saving. Deutsche Bank, in their annual report of 2014, only very limitedly mentioned exploring opportunities for digitalization (Deutsche Bank, 2015). This means that Deutsche Bank had a strategic intent on the corporate level, which was ambidextrous, but showed a stronger tendency towards exploitation because of the focus on making processes more efficient.

In the past years, however, Deutsche Bank bought and invested in several FinTechs contributing to the exploration of near adjacencies. For instance, Deutsche Bank acquired the FinTech start-up Quantiguous Solutions which was supposed to help them to further explore the open banking strategy (Deutsche Bank, 2018).

It therefore can be concluded that Deutsche Bank, in its strategic actions, was not only focusing on efficiency and exploitation anymore, but also focused more and more on digitalization and exploration as their environment required them to do so. The tendency towards exploitation in Deutsche Bank's strategic intent is therefore not fully reflected in the strategic actions taken, which indicates strategic dissonance.

2.7 Unintentional signals

Connelly et al. (2011) distinguish between intended and unintended signals.

While traditional signaling focuses on how firms intentionally disclose positive information (Connelly et al., 2011), the present research looks with its second hypotheses at signals that have not been sent deliberately.

Usually, with their signals, companies try to convey only positive information they want stakeholders to know. Sometimes, however, a signal sent also conveys information the company did not intend to send (Connelly et al., 2011; Taj, 2016). These unintended signals can be positive, when conveying information that leads to shareholders trusting in the strategic actions of a firm even more. This would subsequently be reflected in rising share prices. In that case the unintended signal would be beneficial. However, unintended signals can also convey negative information about the signaling company or about one of its strategic actions, they tried to hide from the public (Connelly et al., 2011; Taj, 2016). This would be reflected in falling stock prices.

2.8 Strategic dissonance as an unintentional signal

By having a look on how strategic dissonance influences investors' reaction to technological acquisition announcements, the present research addresses a specific type of an unintended signal, namely the incongruence between intent and action. In this vein, the present thesis extends on prior research on signaling theory by looking at how acquisition announcements may signal strategic dissonance.

2.8.1 Strategic dissonance signaled through an acquisition announcement

Assuming semi-strong market efficiency, investors will react to any signal that is sent when there is information asymmetry (Khan & Ikram, 2010). Since acquisitions are situations with high information asymmetry (Connelly et al., 2011), investors are likely to detect and also react to strategic dissonance. This is because signals are usually not interpreted in isolation but together with other signals that were sent before (Vergne, Wernicke, & Brenner, 2018). Thus, a shareholder is likely to interpret the acquisition announcement together with another signal sent beforehand, in which the strategic intent was conveyed.

During that interpretation process, the information conveyed within the different signals are categorized and compared later on. If the categories do not fit, they are incongruent (Vergne et al., 2018). Thus, if information about the strategic intent is categorized differently than the information about the acquisition, the categories will be incongruent. This would signal that intent and action are not in line with each other, thus being strategically dissonant.

This signal would be unintentional because the firm would have sent the signal in the form of an acquisition announcement only to inform about the deal and might not have expected it to be compared to a signal conveying strategic intent.

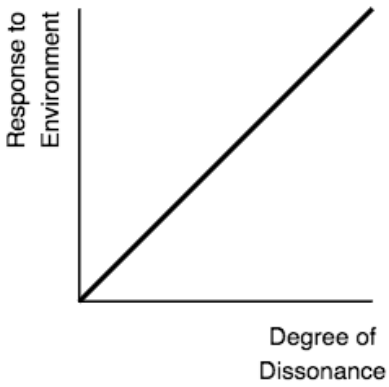
According to Vergne et al. (2018), the incongruence of categories usually leads to negative evaluations of the firm by receivers (Vergne et al., 2018). However, the present study argues that when signaling strategic dissonance, this might mean that a business has been reacting to a change in the environment, which is a good sign.
As shareholders will react to that unintentionally sent signal, strategic dissonance is expected to moderate the stock market's reaction to a technological acquisition announcement.
Thus, hypothesis 2a is

> **Hypothesis 2a:** Strategic dissonance signaled by the technological acquisition announcement moderates the stock market reaction to a technological acquisition announcement.

In order to further develop this hypothesis and the direction of the relationship, two underlying relationships will be analyzed.

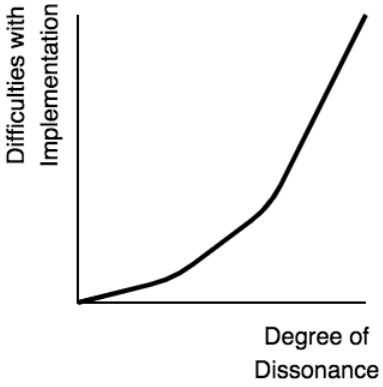
For responding to a big change, according to Agarwal and Helfat (2009), Burgelman and Grove (1996), Floyd and Lane (2000) and Grove (1996), dissonant actions and the formulation of a new strategic intent are required. Minor changes are not enough to remain viable after a major environmental change (Burgelman & Grove, 1996; Floyd & Lane, 2000). It can be deduced from that, that the more dissonant the technological acquisition, the better it responds to a change in the environment. This can be represented by the following graph:

Figure 2.1: Response to the environment and strategic dissonance



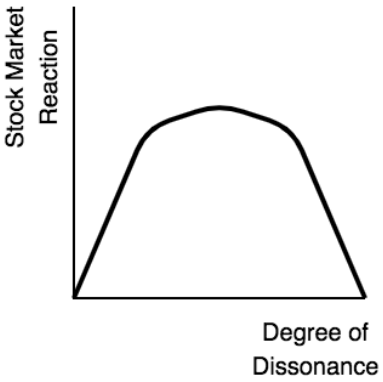
At the same time however, with an increasing extent of the change, meaning with increasingly more dissonant actions, it gets increasingly difficult to implement it because of its breadth and depth (Agarwal & Helfat, 2009). This is especially important to consider during acquisitions as those are situations of high complexity (Brueller et al., 2014). Thus, the more dissonant the technological acquisitions, the more problems can arise. This relationship can be depicted as follows:

Figure 2.2: Difficulties with implementation and strategic dissonance



When subtracting the abovementioned costs from the benefits that come from a dissonant action, this leads to an inverted U-shaped relationship between the extent of the strategic dissonance and the stock market's reaction to a technological acquisition announcement (Haans, Pieters, & He, 2016). This relationship is depicted in Figure 2.3.

Figure 2.3: Stock market reaction and strategic dissonance



Thus, strategic congruence would not be appreciated by the stock market as that would mean that the organization is not adapting to changes in the environment. Too much dissonance on the other hand would also lead to negative stock market reaction as the costs due to implementation problems are perceived as too high. A moderate extent of dissonance would lead to the organization adapting to

external changes while implementation problems would be manageable which is why this would be appreciated more positively than the former two.
Hypothesis 2b therefore is:

Hypothesis 2b: The moderation effect of strategic dissonance on the effect of an acquisition announcement on the stock market is inverted U-shaped.

2.9 Signals and research and development (R&D) intensity

2.9.1 R&D intensity

One of the most important decisions made by companies, especially in the high-tech industry, is about how much will be spent on research and development (R&D) activities (Lin, Lee, & Hung, 2006).
An indication on how much a firm spends on R&D is R&D intensity (Lin et al., 2006). That way R&D intensity shows to outsiders, how important R&D is to the firm. However, at the same time, high R&D intensity leads to more information asymmetry (Aboody & Lev, 2000). This phenomenon will be explained in more detail in the following paragraph.

2.9.2 R&D intensity and information asymmetry

Research has shown that with increasing investments of companies in R&D, information asymmetries between them and outsiders rise (Aboody & Lev, 2000; Cormier et al., 2013). This is because of a number of reasons, mostly having to do with the uncertain and highly competitive environment in which companies engage in R&D activities.
A major problem is that companies involved in R&D activities do not disclose much information on productivity and advancements of the projects they are working on. This is only logical as they do not want competitors to benefit from gaining insight into their activities (Aboody & Lev, 2000; Gharbi, Sahut, & Teulon, 2014).
Moreover, the information that is disclosed about R&D projects is often hard to grasp for outsiders due to their complex and technical nature (Gharbi et al., 2014). In addition, not much information about R&D activities of a firm can be obtained by looking at the R&D activities of similar firms because R&D projects are unique (Aboody & Lev, 2000; Gharbi et al., 2014).

As signals only work, when outsiders are actively looking for them and scan their environment (Connelly et al., 2011), signals are only expected to be included in the decision making process in highly uncertain environments characterized by high information asymmetry.

It can therefore be concluded that high information asymmetries lead to investors drawing on signals. With a low degree of information asymmetries all the information necessary for making a decision is available, which is why investors do not need to draw on signals.

As a result, the stock market is expected to react stronger to signals sent by the company, such as strategic dissonance, if that company shows high investments in R&D activities. With low R&D investments on the other hand, this would imply that information asymmetries are not a serious problem, which is why signals are not decisive for an investor's opinion. This would mean in that case, the signaled strategic dissonance would not have a big impact on stock market reaction.

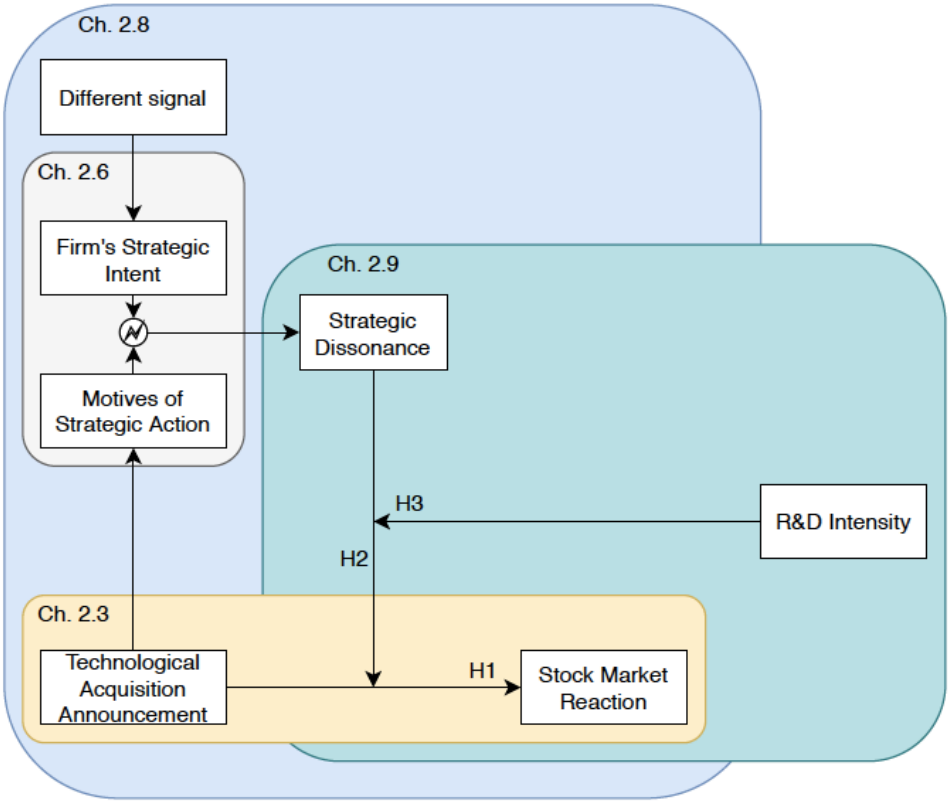
Therefore, the third hypothesis is

> **Hypothesis 3:** R&D intensity of the company positively moderates the size of the moderation effect of strategic dissonance on the stock market reaction to a technological acquisition announcement.

2.10 Summary and conceptual model

This leads to the following conceptual model:

Figure 4: Conceptual model



According to hypothesis 1, the announcement of a technological acquisition will lead to a negative reaction of the stock market. At the same time, this announcement conveys the motives of the strategic action of acquiring another firm. Since signals are often not interpreted in isolation, it is likely that investors will analyze the technological acquisition announcement together with a signal conveying strategic intent. If these are not in line with each other, this will lead to an unintended signal, namely strategic dissonance, which is expected to moderate the effect of the announcement on the stock market reaction in hypothesis 2. Finally, under different conditions of R&D intensity, this moderation is expected to vary, which is hypothesized in hypothesis 3.

3 Research design

This chapter gives a description on the research method and statistical procedures used in order to answer the research question and to test the hypotheses. In the following paragraphs, first, the research strategy will be defined, followed by the measures of the different concepts making part of this research.

3.1 Research strategy

The goal of this research is to get a better insight into how the stock market reacts on acquisition announcements signaling different magnitudes of strategic dissonance. In order to test the hypotheses that were developed in Chapter 2, a quantitative analysis with IBM SPSS 25 is conducted.

A quantitative analysis allows researchers to base the findings on a great amount of data and therefore leads to more reliable results. It also provides the possibility to control for other variables and circumstances. This makes it possible to research a specific relationship while making sure that findings are not influenced by other variables that aren't part of the focal concepts. In addition to that, the numerical expression of the data ensures objectivity in the data analysis (Basias & Pollalis, 2018). Moreover, the dependent variable (i.e. stock market reaction) can be measured best with quantitative data (MacKinlay, 1997).

More specifically, an event study is applied, which is an often-used quantitative method for researching stock market reactions on a specific event (MacKinlay, 1997). A one sample t-test is conducted afterwards in order to test whether the stock market reaction is significant.

In order to test the moderating effects of strategic dissonance and R&D intensity, a multiple regression analysis is conducted.

3.2 Specification of the sample chosen

In this research, data on acquisitions used and gathered by Aalbers, McCarthy, and Huisman (2020) is used to test the hypotheses and answer the research question. Part of that data was gathered by *Thomson Reuters SDC*.

Acquisition activities had to fulfil a number of criteria in order to become part of this investigation. Accordingly, the sample used in this research includes acquisitions, performed by (1) stock-listed companies, which were (2) announced within the period of 01/01/2001 to 01/01/2016. These acquisitions had (3) a deal value of >$10 million, (4) 100% of the target firm was acquired by the acquiring firm, and both firms were active in (5) high-tech industries.

Companies from four different high-tech industries were included in the sample. These high-tech industries include aerospace and defense (SIC-codes 372 and 376, respectively), computers and office machinery (SIC-code 357), pharmaceuticals (SIC-code 283) and electronics and communications (SIC-code 36).

There were some observations excluded from the sample. Those were observations where stock was repurchased, where the acquiring and the target firm were owned by the same parent firm and observations that indicated within-firm restructuring of the firm. Also, observations with a wrong SIC code because of mistakes in administration of the dataset were excluded from the sample. Further, only acquisitions of serial acquirers, which are firms that engage in acquisitions more regularly (Aalbers et al., 2020) are included in the sample.

This led to a final sample of 1,415 acquisitions.

3.3 Measures

The following paragraph will describe how the different concepts central to this research are measured.

3.3.1 Independent variable: Acquisition announcement

The independent variable is the event of the acquisition announcement in which the acquisition deal is announced, which is measured by the date of the public acquisition announcement.

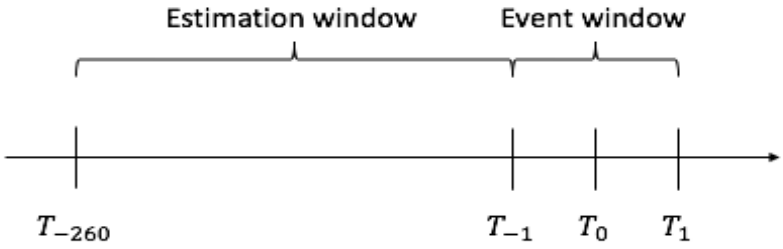
The public acquisition announcement is chosen since it is the first time the acquirer officially announces the takeover and because they are accessible to everyone (Aalbers et al., 2020). This is important as it is assumed that the market will make its decisions based on the information available. Accordingly, also the information analyzed needs to be available to everyone.

3.3.2 Dependent variable: Stock market reaction

In the present research, the effect of a technological acquisition announcement on the stock market reaction will be analyzed in more detail. For this analysis, data from Aalbers et al. (2020) is used for measuring stock market reaction. They applied an event study in order to measure the stock market reaction.

Event studies are often used in order to measure the effect of an event on the stock return of a company (MacKinlay, 1997). In an event study the difference between the expected return (normal return) and the actual returns of a firm during the events is calculated. This difference is the abnormal return of the company, which reflects the difference in return caused by the event (MacKinlay, 1997). To calculate the normal return, an estimation window, which is a period of time before the actual event, is used. An event window, which is a period of time around the event date, is used in order to calculate the actual return of the firm (see Figure 3.1).

Figure 3.1: Timeline event study



A positive abnormal return suggests that the value of the firm increased due to the focal event leading to the conclusion that the event was a success. Accordingly, a negative abnormal return indicates that the event led to a decrease in the firm value and was therefore not a success (McCarthy & Aalbers, 2016).

In the case of an acquisition, a positive abnormal return would indicate that the acquisition leads to favorable outcomes, while a negative abnormal return would imply that the acquisition is a failure.

For conducting the event study, the process is based on the one proposed by MacKinlay (1997). Accordingly, the different steps of an event study are:

1) Identification of the event
2) Definition of the event window
3) Calculation of the normal return
4) Calculation of the abnormal return

3.3.2.1 Identification of the event

First of all, in order to conduct an event study, the event needs to be specified (MacKinlay, 1997, p. 14). This research investigates the consequence of strategic dissonance on the stock market reaction when an acquisition is announced. The event of the present event study is therefore the day of the announcement of the technological acquisition, which also forms the predictor variable in the conceptual model of the present research.

3.3.2.2 Definition of the event window

Having defined the event, the event window is specified next. The event window is that time period around the event date, during which the actual stock price return of the firm of interest is analyzed (MacKinlay, 1997, p. 14). In research, different event windows are being applied (Aalbers & McCarthy, 2016; MacKinlay, 1997). Usually the event window includes several days, before and/or after the event. It is advisable to include days after the event as stockholders might need some time to process the information published (de Groote, Kleindienst, Hoegl, Schweizer, & Laamanen, 2019). Days before the event are added to include possible insider trading or leakage of information which might influence the stock prices already before the announcement (MacKinlay, 1997). To calculate the abnormal return used in this thesis, an event window of three days is applied. The firm's stock prices are therefore examined in the period of one day before the event, on the day of the event and one day after. This leads to the following interval of [-1,+1] with [0] being the day of the event, i.e. the day of the announcement.

3.3.2.3 Calculation of the normal return

In event study methodology, the abnormal return is of interest as it indicates the effect an event has on stock prices. The abnormal return is calculated by subtracting the normal return from the actual return in the event window. It is therefore necessary to first calculate the normal return, which is the expected return of the firm assuming that the event would not happen (MacKinlay, 1997).

There are several models to calculate the normal return. One can differentiate between statistical and economic models (MacKinlay, 1997).

The statistical models are only based on statistical expectations about how asset returns behave (MacKinlay, 1997, p. 17). Examples are the constant mean return model or the market model. Economic models are based on economic expectations on the behavior of the returns but also often include statistical expectations. The capital asset pricing model (CAPM) or the arbitrage pricing theory (APT) are examples for economic models (MacKinlay, 1997).

To calculate the normal return, the market model is applied.

The market model is, as mentioned before, a statistical model. It is based on the development of the market; most often a broad-based stock index is used for its estimation (MacKinlay, 1997). As the firms of interest are all active in the technological industry, the market model is based on the Nasdaq Composite Index (COMPX).
The formula for the market model is

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

where R_{it} and R_{mt} are the stock returns on stock i and the market portfolio m in the period t with an error term ε_{it} of 0.
The parameters α and β are estimated during an estimation period based on a linear regression model of R_{it} on R_{mt}. An estimation window already used in previous studies of 260 days is applied for estimating the market model.

3.3.2.4 Calculation of the abnormal return

Having calculated the normal return, the abnormal return can be calculated. As noted earlier, the abnormal return is the difference between actual return and expected return. This difference is considered to be the result of the event.
The abnormal return (AR) is

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

for firm i on event date t where R_{it} is the actual return and $E(R_{it}|X_t)$ the normal return for condition X_t.

These calculated abnormal returns for each day are then added in order to get an insight into the effect of the acquisition announcement on the stock market reaction. This results in the cumulative abnormal return for stock i:

$$CAR_i = \sum_{t=T_1}^{T2} AR_{i,t}$$

in the period between T_1 and T_2.

3.3.3 Moderator 1: Strategic dissonance

Strategic dissonance: As strategic dissonance is defined as the difference between an organization's strategic intent and its strategic actions (Burgelman & Grove, 1996), a methodology, similar to the one applied by Mirabeau et al. (2018) is employed in order to identify strategic actions not being in line with the strategic intent. Accordingly, first the strategic intent is analyzed, followed by an examination of the strategic actions. Finally, the two are compared.

In the following paragraphs, first the measurement of strategic intent and strategic action is explained. Afterwards, how strategic intent and strategic action are compared for obtaining the degree of strategic dissonance is described.

Strategic intent: Strategic intent indicates the way a firm will compete against its rivals to be a successful company in the future (Hamel & Prahalad, 1990; Hardy, 1996). In order to gather data on the strategic intent of the different firms, a combination of the strategies applied and suggested by Beasley, Bradford and Dehning (2009), as well as by Odita and Bello (2015) is employed. Indicators through which firms express their strategic intent are analyzed with a quantitative content analysis. Such indicators are their strategy, their mission, their vision and objective statements, which can usually be found online on company websites and in annual reports. Since the majority of the acquisitions in the sample happened a few years ago, statements on the above-mentioned indicators cannot be found on the companies' websites anymore. Therefore, annual reports form the unit of analysis, obtained from companies' websites, the website of the *U.S. Securities and Exchange Commission* and *Annualreports.com*. For each acquisition the annual report of the fiscal year before the acquisition announcement is analyzed in order to define the companies' strategic intents for the upcoming year, in which the announcement was made. This assures that shareholders know about the strategic intent of the firm at the time of the acquisition announcements, which is important for testing the effect strategic dissonance can have on the stock market later on.

Unfortunately, it is not possible to analyze the strategic intent in all cases because of several reasons. In some cases, annual reports are not available because either they took place too long ago and the annual reports are not in the systems anymore, or a company merged with or was acquired by another company and therefore annual reports are not available anymore. In other cases, the annual reports are only available in languages the researchers do not speak or they do not communicate any information about the strategic intent and therefore are not analyzed. When annual reports cannot be obtained or analyzed for defining the strategic intent of a company because of above mentioned reasons, this is recorded in the SPSS file with a missing value for the strategic intent variable.

Those acquisitions are not excluded from the sample because for answering the first hypothesis on the stock market reaction on an acquisition announcement, data on the strategic intent is not necessary.

This is why observations that had a missing value for the strategic intent are still deemed useful for the statistical analysis.

Statements in the annual reports conveying strategic intent are counted and coded as either exploratory, exploitative or ambidextrous. More information about the coding can be found in the codebook (Appendix 1).

For ensuring reliability and consistency of the codes, a pre-test is conducted with a subsample consisting of 10 percent of the observations of the original sample, as recommended by Lombard, Snyder-Duch, and Bracken (2002). In this pre-test, two different researchers are asked to code the annual reports and to count exploratory and exploitative statements about the strategic intent in two different variables. In order to measure intercoder reliability, Krippendorff's alpha is applied using the Kalpha macro developed by Hayes and Krippendorff (2007). Intercoder reliability for exploratory statements of the companies' strategies has an alpha value of 0.74 which is deemed satisfactory. Intercoder reliability for exploitative statements of strategies has an alpha value of 0.98 which is very good (Appendix 2).

After coding the different statements conveying strategic intent, the number of exploratory and exploitative statements of each annual report are counted and an additional variable with the sum of all (exploratory and exploitative) statements per annual report is created. Strategic intent is then measured in terms of the ratio of statements coded as exploratory to the total number of statements. Accordingly, the values of strategic intent range from zero to one, where zero represents a purely exploitative, one a purely exploratory strategic intent.

Strategic action: This thesis specifically looks at the strategic action of acquiring another firm. Therefore, strategic action is measured by analyzing the official announcements of the acquisitions because they contain information about the motives and goals of the specific acquisitions (Aalbers & McCarthy, 2016; Aalbers et al., 2020; Rosen, 2006). Therefore, they are best suited for finding out whether an acquisition was exploratively or exploitatively motivated. To do that, data that was collected by Aalbers et al. (2020) is used. They analyze acquisition announcements which were obtained from the Thompson database and classify them based on March's (1991) exploration/exploitation framework. Submotives communicated in those announcements for each acquisition are coded according to Angwin's (2007) framework. Afterwards, the number of exploratory and exploitative motives for each acquisition is counted and an additional variable with the total sum of motives per acquisition is created. For the purpose of this thesis, the ratio of the number of exploratory motives to the number of total motives per acquisition is used to reflect the strategic motivation of each acquisition. Accordingly, the values for strategic action range from zero to one, where 0 reflects a purely exploitatively motivated acquisition and 1 a purely exploratively motivated acquisition.

For some of the observations (49) in the sample, the motives for the acquisitions cannot be obtained. These are excluded from the analysis.

Strategic dissonance: In order to measure strategic dissonance, strategic intent and motives for strategic action need to be compared in the next step. This is done by subtracting the percentage of exploratory motives of the technological acquisition from the percentage of exploratory traits of the strategic intent. In order to compare the magnitude of strategic dissonance of different acquisitions, the absolute value of the result of that subtraction is used. On a scale from 0 to 1, zero indicates no difference between strategic intent and action, which means that the two are consonant, while a value of one indicates that the strategic action is the complete opposite of the strategic intent signaling complete dissonance.

3.3.4 Moderator 2: R&D intensity

R&D intensity is about how much companies spend on R&D activities. That way it indicates how important R&D is to them.

For R&D intensity, data available in the dataset is used. R&D intensity of the acquiring firm is measured by using the ratio of R&D expenditures of the acquiring firm to its total assets.

3.3.5 Control variables

Control variables: Several characteristics of the acquiring companies, the acquisition deals and the acquisition announcements that have been found to influence stock market reaction on acquisition deals in earlier studies are included as control variables to make sure they do not influence the results of the present research.

Firstly, the acquiring firm's size has been found to influence investors' perceptions of acquisition announcements. More specifically, acquisition announcements by small firms have been received more positively than those by large firms (Jansen & Stuart, 2014). This is why *firm size* is included as a control variable. Its measurement is based on the one by Zollo and Singh (2004) who measured it in terms of the asset size of the acquirer.

Furthermore, the acquiring firm's *pre-acquisition profitability* is included as a control variable as firms have been found to engage in acquisitions in order to cover up unsatisfactory performance in the time before the acquisition (de Groote et al., 2019). Pre-acquisition profitability is measured based on the return on assets (ROA) of the acquirer at the end of the year before the year of the focal acquisition.

Also, it is controlled for the company's *acquisition experience* as more experienced companies have been found to be more successful when doing acquisitions (Stettner & Lavie, 2014), which might be a reason for investors to react positively to an acquisition announcement. This is measured by a

cumulative count of all prior acquisitions completed by the focal acquirer as it was done in a research conducted by Schijven and Hitt (2012).

The *value of the acquisition* is included as a control variable, since bigger transactions have been found to perform worse than smaller transactions (Aalbers & McCarthy, 2016; André, Kooli, & L'Her, 2004). Acquisition value is measured in millions (USD).

In terms of the characteristics of the technological acquisition announcements, *motive count* is controlled for. This is because the number of motives announced in an acquisition has an influence on the stock market reaction (Aalbers & McCarthy, 2016). More specifically, two motives were found to have a positive effect on the stock market reaction, while more motives did not show any effect on the abnormal return. Motive count is measured in terms of the number of sub-motives for each acquisition communicated in the acquisition announcements.

3.4 Estimation model

For the empirical test of hypotheses two and three, the following regression model was developed

$$\begin{aligned} CAR = \beta_0 &+ \beta_1 Strategic\ dissonance + \beta_2 Strategic\ dissonance^2 + \beta_3 R\&D\ intensity \\ &+ \beta_4 Strategic\ dissonance * R\&D\ intensity + \beta_5 Strategic\ dissonance^2 \\ &* R\&D\ intensity + \beta_6 Firm\ size + \beta_7 Prior\ performance \\ &+ \beta_8 Acquisition\ experience + \beta_9 Deal\ value + \beta_{10} Motive\ count + \varepsilon_i \end{aligned}$$

where β_i represents the coefficient for each variable, $Strategic\ dissonance$ represents the linear effect of strategic dissonance on CAR, $Strategic\ dissonance^2$ the quadratic effect of strategic dissonance and ε_i the error term.

4 Results

In this chapter, the results of the t-test and the regression analysis which were conducted to test the hypotheses developed in chapter 2 are provided. In the following paragraphs, it will first be looked at the descriptive statistics and correlations of the variables. Also, the dataset is prepared with regard to missing values and outliers. In addition, the assumptions for the t-test and the regression analysis are checked. After this, the three hypotheses are tested.

4.1 Descriptive analyses

The descriptive statistics and correlations between the variables give a first overview of the data used for the statistical analysis. By running and analyzing the descriptive statistics and correlations,

potential problems can be detected early on, which would otherwise may cause issues in the analysis later on.

4.1.1 Descriptive statistics and data preparation

A descriptive analysis of the key variables and the control variable is conducted. The results can be seen in Table 4.1.

First of all, the number of observations for each variable reveals that strategic dissonance, firm size and prior performance have some missing values. Little's MCAR test is conducted in order to further analyze the missing values and to test their randomness. The test is not significant at an alpha of .05, which means that the data is missing on a random basis ($X^2(9)=15.739$, p=.07). Hence, for the variables, imputation techniques, in which the missing values are substituted by other values, could be applied in order to have a more complete dataset.

For strategic dissonance, the reason for the missing values is that for some companies, annual reports are not available, do not contain information about the strategic intent or are in a language the researcher does not understand. This was already noted in chapter 3.2.3. Although the amount of missing values for strategic dissonance is quite high (21.13%), and above the recommended threshold of 10% (Hair, Black, Babin, & Anderson, 2013), the variable is not excluded from the analysis, since it is central to this research. Also, no substitution method is applied because of the high amount of missing values. A substitution of many missing values might bias the results. Instead, the observations containing the missing values are excluded from the research by applying listwise deletion. This leads to a decrease in sample size for the regression analysis. However, the sample size is still big enough as explained in a later paragraph.

In order to deal with the missing values of firm size and prior performance, the imputation method of mean substitution is applied, in which all missing values of the different variables are replaced by the mean of the rest of the observations available (Hair et al., 2013). This method is chosen as the amount of missing data for those two variables is quite small (2.76% and 0.71%, respectively) and therefore does not bias the results.

When examining the means of the variables, it can be seen that surprisingly the mean of the CAR is slightly positive, indicating a positive reaction on a technological acquisition announcement by the stock market. This contradicts the first hypothesis. In chapter 4.3, the mean is tested on whether it significantly deviates from zero.

The comparison of mean and median of each of the other variables, gives first indications about the distribution of the data. For perfectly normal distributed data, the mean equals the median (Field, 2013). Some problems with skewness, especially for the variables R&D intensity, firm size, prior performance, acquisition experience and deal value can be detected as for those variables the mean and the median differ substantially from each other.

Also, the standard deviation, which displays the spread in the data (Field, 2013), shows some very high values for R&D intensity, firm size, prior performance and deal value. This means that for those variables the data is very dispersed, and a lot of data differ from the mean.
Both, the comparison of mean and median as well as the standard deviations therefore indicate that the data might not be normally distributed for all variables.
As the data should be normally distributed for conducting a t-test and regression analysis (Field, 2013; Hair et al., 2013), the distribution of the data needs to be looked at more closely.
This can be done with the Shapiro-Wilk test and by looking at the z scores of skewness and kurtosis which should not be higher than the absolute value of two (Field, 2013).

Table 4.1: Descriptive statistics

	Mean	Median	Standard Deviation	Min.	Max.	Observations
Key variables						
1. CAR	.002	0	.084	-.314	.520	1415
2. Strategic Dissonance	.364	.333	.253	0	1	1116
3. R&D intensity	14.364	11.465	34.073	.060	779.790	1415
Control variables						
4. Firm size	37134.250	8560.500	69221.633	0	460800	1376
5. Prior performance	5.571	7.120	15.539	-301.850	58.850	1405
6. Acquisition experience	7.380	5	8.471	0	63	1415
7. Deal value	907.781	136.000	4043.532	10	68445.400	1415
8. Motive count	1.286	1	.635	0	4	1415

n (listwise) = 1093

The Shapiro-Wilk test tests whether the population is normally distributed. For all variables, the Shapiro-Wilk test is significant at a 99% confidence interval (see Appendix 3), which means that the null hypothesis needs to be rejected. This indicates that the data of the variables tested is not normally distributed.
Also the z-scores for skewness and kurtosis indicate that the data is not normally distributed (see Appendix 3).

Often, normality tests with big samples indicate non-normality, although the data is distributed normally. Therefore, it is better to inspect the histograms to make conclusions about the distribution of the data (Field, 2013).

The histograms (see Appendix 5) show deviations from a normal distribution for the variables strategic dissonance, R&D intensity, firm size, prior performance, acquisition experience and deal value.

In order to deal with the non-normality, transformations are applied in order to check whether that leads to better results. Since some of the variables include negative values or values equal to zero, a constant is added to the data of those variables in order to be able to perform the transformations. First, the natural logarithm (ln) transformation is tried. If that does not lead to better results, also the logarithm with base 10 (log) and the square root transformations are applied. The histograms for all transformations can be found in appendix 5.

The transformations lead to better distributions for some variables, which is why the ln transformation for the variables strategic dissonance, R&D intensity, firm size, prior performance, acquisition experience and deal value are used in the further course of the analysis. This ensures that non-normality does not have a big influence on the results of the analyses.

For some variables, however, no transformation leads to a significantly better distribution of the data. Nevertheless, the original (i.e. untransformed) variables can still be included in the analyses, because according to Field (2013) and (Hair et al., 2013), non-normality does not propose problems with big samples.

Thus, the final variables included in this research are CAR (original), the ln transformation of strategic dissonance, the ln transformation of R&D intensity, the ln transformation of prior performance, the ln transformation of acquisition experience, the ln transformation of deal value and motive count (original). Descriptive statistics for the final variables can be found in appendix 6.

The Boxplots of the variables included in the further analysis are looked at in order to define whether there are outliers influencing the distribution of these variables. CAR, R&D intensity, prior performance, acquisition experience, deal value and motive count did show outliers (see Appendix 7). However, for each of these variables, there are several values defined as outliers. This might be because of the high dispersion of the data. It is decided not to winsorize or exclude the outliers from the analysis because this would manipulate the data and might lead to wrong conclusions.

4.1.2 Correlations

In this paragraph, the correlations of the final variables included in the present research, thus including the transformed variables instead of the originals in some cases, are looked at in more detail. A correlation matrix with Pearson's correlation coefficients is provided in Table 4.2.

The correlation coefficients depict the strength of relationship between two variables and can take values between +1 and -1; +1 representing that the two variables are perfectly positively correlated, -1 representing perfect negative correlation and a value of 0 indicating no correlation at all. An observed value of +/- .1 indicates a small effect, +/- .3 a medium effect and +/- .5 a large effect (Field, 2013).

According to Hair et al. (2013), no correlations should be higher than .9, which is not violated.

The values indicate that the independent variables do not correlate significantly. This is a good sign as this already gives an indication that there will be no issues with multicollinearity, which is tested in a following paragraph.

Furthermore, it can be seen that firm size, deal value and motive count show some significant correlations with the key variables, but do not correlate with the dependent variable.

Especially interesting to see is that deal value and motive count significantly correlate with strategic dissonance. Accordingly, with a higher deal value, intent and action are more aligned. Motive count and strategic dissonance are also negatively correlated. Thus, the more sub-motives are named in an acquisition announcement, the lower the magnitude of strategic dissonance.

There are some significant correlations between control variables but that does not have major implications for the research as they are included for controlling possible effects on the relationship studied in the research only.

Table 4.2: Correlation matrix

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Key variables								
1. CAR								
2. Strategic dissonance	.022							
3. R&D intensity	-.043	.039						
Control variables								
4. Firm size	-.046	-.033	-.167***					
5. Prior performance	.019	-.032	.03	.056*				
6. Acquisition experience	.035	-.039	-.026	.338***	-.008			
7. Deal value	-.051	-.059*	.086**	.334***	.051	.093***		
8. Motive count	.027	-.27**	.02	.011	.011	-.024	.196***	

n = 1116; ***p<.01; **p<.01; *p<.05

4.2 Assumption testing

For testing the hypotheses, a t-test and a regression analysis are conducted. In order to avoid inaccurate results, the underlying assumptions of the t-test and the regression analysis are checked beforehand (Field, 2013).

4.2.1 Assumptions: T-test

Before conducting a t-test, first the assumption of normality needs to be tested. This is because a normal sampling distribution is assumed (Field, 2013). Normality was already checked in chapter 4.1, which led to the transformation of a few variables. CAR, with which the t-test is conducted, did not need to be transformed, as the histogram of the original variable indicated normal distribution.

4.2.2 Assumptions: Multiple regression analysis

In order to conduct a regression analysis, several assumptions need to be fulfilled in order to assure that the results are not biased and that outcomes do not lead to wrong conclusions (Field, 2013).
In the following paragraphs, each assumption will be addressed separately.

4.2.2.1 Metric measurement level.

In order to be able to conduct a t-test or regression analysis, all variables that are part of the research need to be of metric measurement level (Field, 2013; Hair et al., 2013). All the variables are measured on a metric scale, which is why this assumption is met in the present research.

4.2.2.2 Sample size:

According to Field (2013) the sample size should be at least 20 times the number of independent variables analyzed. In the present study, two independent variables are to be analyzed which is why the sample should consist of at least 40 observations. With at least 1116 observations for all variables, this assumption is met.

4.2.2.3 Normality of residuals

The data needs to be checked for normality of residuals. Errors should be distributed normally around a mean of zero (Field, 2013; Hair et al., 2013). In order to determine, whether residuals are distributed normally, the normal probability plot (P-plot) is looked at. Deviations from the diagonal line would indicate that the distribution of residuals is not equal to a normal distribution. If there are no deviations from the line, the residuals would be normally distributed.

The P-plot for the model of this research, which can be found in Appendix 8.1, indicates that residuals are not very normally distributed. The dots are s-shaped. However, according to Field (2013) and Hair et al. (2013), this is not a problem if the sample size is big enough. With a sample size of 1415, the deviation from a normal distribution of the residuals therefore is not seen as a big problem.

4.2.2.4 Linearity

The data needs to be checked for the assumption of linearity as well. This is because in the multiple regression analysis that will be conducted, it is assumed that the dependent variable has a linear relationship to all the predictor variables. Linearity can be checked with the scatterplot of standardized residuals against the values predicted by the model for the outcome variable. The scatterplot should not display any curve as this would indicate non-linearity (Field, 2013).

The scatterplot of the model of the present research can be found in Appendix 8.2. No clear curve can be defined in the scatterplot, which is why the assumption of linearity is met.

4.2.2.5 Homoscedasticity

The assumption of homoscedasticity assumes that the variance of the outcome variable are stable at the different levels of the predictor variable. This can be checked by analyzing the scatterplot that was also already analyzed for checking linearity (Field, 2013). Homoscedasticity can be assumed when the dots are evenly dispersed, while heteroscedasticity can be assumed when the dots form a funnel (Field, 2013).

The scatterplot, which can be found in Appendix 8.2, displays that the error terms are not evenly dispersed as most of the dots are in the middle of the plot. This can be seen as problematic. This might be because some of the variables are still, even after applying the transformations slightly skewed or kurtotic. However, the scatterplot does not show any funnel, which is why the assumption of homoscedasticity is still accepted.

4.2.2.6 Autocorrelation

Autocorrelation is about whether the error terms of observations are correlated. Ideally, they should not be correlated (Field, 2013).

A Durbin-Watson test was conducted in order to test for correlations between error terms. The test gives a value between 0 and 4. Values between 0 and 2 indicate negative correlation between errors, while values between 2 and 4 indicate a positive correlation (Field, 2013).

A value of 2 is deemed satisfactory, while values smaller than 1 or bigger than 3 are considered problematic (Field, 2013). The Durbin-Watson test shows a score of 1.991 (see Appendix 8.3), which is very close to the value of 2. The assumption of independent errors is therefore met.

4.2.2.7 Multicollinearity

In an ideal situation, the independent variables are not correlated with each other.

Whether multicollinearity exists is established based on the 'Coefficients' table and its Tolerance values and the variance inflation factor (VIF) (Hair et al., 2013). For tolerance, all values are above the threshold of 0.2 and all VIF values are sufficiently smaller than the threshold of 10 proposed by Hair et al. (2013) (see Appendix 8.4), which is why the assumption that variables do not correlate too much with each other is met.

4.3 Hypotheses testing

4.3.1 The effect of a technological acquisition announcement on CAR

Hypothesis 1 predicts that the stock market will react negatively on the announcement of a technological acquisition. When analyzing the descriptive statistics, the mean was found to be positive, which already indicates that instead of reacting negatively, the market reacts slightly positively on such an announcement.

In order to test whether the acquisition announcements has a significant influence on the stock market, the statistical significance of the CAR needs to be tested (Dranev, Frolova, & Ochirova, 2019; Woolridge & Snow, 1990). As in other researches by Dranev et al. (2019) and Woolridge and Snow (1990), this is done by conducting a one sample t-test in this thesis. This method is widely used because of its simplicity. Nevertheless it has its limitations since it only looks at the mean return and does not take into account the variance of the returns (Al-Khasawneh & Essaddam, 2012).

First, a null hypothesis needs to be formulated (MacKinlay, 1997). It is expected that there is an effect of the technological acquisition announcement on the stock market. Therefore, the null hypothesis is that the mean of the abnormal return researched during the event window is equal to zero. This would indicate that the technological acquisition announcement does not have an influence. The alternative hypothesis is thus, that the mean is not equal to zero, indicating that a technological acquisition announcement does have an influence on the stock market reaction.

Thus:

$$\mathrm{H}_0: \mu = 0$$

$$\mathrm{H}_\mathrm{a}: \mu \neq 0$$

In the one-sample t-test, the mean is therefore compared with zero. The results of the t-test can be found in table 4.3.

In the table, once again, it can be seen, that, on average, the stock market reacts slightly positive on technological acquisition announcements (*M*=0.002, *SE*=0.002). However, this difference to a mean of zero is not significant (*t*(1414)=.793, *p*=.428).

Therefore, hypothesis one is rejected, meaning that a technological acquisition announcement does not have a significant effect on the stock market reaction, and the effect is not negative.

Table 4.3: One-sample t-test

	Mean	**SD**	**SE**	**Mean Difference**	**t**	**df**	**p**
CAR	.002	.034	.002	.002	.793	1414	.428

n = 1415; $^{***}p < .001$; $^{**}p < .01$; $^{*}p<.10$

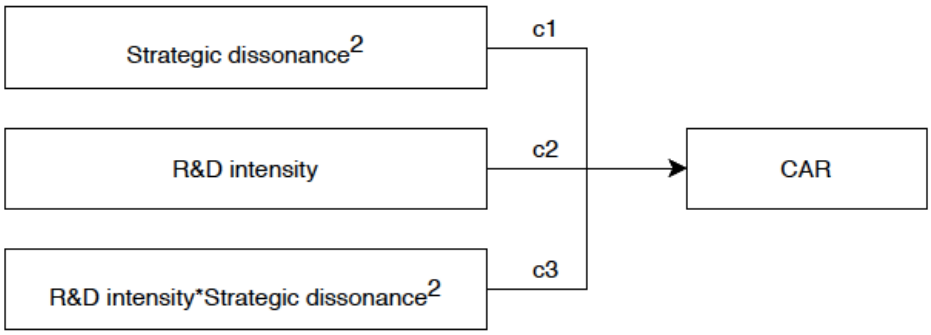
4.3.2. The moderating effects of strategic dissonance and R&D intensity

Hypotheses 2a and b hypothesize that the stock market reaction on an acquisition announcement is moderated by strategic dissonance and that this moderation is inverted U-shaped. Hypothesis three predicts that with increasing R&D intensity, the moderation effect of strategic dissonance also increases.

For testing this linear moderation of a curvilinear moderation, a multiple regression analysis was conducted.

It is important to remember that the direct effect of the technological acquisition announcement on the stock market is reflected in the statistical significance of the CAR. Hence, the curvilinear moderation of strategic dissonance can actually be tested as a quadratic direct effect, and the moderating effect of R&D intensity as a simple moderating effect on the relationship between strategic dissonance and CAR.

Figure 4.1: Statistical model



H2a and b, which hypothesized a curvilinear moderating effect of strategic dissonance on the effect of a technological acquisition announcement will be tested by looking at the quadratic influence of strategic dissonance on the CAR (c1 in Figure 4.1).
In order to test whether there is a significant moderation effect of R&D intensity, the interaction effect of strategic dissonance^2 and R&D intensity on the CAR (c3 in Figure 4.1) will be analyzed.

The procedure to do that involves several regression models. The first model measures the effect of the control variables only on the dependent variable (i.e. CAR).
For the second model, the independent variable (i.e. strategic dissonance) is added in order to measure the linear effect. To capture the curvilinear effect in the third model, the quadratic term is added. For doing that, a quadratic component needs to be calculated first to capture the quadratic effect. This is done by multiplying the independent variable (i.e. strategic dissonance) by itself.
The effect of R&D intensity is measured in the next two models, one time in the presence of only the linear effect of strategic dissonance and in the other model in the presence of the curvilinear effect of strategic dissonance.
Afterwards, the interaction effect of R&D intensity*strategic dissonance, as well as the interaction effect of R&D intensity*strategic dissonance^2 are added to measure the moderation effect of R&D intensity.
Table 4.4 shows a summary of the results of these regression analyses.

The model including only the control variables (i.e. Model 1) explains only 0.5% of the variance in the CAR. This explanatory power is very low, and therefore it is not surprising that it is not significant (R^2 =.005, $F(5,1110)=1.083$, p=.368). None of the control variables significantly influences the dependent variable.

In model 2, strategic dissonance is added as a predictor. This addition leads to an increase in explanatory power of 0.1%. This means that the addition of strategic dissonance leads to an increase in explanatory power of the model. However, this increase is statistically not significant and the model is also not statistically significant (R^2 =.006, F(6,1109)=1.107, p=.356). In line with that finding, the results also show that strategic dissonance does not significantly influence the CAR (β=.016, p=.268).

In model 3, the quadratic term of strategic dissonance was added. In that model, strategic dissonance (β=-.088, p=.047) and strategic dissonance^2 (β=.166, p=.014) significantly predict CAR. This means that there is a quadratic effect of strategic dissonance on the CAR. Thus, strategic dissonance does moderate the stock market reaction on an acquisition announcement in a curvilinear way. However, the positive β of strategic dissonance^2 indicates that this relationship is, contrary to expectations, U-shaped. Further inspection of this relationship is done by creating a curve in SPSS, representing the curvilinear relationship between strategic dissonance and the CAR (see Appendix 10). The graph shows that with no strategic dissonance, the CAR is positive. When the level of strategic dissonance is moderate, the CAR is slightly negative. With high levels of strategic dissonance, the CAR is positive again.
Thus, hypothesis 2a is accepted, as there is an effect of strategic dissonance. However, hypothesis 2b needs to be rejected, since the curvilinear effect is not inverted U-shaped.
Further analyzing the β-value, it can be concluded that the value is rather low. As a result, the effect of strategic dissonance^2 can be interpreted as rather weak.
The addition of strategic dissonance^2 in the model leads to an increase in R^2 of 0.5%. This increase is statistically significant; however, the model as a whole is still not significant (R^2 =.011, F(7,1108)=1.823, p=.079).

In model 4 and 5, R&D intensity is added as an independent variable. The difference between the two models is that in model 5 the quadratic component of the effect of strategic dissonance is included, while model 4 only looks at the linear effects. In both models, the effect of R&D intensity on the CAR is slightly negative. This indicates that the more a firm spends on R&D activities, the more negative the stock market reaction to a technological acquisition of that firm. However, also in both models, this relationship is not significant (Model 4, β=-.002, p=.465; Model 5, β=-.002, p=.447).
The effects of strategic dissonance and strategic dissonance^2 do not change when R&D intensity is added to the model.
Both models are not significant (Model 4, R^2 =.006, F(7,1108)=1.025, p=.412; Model 5, R^2 =.012, F(8,1107)=1.667, p=.102).

In model 6, the moderation of R&D intensity on the linear effect of strategic dissonance is tested. This is done by adding the interaction effect of strategic dissonance and R&D intensity. The conditional effect of strategic dissonance (β=-.014, *p*=.646) and the interaction effect of strategic dissonance and R&D intensity (Model 6, β=-.001, *p*=.929) are not significant. This Indicates that R&D intensity does not significantly moderate the linear relationship between strategic dissonance and the CAR. Also the model itself is not significant (R^2 =.006, *F*(8,1107)=.897, *p*=.518).

Afterwards, the mediating effect of R&D intensity on the curvilinear effect of strategic dissonance is tested (Model 8).
Model 8 indicates that R&D is not significantly moderating the effect of strategic dissonance^2 on the CAR (β=.038, *p*=.54). Also the model itself is not significant (R^2 =.012, *F*(10,1105)=1.369, *p*=.189). These results do not support hypothesis 3.

Table 4.4: Results of the regression analyses

	1	2	3	4	5	6	7	8
(Constant)	.006	.000	.010	.005	.015	.005	.015	.011
	(.015)	(0.16)	(.017)	(.018)	(.018)	(.019)	9.0190	(.021)
Control variables								
Firm size	-.002	-.002	-.002	-.002	-.002	-.002	-.002	-.002
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
Prior performance	.000	.000	.000	.000	.000	.000	.000	.000
	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)
Acquisition experience	.005	.006	.006	.006	.006	.006	.006	.006
	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)
Deal value	-.001	-.001	-.001	-.001	.000	-.001	.000	.000
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
Motive count	.005	.006	.006	.006	.006	.006	.006	.006
	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)
Independent variables								
Strategic dissonance		.016	-.088*	.016	-.088*	.014	-.087	-.038
		(.014)	(.044)	(.014)	(.044)	(.030)	(.05)	(.094)
Strategic dissonance^2			.166**		.166**		.166**	.086
			(.067)		(.067)		(.067)	(.147)
R&D intensity				-.002	-.002	-.002	-.002	.000
				(.002)	(.002)	(.004)	(.004)	(.006)
Interaction effects								
R&D intensity * strategic dissonance						.001	.000	-.024
						(.012)	(.012)	(.04)
R&D intensity * strategic dissonance^2								.038
								(.061)
R^2	.005	.006	.011	.006	.012	.006	.012	.012
Adj. R^2	.000	.001	.005	.000	.005	-.001	.004	.003
Obs.	1116	1116	1116	1116	1116	1116	1116	1116
F	1.083	1.107	1.823	1.025	1.667	.897	1.480	1.369

$^{***}p < .001$; $^{**}p < .01$; $^{*}p<.05$

Table 4.5: Overview hypotheses

	Hypothesis	Statistical decision	Main findings
1	A technological acquisition announcement leads to negative stock market reaction.	Reject	• Technological acquisitions lead to slightly positive, but insignificant reactions on the stock market
2a	Strategic dissonance signaled by the technological acquisition announcement moderates the stock market reaction on a technological acquisition announcement	Accept	• The moderation is U-shaped • The moderation is very weak
2b	The moderation effect of strategic dissonance on the effect of an acquisition announcement on the stock market is inverted U-shaped	Reject	• The moderation is U-shaped, but not inverted U-shaped
3	R&D intensity of the company positively moderates the size of the moderation effect of strategic dissonance on the stock market reaction on a technological acquisition announcement	Reject	• R&D intensity does not moderate the effect of strategic dissonance • R&D does not have an effect on the stock market reaction on a technological acquisition announcement

5 Conclusion and discussion

In literature, emergent strategy, deviating from the planned strategy is considered crucial for keeping up with volatile environments (Andersen & Nielsen, 2009; Burgelman & Grove, 1996; Mintzberg, 1994a, 1994b; Mintzberg et al., 2009; Mirabeau et al., 2018; Neugebauer et al., 2016). The goal of this thesis was to find out how deviations from a planned strategy actually influence the stock market reaction through analyzing the example of technological acquisitions. This was done by looking at the reaction of investors on the announcement of such an acquisition.

The sub-questions formulated to answer this relationships were: *"How does the presence of strategic dissonance signaled through an acquisition announcement influence the stock market reaction to a technological acquisition?"* and *"how does the level of R&D intensity influence the effect of strategic dissonance on the stock market reaction to an acquisition announcement?".*

Answering these sub questions was expected to lead to the answer of this thesis's research question, namely: *"To what extent does the presence of strategic dissonance influence the stock market reaction on a technological acquisition and how does this effect change with different levels of R&D intensity?"*

These relationships were analyzed by examining the technological acquisition announcements and stock market reactions of 1415 acquisitions in the years between 2001 and 2015.

A one sample t-test and a multiple regression analysis were conducted in order to find an answer on the research question.

First of all, it was found that investors do not significantly react on the announcement of a technological acquisition.
Afterwards, the effect of strategic dissonance on the stock market reaction was analyzed. Contrary to expectations, a positive curvilinear, quadratic effect on the reaction of investors was found. The answer for the first sub-question is therefore that the presence of strategic dissonance signaled through an acquisition announcement influences the stock market reaction in a U-shaped way. Accordingly, the stock market reaction is more positive with a low or a high degree of strategic dissonance, a moderate level leads to a slightly negative reaction of investors. Possible reasons for that might be that in the opinion of investors, only a big change in strategic actions leads to strategic renewal. Moderate acquisitions may be seen as strategic actions hindering the planned strategy to be implemented and as not helping to adapt to the environment, that way leading to the U-shaped curve.

R&D intensity was found not to moderate the effect of strategic dissonance. Thus, the answer to the second sub-question is that R&D does not influence the effect strategic dissonance has on the stock market reaction.
Hence, in summary the answer to the research question of this thesis is that the effect of strategic dissonance on the stock market reaction to a technological acquisition announcement is U-shaped and that this effect is not influenced by R&D intensity.

5.1 Theoretical implications

There are some implications the findings have on existing literature.
First of all, this research adds to literature about acquisitions and how those can be employed to improve firm performance. Research in the past found negative stock market reaction on the announcement of acquisitions in general (Kiymaz & Baker, 2008) and also in the specific case of technological acquisitions (Aalbers & McCarthy, 2016). Surprisingly, this thesis found a slightly positive but nonsignificant reaction on technological acquisition announcements. This contradicts the research mentioned before, and possible reasons for that will be discussed in the limitations chapter. However, the slightly positive mean proves that technological acquisitions are not always perceived as negative.
Moreover, this thesis adds to literature about strategy making. In past literature, emergent strategy has been regarded as critical for keeping up with changes in the environment. With the results of this research, we learned that strategic dissonance significantly influences the stock market reaction. The stock market reaction gives an implication about the future performance of a firm (Klassen & McLaughlin, 1996). Therefore it can be concluded that strategic dissonance significantly influences firm

performance. This effect was found to be rather small and U-shaped. It indicates that the extent of strategic dissonance does play a role and should be taken into consideration, which also leads to some practical implications discussed in the next chapter.

In the context of literature about acquisitions, this research also responds to the call of Welch et al. (2019) to further analyze the pre-deal phase of acquisitions and the interaction of a firm with its investors in that phase. More specifically, this research looks at the way companies communicate deals to investors and how those in turn react on it. In particular, it looked at unintentional signals that result from the announcement of a deal. Accordingly, it was found that when an acquisition announcement signals strategic dissonance, it has an effect on investors' reactions.

This also adds to what is known and researched about signaling theory. It has been mentioned in literature that investors do not interpret signals isolated but rather in combination with signals sent earlier on (Vergne et al., 2018). The significant effect of strategic dissonance indicates that investors indeed seem to compare the motives of a focal acquisition with the strategic intent. This supports the assumption that investors do not analyze signals isolated but together with signals sent beforehand.

5.2 Practical implications

In addition to contributions to literature, this thesis also provides some practical implications on how technological acquisitions can be employed to further enhance the competitiveness of a company. This is based on the assumption that the stock prices give an indication on the effect of a specific event on the future performance of a firm (Klassen & McLaughlin, 1996).

The statistical analysis showed that emergent strategy really is regarded to positively influence firm performance on the stock market. However, only if those strategic actions completely differ from the strategic intent. This means that if strategic actions do not completely differ from the strategic intent, it is better to not use strategic dissonant actions at all but rather to opt for strategic actions that are in line with the formulated strategy. Nevertheless, a completely dissonant action is evaluated more positively than a strategic action completely in line with the strategic intent.

If companies still decide to make use of strategic actions moderately differing from the strategic intent, top management should prepare for a slightly negative reaction by investors.

5.3 Limitations and future research

This research has certain limitations, some of them offering opportunities for future research. These will be discussed in this chapter.

The sample of this study consisted of 1415 acquisitions, which is quite a big sample size, leading to high reliability. However, the acquisitions included in the samples were all executed by serial

acquirers. This means that acquisitions that were carried out by companies that do not engage in acquisition very often, are not included in this research. The results of this thesis are therefore not generalizable. The effects found only correspond to the acquisition announcements of serial acquirers. This might also have biased the results of this study and might be the reason for the contradicting results for the stock market reaction on acquisition announcements. Future research should therefore look at the relationships tested in this thesis for acquisitions of all types of acquirers, serial and non-serial.

Another aspect that might have led to bias in the results is the fact that the assumption of normal distribution of the data and the assumption of heteroscedasticity were a bit problematic. Transformations of the variables did lead to better distribution of the data, however, the data for some variables were still not perfectly normally distributed.

Also the P-Plot did indicate non-normality of the residuals. Even though with big samples this is not considered to be a problem by Field (2013) and Hair et al. (2013), this might have had an impact on the results.

Connected with the assumption of the normality, a problem might also be the high number of outliers found for some of the variables, which might have been the reason for skewness of some variables. However, it was decided not to exclude them from the analysis to not manipulate the results.

Although met, the assumption of homoscedasticity can also be seen as problematic because the dots were not evenly dispersed throughout the scatterplot. The reason for that might be the problem with the normal distribution of the data and the outliers, which often are the reason for problems with the assumptions (Field, 2013).

Contentwise, there are also some limitations to this research.

This research categorized motives for technological acquisitions and statements about the strategic intent of a firm as either exploratory, exploitative or ambidextrous. However, this does not take into consideration that there might be a difference in strategic action and strategic intent while both are still exploratory or exploitative. In those cases, this research would not have detected the strategic dissonance. Therefore, it would be interesting to look at specific motives and intents regarding their topic and specific content.

Moreover, the present research only looks at the effect of the degree of strategic dissonance. However, it would also be interesting to also find out whether the direction of strategic dissonance also has an influence on stock market reaction or even moderates that relationship.

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7 Appendix

Appendix 1: Codebook

1 General Information

1.1 Project and research question

Nowadays, globalization, technological advancements and other environmental changes require companies to frequently adapt to those changes.
This often calls for strategic actions that are not in line with the original strategic intent, leading to strategic dissonance.
Technological acquisitions are a common strategic action companies engage in, in order to adapt to those changes. In this research, it is assumed that strategic dissonance through technological acquisitions is reflected in the extent to which the strategic intent is reflected in acquisition announcements.
The goal of the present research is to analyze the role of strategic dissonance during acquisition deals and whether the appearance of strategic dissonance will influence the stock market's reaction.
Therefore, this research will answer the following research question:
"To what extent does the presence of strategic dissonance influence the stock market reaction on a technological acquisition and how does this effect change with different levels of R&D intensity?"

1.2 Definitions

1.2.1 Acquisition announcements

Through acquisition announcements, companies get in touch with their stakeholders for the first time during an acquisition (Aalbers & McCarthy, 2016). In these announcements they announce the deal and communicate the reasons for engaging in a specific acquisition (Demers, Giroux, & Chreim, 2003). Acquisition announcements give information to the stock market, which will directly be incorporated in the stock prices (MacKinlay, 1997).

1.2.2 Strategic dissonance

Strategic dissonance is the divergence between a company's strategic intent and strategic actions (Burgelman & Grove, 1996).
Strategic intent is about what a company wants to achieve with its strategy and where the company wants to be in the future (Hardy, 1996). Usually, it is formulated by the top management of a firm and reveals what they think is best for the long-term performance of the firm (Lovas & Ghoshal, 2000; Mantere & Sillince, 2007; Rui & Yip, 2008). That way, the strategic intent indicates the way

how the firm will compete against its rivals and be a successful company in the future (Hamel & Prahalad, 1990; Hardy, 1996). As the strategic intent gives the organization a direction and something to aim for, it is seen as a very important element determining the success of the company (Lovas & Ghoshal, 2000).

Strategic action is about the steps and measures a company engages in to fulfill the strategic intent. In the best case, these lead to the fulfilment of the strategic intent. Therefore, strategic actions are very important for organizations as they are about what the organization is ultimately doing in order to realize the strategy and eventually to sustain or create competitive advantage (Hardy, 1996). Accordingly, strategic dissonance arises as soon as a company does something else than what it states in its strategic intent.

1.2.3 Exploratory strategy

Exploration is about looking for alternatives that differ from the activities already done and therefore is considered as being riskier. Terms associated with exploration are “search, variation, risk taking, experimentation, play, flexibility, discovery, innovation” (March, 1991, p. 71).

1.2.4 Exploitative strategy

Exploitation leads to more efficiency and effectiveness through getting better at what the organization is already doing. It therefore is considered to be more certain and risk-free than exploration. Terms associated with exploitation are “refinement, choice, production, efficiency, selection, implementation, execution” are terms defining exploitation (March, 1991, p. 71).

1.2.5 Ambidextrous strategy

In literature, it is often recommended to not only focus on either exploration or exploitation but on both. Therefore, ambidexterity, which leads to both, exploration and exploitation is often advised to companies as it avoids structural inertia or missing opportunities (Stettner & Lavie, 2014; He & Wong, 2004; March, 1991). Accordingly, a company’s strategy is ambidextrous if they focus on both, looking for new opportunities and becoming better at what they are already doing.

1.3 Hypotheses

The Hypotheses to be answered in this research are

Hypothesis 1: A technological acquisition announcement leads to negative stock market reaction.

Hypothesis 2a: Strategic dissonance signaled by the technological acquisition announcement moderates the stock market reaction on a technological acquisition announcement.

Hypothesis 2b: The moderation effect of strategic dissonance on the effect of an acquisition announcement on the stock market is inverted U-shaped.

Hypothesis 3: R&D intensity of the company positively moderates the size of the moderation effect of strategic dissonance on the stock market reaction on a technological acquisition announcement.

1.4 Goal of the content analysis.

For determining whether strategic dissonance is present, strategic intent and strategic action need to be compared. As data on the motives for the acquisitions is available, in this content analysis the strategic intent of the acquiring firms needs to be analyzed.

1.5 Sample

In order to define the strategic intent of the acquiring companies central to the research, annual reports of the fiscal year before the date of the acquisition announcement will be analyzed.

1.6 Unit of analysis

To define the strategic intent of a company, statements about the strategy, strategic objectives, the mission and the vision of a company in its annual report will be analyzed.
Statements may be short sentences conveying information about the strategic intent or paragraphs as well as lists conveying the strategic intent in bullet points

2 Instructions for coding

Coding happens in one SPSS file. Each annual report is assigned a serial number, starting with one. Afterwards, statements about the strategic intent are coded. These are statements about the strategy, strategic objective, the mission and/or the vision. These are assessed according to the three categories as either exploratory, exploitative or ambidextrous. More information about the categories can be found in Chapter 2.1 of this codebook.
In most annual reports, multiple statements conveying the strategic intent will be found, which is why the number of statements belonging to each category will be counted and recorded in the SPSS file as follows:

In two separate columns, the number of exploratory and exploitative strategy statements will be noted. Each motive being evaluated as ambidextrous, will be noted by adding ½ to the exploratory and ½ to the exploitative motives.

E.g.: The strategic intent of a company was found to be communicated via six statements, three exploratory, two exploitative and one ambidextrous. This will be noted as following:

Annual report number	Number exploratory motives	Number exploitative motives
1	3.5	2.5

2.1 Categories

Strategic Intent	
Exploratory	A statement about the strategic intent is regarded as exploratory if it refers to the company looking for opportunities that are new to it. Usually those statements have a risky connotation. An exploratory evaluation also occurs if a statement included words such as explore, search, experimentation, discovery, innovation and synonyms. E.g. Establish new technologies
Exploitative	A statement about the strategic intent is regarded as exploitative if it refers to getting better at what the organization was already doing. An exploitative evaluation also occurs if a statement included words such as refinement, choice, productivity, efficiency, effectiveness, selection, implementation, execution and synonyms. E.g. Increase manufacturing capacity
Ambidextrous	A statement about the strategic intent has been evaluated as ambidextrous if it referred to both, getting better at what it was already doing and looking for new opportunities.

	E.g. Expand and strengthen the product line

Appendix 2: Intercoder reliability (Krippendorff's alpha)

	Alpha	Units	Observers	Pairs
Exploratory motives	.74	142	2	142
Exploitative motives	.98	142	2	142

Appendix 3: Data on normality before transformation

		Skewness	Std. Error of Skewness	Kurtosis	Std Error of Kurtosis	Shapiro-Wilk Test
Key variables	1. CAR	.45	.07	5.21	.13	.920***
	2. Strategic Dissonance	.529	.07	-.42	.15	.951***
	3. R&D intensity	17.51	.07	368	.13	.402***
Control variables	4. Firm size	3.44	.07	13.45	.13	.566***
	5. Prior performance	-7.27	.07	115.57	.13	.576***
	6. Acquisition experience	3.03	.07	12.627	.13	.705***
	7. Deal value	11.47	.07	158.67	.13	.189***
	8. Motive count	.81	.07	1.11	.13	.845***

Appendix 4: Missing values: Little's MCAR test

	Strategic dissonance	Firm size	Prior performance
N	1116	1376	1405
Missing	299	39	10
Percent missing	21.1	2.8	.7

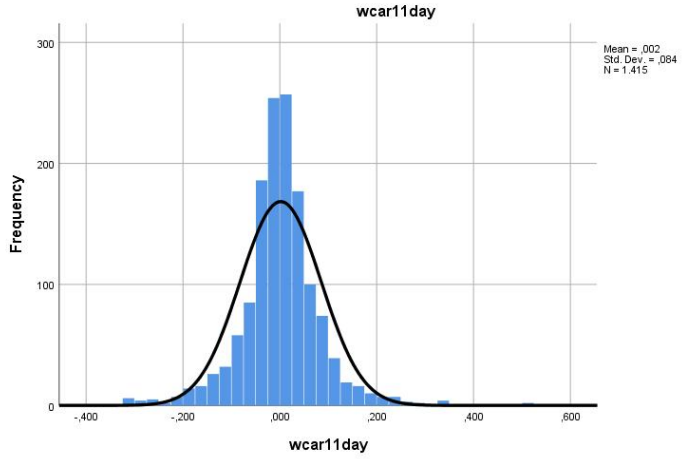
X^2=15.739
Df=9

$n^{***}p < .001$; $^{**}p < .01$; $^{*}p<.10$

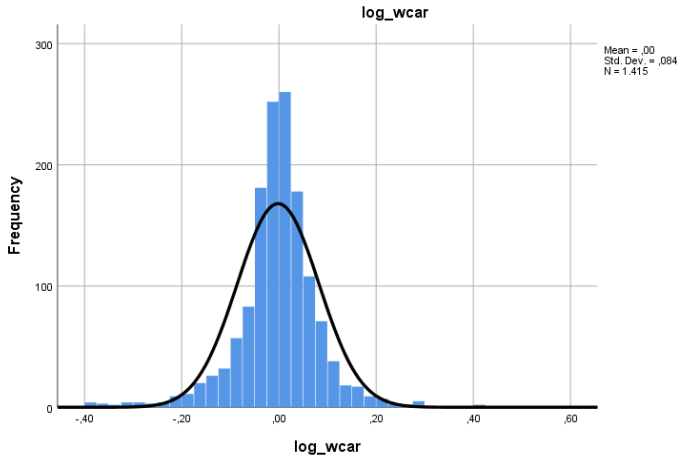
Appendix 5: Histograms

Appendix 5.1: CAR

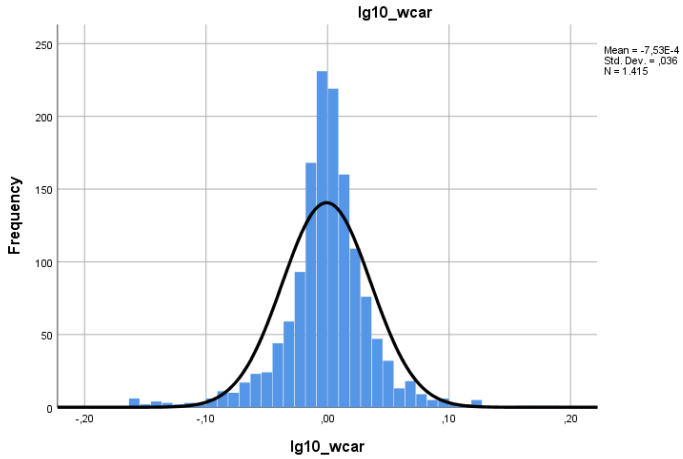
Orignal



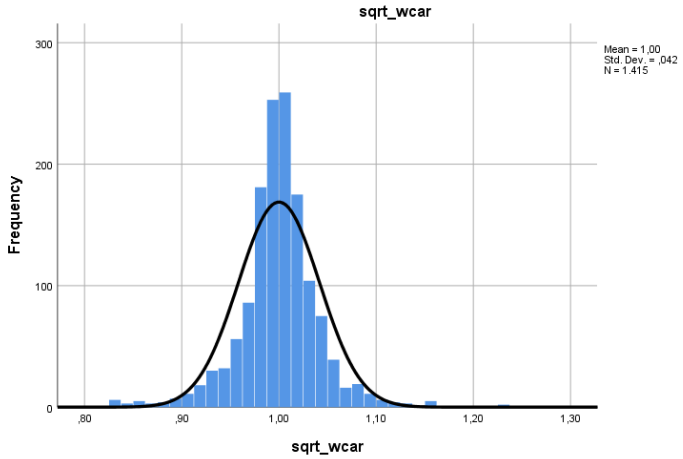
Ln transformation



Log transformation

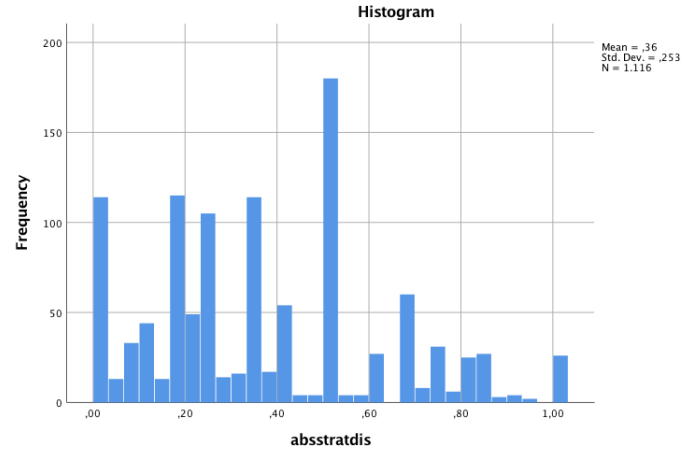


Square root transformation

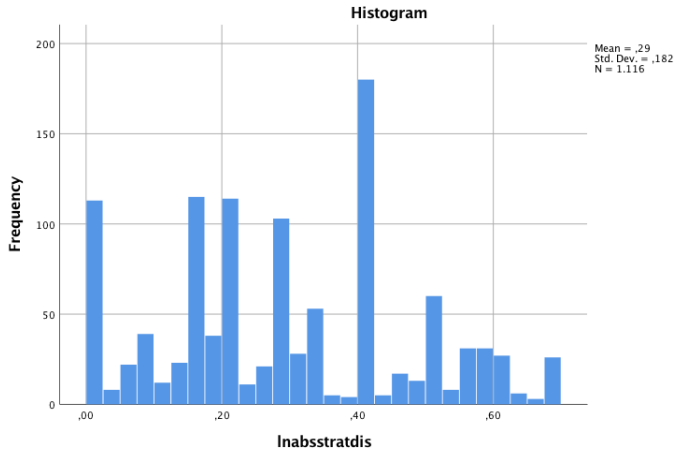


Appendix 5.2: Strategic dissonance

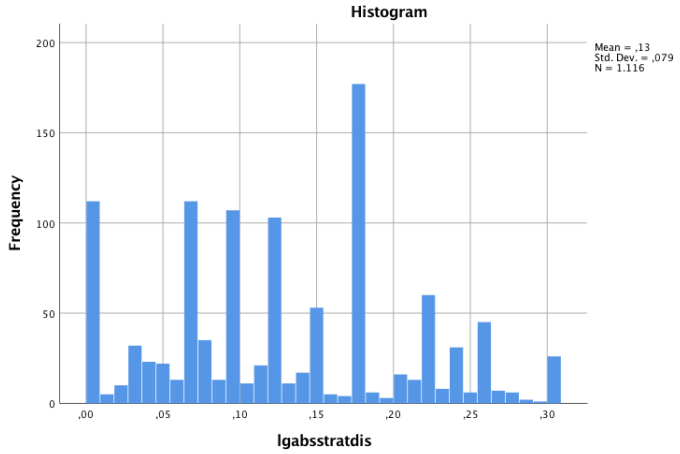
Orignal



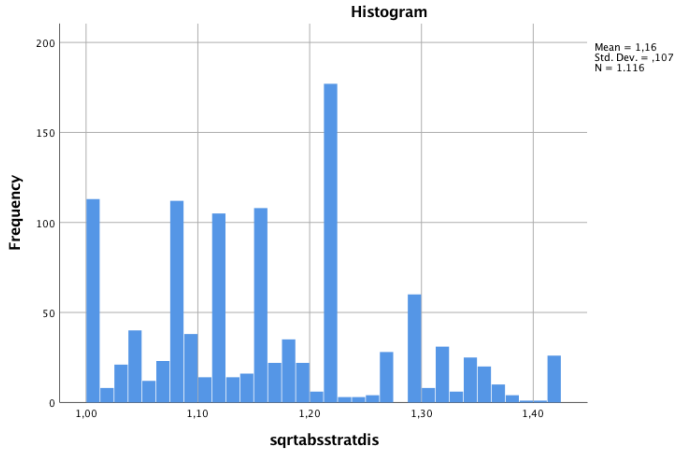
Ln transformation



Log transformation

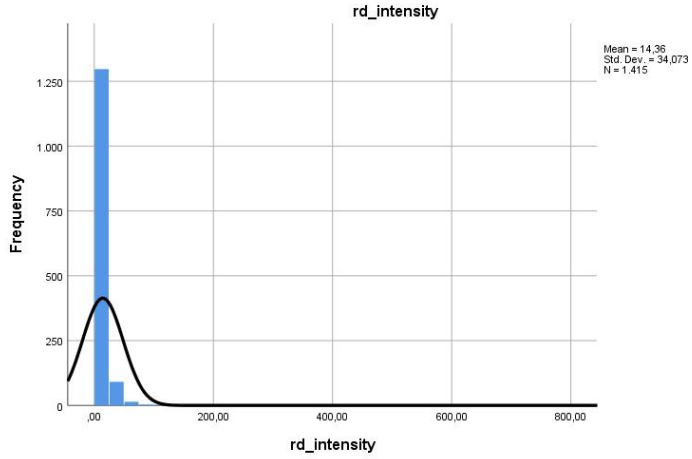


Square root transformation

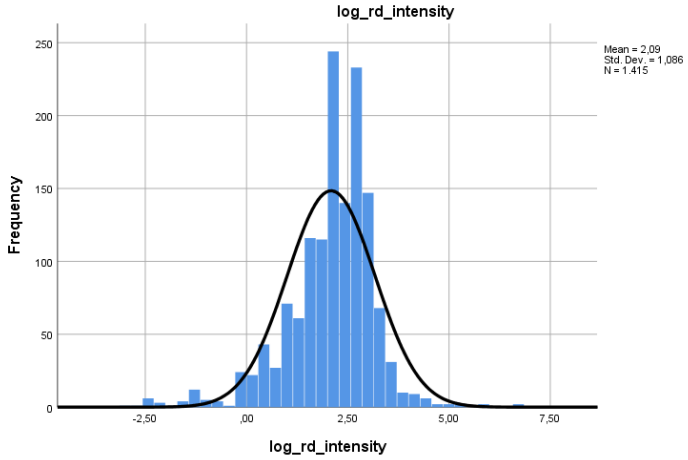


Appendix 5.3: R&D intensity

Original

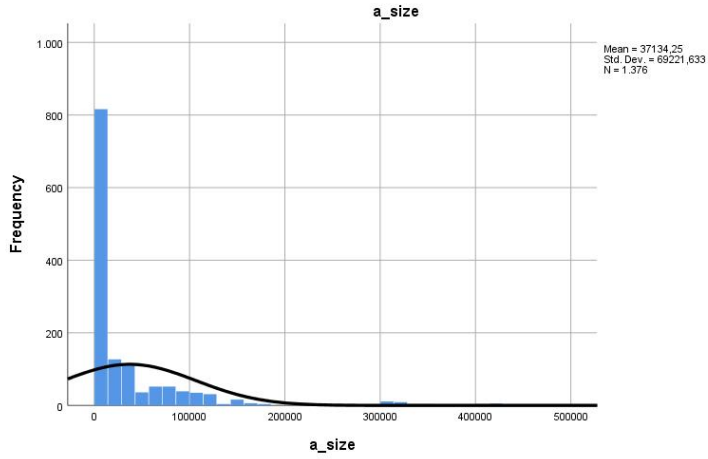


Ln transformation

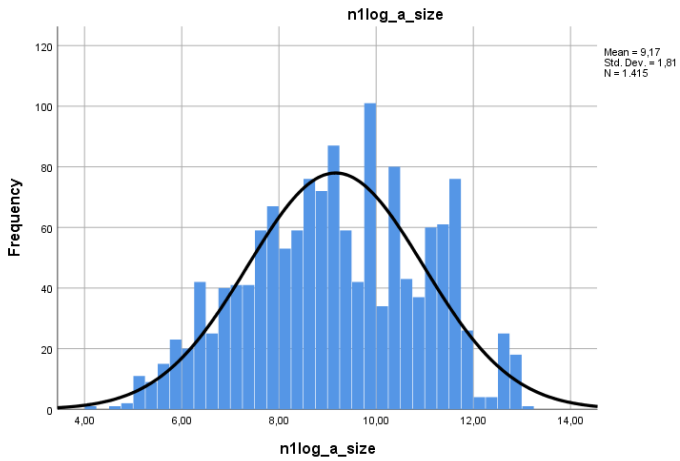


Appendix 5.4: Firm size

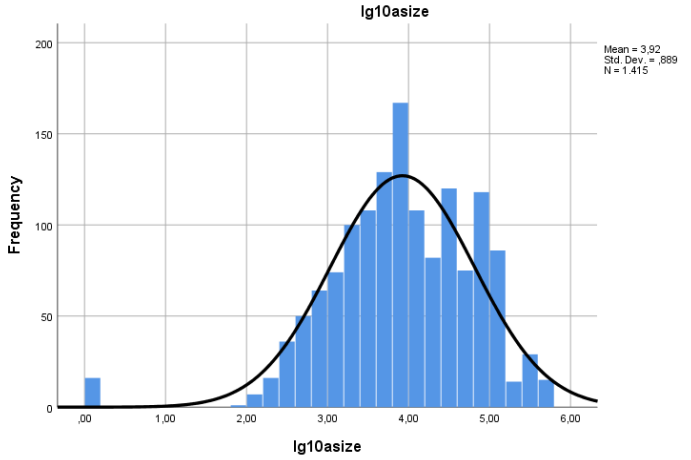
Original



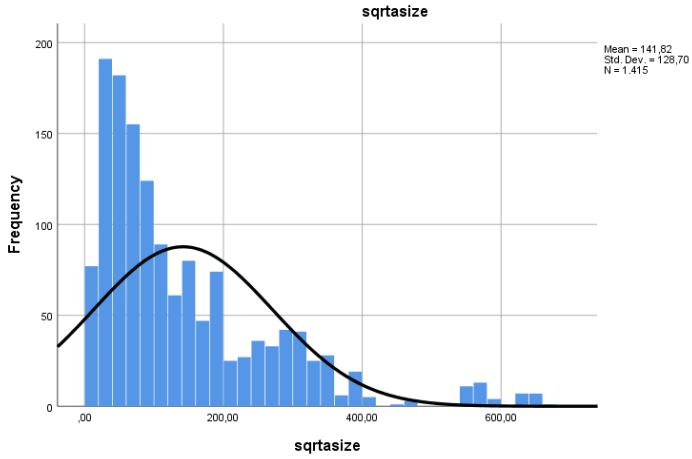
Ln transformation



Log transformation

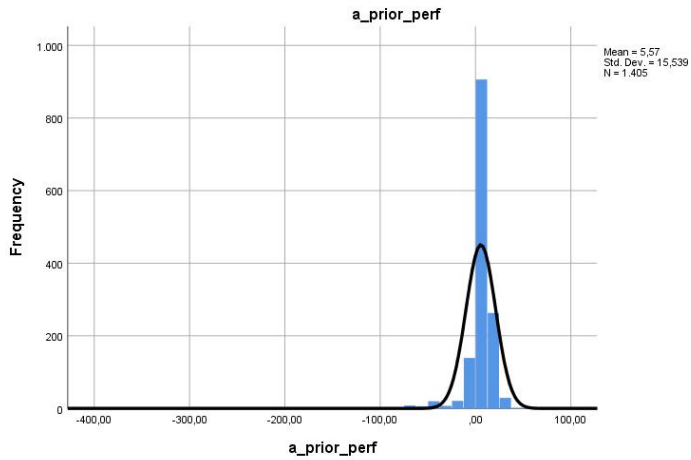


Square root transformation

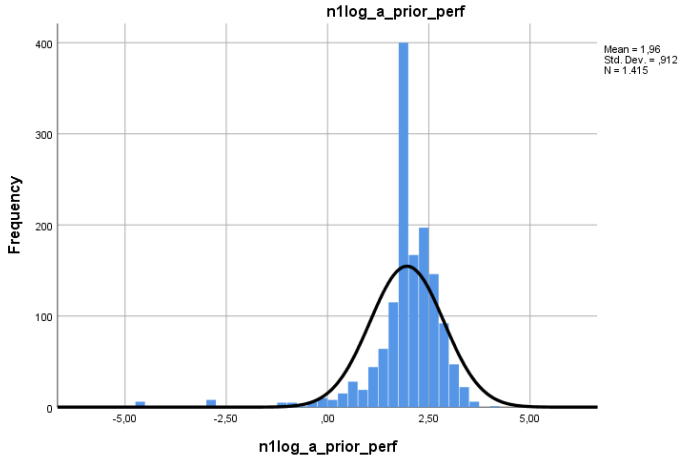


Appendix 5.5: Prior performance

Origninal

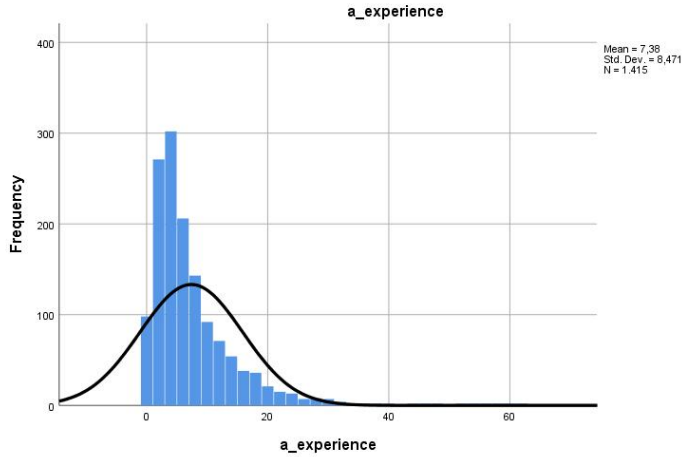


Ln transformation

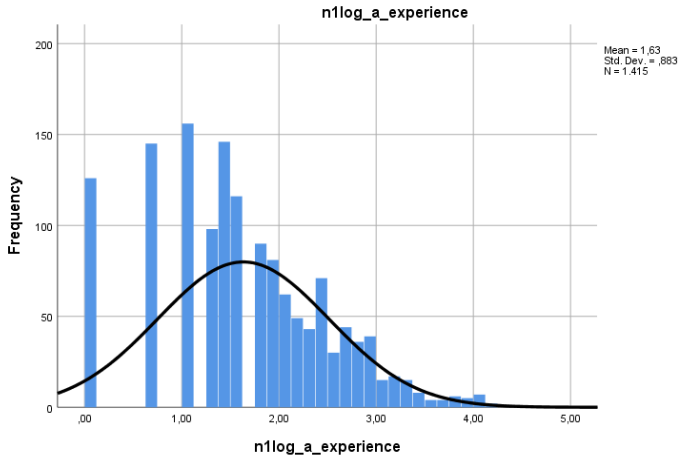


Appendix 5.6: Acquisition experience

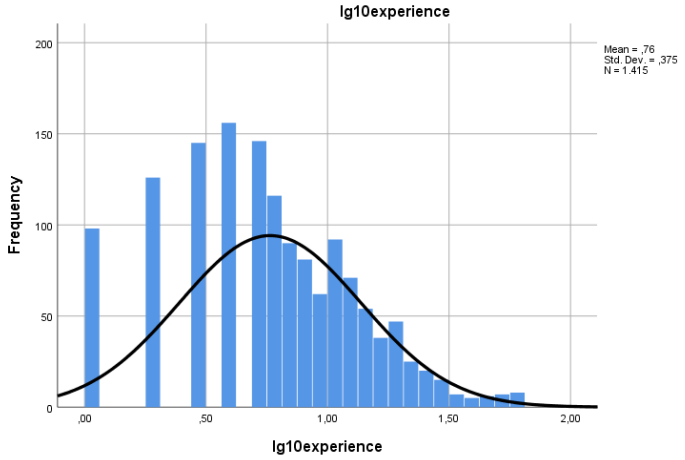
Original



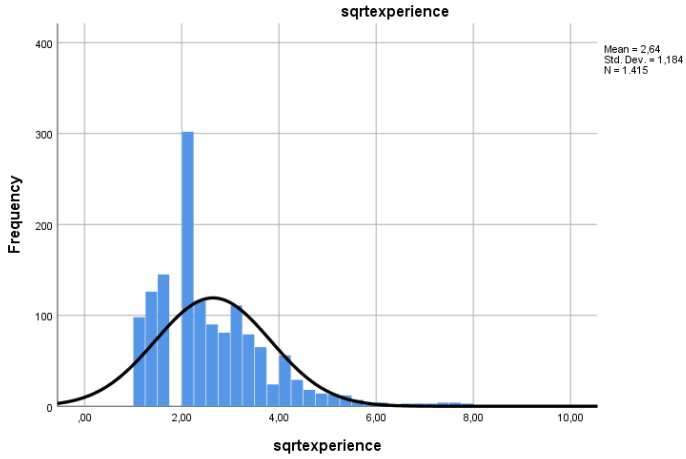
Ln transformation



Log transformation

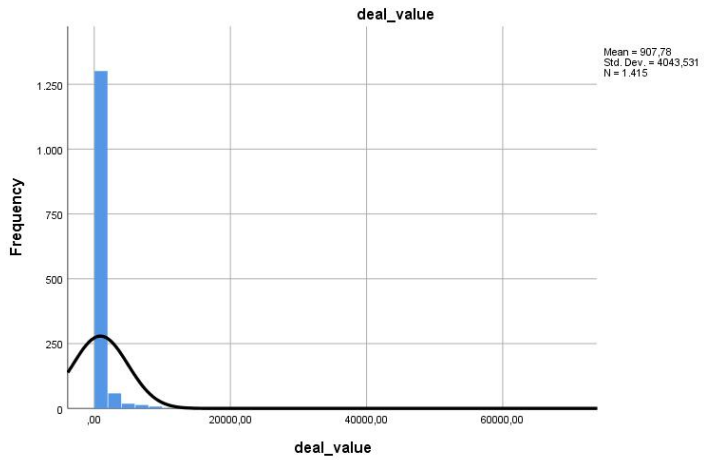


Square root transformation

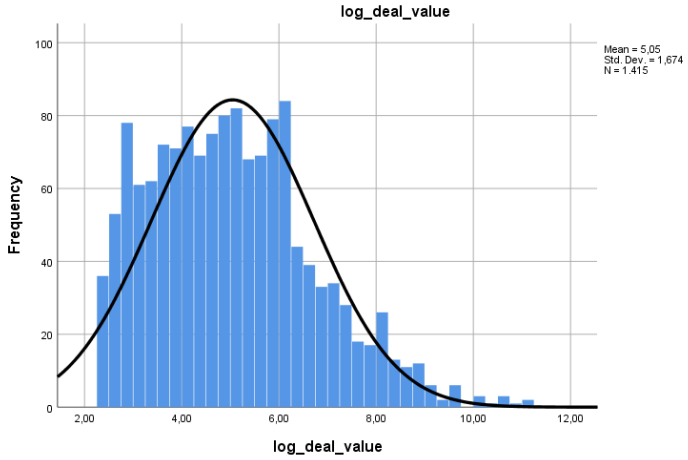


Appendix 5.7: Deal value

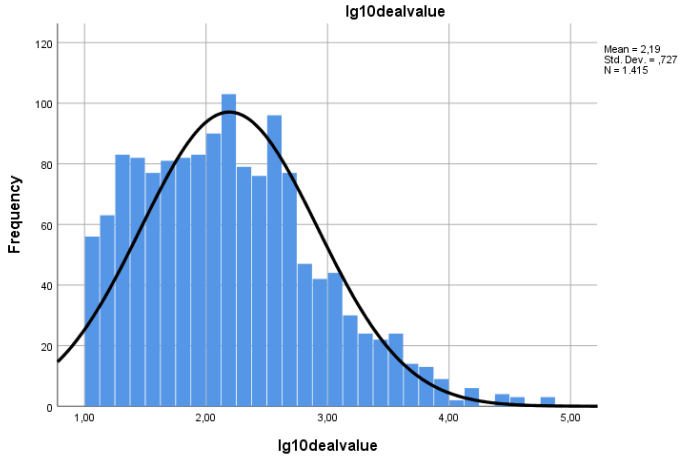
Original



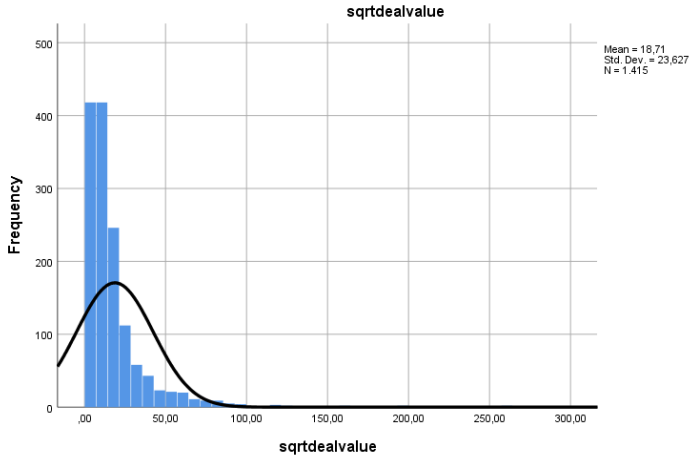
Ln transformation



Log transformation

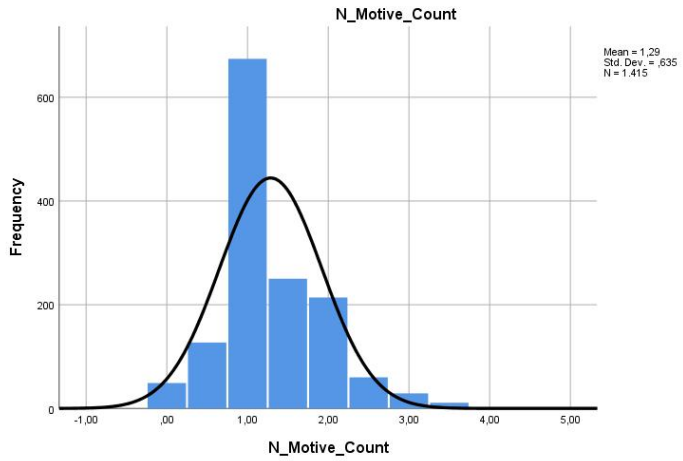


Square root transformation

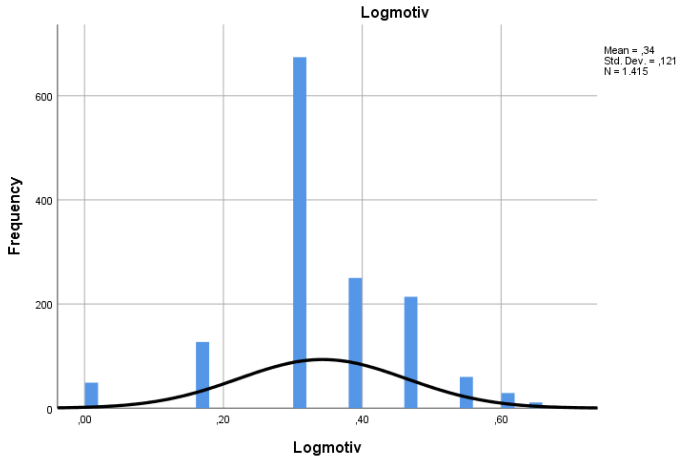


Appendix 5.8: Motive count

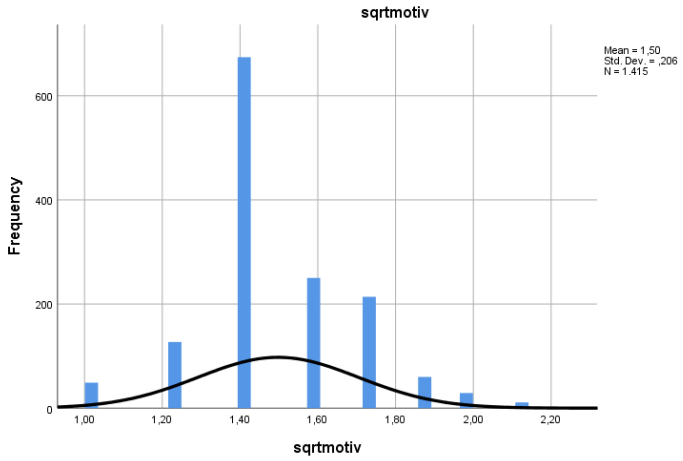
Original



Ln transformation



Square root transformation



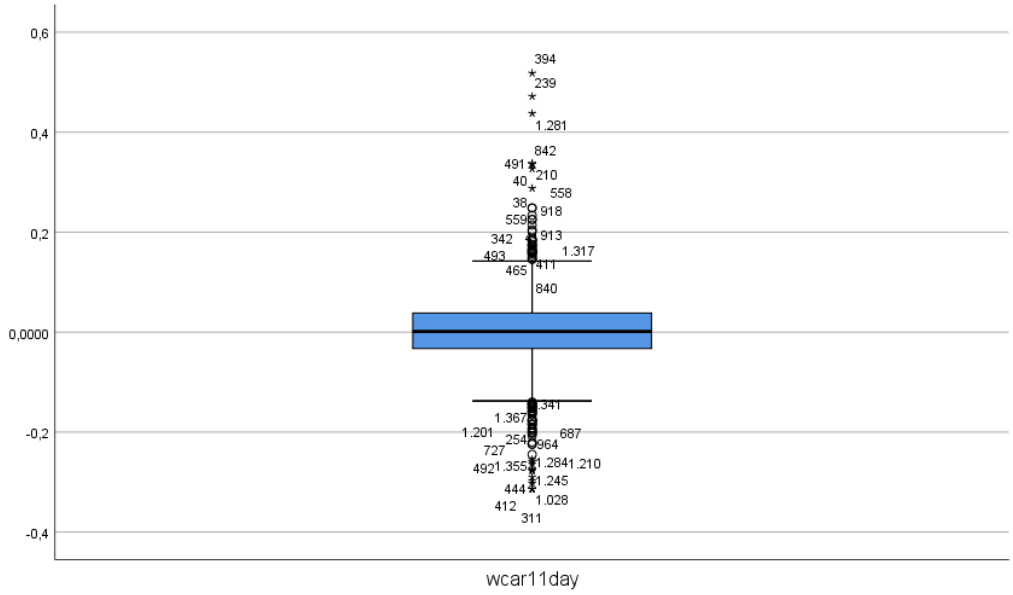
Appendix 6: Descriptives of final variables

	Mean	Median	Standard Deviation	Min.	Max.	Observations
Key variables						
1. CAR (original)	.002	0	.084	-.314	.52	1415
2. Strategic Dissonance (ln)	.294	.288	.182	0	.69	1116
3. R&D intensity (ln)	2.087	2.178	1.086	-2.9	6.66	1415
Control variables						
4. Firm size (ln)	9.166	9.166	.1.809	4.19	13.04	1415
5. Prior performance (ln)	1.961	1.956	.912	-4.61	4.07	1415
6. Acquisition experience (ln)	1.633	1.609	.883	0	4.14	1415
7. Deal value (ln)	5.046	4.913	1.674	2.3	11.13	1415
8. Motive count (original)	1.286	1	.635	0	4	1415

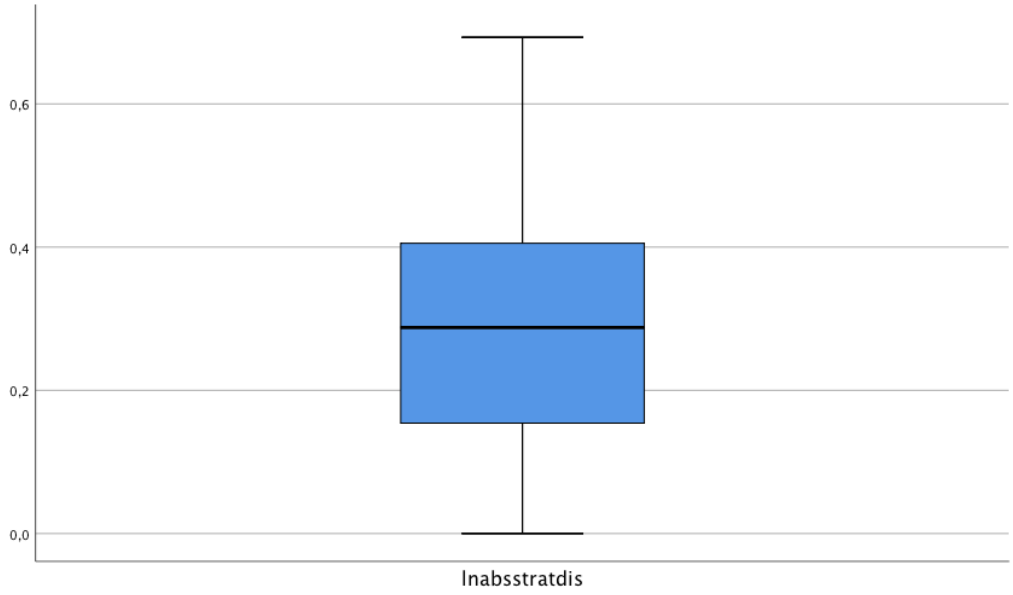
n (listwise) = 1116

Appendix 7: Boxplots

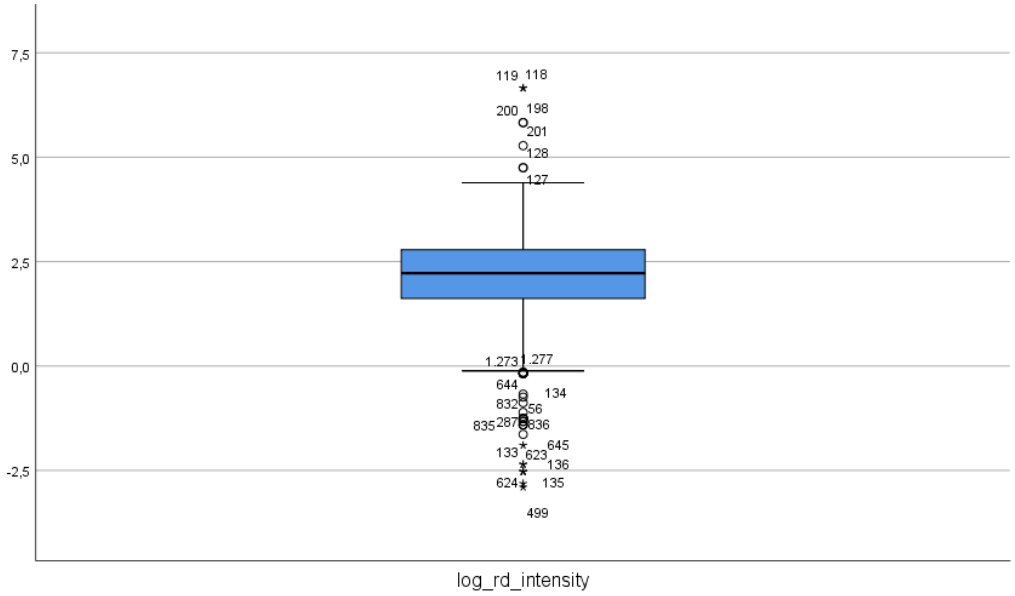
Appendix 7.1: CAR



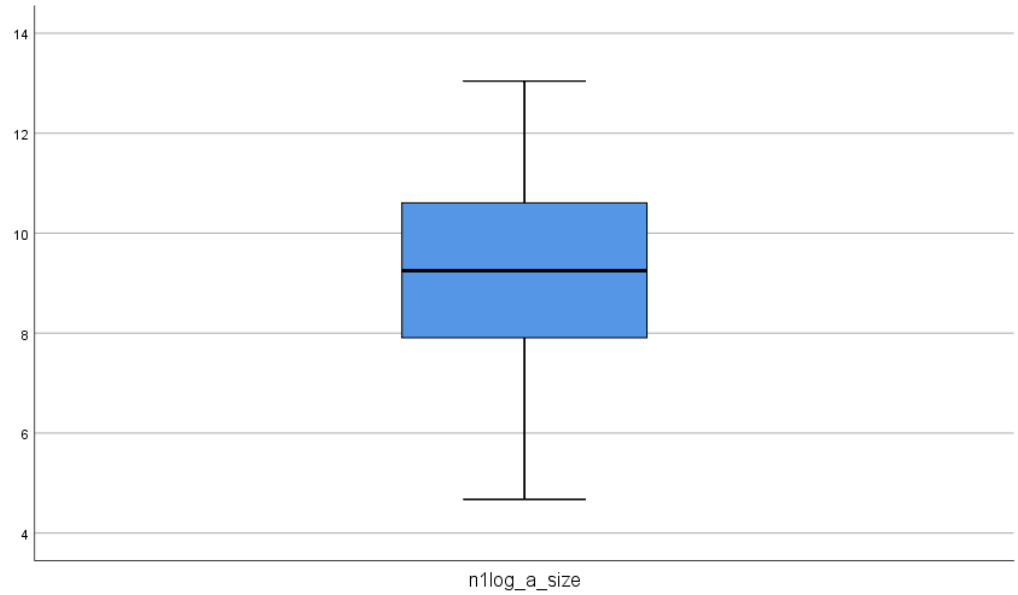
Appendix 7.2: Strategic dissonance



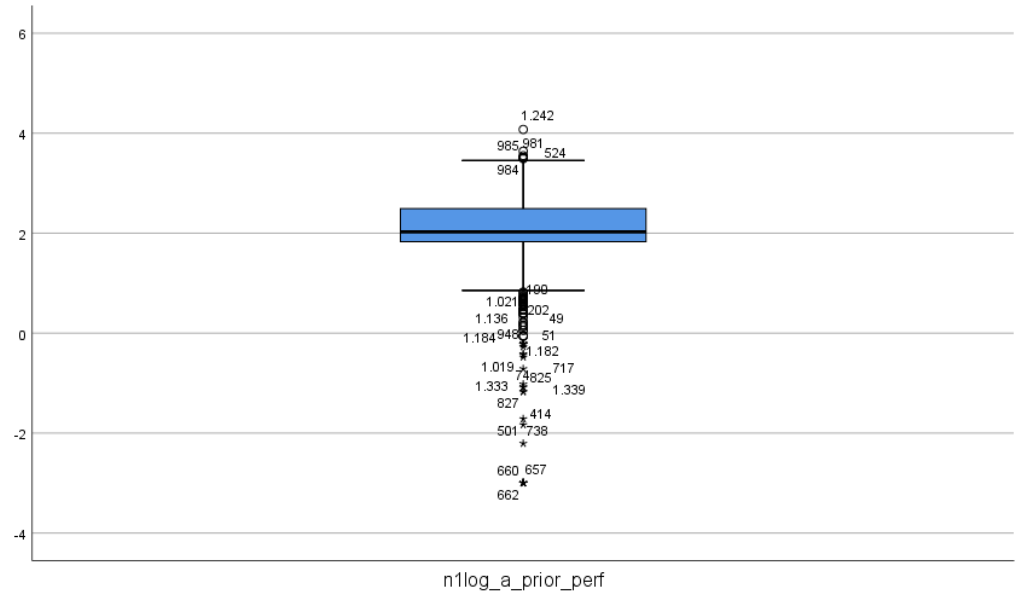
Appendix 7.3: R&D intensity



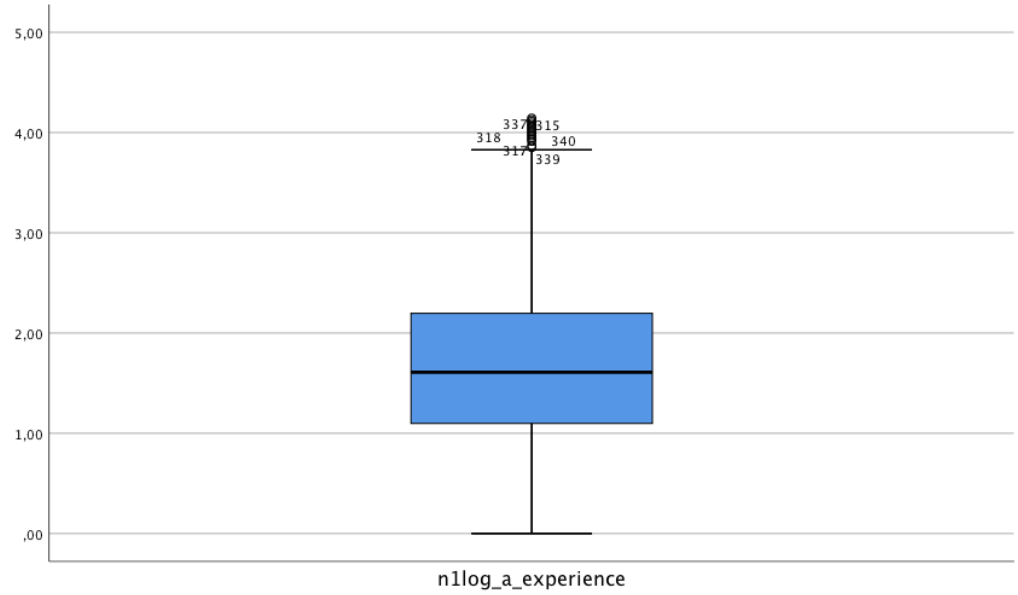
Appendix 7.4: Firm size



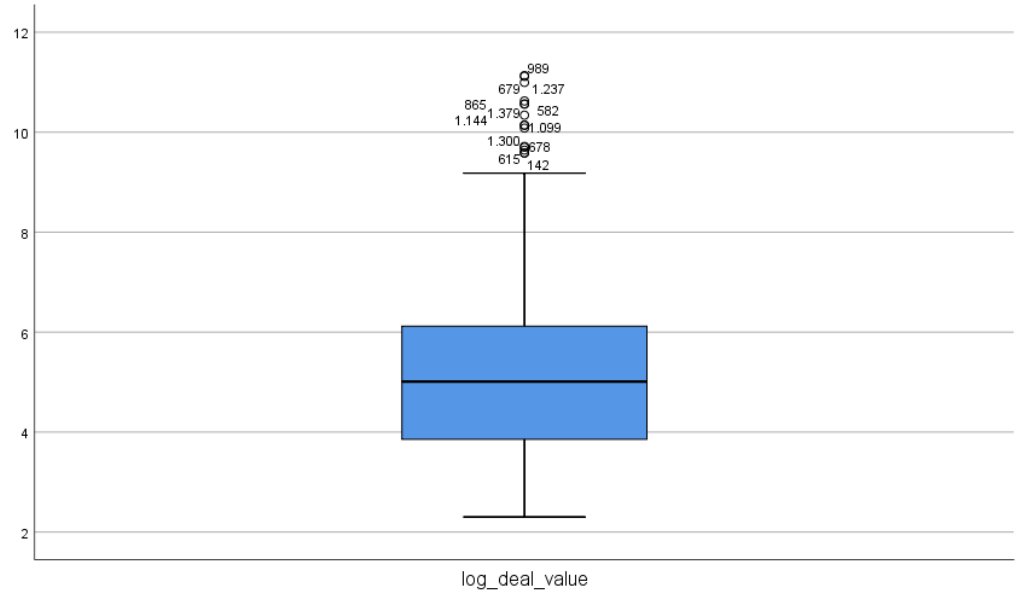
Appendix 7.5: Prior Performance



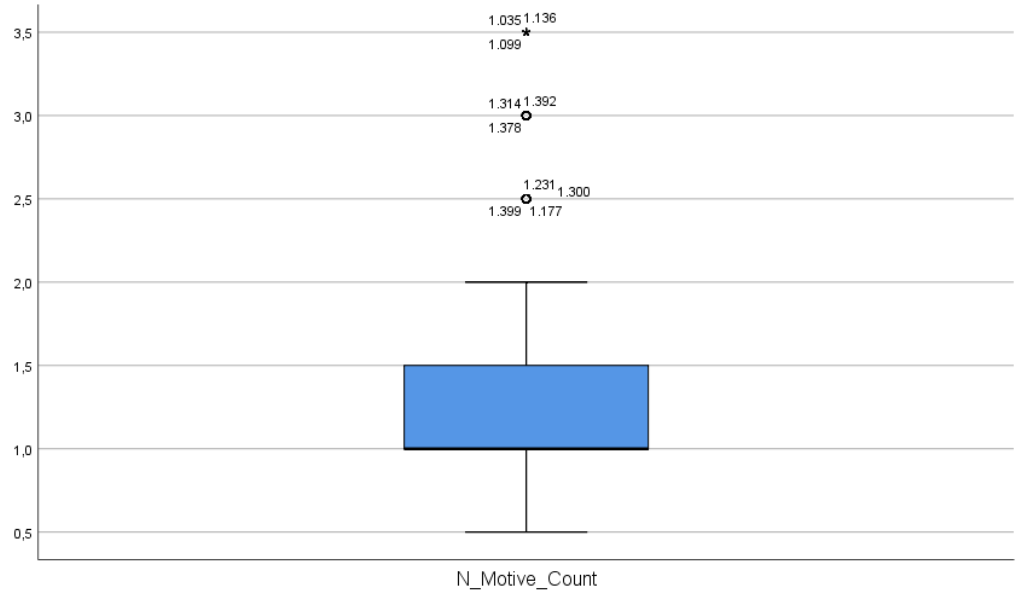
Appendix 7.6: Acquisition experience



Appendix 7.7: Deal value

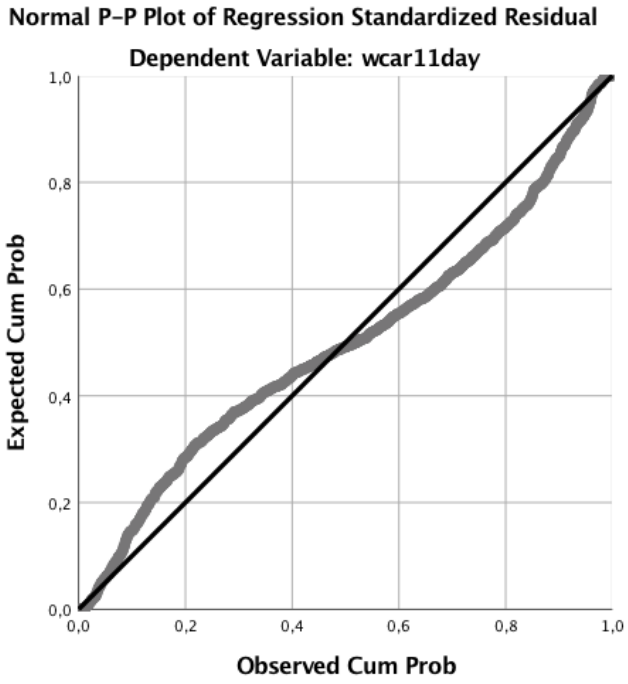


Appendix 7.8: Motive count

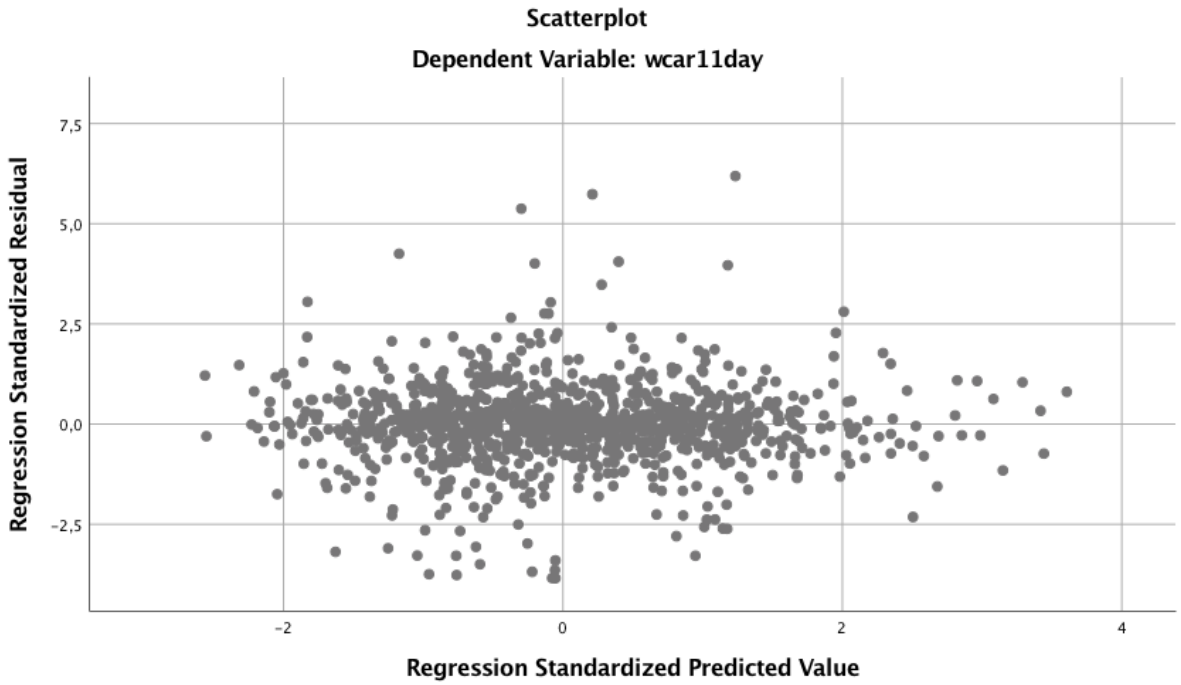


Appendix 8: Regression analysis: Assumptions

Appendix 8.1: Normality



Appendix 8.2: Linearity and Homoscedasticity



Appendix 8.3: Autocorrelation: Durbin-Watson test

	Durbin-Watson
1	1.991

Appendix 8.4: Mulitcollinearity

	Tolerance	VIF
Strategic dissonance	.922	1.085
R&D intensity	.936	1.068
Firm size	.743	1.346
Prior Performance	.971	1.030
Acquisition experience	.881	1.135
Deal value	.827	1.209
Motive count	.880	1.137

Appendix 9: Regression analysis: Output

Appendix 9.1: Results of the regression analysis excluding the quadratic term

	1	2	3	4
(Constant)	.006	.000	.005	.005
	(.015)	(0.16)	(.018)	(.019)
Control variables				
Firm size	-.002	-.002	-.002	-.002
	(.002)	(.002)	(.002)	(.002)
Prior performance	.000	.000	.000	.000
	(.003)	(.003)	(.003)	(.003)
Acquisition experience	.005	.006	.006	.006
	(.003)	(.003)	(.003)	(.003)
Deal value	-.001	-.001	-.001	-.001
	(.002)	(.002)	(.002)	(.002)
Motive count	.005	.006	.006	.006
	(.004)	(.004)	(.004)	(.004)
Independent variables				
Strategic dissonance		.016	.016	.014
		(.014)	(.014)	(.030)
R&D intensity			-.002	-.002
			(.002)	(.004)
Interaction effects				
R&D intensity * strategic dissonance				.001
				(.012)
R^2	.005	.006	.006	.006
Adj. R^2	.000	.001	.000	-.001
ΔR^2	.005	.001	.000	.000
Obs.	1116	1116	1116	1116
F	1.083	1.107	1.025	.897

$^{***}p < .001$; $^{**}p < .01$; $^{*}p<.05$

Appendix 9.2: Results of the regression analysis including the quadratic term

	1	2	3	4	5	6
(Constant)	.006	.000	.010	.015	.015	.011
	(.015)	(.016)	(.017)	(.018)	9.0190	(.021)
Control variables						
Firm size	-.002	-.002	-.002	-.002	-.002	-.002
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
Prior performance	.000	.000	.000	.000	.000	.000
	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)
Acquisition experience	.005	.006	.006	.006	.006	.006
	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)
Deal value	-.001	-.001	-.001	.000	.000	.000
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
Motive count	.005	.006	.006	.006	.006	.006
	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)
Independent variables						
Strategic dissonance		.016	-.088*	-.088*	-.087	-.038
		(.014)	(.044)	(.044)	(.05)	(.094)
Strategic dissonance^2			.166**	.166**	.166**	.086
			(.067)	(.067)	(.067)	(.147)
R&D intensity				-.002	-.002	.000
				(.002)	(.004)	(.006)
Interaction effects						
R&D intensity * strategic dissonance					.000	-.024
					(.012)	(.04)
R&D intensity * strategic dissonance^2						.038
						(.061)
R^2	.005	.006	.011	.012	.012	.012
Adj. R^2	.000	.001	.005	.005	.004	.003
Δ R^2		.001	.005**	.001	.000	.000
Obs.	1116	1116	1116	1116	1116	1116
F	1.083	1.107	1.823	1.667	1.480	1.369

$^{***}p < .001$; $^{**}p < .01$; $^{*}p<.05$

Appendix 10: U-shaped curve