

Acquisitive Behaviour by Distressed Firms and its Impact on their Financial Distress

A research on the impact of acquisitive behaviour by financially distressed firms on their financial distress through the lens of agency theory and performance feedback theory

Master's Thesis in Strategic Management

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Abstract

Understanding the consequences of their acquisitive behaviour is all-important for every acquirer. In order to fill an existing gap in literature, this research investigates the impact of acquisitive behaviour by financially distressed firms on their financial distress through the lens of agency theory and performance feedback theory. The hypotheses were tested on a dataset with acquisitions from the time period 2001-2017, using a matched-pair sample of 33 acquirers and 33 non-acquisitive control firms. Using mixed ANOVA as well as regression, I find non-robust support for the hypothesis that acquisitive behaviour by financially distressed firms is positively related to their financial distress and no significant support for the hypothesis that this relationship is moderated by negative attainment discrepancy. The potential moderating effect of agency problem on this relationship was regrettably not testable. Despite not finding significant and/or robust support for the hypotheses, this thesis still contributes to the novel exploration of the phenomenon that is the financially distressed acquirer.

Keywords: acquisitive behaviour, M&A, financial distress, agency theory, performance feedback theory, matched-pair sample, mixed ANOVA, regression with MEMORE.

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Introduction

Financial distress can be defined as a late stage of corporate decline that precedes more catastrophic events such as bankruptcy or liquidation (Platt & Platt, 2002). It is hardly possible to not acknowledge the relevance of the financial distress literature in a time like this. In the wake of the Covid-19 pandemic, there will be a surge of financial distress in the business sector (Greenwood et al., 2020). The increase in financially distressed players in the business area that will inevitably occur will consequently create scope for more mergers and acquisitions involving a financially distressed actor. Currently, the majority of the research in the combined field of M&A and financial distress has been focussed on situations wherein the target or seller has been in a state of financial distress (e.g. Clark & Ofek, 1994; Bruton et al., 1994; Meier & Servaes, 2020). The term ‘distressed M&A’ is even almost exclusively used for these situations. This applies not only to management literature, but also to the legal world (e.g. Baker McKenzie, 2020; Van Benthem & Keulen, n.d.).

We can thus state that the financially distressed acquirer has not taken centre stage. The acquisitive behaviour by financially distressed firms, that is to say the engagement of those companies in M&As as acquirers (Øyna et al., 2018), has been underexposed. According to Bruyland et al. (2019), literature is still in its infancy when it comes to studying M&A by acquirers who face financial distress. While this might make sense on the surface, given that acquiring while in a state of financial distress is perhaps counter-intuitive, it disregards the reality wherein this behaviour is common. According to Zhang (2022), distressed firms were responsible for 23% of the \$5.8 trillion that was spent on M&As between 2010 and 2018 by large public firms in the United States. Besides this practical incentive, the exploration of acquisitive behaviour by financially distressed firms is goaded by theoretical considerations. In this thesis, the behaviour at issue will be placed in the context of the extensive body of turnaround literature and will be explored in the light of agency theory (e.g. Eisenhardt, 1989; Amihud & Lev, 1981; Bruyland et al., 2019; Ferris et al., 2007; Gormley & Matsa, 2016) and performance feedback theory (e.g. Kotiloglu et al., 2021; Haleblan et al., 2006; Iyer & Miller, 2008; Kim et al., 2015). Whereas the body of turnaround literature is used to construe the primary relationship between the acquisitive behaviour by financially distressed firms and their financial distress, the theoretical lenses will each bring forward a key concept, agency problem and negative attainment discrepancy respectively, that is hypothesized to be of influence on this relationship. These bodies of literature thus induce the embedding of the acquisitive behaviour of financially distressed firms in the context of their financial distress. This embedding reveals

the consequences of the acquisitive behaviour for the financial distress of these firms, which is crucial information to possess when contemplating being acquisitive. Given the undesirability of the state of financial distress, which clearly shines through in the given definition of Platt and Platt (2002) and the significant net costs of this kind of distress (Andrade & Kaplan, 1998), firms should think twice when undertaking actions that have the potential to worsen their financial distress.

This introduction thus far described which problem area this thesis seeks to untangle. It is clear that its aim is to fill the gap in literature by finally throwing light on the phenomenon that is the financially distressed acquirer. On account of the mentioned availability of bodies of literature that can be drawn on to associate acquisitive behaviour with financial distress and the undesirability of the state of financial distress, the embedding of acquisitive behaviour in the context of the acquirer's financial distress that this thesis aims to accomplish is long over due. To summarize the problem and gap that have been outlined above, we can formulate the following as the focal question of this thesis.

RQ: What is the relationship between the acquisitive behaviour by financially distressed firms and their financial distress?

As indicated, the research question will be answered on the basis of multiple bodies of literature. Derived from this, the following subquestions will be considered in order to come to an answer to the focal question.

SQ1 What are the implications of the turnaround literature for the acquisitive behaviour of financially distressed firms?

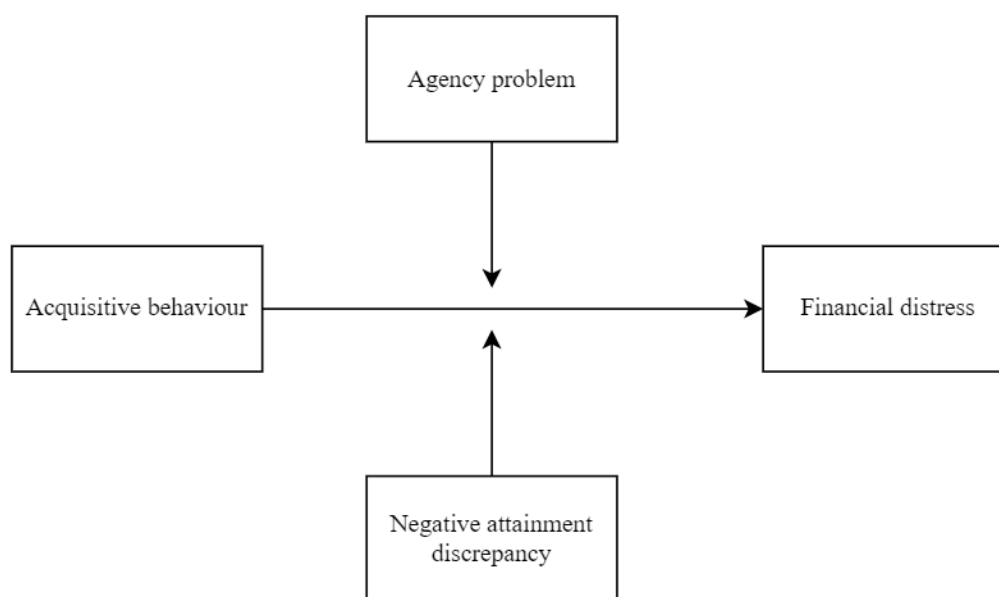
SQ2 What is agency theory and what are the implications of this theory for the acquisitive behaviour of financially distressed firms?

SQ3 What is performance feedback theory and what are the implications of this theory for the acquisitive behaviour of financially distressed firms?

The visual representation of the key concepts that were mentioned in this introduction can be found in Figure 1.

Figure 1

Conceptual model



I hypothesize the relationship between acquisitive behaviour of financially distressed firms and their financial distress to be positive and additionally, I hypothesize on the moderating effect of agency problem and negative attainment discrepancy on this relationship, thereby expecting the relationship to be respectively stronger and weaker in occurrence of these events. By using mixed ANOVA and regression with the MEMORE macro, I test my hypotheses on a longitudinal dataset over a time period from 2001 to 2017 containing a sample of 33 acquires and 33 control firms. Non-robust support is found for the first mentioned hypothesis, while no support is found for the hypothesis concerning the moderating effect of negative attainment discrepancy. The moderating effect of agency problem could not be tested on account of an absence of adequate data. The contributory value of this research largely lies in its novel theoretical approach.

The remainder of this study is structured as follows. Section II presents an analysis of the mentioned relevant theories with regard to the acquisitive behaviour of financially distressed firms in the context of their financial distress. Besides the analysis of the literature, this section brings forward the hypotheses derived from that analysis and the conceptual model completed with the hypotheses. Section III discusses the research methodology used in this study. Section IV then provides the empirical results, as well as the robustness analyses. Lastly, Section V concludes by discussing the findings, the implications for research and practice, and the limitations and suggestions for future research.

Theoretical Background and Hypotheses

Combining Agency Theory and Performance Feedback Theory

This thesis examines the acquisitive behaviour by financially distressed firms in the light of both agency theory and performance feedback theory. The following paragraphs aim to explicate this combination of lenses, which is called for given that this combination seems to be uncommon in strategic management literature. The basics of agency theory and performance feedback theory will be addressed separately after which I will justify the use of these theories.

Agency Theory

Agency theory covers the so-called agency relationship. In terms not specifically tailored to the strategic management domain, this relationship embodies the connection between a party that delegates work and a party who then performs that work (Eisenhardt, 1989), which are respectively labelled ‘the principal’ and ‘the agent’. While this delegation may generate agency costs, the capacity to hire superior skill may more than outweigh these costs (Foss et al., 2021). Agency theory attempts to describe the agency relationship by using the metaphor of a contract. In the jargon of the theory, the agency relationship can be defined as a contract under which one party engages another party to perform some service on their behalf (Jensen & Meckling, 1976). Given the centrality of the concept of the contract in this theory, it is not remarkable that the focus of the theory is on determining the most efficient contract governing the principal-agent relationship (Eisenhardt, 1989). This focus is however not adopted in this study. Rather than using the contract as the linchpin, the agency conflict and consequent agency behaviour and agency problem will serve as the explanatory factors.

Within the modern corporation, there frequently exists a separation between the individuals making the decisions (managers/agents) and the individuals bearing the consequences of those decisions (shareholders/principals) (Denis et al., 1999). Due to this separation of control and ownership, divergent management and shareholder objectives and information asymmetry between managers and shareholders, it is reasonable to assume that the interests of the agents and principals in this particular situation will not always align (Dey, 2008). These conflicting interests are collectively referred to as ‘agency conflicts’ and are the reason that managers have the incentive and ability to maximize their own utility at the expense of corporate shareholders (Dey, 2008). There is therefore good reason to believe that the agents will not always act in the best interests of their principals (Jensen & Meckling, 1976). Agency theory predicts that the agents will pursue a, for the principals, value-destroying strategy if their private benefits exceed their private costs (Denis et al., 1999). The theory thus proposes that a

utility-maximizing economic agent may take actions that are inconsistent with the interests of the principal (Amihud & Lev, 1999). This behaviour that the agent demonstrates with the aim to opportunistically maximize his own personal wealth is called ‘agency behaviour’ (Löhde et al., 2021). It is thus the behaviour of the agent that results from their self-interest, which is one of the assumptions about people that is key in agency theory (Eisenhardt, 1989). When it is also difficult or expensive for the principal to verify what the agent is actually doing on top of the conflicting interests, we arrive at the situation that is called the ‘agency problem’ (Eisenhardt, 1989).

An important sidenote to this theory has to be made. Jensen (1986) states that corporate managers are the agents of the principal-shareholders. This clear assumption of shareholder primacy that is central in the traditional version of agency theory can be disputed. There is growing public and academic concern that incentives to align the interests of shareholders and management can have severe negative consequences for a broad range of non-shareholding stakeholders (Zolotoy et al., 2021). The extension of agency theory, stakeholder-agency theory, has sought to shift the agency literature beyond a shareholder primacy perspective. This paradigm encompasses the implicit and explicit contractual relationships between all stakeholders (Hill & Jones, 1992) and not just between the shareholders and the management. While this interpretation of agency theory still indicates management to be the agent, it gives rise to the question if only shareholders can be labelled to be the principals. Hill and Jones (1992) however state that it would be incorrect to assume that all possible groups of stakeholders are principals in the sense that is implied by agency theory, given that few stakeholders can be said to have delegated the work for the management to perform. In this study, the notion of the principal-shareholders will remain for the sake of simplicity. It should be remarked however that the central concepts of agency theory in this study, the agency conflict and the subsequent behaviour and problem, are also prominent in stakeholder-agency theory (Zolotoy et al., 2021). This sidenote does, in that sense, not alter the intended application of the lens.

Performance Feedback Theory

Performance feedback theory has been recognized as a generative theory in organization and management studies that explains why, when and how organizations initiate or discontinue certain strategic actions (Kotiloglu et al., 2021). According to this theory, managers perceive and learn from performance feedback and thereby critically shape organization responses (Saraf et al., 2021). Central to this theory is thus the concept of ‘performance feedback’, which

describes the organizational performance relative to aspirations (Kotiloglu et al., 2021). For the evaluation of organizational performance, this theory makes use of aspiration levels as reference points (Kotiloglu et al., 2021). Firms set their aspiration levels to reflect organizational goals (Kim et al., 2015). The idea that aspiration levels reflect organizational goals communicates their context-sensitive nature: while a general performance proxy such as return on assets (ROA) could be used, the circumstances may require a different proxy such as size or growth rates in the context of new ventures (Chen & Song, 2022) or worldwide market share in the setting of the mobile device industry (Joseph & Gaba, 2015). The aspiration levels serve as the benchmark for assessing observed performance in an effort to facilitate the interpretation of prior performance (Kim et al., 2015). Setting these levels simplifies the performance evaluation process: performance that exceeds aspiration levels is viewed as a success, while performance that falls below the levels is less favourably regarded (Cyert & March, 1963). Both cases of deviation from the aspiration levels, i.e. above and below the levels, can be labelled as ‘attainment discrepancy’ (Iyer & Miller, 2008). Central in this study is ‘negative attainment discrepancy’. This is the specific situation wherein the performance falls below an aspiration level (Iyer & Miller, 2008). As the organization enters a problem-solving mode upon sensing a problem with the performance, performing below an aspiration level usually triggers organizations to engage in problemistic search (Kim et al., 2015; Saraf et al., 2021), which can be described as the effort to identify alternatives to current activities that resolve performance shortfalls (Iyer & Miller, 2008). It acts as a spur to organizational change, as it encourages the exploration of alternative actions (Kim et al., 2015). Performance feedback theory thus proposes problemistic search as an urgent organizational response to solve the problem of performance below aspirations (Saraf et al., 2021).

Just like agency conflict and the subsequent behaviour and problem, negative attainment discrepancy, and the subsequent problemistic search, will act as explanatory factors in this study.

The Rationale behind the Theoretical Lenses

Both agency theory and performance feedback theory can explain how organizations behave when things are not going well, as is arguably the case when in financial distress. They are both, as self-standing theories, fitting to the subject of this study. Agency theory is frequently used in the context of the firm in general and acquisitions in particular. According to Berkovitch and Narayanan (1993), agency is one of the three major motives for acquisitions. The theory is then, unsurprisingly, oftentimes used in management studies that are focussed on

mergers and acquisitions (e.g. Amihud & Lev, 1981; Eminli, 2019; Gormley & Matsa, 2016; Meghouar, 2021; Hodgkinson & Partington, 2008; Merrett & Houghton, 1999; Nguyen et al., 2012). As to the domain that combines acquisitions with financial distress, agency theory also shows up with some regularity (e.g. Datta et al., 2003; Bruyland, 2019; Pryshepa et al., 2013). Performance feedback theory is also mentioned in studies regarding acquisitions on a regular basis (e.g. Haleblian et al., 2006; Iyer & Miller, 2008; Kim et al., 2015).

While it is now established that both agency theory and performance feedback theory are individually well-used in the context at hand, it has yet to become clear why the combined use of theories is appropriate. First of all, it is argued that agency theory should be used with complementary theories in order to yield a more realistic view of organizations (Eisenhardt, 1989; Hirsch et al., 1987). The combination with performance feedback theory is intended to do just this. Secondly, the manner in which the subject matter of this study can be rooted in the two theories bears resemblances. Although the precise outlining wherein this is done will take place later in this section, I feel it is important to already highlight the similarity between the reasonings at this point. Both the paragraphs regarding agency theory and the paragraphs regarding performance feedback theory that rationalize the acquisitive behaviour by financially distressed firms will be written from a portfolio perspective. Following Amihud and Lev (1981), I reason that the ‘why’ of the acquisitive behaviour by financially distressed firms can be found, with the help of agency theory, in the lack of portfolio wherein managers can diversify their employment risk, in which consideration is given to the portfolio factor ‘diversification’. Following Donaldson (1999; 2000), I reason that the ‘why’ of the acquisitive behaviour by financially distressed firms can be found, with the help of performance feedback theory, by applying the problemistic search argument (‘performance below aspiration triggers problemistic search’) while giving consideration to the portfolio factor ‘debt’.

By using the two theories and by applying the concept of portfolios in the context of both theories, we thus arrive at two possible rationalizations of the acquisitive behaviour by financially distressed firms. The two theories are therefore able to offer different views on the subject at hand, which have different implications for the relationship between the acquisitive behaviour of financially distressed firms and their financial distress.

Embedding and Rationalization of Acquisitive Behaviour by Financially Distressed Firms

As the saying goes: one man’s misfortune is another man’s opportunity. It is in this light unchallenging to envision a M&A-situation with a potential target and/or seller in financial problems and a potential acquirer with deep pockets that is more than willing to intervene. It is

therefore that the situation wherein the acquisitive behaviour is performed by the financially distressed party may feel counter-intuitive. The above narrative also goes beyond common sense and intuition. Literature shows that the probability of a firm being an acquirer is positively related to its earnings, sales and cash flows (Eminli, 2019). Derived from this, the probability of a firm being an acquirer while in financial distress is relatively low. It is then not surprising that the vast majority of the distressed M&A literature pertains to the situation of the distressed target and/or seller and not to the situation of the distressed acquirer. However, as was mentioned earlier, different bodies of literature are available for the embedding and rationalization of the acquisitive behaviour by financially distressed firms. The following paragraphs will first embed the behaviour in the context of the acquirer's financial distress by means of the turnaround literature, after which the behaviour will be rationalized by applying agency theory and performance feedback theory

Acquisitions as turnaround strategy

The first theoretical incentive that goads the exploration of acquisitive behaviour by financially distressed firms is that this behaviour can be incorporated in the extensive body of turnaround literature. Turnaround can be defined as a decline and recovery from distress (Schendel & Patton, 1976). They are becoming imperative because of the seemingly endless stream of disruptions companies face (Reeves et al., 2019). These disruptions can lead to a situation of firm decline which threatens the firm's development and survival (Hofer, 1980; Wang & Bai, 2021). It is for this reason that a great deal of attention has been devoted to how firms can turn around a decline situation (Wang & Bai, 2021). The possible ways that firms can turn around the decline situation are diverse and fundamentally differ in their nature of theoretical grounding (Schweizer & Nienhaus, 2017). Prior studies have mainly focused on two broad categories of response actions, namely the retrenchment actions, which are intended to reduce costs and improve efficiency, and the strategic actions, which are intended to search for new opportunities (Wang & Bai, 2021). A similar distinction is made by Robbins and Pearce (1992), who divide the turnaround process in a retrenchment stage and a recovery stage. In this distinction, the retrenchment stage denotes the reductions in costs and assets in order to stabilize the performance decline, while the recovery stage embodies the systematic investments to stimulate financial improvement and to re-orientate the firm towards sustainable competitive advantage. Although acquisitions are undeniably mentioned in the context of the latter type of actions respectively stage of the process (e.g. Wild, 2010; Morrow et al., 2007), it seems that the body of turnaround literature is not well meshed with the distressed M&A literature.

Mergers and acquisitions are one of the strategies pursued by companies to maintain and improve their financial performance. The underlying rationale for the financial distress resolving potential of acquisitions is that recombining the firm's existing resources may not be sufficient to produce the recovery needed (Morrow et al., 2007). The competitive environment may necessitate that firms change their mix of resources in order to develop new opportunities (Wild, 2010). Acquisitions can be the gateway to obtaining substantial new resources. This facilitates the development of new capabilities, the increase of the economies of scale and/or scope and the increase of bargaining power (Morrow et al., 2007). This course of action may contribute to successful sharp bend and sustained good performance thereafter (Sudarsanam & Lai, 2001). The turnaround acquisitions that succeed have the potential to bring considerable rewards: they generate gains in both revenue growth and profit margins, as well as significantly better returns (Reeves et al., 2019).

However, this success is not as easily reachable as it might sound. Turnaround acquisitions are far from a safe bet. M&A deals and turnaround programs are already difficult to pull off on their own, which makes the successful execution of the combination even more challenging (Reeves et al., 2019). Even when a deal pertaining to an acquisition is not made in the context of turnaround, it most often fails to create value (Reeves et al., 2019). According to Lewis and McKone (2016), more than 60% destroy shareholder value, and 'fail' in that sense. In this context is the human aspect non-negligible: acquisitions can potentially be seen as a breach of existing social contracts (Aalbers et al., 2014) and have the potential to create severe personal trauma and stress, which can result in negative outcomes for not just the individuals involved, but also for the firm (Ivancevich et al., 1987). Many acquisitions consequently affect firm performance negatively, rather than positively (Morrow et al., 2007). This is even more likely to be true for firms with declining performance, given that these firms rarely have sufficient time to develop difficult-to-create synergies (Morrow et al., 2007). Bruyland et al. (2019) found that the well-established long-run underperformance of acquiring firms is largely driven by the sub-set of high default risk acquirers. These studies thus demonstrate the unlikeliness of a distressed firm successfully undertaking a turnaround acquisition. The riskiness of this course of action that results from this unlikeliness is only exacerbated by the fact that struggling, distressed firms often do not have the necessary means, given that they are expected to be restricted in their way of funding the turnaround acquisition (Wild, 2020). Sufficient funds in these cases can often only be created through the sale of current businesses (Wild, 2010), which emphasizes how precarious this turnaround approach is for firms in financial distress.

To recap the previous paragraphs, we can state that acquisitive behaviour while in financial distress can have the potential to be distress resolving, but that this turnaround-potential remains unrealized in a sizeable amount of cases. Given the two conflicting narratives, the answer to the question what the implications of the turnaround literature are for the acquisitive behaviour of financially distressed firms (SQ1) is clearly nuanced. However, given the high failure rate of turnaround acquisitions in combination with the costs of the acquisitions, only one conclusion seems plausible. When the turnaround acquisition fails, as is more often the case than not according to the paragraphs above, the costs associated with the turnaround acquisition will not be earned back. While successful acquirers can think of the expenses as investments (Reeves et al., 2019), unsuccessful acquirers cannot. Given the high failure rate, it is likely that the average costs associated with acquisitions undertaken by financially distressed firms will surpass the average gains. In other words, due to the unrecoverable costs that will often be found in these situations, the attempt to undertake a turnaround acquisition is likely to have the opposite effect than intended: it will add to the existing financial distress, instead of mitigating it. It is for this reason that I propose that acquisitions made by financially distressed firm generally lead to an increase in financial distress. The first hypothesis reads as follows.

H1: *Acquisitive behaviour by financially distressed firms is positively related to their financial distress.*

Acquisitions as agency problem

The second theoretical incentive to explore acquisitive behaviour by financially distressed firms is an available theoretical framework that can rationalize this behaviour. I argue that acquisitions made by financially distressed firms can be an illustrious example of the concepts of agency theory highlighted earlier. Self-interested managerial behaviour resulting from agency conflicts can comprise a range of activities that are not optimal for shareholders (Dey, 2008) and in this thesis, following the example of i.a. Amihud and Lev (1981) and Bruyland et al. (2019), I contend that undertaking acquisitions when in a state of financial distress falls within this range. The following paragraphs use the concept of portfolios to explicate the agency conflict and the subsequent agency behaviour and problem that can be encountered in the context of financially distressed acquirers, in order to establish the role of agency problems in the relationship between acquisitive behaviour and financial distress.

Shareholders are able to balance the risks involved in the firm against other risks that they hold in their portfolio (Amihud & Lev, 1981). By ensuring that the assets in their portfolio have negative or low positive correlations, they can reduce the overall risk of the portfolio

(Donaldson, 2000). They are thus able to invest in risky assets in order to attain higher average returns without raising their overall risk too much by paying attention to the correlations between the assets (Donaldson, 2000). Managers, however, rarely have such a portfolio and therefore rarely have the same balancing-opportunities (Amihud & Lev, 1981). This lack of balancing-opportunities and the subsequent risk aversion of managers can be a motive for acquisitive behaviour while in a state of financial distress. Financial distress is the stage of corporate decline that precedes events such as bankruptcy or liquidation (Platt & Platt, 2002). These events will naturally often result in the managers losing their current employment and have the potential to seriously hurt their future employment and earnings potential. Since this employment risk cannot be diversified in their personal portfolios, given that they generally don't exist, they can attempt to diversify by means that diversify the organization's portfolio, such as undertaking acquisitions (Amihud & Lev, 1981). The statement that acquisitions by financially distressed firms are undertaken because of the diversifying advantages for managers is supported by Bruyland et al. (2019), who found that high default risk acquirers select unrelated targets. While the managers are thus expected to take actions that minimize the source of earnings variance, shareholders are likely to be indifferent to the level of unsystematic risk (Lane et al., 1998). On top of this, it is suggested that the costs of diversification on average outweigh the benefits, which means a subsequent reduction of shareholder wealth (Denis et al., 1999). From these considerations, it is clear that undertaking, mainly unrelated, acquisitions as described above is not in line with the interests of the shareholders. The interests of the management and shareholders thus conflict, which constitutes an agency conflict. More specifically, it indicates the existence of a risk-related agency conflict. This conflict is described by Gormley and Matsa (2016) as managers who have, motivated by risk aversion or career concerns, the incentive to take on less risk than is desired by diversified shareholders or to undertake value-destroying actions that reduce the firm's risk. Hence, the agency conflict is the reason that management has the incentive and ability to maximize their own utility at the expense of corporate shareholders (Dey, 2008). The diversification of the risk is an attempt of the managers to maximize their personal wealth by reducing the probability of losing their employment and the linked earnings. To rephrase, acquisitive behaviour when in a state of financial distress can potentially be attributed to the pursuit of the self-interest of the managers. The deviance from the interests of the shareholders by management is however not necessarily easily verifiable for the shareholders, given that the drivers of the acquisition will not automatically be known to them. Acquirers do not always announce their acquisition motives, and even when they do, there could be additional motives that are not announced. It is therefore

generally difficult to obtain a clear picture of the underlying motivation for M&As (Nguyen et al., 2012). Shareholders cannot fully observe and verify projected synergies or prevent suboptimal deals from occurring (John et al., 2015). Hence, the classic agency problem has developed: unless closely monitored, managers will act out of self-interest and pursue actions intended to lower unsystematic risks for which shareholders are generally not rewarded (Lane et al., 1998).

It is clear that the three central concepts of agency theory in this study, agency conflict, agency behaviour and agency problem, are prominently present in the context of distressed acquisitions. To recap the previous paragraph, the interests of shareholders and management diverge ('agency conflict'), which is only exacerbated in the situation of financial distress. This incites managers to pursue acquisitions on behalf of their own interests rather than serving the interests of the shareholders ('agency behaviour'), which creates a situation wherein the shareholders cannot easily verify what the managers are doing ('agency problem').

The application of agency theory on the financially distressed acquirer indicates the presence of a moderating relationship. The agency problem described above has the potential to strengthen the positive relationship between acquisitive behaviour by financially distressed firms and their financial distress as expressed in H1.

Firstly, the strengthening of the relationship can be attributed to decreased risk-taking. Organizational portfolio theory treats the organization as a portfolio of causes of organizational performance (Donaldson, 2000). While Donaldson (1999; 2000) recognizes eight organizational portfolio factors, one in particular stands out when taking into account the way agency theory rationalizes the acquisitive behaviour by financially distressed firms. This is the factor 'diversification'. As explicated earlier, according to agency theory and confirmed by Bruyland et al. (2019), financially distressed firms strive for diversification when being acquisitive. Diversification decreases risks (Donaldson, 2000). The problematic aspect of the decrease in risk-taking is that risk and return are related. Over the long run, it is not possible to achieve exceptional returns without accepting substantial risk (Malkiel & Yexiao, 1997). High concentrations of risk are thus not necessarily bad. Taking risks is part of what companies must do to create profits and shareholder value (Buehler & Pritsch, 2003). In other words: taking risks is imperative in order to achieve the returns that are necessary for the firm to become financially healthy. The above reasoning is in line with Morck et al. (1990) who found that acquisitions driven by diversification and growth motives result in lower acquirer returns and with the statement of Donaldson (2000) that risk reduction due to diversification may harbour negative impacts on firm performance longer term. It should be noted however that an adequate

management of the risks is necessary. Companies that fail to have appropriate risk-management processes face a different kind of risk: unexpected and sometimes severe financial losses (Buehler & Pritsch, 2003).

Secondly, the strengthening of the relationship can be attributed due to the costs that are associated with the agency problem.

First of all, the principals can *ex ante* attempt to limit divergences from their interests by incurring monitoring costs (Jensen & Meckling, 1976). Monitoring costs are firm-level expenses that are incurred when principals attempt to regulate the actions of their agents. These costs reflect the resources that shareholders expend to restrict managers from behaving out of self-interest (Chakravarty & Grewal, 2016). These costs are only increasing in case of acquisitions. With acquisitions, you combine formerly independent businesses, resulting in a larger post-acquisition entity. This increase in firm size gives rise to an increase in agency costs, given the increase in complexity and difficulty in monitoring that is inherent to a bigger firm size (McTier & Wald, 2011). Important to note is that an increase in managers' ownership is often seen as a way to better align the interests and encourage risk taking, however, if management is undertaking the acquisitions because of risk averseness or worries about the potential impact on their income or wealth as is hypothesized here, then this course of action will only worsen the agency conflict (Gormley & Matsa, 2016).

Furthermore, the conflicting objectives of the shareholders and managers in the context of acquisitions outlined earlier can be addressed through specific governance structures and mechanisms (Löhde et al., 2021), which have financial consequences. One of alternatives is the pursuit of legal action by the shareholders. The legal protection of shareholder's rights is recognized as an essential element of corporate governance (Shleifer & Vishny, 1997, cited in Wu et al., 2020). The consequent lawsuits can be seen as *ex post* governance mechanisms and thereby pose a disciplining threat on management to behave in a situation where other governance mechanisms have failed or are unavailable (Bauer et al., 2009). While the shareholders can thus *ex post* counter behaviour that is not in their interests via these lawsuits, the mere threat is a disciplining force and a monitoring mechanism *ex-ante* (Bauer et al., 2009). The right to sue has traditionally been viewed as a response to the agency problem, as shareholder litigation seeks to minimize agency costs and to better align the interests of the managers with those of the shareholders by punishing the managers when they misbehave (Afshar, 2014). With lawsuits being in place as a governance mechanism in case of conflicting objectives, firms that suffer from agency problems are relatively likely to face lawsuits (e.g. Ferris et al., 2007; Strahan, 1998; McTier & Wald, 2011). The costs that are associated with

these suits are substantial. Litigation costs are an enormous burden to firms (Wu et al., 2020). Besides the obvious costs for legal assistance, the suits oftentimes aim to reimburse shareholders for damages caused by poor management (Afshar, 2014). These attorney's fees and settlement amounts are part of the direct legal costs that are incurred. Other costs than these direct legal costs are often overlooked because they are not directly observable (Wu et al., 2020). Litigation consumes significant time for management (Wilson, 2020). Opportunity costs of management distraction are incurred because management will allocate more time to holding special shareholder meetings and amending corporate bylaws, leaving less time for making decisions (Wu et al., 2020). Furthermore, litigation undermines the reputation of the firm and sends a risk signal to investors, creditors and other stakeholders, which is negatively associated with the firm's value and future prospects. These sued firms may suffer from a loss of customers and suppliers and from a damaged public image (Wu et al., 2020). To summarize the indirect costs associated with lawsuits, we can quote Wu et al., (2020, p. 213): "firms at risk of litigation face more external financing constraints, reduced investment opportunities, high reputational costs related to management time and energy, and a loss of existing customers and suppliers".

The agency problem thus has the potential to strengthen the positive relationship between acquisitive behaviour by financially distressed firms and their financial distress as expressed in H1 due to decreased risk-taking and the costs that are associated with the agency problem. The second hypothesis reads as follows.

H2 ('The Agency Hypothesis'): *The agency problem moderates the relationship between acquisitive behaviour by financially distressed firms and their financial distress as expressed in H1; the relationship is stronger in event of an agency problem.*

Acquisitions as a result of negative attainment discrepancy

The third theoretical incentive to explore acquisitive behaviour by financially distressed firms is that, besides agency theory, another theoretical framework can rationalize this behaviour. I argue that acquisitions made by financially distressed firms can be an example of how the key concepts of performance feedback theory highlighted earlier, attainment discrepancy and problemistic search, take effect in practice. Following Iyer and Miller (2008), I apply performance feedback theory at the corporate level to analyse acquisitions. The following paragraphs will, following Donaldson (1999; 2000), use the concept of portfolios to explicate the situation of attainment discrepancy and the subsequent problemistic search that can be encountered in the context of financially distressed acquirers, in order to establish the

role of negative attainment discrepancy in the relationship between acquisitive behaviour and financial distress.

As mentioned in the paragraphs concerning agency theory, organizational portfolio theory treats the organization as a portfolio of causes of organizational performance (Donaldson, 2000). Of the eight organizational portfolio factors that Donaldson (1999; 2000) recognizes, one in particular stands out in the context of financial distress when looking through a performance feedback theory lens. This is the factor 'debt'. Recall that, in performance feedback theory, the performance is evaluated by using aspiration levels as benchmark (Cyert & March, 1963). Debt tends to raise this aspiration level, because there is a certain minimum operating profit that has to be made in order to cover the interest payments that have to be made regularly (Donaldson, 2000). In other words, debt raises the bar for when performance is deemed satisfactory. According to Bruyland et al. (2019), financially distressed bidders have relatively high debt. This means that for firms in financial distress, the bar for when performance is deemed satisfactory is relatively high. This thus increases the likelihood that the performance will be below an aspiration level, which constitutes a case of negative attainment discrepancy. Negative attainment discrepancy usually triggers organizations to engage in problemistic search (Kim et al., 2015), which is the effort to identify alternatives to current activities that resolve performance shortfalls (Iyer & Miller, 2008). In these situations, firms often resort to acquisitions to accelerate growth and to try to accomplish performance turnaround (Iyer & Miller, 2008). The pressure to meet debt obligations thus incentivizes distressed firms to become acquisitive, which is in line with the findings of Zhang (2022).

Performance feedback theory is therefore, just like agency theory, able to explain why financially distressed firms would undertake acquisitions. The application of performance feedback theory also indicates the presence of a moderating relationship. The described negative attainment discrepancy has the potential to weaken the relationship between acquisitive behaviour and financial distress expressed in H1.

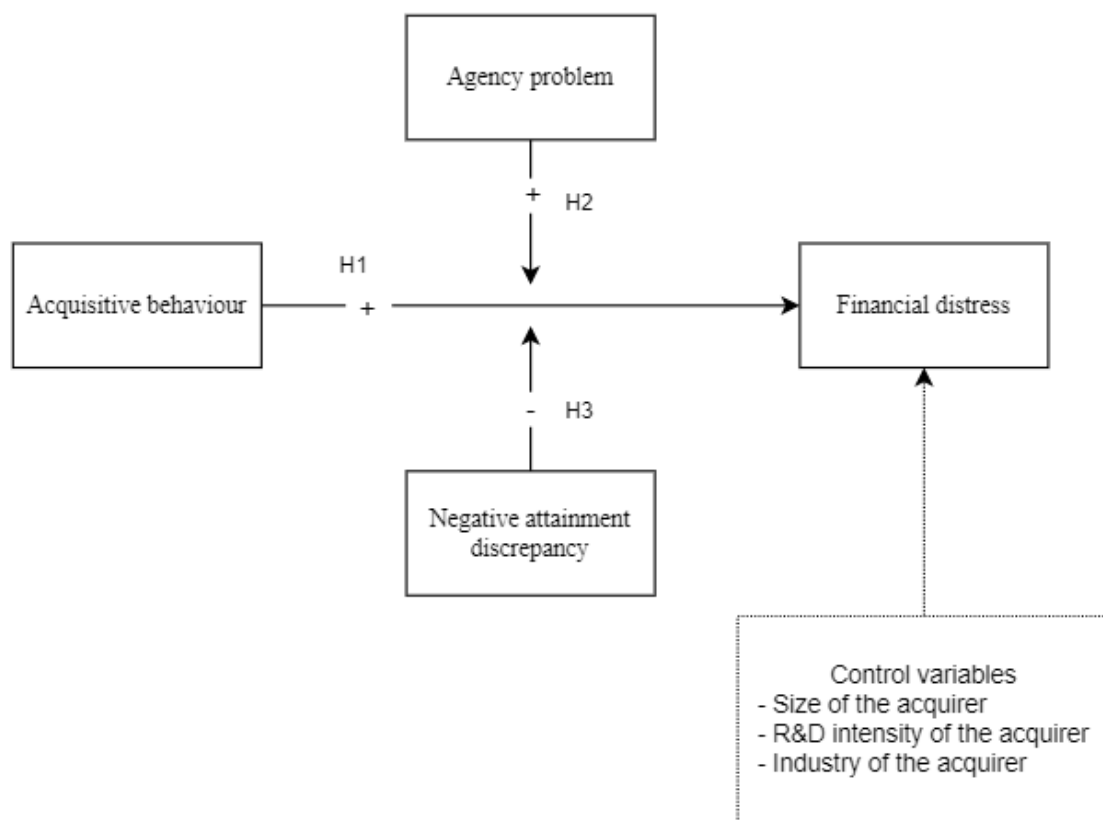
When performance falls short of aspiration levels, as is the definition of negative attainment discrepancy, firms are in general more willing to make organizational changes that are deemed risky: managers seem to feel that risk taking is more warranted when faced with failure to meet targets (March & Shapira, 1987). Given that managers are likely to take riskier actions when their own positions or jobs are threatened (March & Shapira, 1987), the risk taking propensity will only be exacerbated when in financial distress. In addition, the willingness to take on more risk does not just stem from the managers. Because the lacking performance is visible to the entire set of stakeholders such as employees, investors, unions and governments, managers

receive a mandate to take more risk from the broader group of stakeholders (Saraf et al., 2021). It is therefore that, in the face of unsatisfactory performance, firms may become more likely to undertake risky activities that may not be tolerated otherwise (March & Shapria, 1987). As mentioned in the paragraphs concerning agency theory, risks and returns are related in the sense that taking risks is necessary to achieve exceptional returns and to create profits and shareholder value (Malkiel & Yexiao, 1997; Buehler & Pritsch, 2003). The described negative attainment discrepancy thus has the potential to weaken the relationship between acquisitive behaviour and financial distress expressed in H1 due to increased risk-taking.

H3 ('The Performance Feedback Hypothesis'): *Negative attainment discrepancy moderates the relationship between acquisitive behaviour by financially distressed firms and their financial distress as expressed in H1; the relationship is weaker in event of negative attainment discrepancy.*

Figure 2

Conceptual model with hypotheses and control variables



Note. The control variables will be outlined in section III (Methodology).

Methodology

This section describes and justifies the methodological choices that were made in this study. Firstly, the type of research, empirical context and data collection will be described. Secondly, the research ethics will be discussed. Thirdly, the variables that are central in the hypotheses and the operationalization of these variables are presented. Fourthly, the sample will be discussed. The last subsection contains the methods for the analysis of the data.

Type of Research, Empirical Context and Data Collection

To be able to assess the hypothesized relationships expressed in Figure 2, this study made use of data collection and analysis that can be classified as quantitative. The quantitative nature of this study fits with the considerable size of the initial dataset that I started this trajectory with (Van der Zee, 2005), which is used in an ongoing PhD-research. It originally contained data of 3288 acquisitions that were announced in the period between 2000 and 2017 by firms located in 72 different nations. Following McCarthy and Aalbers (2016), the acquisitions that were included did not involve a recapitalisation, repurchase of own shares or a spin-off to existing shareholders and only deals by publicly listed acquirers seeking to buy 100% of the target shares at announcement were added. Important to note is that the dataset focusses on non-digital tech firms that aim to acquire firms that intensively leverage digital technologies as critical elements of their business models (Huang et al., 2017). This stipulates the empirical context of this study.

While providing a convenient starting point, the dataset lacked data regarding the financial distress of the acquirer, the presence or absence of an agency problem at the acquirer, the attainment discrepancy before acquiring and a reference group with financially distressed non-acquiring firms, all of which are imperative for conducting this research. Multiple databases have been used to remedy this lack of data. Eikon was utilised for gathering the data regarding financial distress and attainment discrepancy. I also used Eikon to construct the peer group. Orbis was used to check for the acquisitive behaviour of this peer group. Lastly, I used Westlaw as well as Google Search for finding data concerning the agency problem. All the data was merged in Excel to allow for further analysis in SPSS.

Research Ethics

Regarding the principals that had to be followed during this research trajectory, the following can be said. As can be derived from the previous paragraphs, I have not been in contact with participants (e.g. interviewees, respondents on a survey) during this trajectory. The treatment of participants, the freedom to withdraw from the research, the confidentiality and

anonymity and the adequate ways of informing all participants were therefore not considerations that were on the forefront in this study. What was, and always should be, on the forefront is transparency. Up until this point, it was attempted to sufficiently state the sources for theory and data. Hereafter, the way this research was conducted will be outlined as diligently as possible to not only make it doable to retrace my steps, but also to be open about any shortcomings or limitations that might be present.

Variables

The following subsection attends to the different variables in this study. I refer to Appendix A for a concise overview of these variables, their operationalization and the main references used.

The independent variable: acquisitive behaviour

For the independent variable, I created a binary variable following the example of Certo et al. (2008). A binary variable is a non-metrically measured variable transformed into a metric variable by assigning a 1 or a 0 to a subject, depending whether it possesses a certain characteristic (Hair et al., 2019). In the case at hand, this means that this variable took the value '1' if an acquisition had been undertaken and the value '0' if an acquisition had not been undertaken. *AcquisitiveBehaviour* thus represents an indicator variable denoting whether the firm was an acquirer (1 = Yes) or not (0 = No).

The dependent variable: financial distress

Following earlier research in the domain of financial distress (e.g. Amoah-Gyarteng, 2012; Dichev, 1998; Richardson et al., 2015), I used well-known proxies to determine its presence or absence and its magnitude.

The first proxy I used is the Altman Z-score. The Z-score model is used worldwide as a main or supporting tool for financial distress prediction and analysis, both in research and practice (Altman et al., 2017). The broad use of this model for measuring financial distress and performing robustness checks indicates its acceptability as a measure of distressed firms (Altman et al., 2017). The Z-score model has a original variant, but also two extensions. The Z"-score model (Altman, 1983) is the extension with the widest scope, as it is intended for privately held firms as well as publicly listed firms and for both manufacturing and non-manufacturing firms (Altman et al., 2017). The broadness of this scope seemed to be the best fit with the extensiveness of the available dataset. This proxy can be calculated as presented below. I refer to Table B1 for an outline of the variables.

$$\text{Altman } Z''\text{-score} = 3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

The second proxy for financial distress is the Zmijewski-score (Zmijewski, 1984). This method uses financial ratios that measure firm performance, leverage and liquidity. These ratios were not selected on a theoretical basis, but on the basis of their performance in prior studies (Grice & Dugan, 2003). A significant advantage of the Zmijewski model is that it is not industry-specific (Anandarajan et al., 2001). While we already choose the Altman-variant with the widest scope, this proxy is actually universally applicable across industries. The proxy of Zmijewski can be calculated as presented below. I refer to Table B2 for an outline of the variables.

$$\text{Zmijewski-score} = -4.3 - 4.5X_5 + 5.7X_6 - 0.004X_7.$$

Both the proxies know threshold values, i.e. values that serve as a cut-off point to determine if the firm is in financial distress or not (Table 1). For the Altman Z'' -score, scores larger than 5.83 fall in the ‘safe zone’ and scores below 4.50 fall in the ‘distress zone’. The scores that fall in between those numbers fall in the uncertain ‘grey zone’ (Altman et al., 2013). An acquirer is thus labelled as financially healthy when scoring above 5.83 and as financially distressed when scoring below 4.50. Zmijewski used a .5 probability cut-off which implies that firms with probabilities greater than or equal to .5 are classified as bankrupt and firms with probabilities less than .5 are classified as nonbankrupt. He also indicated that this threshold value can be used to make predications (Zmijewski, 1984). An acquirer is thus labelled as financially healthy when scoring below .5 and as financially distressed when scoring .5 or above. These threshold values were used to distinguish the financially healthy firms from the financially distressed firms pre-acquisition with the aim of excluding the financially healthy firms from the analysis. To achieve this, the data regarding financial distress was gathered at $t - 1$, in which t stands for the year wherein the firm was acquisitive. The pre-acquisition period thus ranges from 1999-2016.

Table 1

Threshold values for the Altman Z'' -score and the Zmijewski-score

| Proxy | Financially Healthy | Grey Zone | Financially Distressed |
|--------------|---------------------|-------------|------------------------|
| Altman Z'' | > 5.83 | 5.83 – 4.50 | < 4.50 |
| Zmijewski | < 0.5 | N.A. | ≥ 0.5 |

In order to examine the effect of the acquisitive behaviour on financial distress, the proxies were used as a continuous variable. For this purpose, the data regarding financial distress was not just gathered at $t - 1$, but also at $t + 2$. The two-year period was inspired by Sudarsanam and Lai (2001). The post-acquisition period thus ranges from 2002-2019.

To briefly summarize, we can state that four variables relating to financial distress were created: *FDAltmanPretest* and *FDZmijewskiPretest*, which refer to the financial distress scores at $t - 1$, and *FDAltmanPosttest* and *FDZmijewskiPosttest*, which refer to the financial distress scores at $t + 2$.

The first moderating variable: agency problem

The second hypothesis ('The Agency Hypothesis'), covering the moderating relationship wherein 'agency problem' serves as moderator, aims to test if the presence of an agency problem has an effect on the relationship between acquisitive behaviour and financial distress. While it could have been interesting to consider the magnitude of the problem and its moderating effect, it was more accomplishable to exclusively look at its occurrence. Given that the logic behind the hypothesized relationship in the previous section was mainly based on the simple occurrence of an agency problem, and not on its magnitude, this is not seen as problematic. In line with this approach and with the chosen proxy as will be explained below, a binary variable was once again created. In the case at hand, the binary variable took the value '1' if an agency problem had occurred and the value '0' if an agency problem had not occurred. *AgencyProblem* thus represents an indicator variable denoting whether the firms faced an agency problem (1 = Yes) or not (0 = No).

To determine if an agency problem had occurred, the concept needed to be operationalized. Free cash flow, defined as cash flow in excess of that required to fund all available positive NPV projects (Jensen, 1986), is a commonly used proxy for the agency problem (Chen et al., 2012). Jensen (1986) suggests that managers of firms with high levels of free cash flow are likely to invest it in operations or negative net present value projects instead of paying it out to shareholders in order to increase perquisites consumption. However, this proxy is not suitable in this study given that the proxy focusses on empire building transactions, which is not the agency problem that is central here. The unsuitability of this proxy also follows from the fact that distressed firms have, by definition, limited free cash flow (Bruyland et al., 2019). In this study, the following approach was used. Given the description that was given of the agency conflict, behaviour and problem in the context of the financially distressed acquirer in the previous section, I first determined which acquisitions in the dataset could be marked as

‘diversifying’. In line with Gormley and Matsa (2016), I defined an acquisition as diversifying when the acquirer’s primary SIC code does not coincide with the SIC code of the target firm. Thereupon, I determined which of the diversifying acquisitions led to a lawsuit. Following Ferris et al. (2007), the search for lawsuits surrounding the acquisitions in the sample was narrowed down to class actions and derivative lawsuits. The logic behind lawsuits as a proxy for agency problems is that the agency problems are expressed in and can potentially be resolved by legal interference between shareholders and management, as was described in the previous section. The advantageous aspect of this proxy is that it is workable, given the public nature and the subsequent accessibility of the suits. It should be noted however that using lawsuits as proxy for agency problems is not completely airtight. It is unlikely that shareholders always take legal actions when perceiving that their interests are not served. On top of that, it is common knowledge that not all legal disputes actually result in a lawsuit (i.e. because of a settlement before or during court action). However, the accessibility-argument outweighs this drawback.

The second moderating variable: attainment discrepancy

The third hypothesis (‘The Performance Feedback Hypothesis’), covering the moderating relationship wherein ‘negative attainment discrepancy’ serves as moderating variable, aims to test if the presence of negative attainment discrepancy has an effect on the relationship between acquisitive behaviour and financial distress. For each acquirer in the dataset, it was established whether there was negative attainment discrepancy or positive attainment discrepancy during the period that preceded the acquisition. This distinction between positive and negative attainment discrepancy was also made in Arora and Dharwadkar (2011). To incorporate this distinction, a binary variable was once again created. In the case at hand, this means that the binary variable took the value ‘1’ if the difference between a firm’s performance and aspiration level was negative and the value ‘0’ if the difference was positive or non-existent. *NAD* thus represents an indicator variable denoting whether there was negative attainment discrepancy (1 = Yes) or not (0 = No).

Following the example of Iyer and Miller (2008), I used return on assets (ROA) at $t - 1$ as my performance proxy and two different proxies at $t - 2$ for aspirations. The first aspirational proxy is based on the acquirer’s own prior performance (historical aspiration) whereas the second aspirational proxy is based on the performance of a typical firm that resides in the same industry as the acquirer (social aspiration). The historical aspiration proxy thus comes down to the ROA of the acquirer in period $t - 2$ whereas the social aspiration proxy comes down to the

ROA of the peers in this period. While Iyer and Miller (2008) used the performance of the median firm in the same four-digit SIC category for the latter proxy, I used, for availability reasons, the median performance of the 20 closest companies in the peer group of the acquirer. The attainment discrepancy was then determined by calculating the difference between the firm's performance and the aspiration level after which it could be established if the attainment discrepancy was negative or not. Given that the aspiration level is determined with the use of two proxies, two binary variables were created: *NADsocial* and *NADhistorical*, respectively using the social aspiration and the historical aspiration in the determination of attainment discrepancy. Important to note is that it is the intention to estimate separate models for the two variables to avoid including redundant indicators that could distort parameters (Gordon, 1968).

Control variables

I will control for three additional factors that could influence the dependent variable.

First, I controlled for the size of the acquirer. The size of the firm is related to the financial distress in the sense that larger firms are expected to have better access to capital markets which means that the costs associated with raising additional funds for new projects are proportionally lower. Firm size is therefore expected to have a negative marginal impact on the probability of financial distress (Theodossiou et al., 1996). The acquirer's size was measured as the number of employees at the time of the acquisition (*NumberOfEmployees*) (following Aalbers et al., 2021). Furthermore, given that it is one of the three most popular firm size proxies (Dang et al., 2018), the size of the acquirer was also accounted for by using the total assets (*TotalAssets*)

Secondly, I controlled for the R&D intensity of the acquirer (*RDIntensity*). Zhang (2015) found that the distress risk of firms increases with their R&D intensity, owing to the highly uncertain payoffs that are associated with these investments. Similar conclusions have been drawn by Franzen et al. (2007), who also noted the consequences of the effect of R&D intensity on distress could decrease the effectiveness of accounting based measures of distress risk as have been used in this study. Following the example of Franzen et al. (2007), I defined R&D intensity as the level of R&D expenses deflated by total assets. Also following Franzen et al. (2007), I have set the R&D intensity for firms that did not report R&D expense at zero, given that firms are required to report their R&D spending as R&D expense. Important to note is that this was the case for quite a substantial amount of the acquirers. Of the original sample of 3288 acquirers, the data were unavailable for 2221 firms.

Lastly, I controlled for the industry in which the acquirer operates (*Industry*), following the example of Bruyland et al. (2019). The industry was stated in four-digit SIC codes.

Sample

To assess the extent to which acquisitive behaviour by financially distressed firms might influence their financial distress, I relied on a matched-sample design of financially distressed firms making an acquisition and a control sample of financially distressed firms not engaged in an acquisition during the same time period. The list of acquiring financially distressed firms was based on the mentioned existing dataset. I narrowed this dataset down to only firms that, before undertaking the acquisition, experienced financial distress according to the Altman Z''-score as well as the Zmijewski-score, which left 387 acquirers. I then removed the acquirers whose data were not complete, which resulted in a sample of 144 acquirers.

For each acquirer, it was attempted to select 20 related companies, which were generated using a proprietary algorithm introduced by Refinitiv.¹ This succeeded for 64 acquirers. Of these 1280 (64x20) potential matches, 164 were in a state of financial distress according the Altman Z''-score and the Zmijewski -score at $t - 1$ (in which t stands for the year wherein the acquirer wherefore it could be a potential match undertook the acquisition). After deleting firms with incomplete data, 121 potential matches remained. For these 121 potential matches, it was confirmed that, following Certo et al. (2008), they had not made an acquisition with a value exceeding five percent of the company's market capitalization. While Certo et al. (2008) checked for the year before through the year after the match's acquisition event, I checked for the year before through two years after the event, in order to correspond with the period wherein I measured the financial distress of the firms. This was the case for 63 firms, belonging to the peer groups of 34 acquirers.

The acquirers with only one potential match left were instantly matched. The acquirers with multiple options were paired with the best control firm based on the size of the firm (*NumberOfEmployees* and *TotalAssets*), the R&D intensity of the firm (*RDIntensity*) and the industry the firm operates in (*Industry*). The matching approach was set up in this manner in order to control for the effects of the variables listed in the subsection 'Control variables' (Sekaran, 2003). In order to construct two unique groups equal in size, it was checked that each control firm was only matched with one acquirer. This matching process resulted in a final

¹ Refinitiv is the provider of the database Eikon. The algorithm that selected the 20 most related companies made use of co-occurrence and frequency of 'appearances' in news articles, industry classification, related industries, related geographies, related macro-economic indicators and related news topics.

sample of 33 acquirers and 33 control firms. This is, compared with other studies that employed a matched-sample design (e.g. Ashraf et al., 2021; Abebe & Tangpong, 2018; Certo et al., 2008; Tangpong et al., 2013), a relatively small sample size.

In line with Ashraf et al. (2021), I conducted tests to ensure that the matched-pair groups were significantly different with regard to *AcquisitiveBehaviour*, but not significantly different in terms of matching variables, in order to verify the quality of the matched sample. For the nominal matching variable *Industry*, a Chi-Square test for Independence was used. Table 2 shows that this test was significant, indicating that the null hypothesis (i.e. there is no significant association between the industry of the acquirers group and the control group) has to be rejected ($\alpha = .05$). For the continuous matching variables, i.e. *TotalAssets*, *NumberOfEmployees* and *RDIntensity*, the normality of the sampling distribution of the difference scores was checked with the purpose of establishing which test should be conducted. Given that these computed variables were all indicated to be non-normally distributed according to the Shapiro-Wilk test (see Table 3), the Wilcoxon signed rank test was used. Table 2 shows that the Wilcoxon signed rank test was non-significant for all these variables ($\alpha = .05$), indicating that the null hypothesis (i.e. the median of differences for these variables between the acquirers group and the control group equals 0) does not have to be rejected. The quality of the matched sample was thus verified with regard to *TotalAssets*, *NumberOfEmployees* and *RDIntensity*, but not for *Industry*.

Table 2

Verification of the quality of the matched sample

| Matching variable | Test | Sig. |
|---------------------|----------------------------------|------|
| Industry | Chi-Square test for Independence | .042 |
| Total assets (size) | Wilcoxon signed rank test | .768 |
| Employees (size) | Wilcoxon signed rank test | .562 |
| R&D intensity | Wilcoxon signed rank test | .163 |

Table 3

Normality of the sampling distribution of the difference scores

| Variable | Sig. Shapiro-Wilk |
|---------------|-------------------|
| Total Assets | < .001 |
| Employees | < .001 |
| R&D intensity | < .001 |

Note. The Shapiro-Wilk test was reported over the Kolmogorov-Smirnov test because this test has more power to detect differences from normality (Field, 2018). However, the Kolmogorov-Smirnov test also indicated non-normality.

Analytical Method

First hypothesis: mixed ANOVA

As outlined in the previous subsection, this study will be conducted on the basis of a matched-sample design. The two-sample t-test (also: independent t-test), and matched pairs t-test (also: paired t-test), are both used routinely in the analysis of this type of data (Bai et al., 2021). However, given that *AcquisitiveBehaviour* is not the only variable to be taken into account, employing a mixed ANOVA is more appropriate in the present case. A mixed ANOVA is characterized by the combination of within-subjects factors and between-subjects factors (Salkind et al., 2007; Field, 2018). *AcquisitiveBehaviour* can be labelled as the between-subjects factor given that it is manipulated using different entities, while *Time*² can be labelled as the within-subjects factor due to the manipulation taking place in the same entities (Salkind et al., 2007). In this design, *FinancialDistress* is naturally still labelled as the dependent variable. The effects of the variables mentioned in the subsection ‘Control variables’ have been controlled for by means of the matched-sample, which lessens the need to explicitly control for these variables during the analysis. See Table 4 for the analysis design.

Table 4

Mixed ANOVA analysis design

| | Factor 1: <i>AcquisitiveBehaviour</i> | |
|--------------------------|---------------------------------------|------------------------------|
| Factor 2: <i>Time</i> | Acquirer | Control |
| FD ^x Pretest | Group 1 | Group 3 |
| | DV: <i>FinancialDistress</i> | DV: <i>FinancialDistress</i> |
| FD ^x Posttest | Group 2 | Group 4 |
| | DV: <i>FinancialDistress</i> | DV: <i>FinancialDistress</i> |

Note. In which ^x stands for either Altman or Zmijewski. Model 1 contains *FDAltmanPretest* and *FDAltmanPosttest*, Model 2 contains *FDZmijewskiPretest* and *FDZmijewskiPosttest*.

² Although *Time* has thus far not been explicitly acknowledged as an independent variable, including it as such in the mixed ANOVA is the appropriate manner to adequately take into account the repeated measurements (pre-test and post-test) of the proxies of *FinancialDistress*.

For the F-ratio that is used in the ANOVA to be accurate, the following assumptions must be met before conducting the analysis. Firstly, the independent variable should be measured at categorical level, while the dependent variable should be measured at metric level (Salkind et al., 2007). Previous subsections have already confirmed this research to be in line with this assumption. Secondly, there must be no outliers (Field, 2018). Z-scores for all continuous variables were computed in order to detect outliers (see Table 5). Using the cut-off value of $\geq |3.29|$ (Field, 2018), we find that every variable has either (a) low or (a) high outlier(s). The 6 detected outliers can be found in 5 cases. The outliers were excluded from data analysis by specifying them as user missing values (value attributed: 9999999999).

Table 5

Z-scores

| Variable | Minimum Z-score | Maximum Z-score |
|---------------------|-----------------|-----------------|
| FDAltmanPretest | -7.88999 | .17491 |
| FDZmijewskiPretest | -.27724 | 6.87130 |
| FDAltmanPosttest | -6.67958 | .24690 |
| FDZmijewskiPosttest | -.66144 | 7.73686 |

Thirdly, given that the mixed ANOVA design violates the standard assumption of independence, the variance of difference scores between conditions must be roughly equal (also known as the assumption of sphericity) (Salkind et al., 2007; Field, 2018). While Mauchly's test is usually performed to assess the hypothesis that the relationship between scores in pairs of treatment conditions is similar, sphericity is simply assumed in the present case given that the within-subjects factor in this study only contains two levels (Field, 2018). Fourthly, the dependent variable should be sampled from a normal distribution (Salkind et al., 2007). Given that we have categorical independent variables, we check the normality of the distribution of scores within each group instead of expecting the overall distribution of the outcome to be normal (Field, 2018). The Shapiro-Wilk test is therefore performed for each level of the factor *AcquisitiveBehaviour* for both the versions of the dependent variable (Table 6). The tests indicates that the dependent variable *FinancialDistress*, the Altman- as well as the Zmijewski-version, and pre-test as well as post-test, is non-normally distributed for the control group as well as the acquirers-group. The assumption of normality is thus violated. The same conclusion can be drawn from the skewness and kurtosis-values, which are all greater than $|1.96|$, indicating a non-normal distribution ($\alpha = .05$) (Field, 2018). However, according to the central limit

theorem there are situations in which we can assume normality regardless of the shape of our sample data. For this theorem to hold, sample sizes greater than 30 are often considered sufficient (Field, 2018). As can be seen in Table 6, each group contains more than 30 valid cases. It was therefore determined that the violation was not a barrier for performing the mixed ANOVA.

Table 6

Normality tests

| Variable | AB | Shapiro-Wilk | | | | Skewness | Kurtosis |
|---------------------|----------|--------------|-----------|----|--------|----------|----------|
| | | N | Statistic | df | Sig. | | |
| FDAltmanPretest | Control | 32 | .522 | 32 | < .001 | -2.864 | 8.778 |
| | Acquirer | 31 | .519 | 31 | < .001 | -3.420 | 12.545 |
| FDAltmanPosttest | Control | 32 | .363 | 32 | < .001 | -4.108 | 17.621 |
| | Acquirer | 31 | .411 | 31 | < .001 | -3.409 | 10.928 |
| FDZmijewskiPretest | Control | 32 | .554 | 32 | < .001 | 2.707 | 6.468 |
| | Acquirer | 31 | .352 | 31 | < .001 | 4.889 | 25.334 |
| FDZmijewskiPosttest | Control | 32 | .657 | 32 | < .001 | 2.593 | 6.935 |
| | Acquirer | 31 | .388 | 31 | < .001 | 4.017 | 18.854 |

Lastly, there must be homogeneity of variance and homogeneity of covariance (Salkind et al., 2007; Field, 2018), which was tested with the use of Levene's test for equality of variances (Table 7) respectively the Box's M-test (Table 8). As can be seen in Table 7, the null hypothesis that the error variance of the dependent variable is equal across groups should be rejected for *FDAltmanPretest* and *FDZmijewskiPosttest* ($\alpha = .05$). As can be seen in Table 8, the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups should be rejected for the situation wherein the Altman Z' -score was used as well as for the situation wherein the Zmijewski-score was used ($\alpha = .05$). Both assumptions were thus violated. However, as was the case with normality, the violation of these assumptions is not necessarily that critical in the case at hand. Violating the assumption of homogeneity of variance only matters in the event of unequal group sizes (Field, 2018), which is not the case

here as can be derived from Table 6. The equal group sizes also attenuate the relevance of the significant Box's M-tests, given that Pillai's statistic is assumed to be robust in this situation (Field, 2018). The Pillai's trace will therefore be used when performing the analysis.

Table 7

Levene's test of equality of error variances

| Variable | Levene statistic based on mean | df1 | df2 | Sig. |
|---------------------|-----------------------------------|-----|-----|--------|
| FDAltmanPretest | 23.050 | 1 | 61 | < .001 |
| FDAltmanPosttest | .072 | 1 | 61 | .790 |
| FDZmijewskiPretest | .931 | 1 | 61 | .338 |
| FDZmijewskiPosttest | 6.174 | 1 | 61 | .016 |

Table 8

Box's Test of equality of covariance matrices

| FD version used | Box's M | F | df1 | df2 | Sig. |
|-----------------|---------|--------|-----|-------------|--------|
| Altman Z"-score | 167.738 | 53.926 | 3 | 693137, 195 | < .001 |
| Zmijewski-score | 175.627 | 56.462 | 3 | 693137.195 | < .001 |

Second and third hypothesis: regression

The second hypothesis ('The Agency Hypothesis') and the third hypothesis ('The Performance Feedback Hypothesis') contain moderators. The acquirers-part of the total sample with $N = 33$ is used to test the hypotheses that *AgencyProblem* respectively *NADhistorical* and *NADsocial* moderate the relationship between *AcquisitiveBehaviour* by financially distressed firms and *FinancialDistress*. The analysis to be performed should thus be able to take into account a binary moderator and the within-subjects factor *Time*. While methods for testing and probing interactions have been long established, less is known about how to test moderation effects when a within-subjects factor is in play (Montoya, 2019). In this research, the regression-like procedure described by Judd et al. (1996; 2001), Montoya and Hayes (2017) and Montoya (2019) will be used. This means that there are two equations (Equation 1 and Equation 2), one for each outcome variable (pre-test and post-test). To test the moderation hypotheses, it is tested whether $b_{1\text{pretest}}$ is equal to $b_{1\text{posttest}}$. By subtracting Equation 1 from Equation 2, the coefficient for the moderator reflects the difference between $b_{1\text{pretest}}$ and $b_{1\text{posttest}}$ (Equation 3), which can also be written as Equation 4. The equations can be found in Table 9.

Table 9*Regression equations*

| Number | Equation |
|--------|---|
| 1 | $\text{FinancialDistress}_{i\text{pretest}} = b_{0\text{pretest}} + b_{1\text{pretest}}\text{Moderator}_i + \epsilon_{i\text{pretest}}$ |
| 2 | $\text{FinancialDistress}_{i\text{posttest}} = b_{0\text{posttest}} + b_{1\text{posttest}}\text{Moderator}_i + \epsilon_{i\text{posttest}}$ |
| 3 | $\text{FinancialDistress}_{i\text{posttest}} - \text{FinancialDistress}_{i\text{pretest}} = b_{0\text{posttest}} - b_{0\text{pretest}} + (b_{1\text{posttest}} - b_{1\text{pretest}}) W_i + (\epsilon_{i\text{posttest}} - \epsilon_{i\text{pretest}})$ |
| 4 | $\text{FinancialDistress}_{Di} = b_0 + b_1\text{Moderator}_i + \epsilon_i$ |

In order to estimate the regression as is written out in Equation 4, new continuous variables (*FDAltmanDifference* and *FDZmijewskiDifference*) had to be created, both representing the difference between post-test and pre-test. When b_1 is significantly different from zero, it is implied that $b_{1\text{pretest}}$ and $b_{1\text{posttest}}$ are not equal, which subsequently means that the relationship between the moderator, i.e. *AgencyProblem*, *NADhistorical* or *NADsocial*, and *FinancialDistress* depends on the condition. According to Montoya (2019), support for the claim that the relationship between the moderator and *FinancialDistress* depends on the condition is the equivalent of saying that the relationship between the condition and *FinancialDistress* depends on the moderator. The MEMORE SPSS syntax will be used to estimate this regression. In this analysis, the control variables will be disregarded. This because it is a within-subject analysis: if there is an effect of a covariate on the outcome and it does not vary across the conditions, than the covariate will cancel out when taking the difference scores (Montoya, 2019).

While it already becomes clear when looking at Table 9, I feel that it is important to explicitly note that the predictor variable in these equations corresponds with what we call ‘moderator’ in this study. The predictor variable will thus in theory be *AgencyProblem*, *NADsocial* or *NADhistorical*. However, problems will be encountered when trying to estimate the regression when using *AgencyProblem* or *NADsocial* as predictor value. As can be seen in Table 15, which can be found in the Analysis and Results section, *AgencyProblem* has a value of 0 (Absent) for all 33 cases while *NADsocial* has a value of 1 (Yes) in 32 of the 33 cases. These frequencies are not adequate for estimating the regression. It was therefore determined that the regression, written out in Equation 4, will only be performed with *NADhistorical* as predictor variable. Merely two regression models are thus remaining: Model 3 containing *FDAltmanDifference* as dependent variable and *NADhistorical* as independent variable, and

Model 4 containing *FDZmijewskiDifference* as dependent variable and *NADhistorical* as independent variable.

Before estimating the regressions, a look has to be taken at the main assumptions of the linear model. First of all, the predictor variable must be categorical or measured at the interval level and the outcome variable should be measured at the interval level (Field, 2018). Previous subsections have already confirmed this research to be in line with this assumption. Secondly, there must be no outliers (Field, 2018). Z-scores for all continuous variables that will be used in this analysis were computed in order to detect outliers (see Table 10). Using the cut-off value of $\geq |3.29|$ (Field, 2018), we find that both variables have a high outlier. The 2 detected outliers were excluded from data analysis by specifying them as user missing values (value attributed: 9999999999).

Table 10

Z-scores

| Variable | Minimum Z-score | Maximum Z-score |
|-----------------------|-----------------|-----------------|
| FDAltmanDifference | -1.16573 | 5.75332 |
| FDZmijewskiDifference | -3.25111 | 6.56844 |

Thirdly, the outcome variable must be linearly related to the predictors (Field, 2018). However, given that the only independent variable is binary, this assumption holds little relevance and is therefore passed over. Fourthly, the assumption of independent errors should be met, which means that for any two observations the residual terms must be uncorrelated. This is checked with the Durbin-Watson test, where values less than 1 or greater than 3 are cause for concern (Field, 2018). The Durbin-Watson values were 1.721 and 1.094 for Model 3 and Model 4 respectively. Given that the values fall between the stated range, a lack of autocorrelation for both models is indicated. Fifthly, there must be homogeneity of variance, which means that the variance of the residuals should be constant at each level of the predictor variable (Field, 2018). As shown in Table 11, the Levene's test indicated no violations of this assumption ($\alpha = .05$).

Table 11

Levene's test of equality of error variances

| Variable | Levene statistic based on mean | df1 | df2 | Sig. |
|-----------------------|--------------------------------|-----|-----|------|
| FDAltmanDifference | .012 | 1 | 29 | .914 |
| FDZmijewskiDifference | .000 | 1 | 28 | .994 |

Lastly the errors should be normally distributed (Field, 2018). Given that both models contain a binary independent variable, we check the normality of the distribution of scores within each group instead of expecting the overall distribution of the outcome to be normal (Field, 2018). The Shapiro-Wilk test is therefore performed for each level of the factor *NADhistorical* for the dependent variable of both models (Table 12). The test indicates that both dependent variables are non-normally distributed for both levels. The assumption of normality is thus violated. The same conclusion can be drawn from the skewness and kurtosis values, which are all greater than $|1.96|$, indicating a non-normal distribution ($\alpha = .05$) (Field, 2018). Unlike the violation of the assumption of normality in the case of the mixed ANOVA, the central limit theorem does not reduce the severity of the violation in this case due to the smaller sample sizes. Transforming the data was therefore attempted. The log transformation as well as the square root transformation did not have any worthwhile effect on the normality of the dependent variable of each of the models. The reciprocal transformation did transform *FDAltmanDifference* as well as *FDZmijewskiDifference* to normal in the situation wherein *NADhistorical* = 0 (No) but not in the situation wherein *NADhistorical* = 1 (Yes). The endeavoured transformations thus did not yield the desired results. However, given that the MEMORE macro will be used in this study, this is not as big of a problem as it seems. The MEMORE macro uses bootstrapping (Montoya & Hayes, 2017), which can be seen as a robust method. It bypasses the issue of not-knowing the shape of the sampling distribution by estimating the properties of the sampling distribution from the sample data (Field, 2018).

Table 12

Normality tests

| Variable | NADhistorical | Shapiro-Wilk | | | | Skewness | Kurtosis |
|-----------------------|---------------|--------------|-----------|----|--------|----------|----------|
| | | N | Statistic | Df | Sig. | | |
| FDAltmanDifference | NO | 14 | .368 | 14 | < .001 | -3.659 | 13.527 |
| | YES | 17 | .488 | 17 | < .001 | -3.382 | 12.338 |
| FDZmijewskiDifference | NO | 14 | .366 | 14 | < .001 | 3.690 | 13.715 |
| | YES | 16 | .328 | 16 | < .001 | -3.972 | 15.843 |

Analysis and Results

The following section first presents the descriptive statistics and correlations. Secondly, the results related to the hypotheses are displayed after which the robustness of these results will be checked.

Descriptive Statistics

Table 13 displays descriptive statistics per continuous key variable for the full sample, covering the sample size, mean, minimum, maximum and standard deviation. The total sample comprises a total of 66 firms, of which 33 have been acquisitive and 33 serve as control group. Table 14 displays the frequencies of the nominal key variables for the acquirers-group that is central in this research. Salient observations are as follows. As discussed earlier, it becomes clear by looking at Table 14 that no agency problems were detected for the 33 acquirers that were present in this dataset. This means that H2 ('The Agency Hypothesis') is not testable on the basis of this dataset. Furthermore, Table 14 shows that negative attainment discrepancy based on social aspirations is noticeably quite a lot more common than negative attainment discrepancy based on historical aspirations. It is even so common in this dataset that it has been decided to only test H3 ('The Performance Feedback Hypothesis) on the basis of *NADhistorical* and disregard *NADsocial* altogether.

Table 13

Descriptive statistics for the continuous variables

| Variable | N | Mean | Minimum | Maximum | Std. Deviation |
|-----------------------|----|-----------|--------------|------------|----------------|
| FDAltmanPretest | 65 | -234.6905 | -4621.4851 | 4.4702 | 747.3307 |
| FDZmijewskiPretest | 64 | 263.6155 | .5571 | 4442.2744 | 620.9465 |
| FDAltmanPosttest | 64 | -62.9769 | -942.3502 | 22.3172 | 188.7846 |
| FDZmijewskiPosttest | 65 | 665.2089 | -6840.4876 | 24259.2945 | 3382.9266 |
| FDAltmanDifference | 62 | 102.8471 | -727.1926 | 2655.1130 | 527.5378 |
| FDZmijewskiDifference | 62 | -36.6440 | -10922.76202 | 9742.4806 | 1888.5072 |

Note. Total N = 66. The values were rounded to 4 decimal places to improve readability.

Table 14

Frequencies for the nominal variables

| Variable | Options | Frequency | Percentage |
|----------|---------|-----------|------------|
|----------|---------|-----------|------------|

| | | | |
|---------------|---------|----|-------|
| NADhistorical | No | 14 | 42,4% |
| | Yes | 19 | 57,7% |
| NADsocial | No | 1 | 3% |
| | Yes | 32 | 97% |
| AgencyProblem | Absent | 33 | 100% |
| | Present | 0 | 0% |

Note. N = 33.

Appendix C presents the related correlations. These correlations represent a small effect when the value is $|.1|$, a medium effect at $|.3|$ and a large effect at $|.5|$ (Field, 2018). Spearman's correlation coefficient (denoted by r_s) was used instead of the more common Pearson's correlation coefficient since it is more appropriate in situations wherein assumptions were violated (Field, 2018). Regarding the mixed ANOVA, we find 6 significant correlations that fall in the medium or large categories. These are all correlations between the variables regarding financial distress, i.e. *FDAltmanPretest*, *FDZmijewskiPretest*, *FDAltmanPosttest* and *FDZmijewskiPosttest*. They make sense when realising that the pre-test and post-test variables are inherently connected and that the Altman Z''-score and the Zmijewski-score are connected in the sense that a decreasing Altman Z''-score and an increasing Zmijewski-score both indicate an increase in financial distress. Furthermore, the Altman Z''-score and Zmijewski-score will not be used in the same analysis, which makes the correlations between the variables inconsequential. Regarding the regressions, we find one significant correlation, once again between the variables regarding financial distress, i.e. *FDAltmanDifference* and *FDZmijewskiDifference*, for which the same reasoning applies as set out before. It is therefore determined that it is senseless to take a look at the collinearity statistics: misinterpretation of the regression results as a consequence of multicollinearity is in the case at hand not something to be apprehensive about.

Hypotheses Testing

The following subsections present the results of the mixed ANOVA that was performed in the context of the first hypothesis and the results of the regression that was performed in the context of the third hypothesis ('The Performance Feedback Hypothesis'). As mentioned before, the obtained data is insufficient to test the second hypothesis ('The Agency Hypothesis') and to test the Performance Feedback Hypothesis on the basis of *NADsocial*. The mixed ANOVA and regression in this subsection will be performed with the Altman Z''-score as the proxy for financial distress and at an alpha-level of .05.

Mixed ANOVA results

The first hypothesis suggests that acquisitive behaviour by financially distressed firms is positively related to their financial distress. To test this hypothesis, I relied on a mixed ANOVA of which the results are reported in Table 15 and Table 16. As to the main effects, a significant main effect of *AcquisitiveBehaviour* on *FinancialDistress* was found ($F(1,61) = 4.804, p < .05$) as opposed to the main effect of *Time* on *FinancialDistress*, which was non-significant ($F(1,61) = 3.312, p = .074$). However, interpretation of the significant main effect is inconsequential considering the significance of the interaction of *AcquisitiveBehaviour* x *Time* (Field, 2018). The interaction is significant with $F(1,61) = 5.653, p < .05$ and had a partial eta squared of .085. When looking at the plot of estimated marginal means (Figure D1), it becomes clear that the estimated marginal mean of the Altman Z"-score greatly increases between $t - 1$ (pre-test) and $t + 2$ (post-test) for the control-group, while slightly decreasing for the acquirers-group in this period. To rephrase, the financial distress of the control-group decreased during the reviewed period, while it increased for the acquirers-group. Support for the first hypothesis is thus found.

Table 15

Mixed ANOVA results – Model 1: tests of within-subjects effects and between-subjects effects

| Test | Source | Type III Sum of Squares | Df | Mean Square | F | Sig. | Partial Eta Squared |
|---------------------------------|-------------|----------------------------|----|---------------|-------|------|------------------------|
| Within- subjects effects | Time | 921797.061 | 1 | 921797.061 | 3.312 | .074 | .051 |
| | Time * AB | 1573389.573 | 1 | 1573389.573 | 5.653 | .021 | .085 |
| | Error(Time) | 169794114.223 | 61 | 169794114.223 | | | |
| Between -subjects effects | Intercept | 2705615.783 | 1 | 2705615.783 | 9.206 | .004 | 1.131 |
| | AB | 1411813.500 | 1 | 1411813.500 | 4.804 | .032 | .073 |
| | Error | 17926923.785 | 61 | 293883.996 | | | |

Note. *AcquisitiveBehaviour* was shortened to AB to increase the readability of the table.

Table 16

Mixed ANOVA results – Model 1: multivariate test using Pillai's Trace

| Effect | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|-----------|-------|-------|---------------|----------|------|---------------------|
| Time * AB | .085 | 5.653 | 1 | 61 | .021 | .085 |

Note. *AcquisitiveBehaviour* was shortened to AB to increase the readability of the table.

Regression results

The third hypothesis ('The Performance Feedback Hypothesis') suggests that negative attainment discrepancy ($NAD_{historical}$) moderates the relationship between $AcquisitiveBehaviour$ and $FinancialDistress$ as expressed in the first hypothesis in the sense that the relationship is weaker in event of negative attainment discrepancy ($NAD_{historical} = 1$). To test this hypothesis, I relied on the regression as described by Judd et al. (1996, 2001), (Montoya & Hayes, 2017) and (Montoya, 2019) of which the results are reported in Table 17. The estimated regression for Model 3 is as follows.

$$FinancialDistress_{Di} = -60.1081 + 13.9947NAD_{historical}$$

The estimate of the intercept, $b_0 = -60.1081$, means that when $NAD_{historical}$ is 0, the expected difference in the Altman Z' -score is -60.1081 . After the acquisition, the Altman Z' -score is thus expected to be 60.1081 lower than before the acquisition, which indicates an increase in financial distress during the $t - 1$ to $t + 2$ period. However, this effect is not significantly different from zero, $t(29) = -1.2420$, $p = .2242$. Additionally, for the situation wherein $NAD_{historical}$ is 1, there is a 13.9947 increase in the difference in financial distress. After the acquisition, the Altman Z' -score is thus expected to be 13.9947 higher than in the situation wherein $NAD_{historical}$ is 0, but in total it still comes down to a decrease in the score between $t - 1$ and $t + 2$. We can therefore state that in event of negative attainment discrepancy, the increase in financial distress is weakened, as was stated in the Performance Feedback Hypothesis. Visually, this can be derived from Figure E1. However, this effect is also not significantly different from zero, $t(29) = .2141$, $p = .8319$. To repeat the logic behind this regression outlined in an earlier section: when b_1 significantly differs from zero, than we can speak of moderation. That being not the case, the third hypothesis does not find support. The overall model is insignificant at that, with $R^2 = .0016$, $F(1, 29) = .0459$, $p = .8319$.

Table 17

Regression results – Model 3

| Constant | $NAD_{historical}$ | R^2 | F | df1 | df2 | P |
|----------------------------|--------------------|--------------------------|-------|-----|-----|-------|
| -60.1081 | 13.9947 | .0016 | .0459 | 1 | 29 | .8319 |
| t(29) = -1.2420, p = .2242 | | t(29) = .2141, p = .8319 | | | | |

Robustness Analysis

I have assessed the sensitivity of the results of the mixed ANOVA and the regression by running the analyses with two financial distress proxies. By calculating two alternative measures for financial distress I ensured that the results are not driven by my choice of distress proxies. While the results in the previous section were based on the proxy developed by Altman (1983), the results in this section are based on the proxy developed by Zmijewski (1984). The alpha-level is once gain set at .05.

Robustness check of the mixed ANOVA results

When reperforming the mixed ANOVA with *FDZmijewskiPretest* and *FDZmijewskiPosttest* (reported in Table 18 and Table 19), it becomes apparent that the results were sensitive to which proxy was used. In this analysis, both the main effects of *Time* and *AcquisitiveBehaviour* on *FinancialDistress* were non-significant with respectively $F(1,61) = .597$, $p = .443$ and $F(1,61) = 1.278$, $p = .263$, as opposed to the original analysis wherein the main effect of *AcquisitiveBehaviour* on *FinancialDistress* was significant. Also unlike the original analysis, the interaction effect of *Time* x *AcquisitiveBehaviour* was non-significant with $F(1,61) = .979$, $p = .326$. While the plot of the estimated marginal means (Figure D2) shows that the estimated marginal mean of the Zmijewski-score greatly increases between $t - 1$ (pre-test) and $t + 2$ (post-test) for the acquirers-group and slightly decreases for the control-group, thus indicating that the financial distress increased for the acquirers-group and not for the control-group in the reviewed period, the first hypothesis is not supported by this analysis due to the non-significance of its results.

Table 18

Mixed ANOVA results – Model 2: tests of within-subjects effects and between-subjects effects

| Test | Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
|---------------------------------|-------------|----------------------------|----|--------------|-------|------|------------------------|
| Within- subjects effects | Time | 3574323.316 | 1 | 3574323.316 | .597 | .443 | .010 |
| | Time * AB | 5863826.843 | 1 | 5863826.843 | .979 | .326 | .016 |
| | Error(Time) | 365518084.78 | 61 | 5992099.751 | | | |
| Between -subjects effects | Intercept | 23162867.840 | 1 | 23162867.840 | 3.863 | .054 | .060 |
| | AB | 7665714.915 | 1 | 7665714.915 | 1.278 | .263 | .021 |
| | Error | 365750570.13 | 61 | 5995910.986 | | | |

Note. *AcquisitiveBehaviour* was shortened to AB to increase the readability of the table.

Table 19*Mixed ANOVA results – Model 2: multivariate test using Pillai's Trace*

| Effect | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|-----------|-------|------|---------------|----------|------|---------------------|
| Time * AB | .016 | .979 | 1 | 61 | .326 | .016 |

Note. *AcquisitiveBehaviour* was shortened to AB to increase the readability of the table.

Robustness check of the regression results

When reperforming the regression with *FDZmijewskiDifference* (reported in Table 20), it becomes clear that the results were robust in the sense that they were not sensitive to which proxy was used. The estimated regression for Model 4 is as follows.

$$FinancialDistress_{Di} = 799.5610 + -56.8130NADhistorical$$

In the situation wherein *NADhistorical* is 0, the expected difference in the Zmijewski-score is 799.5610. After the acquisition, the score is thus expected to be 799.5610 higher than before the acquisition, which just like before indicates an increase in financial distress in the $t - 1$ to $t + 2$ period. Once again, this effect is not significantly different from zero, $t(29) = .5966$, $p = .554$. For the situation wherein *NADhistorical* is 1, there is a 56.8130 decrease in the difference in financial distress compared to the situation wherein *NADhistorical* is 0. The Zmijewski-score is thus expected to be 56.8130 lower than in the situation wherein *NADhistorical* is 0, which indicates the same direction of the effect as before (see Figure E2). However, once again, this effect is not significantly different from zero, $t(29) = -.0314$, $p = .9752$. Given that b_1 differs once again not significantly from zero, we can't speak of a moderation effect. The Performance Feedback Hypothesis thus does not find support. The overall model is insignificant at that, with $R^2 = .0000$, $F(1, 29) = .0010$ $p = .9752$.

Table 20*Regression results – Model 4*

| Constant | NADhistorical | R ² | F | df1 | df2 | P |
|----------|---------------|----------------|-------|-----|-----|-------|
| 799.5610 | -56.8130 | .0000 | .0010 | 1 | 29 | .9752 |

$t(29) = .5966$, $p = .5554$ $t(29) = -.0314$, $p = .9752$

Conclusion and Discussion

This concluding section starts with a summary of the research and its findings, by means of which the research question will be answered. The summary will naturally call on the core concepts of this study: acquisitive behaviour and financial distress primarily, and agency problem and negative attainment discrepancy secondarily. The implications, theoretical as well as practical, will then be outlined. This thesis will be concluded by touching upon the limitations of this study and suggestions for future research.

Summary of the Research and its Findings

Extant literature in the domain of M&A and financial distress currently pivots around the financially distressed target or seller, while predominantly disregarding the financially distressed acquirer. This thesis shed a light on the need for attention for this phenomenon and provided a manner in which it could be theoretically embedded in existing bodies of literature. This embedding was based on three subquestions which came down to examining the implications of the turnaround literature, agency theory and performance feedback theory for the acquisitive behaviour of financially distressed firms. In consonance with these three subquestions, three hypotheses were developed and tested on the basis of a matched-sample design in order to answer the focal question of this research.

RQ: What is the relationship between the acquisitive behaviour by financially distressed firms and their financial distress?

Derived from the turnaround literature, I suggested that acquisitive behaviour by financially distressed firms is positively related to their financial distress. The results of the performed mixed ANOVA provided non-robust support for this first hypothesis. The second hypothesis, derived from agency theory, proposed the agency problem to be a moderator of the relationship between acquisitive behaviour by financially distressed firms and their financial distress. Unfortunately, this moderating hypothesis turned out to be untestable on the basis of this thesis's insufficient dataset. Lastly, the third hypothesis, derived from performance feedback theory, proposed negative attainment discrepancy to be a moderator of the mentioned relationship in the sense that the relationship was suggested to be weaker in event of negative attainment discrepancy. Tested on the basis of the regression-procedure described by Judd (1996; 2001), Montoya and Hayes (2017) and Montoya (2019) with the MEMORE macro, no support was found due to the non-significance of the results.

At long last, I can conclude that my findings were not conclusive enough to formulate a definitive answer to the formulated question. However, I strongly feel that this research, especially the non-robust support for the first hypothesis, has communicated the relevance of this subject matter. Recommendations for future research on this topic will therefore be made in the last subsection.

Implications

Theoretical Implications

This study adds to extant literature by taking an uncommon theoretical approach. This unconventionality is a consequence of the central topic and of the theoretical lenses that were applied in this context.

This study advances theorizing on the financially distressed acquirer. Bruyland et al. (2019) stated that literature is still in its infancy when it comes to studying M&A by acquirers who face financial distress. My research aims to be a starting point for outgrowing this phase of infancy. Although it was not able to conclusively answer the focal question, it did contribute to literature in terms of theoretical reasoning on this subject by embedding the phenomenon in three bodies of literature in order to rationalize the acquisitive behaviour by financially distressed firms and to establish the relationship between the behaviour and financial distress. To the best of my knowledge, such embedding of the concept of the financially distressed acquirer by using bodies of literature like the turnaround literature, agency theory and performance feedback theory is unprecedented.

Besides the focal subject matter of this thesis being underexplored, this study introduces a new combination of lenses. The combining of lenses as can be found in this thesis is, once again to the best of my knowledge, innovative. The interfaces between agency theory and performance feedback theory with regard to this topic are incontestable. Not only are both theories able to rationalize the acquisitive behaviour by financially distressed firms, the manner of reasoning they use for this rationalization is oddly similar in the sense that they both draw on a portfolio perspective. By drawing parallels between two commonly used theoretical lenses, I aimed to set an example of finding and applying an original theoretical angle.

Managerial Implications

Given the non-robustness respectively the non-significance of the results, this thesis has no strong implications for managers. However, while the results of the mixed ANOVA (Model 1) were non-robust after reperforming the analysis (Model 2), this thesis still carefully suggests that managers should be mindful of undertaking acquisitions when in financial distress.

Although this could be seen as self-evident, the conventionality of the practice shows us that this is not necessarily the case. While being acquisitive can feel like a solution, to personal issues (agency theory – untested hypothesis) or organizational issues (performance feedback theory – insignificant results), the non-robust results indicate that undertaking acquisitions when in financial distress may escalate the situation from bad to worse.

Limitations and Directions for Future Research

Although this thesis was meticulously designed with regard to theory and methodology, limitations were inevitable. These limitations largely reflect issues with the data or the used methodology and all translate into directions for future research.

To begin, I disregarded the recommendation to re-estimate the proxies for financial distress. Grice and Dugan (2003) suggest that researchers who use these models using recent data should re-estimate the models' coefficients to improve its predictive accuracy. This because the coefficients of the original models are not stable across time periods. The predictive accuracy of the models therefore significantly declines when applied to current time periods, as has been done in this study. However, the re-estimation of the coefficients fell, due to the time constraints in this thesis trajectory and my inexperience, outside of the reasonable scope of this study. While Altman et al. (2017) indicate that a re-estimation is not required for their proxy, future research on this subject may follow the suggestion of Grice and Dugan (2003) and attempt re-estimations in order to improve the predictive accuracy.

Secondly, it should be noted that The Agency Hypothesis, where I hypothesized the positive relationship between acquisitive behaviour and financial distress to be stronger in event of an agency problem, pertains to the short term ($t + 2$). Nonetheless, evidence suggests that on the long-term, lawsuits could actually reduce the financial distress rather than amplify it. The findings of Ferris et al. (2007) indicate that shareholder derivative lawsuits can serve as an effective corporate governance mechanism, and thus reduce agency costs and McTier and Wald (2011) found that after securities class action lawsuits, firms decrease overinvestment activity and pay-outs, while increasing leverage, cash holding and firm-specific risk. I would thus recommend researchers who take an interest in this subject matter to also take into account the potential moderating effect of agency problems on a longer time horizon. This future research may also reconsider using lawsuits as a proxy for agency problem. I defended the use of this not-airtight proxy by citing its accessibility. However, the search for lawsuits with regard to the acquisitions in the dataset was a more difficult process than imagined, which makes it debatable whether the use of this proxy is justifiable. In the context of applying agency theory on the

financially distressed acquirer, I lastly want to remark that this thesis heavily leans on the logic of Amihud and Lev (1981), without adequately outlining the criticism that this logic has faced (i.e. Lane et al., 1998). While Amihud and Lev (1999), Boyd et al. (2005) and Denis et al. (1999) among others keep defending the manner of reasoning of Amihud and Lev (1981), future research may want to take into account this criticism to be more nuanced.

Thirdly, by following the example of Iyer and Miller (2008), I have made use of an objectively measured version of attainment discrepancy, without including perceptual measures that account for cognitive complications (Saraf et al., 2021). The assumption underlying these kind of measures is that objectively measured performance feedback is associated with organization responses (Greve, 1998), which ignores how managers perceive the performance feedback. The findings of Safar et al. (2021) show that managerial perceptions moderate organization responses to performance below aspirations, in the sense that negative managerial perceptions of performance can further strengthen problemistic search. A recommendation for future research is thus to take into account the cognitive complications by also measuring managerial perceptions of the organization's performance. Also in the context of performance feedback theory, it should be noted that the belief-based model is seen as an alternative to the aspiration-based model as used in this study (Keil et al., 2021) and that self-enhancement is suggested to be an alternative to problemistic search which is seen as the sole response to negative attainment discrepancy in this study (Saraf et al., 2021). While both of these alternatives have been disregarded in this thesis for the sake of simplicity, future research may want to take them into account for the sake of completeness.

Fourthly, the process of matching as has been outlined in the subsection 'Sample' resulted in a sample that was to some extent deficient. The sample was on the smaller side and the data turned out to be far from ideal when checking the assumptions that underlie the used analytical methods. Due to time constraints, I was unable to try to construct a larger, more up to par sample. While this recommendation is evident, I would suggest future researchers to go to the effort of constructing a more adequate sample.

Lastly, the design of the analyses meant that the stipulated control variables were not explicitly included. While they were implicitly taken into account in the mixed ANOVA due to the fact that they were used as matching variables during the construction of the sample, they were not taken into account in the regression since they would cancel out in this within-subject analysis (Montoya, 2019). While this is not necessarily a limitation of this research, future research may want to regard these variables more straightforward in order to explicitly assess and control for their influence on the outcome variable.

Acknowledgements

First and foremost I wish to express my gratitude to dr. Rick Aalbers and Jasper van Boven MSc for their guidance during my thesis trajectory. I would also like to thank Stefan Breet MSc for providing me with valuable feedback after reading my research proposal in his role as second examiner, drs. Maarten Gubbels for all his effort in assisting me during the data collection stage and dr. Paul Ligthart for his remarks during the early stages of the development of the analytical part of this thesis. Lastly, I would like to show some appreciation to my fellow students Gijs Gerritsen and Niels Bartholomeus, who were in this trajectory with me.

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Appendix A

Variable overview

| Variable function | Variable | Operationalization | Main references |
|-------------------|---------------------------------|---|--|
| Independent | Acquisitive behaviour | Binary variable. '1' if an acquisition has been undertaken and '0' if not. | Certo et al., 2008 Hair et al., 2019 |
| Dependent | Financial distress | (1) Altman z"-score (2) Zmijewski-score | Altman, 1983 Zmijewski, 1984 |
| Moderator | Agency problem | Binary variable. '1' if an agency problem has occurred and '0' if not. Will be determined on the basis of derivative and class action lawsuits. | Hair et al, 2019 Ferris et al, 2007 |
| Moderator | Negative attainment discrepancy | Binary variable. '1' in case of negative attainment discrepancy and '0' otherwise. Will be determined by using ROA as performance measure and historical and social aspiration proxies. | Arora & Dharwadkar, 2011 Hair et al., 2019 Iyer & Miller, 2008 |
| Control | Size | Number of employees & total assets | Aalbers et al., 2021 Dang et al., 2018 |
| Control | R&D intensity | R&D expense / total assets | Franzen et al., 2007 |
| Control | Industry | SIC codes | Bruyland et al., 2019 |

Appendix B

Outline of the variables used in the measures of financial distress

Table B1

Variables of the Altman Z''-score ($3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$)

| Variable | Meaning | Written in EIKON variables |
|----------|--|---------------------------------|
| X1 | Working capital / total assets | $(WC02201 - WC03101) / WC02999$ |
| X2 | Retained earnings / total assets | $WC03495 / WC02999$ |
| X3 | EBIT / total assets | $WC18191 / WC02999$ |
| X4 | Book value of equity / total liabilities | $(WC02999 - WC03351) / WC03351$ |

Note. Working capital can be defined as current assets minus current liabilities. Book value of equity can be defined as total assets minus total liabilities.

Table B2

Variables of the Zmijewski-score ($-4.3 - 4.5X_5 + 5.7X_6 - 0.004X_7$)

| Variable | Meaning | Written in EIKON variables |
|----------|--------------------------------------|----------------------------|
| X5 | Net income / total assets | WC08326 |
| X6 | Total debt / total assets | $WC03255 / WC02999$ |
| X7 | Current assets / current liabilities | $WC02201 / WC03101$ |

Note. 'Net income / total assets' is better known as 'return on assets (ROA)'.

Appendix C

Spearman's correlations

| | (1) | (2) | (3) | (4) | (5) |
|---------------------------|--------|--------|--------|--------|-----|
| AcquisitiveBehaviour (1) | 1 | | | | |
| FDAltmanPretest (2) | .031 | 1 | | | |
| FDZmijewskiPretest (3) | -.049 | -.477* | 1 | | |
| FDAltmanPosttest (4) | -.092 | .573* | -.464* | 1 | |
| FDZmijewskiPosttest (5) | .125 | -.448* | .572* | -.753* | 1 |
| <hr/> | | | | | |
| FDAltmanDifference (1) | 1 | | | | |
| FDZmijewskiDifference (2) | -.475* | 1 | | | |
| NADhistorical (3) | .109 | -.247 | 1 | | |

Note. * indicates that the correlation is significant at the .05 level (2-tailed). Above the thickened line, the correlations are given for the variables that are present in the mixed ANOVA. Under this line, the correlations are given for the variables that are used in the regression.

Appendix D

Plots for interpretation of the mixed ANOVA

Figure D1

Estimated marginal means plot for the interpretation when using the Altman Z"-score

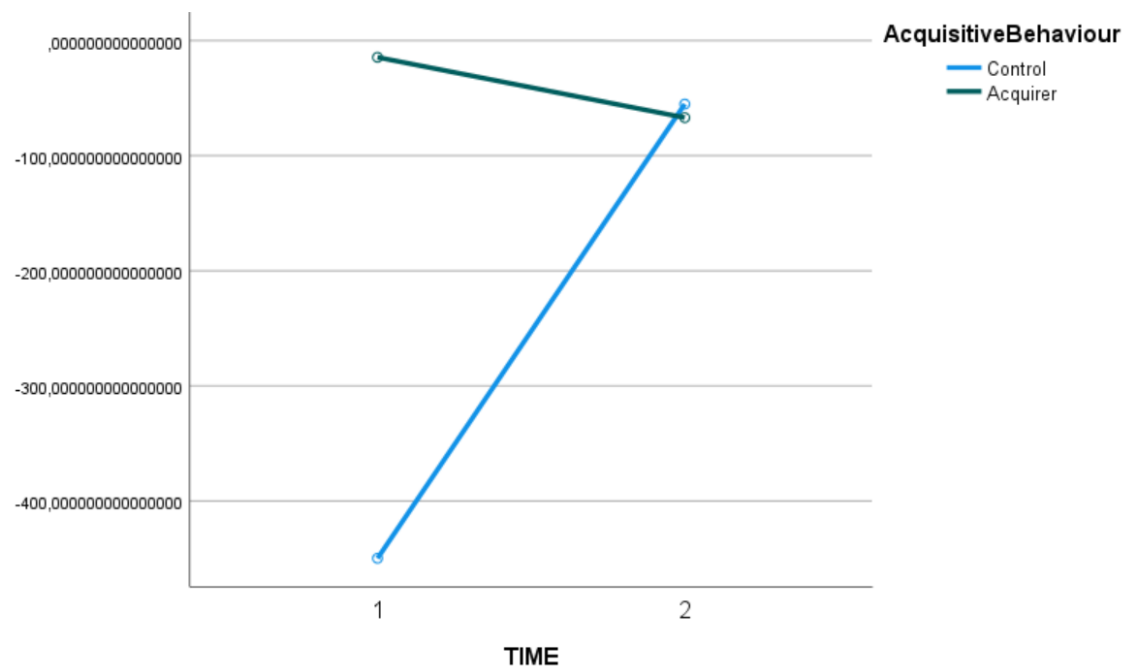
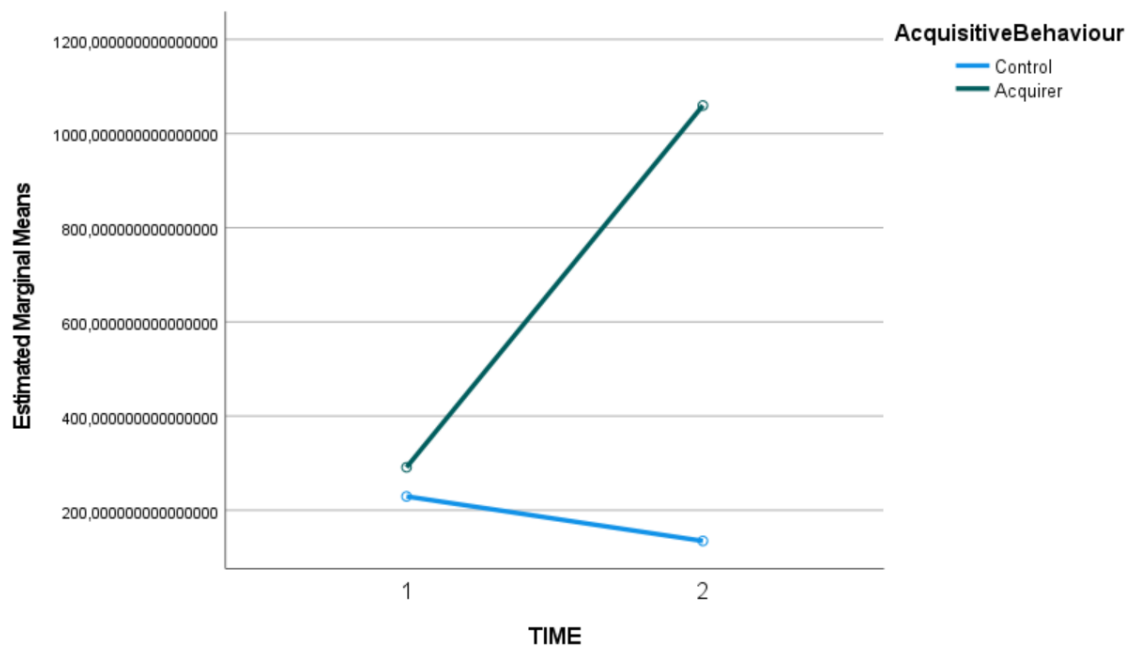


Figure D2

Estimated marginal means plot for the interpretation when using the Zmijewski-score



Appendix E

Plots for interpretation of the regression

Figure E1

Estimated marginal means plot for the interpretation when using the Altman Z"-score

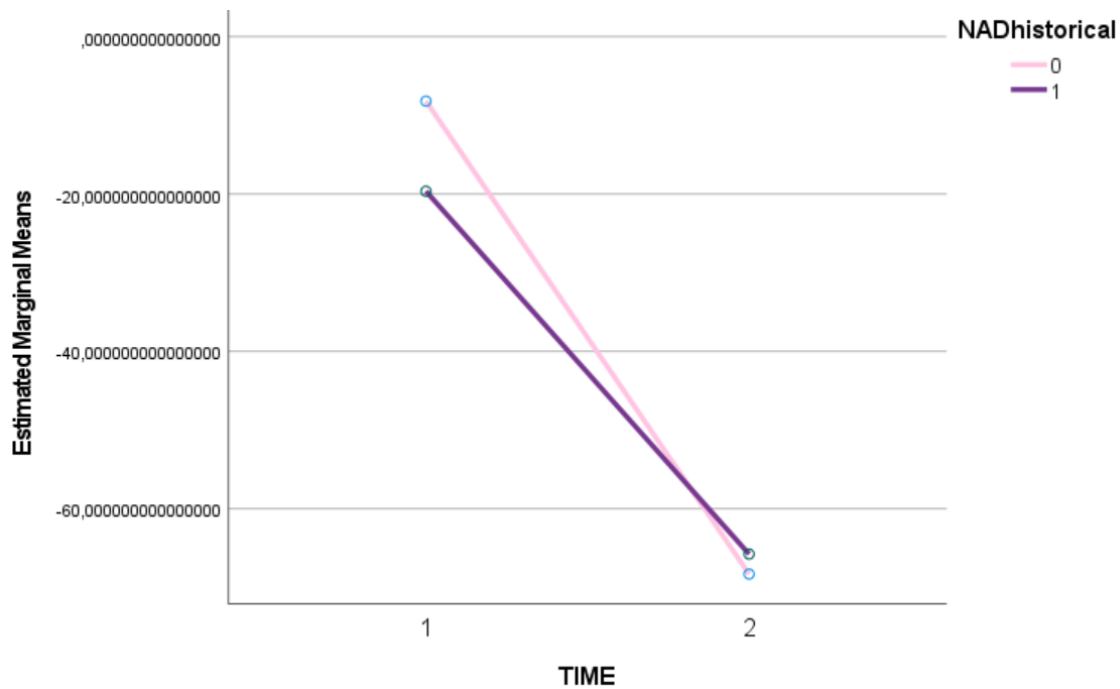


Figure E2

Estimated marginal means plot for the interpretation when using the Zmijewski-score

