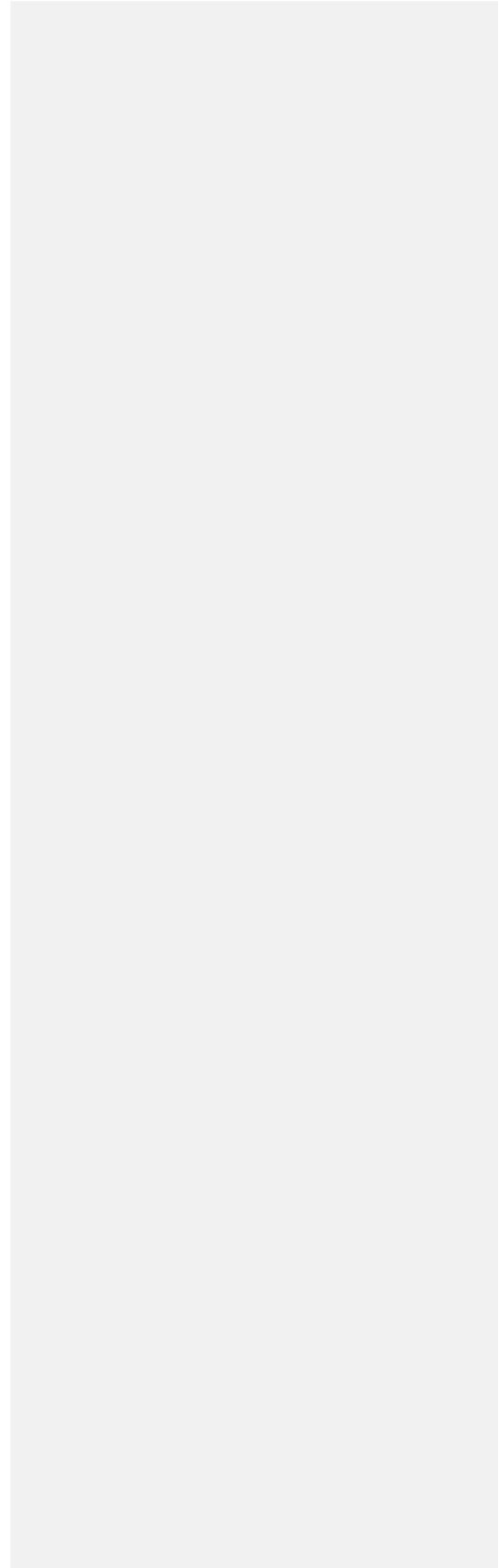# Performance effects of Downsizing in the aftermath of Acquisitions

'Performance effects of Downsizing in the aftermath of Acquisitions'

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1 Introduction

1.1 Introduction

Organizations have been acquiring other organizations and merging with them for well over a 100 years, with the first recorded M&A taking place as far back as 1897 (Angwin, 2012). Over the years, and certainly over the last 50 years, researchers have intensively studied M&A-activity, touching upon subjects such as acquisition motives, acquisition performance, acquisition processes and many more. Yet, despite the insights available to us today, M&A failure rates remain high. Depending on the measure used, failures are reported to be around 50% (Cartwright, 2006) (Krishnan, 2002). The outcome of M&A-activity would often be large scale termination of employees (O'Shaughnessy, 1998) (Krishnan, 2002) (Krishnan H. P., 2007).

This is not surprising, as there is conceptually sound reasoning for workforce reduction in the aftermath of M&A-activity (O'Shaughnessy, 1998) (Datta, 2010). Merging or acquiring organizations are likely to encounter several redundancies in their operations, which offer opportunity to reduce costs and unlock synergies (Krishnan H. P., 2007) (Datta, 2010). Organizations use workforce reduction to cut costs, harvest synergies and promote organizational leanness (Krishnan H. P., 2007; Budros, 2004) (Datta, 2010).

Quantitative research supports this line of reasoning by showing that downsizing indeed often occurs in relation to M&A-activity (Krishnan, 2002) (Datta, 2010) and Datta (2015) in a meta-study, even notes an increase in acquisition-related downsizing (Datta, 2015). Similar to M&A-activity, downsizing has become a well-established business practice.

However, just as M&A-activity, researchers have shown that downsizing in many cases hurts the organization's performance instead of improving it. The practice is said to damage organizational capabilities and harm the motivation of 'survivors', causing a decline in overall firm performance.
Above begs the question: is acquisition-related downsizing the key to unlocking synergy or is it an ill-informed business practice, holding back post-acquisition performance?

Despite the frequent co-occurrence of these disruptive and debateable business practices, research into the dynamic between M&A-activity and downsizing has been largely absent

from current literature (Datta, 2010). This study therefore explores the role of downsizing on post-acquisition performance.

1.2 Scientific relevance

The majority of research into M&A-activity is stating that organizations are unsuccessful acquirers (King e. a., 2004) (Hitt, 2009) (Hitt, 2012). Multiple studies have shown that organizations are often incapable of retrieving their investment (Krishnan, 2002). Both studies questioning managers directly on their interpretation of success, as well as studies using financial performance indicators, show that a large proportion of deals fail to meet their predefined success criteria or fail to deliver an increase in performance. However, these research findings do not seem to stop organizations from engaging in M&A-activity, as the practice seems to grow ever more popular (Hitt e. a., 2009). This contrast between business popularity and research findings is often referred to as the M&A Success paradox (Angwin, 2015; Cartwright S. , 2006).

Downsizing is often seen following M&A-activity and it knows a similar paradox. Another popular business practice, researchers generally see downsizing as hurting the overall firm performance. Despite the prevailing negativity among researchers, the practice has become 'fact of organizational life' (Datta, 2015). Business managers are engaging in downsizing to cut costs, extract synergy and for a multitude of other reasons.

Combining these two practices may seem a recipe for disaster, after all both seem on average unsuccessful. There may however be more to the story. Based on the resource based view, multiple researchers point out that there is a solid rationale for downsizing after M&A's (O'Shaughnessy, 1998) (Flanagan, 2003) (Krishnan H. P., 2007) (Barkema, 2008) (Hitt, 2012). M&A-activity may lead to partially duplicated activities, may create economies of scope and scale and may otherwise lead to redundant personnel. Can M&A downsizing in this respect, be the key to unlocking the benefits off certain types of M&A's?

Although downsizing and its effect on firm performance has received considerable attention, the special case of downsizing in the aftermath of M&A-activity has received far less attention (Krishnan, 2002).

This research will therefor contribute to existing research by connecting two major disruptions in a company's lifecycle, namely workforce reduction and M&A's. It will follow

King et al's (2004) calls for (1) more use of accounting based performance measures and (2) for more use of variables specified in existing research by partially recreating the rationale tested by Krishnan in 2002 (King e. a., 2004). It will use the resource based perspective, and in doing so, it will validate the usability of this perspective in looking at M&A-activity, downsizing and its performance effects.

1.3 Societal relevance

Both downsizing and M&A's are highly debateable in terms of their success, yet both have a huge impact on the people and organizations involved. Their popularity as business practices is oddly contrasted to the findings of most researchers, who mostly find that M&A's are not successful and that downsizing often harms performance instead of improving it.

The impact of downsizing on society is huge, between 2009 and 2012 the US Bureau of labour statistics reported the number of personnel fired through mass lay off events to be over 6.5 million (Bureau of Labor Statistics, 2007) and these reorganizations can have far stretching consequences for employees involved (Krishnan, 2002). Reorganizations are said to cause considerable stress and insecurity for the people involved (Dolfsma, 2014) and according to to Datta (2010) they are subject to 'significant controversy' (Datta, 2010).

With the impact of both practices fresh in mind, new research is needed to show the relation between downsizing and post M&A performance. If both are unsuccessful than why put people's livelihood on the line?

1.4 Objective and research question

This paper uses quantitative methods to highlight the effect workforce reduction has on acquisition performance (O'Shaughnessy, 1998) (Conyon, 2002) (Krishnan, 2002) (Krishnan H. P., 2007) (Datta, 2010). It will theoretically address why downsizing occurs in the aftermath of M&A-activity and then show how downsizing affects performance.

Downsizers will be compared with those that did not engage in employee reductions. The research aims to show how those that did and those that did not downsize differ in subsequent performance.

It will do so using literature from several research streams, as detailed in the theoretical framework in the following chapter. The main perspective used is the Resource Based View of the firm.

The research question is: what is the effect of downsizing on post-acquisition performance?

As this research brings together multiple phenomena, the following sub questions were defined:

-What is M&A-activity and how does it influence organisational performance?

-What is downsizing and how does it influence organisational performance?

-What is the relation between M&A-activity, downsizing and post-M&A performance?

1.5 Thesis outline

The following theoretical framework reflects the state of current research on these subjects. It considers multiple research perspectives and uses them to answer the sub questions stated in paragraph 1.4.

Following this theoretical framework, is a chapter on the research's methodology. It addresses the quantitative nature of the research and describes how the dataset was assembled and analysed.

2 Theoretical framework

2.1 Introduction

This theoretical framework is divided in two major topics. It starts by discussing the concept of Mergers and Acquisitions (M&A) and follows with a review of the research on downsizing. It will make an effort to combine the two research streams using the Resource Based View of the firm (RBV). The RBV is used to explain the motivation to acquire as well as reasons to engage in workforce reduction. It is shown that the performance effects of combining these two strategic 'tools' can also be accommodated by this view.

2.2 Mergers and Acquisitions

M&A-activity has been around for over a 100 years, with the first recorded M&A taking place as far back as 1897 (Angwin, 2012). Researchers have studied the subject of M&A, touching upon subjects as acquisition motives, acquisition performance, acquisition processes and many more. Despite the majority of this research indicating a high failure rate, global investment in M&As keeps on growing (Haleblian, 2009) and contrary to research findings, it remains a popular business strategy (Hitt, 2009).

According to Angwin (2012), the volume and variety of transactions, impacting upon a wide range of stakeholders, indicates M&A's are a large and heterogeneous phenomenon (Angwin, 2012). Following Homberg (2009), this study does not distinguish between the various ways organizations can acquire control over another organization. We will therefor use the general term 'mergers and acquisitions' (M&A) (Homberg, 2009) to indicate any event in which an organization acquires control over another organization.

Researchers, studying acquisitions have used a seemingly endless variety of classifications to describe the type of M&A under study (Angwin, 2012). Acquisitions are said to be related or unrelated (O'Shaughnessy, 1998), complementary or similar (Makri, 2010) (Kim, 2009), horizontal or vertical (Letho, 2008) (Kim, 2009), technically motivated or non-technically motivated (Ahuja, 2001) (Kim, 2009) and cross border or domestic (Letho, 2008), to name a few. Furthermore, they can be classified according to their degree of friendliness-hostility, their level of desired integration and their strategic purpose (Angwin, 2012).

2.2.1 Past research & perspectives on M&A

M&A's are a popular business strategy and have been around for many years. Hence, M&A-activity has received a lot of attention from a broad array of scholars. Past research has primarily come from fields such as finance, strategic management, organizational behaviour and those focussing on cultural dynamics (Cartwright S. , 2006). Research trying to explain M&A-performance has come from many angles and is more often than not developed within the boundaries of relatively isolated schools of thought. This has allowed researchers from these different disciplines to mature their research base but it has also come at a cost. Holistic views on M&A-performance, integrating different schools of thought, are rare (Bauer, 2014; Cartwright S. , 2006) and variables key to explaining M&A performance may have remained unidentified (King e. a., 2004) or relationship may turn out to be more complex (Hitt, 2012). Bauer (2014) in an effort to integrate the fragmented landscape, identified four major schools of thought: (1) The financial economic school, primarily concerned with the effects of an M&A on shareholder wealth, (2) the strategic management school, that has been focussing on the strategic fit between the parties, (3) the organizational behaviour school, similarly concerned with the fit between the two organizations but looking at this from a cultural perspective and (4) the process school, mainly focussing on the post-acquisition integration process as a predictor of M&A success.

In a meta-analysis of M&A-research, Hitt sees three dominant fields, namely economics, finance and management (Hitt, 2012). He identified the five most studied variables as: (1) acquisition relatedness and diversification, (2) the size differential between both parties, (3) the acquiring firm's acquisition experience, (4) the method of payment and (5) the firm's performance prior to the acquisition.

The fields and research disciplines, Cartwright, Bauer and Hitt identified share a lot of overlap. All recognize financial studies as a major stream and all three identify (strategic) management as an important school of thought as well. Organizational behaviour and cultural dynamics/cultural fit and process perspectives are named as well. For the purpose of this we will review three major streams and their primary conclusions, namely (1) financial and market studies, (2) studies on cultural dynamics and (3) studies on from a strategic management perspective.

2.2.1.1 Financial and market studies

Till date financial and market oriented scholars have produced the largest volume of research on M&A-activity.

The main focus of finance scholars has been with the value enhancing or value destructing effects of M&A's for shareholders (Cartwright S. , 2006). Performance measures from this stream are primarily derived from stock performance and this type of study is also referred to as (stock) market study or event-based study (Bauer, 2014).

Most research in this stream shows immediate positive short-term returns for companies that are the target of an acquisition. Indicating a rise in the targets share price just after the offer of the bidder. Bidding or acquiring firms however are shown to be subject to negative or at best neutral effects on stock performance, as Cartwright shows in a review of 30 years of M&A literature (Cartwright S. , 2006). This effect occurs irrespective of the degree of relatedness between the parties (Krishnan, 2009). This may indicate that (1) shareholders of the acquiring organisation are not convinced of the added value of the imminent acquisition (King e. a., 2004) and/or (2) the bidding firm has overestimated the value of the target and/or (3) the bidding firm as underestimated the cost of exploiting the relatedness with the target firm (Krishnan, 2009).

This stream of literature seems primarily focussed on shareholder value which does not necessarily reflect an organizations current performance as measured by accounting standards.

2.2.1.2 Cultural dynamics

Primarily populated with studies on international or so called cross border M&A's, a second field centres on the cultural dynamics between acquiring and targeted organizations. Building on insights from psychology, organizational behaviour studies and human-resource management, this field tries to explain M&A-performance through the cultural (mis)fit or between the merging firms. Poor fit and a 'lack of cultural compatibility' are much cited reasons for M&A failure by researchers from this stream. These concepts however centre on cultural differences and tend to be poorly defined. Results from this stream deliver mixed and even contradictory results (Cartwright S. , 2006). They partially coincide with Strategic Management studies when topics such as cross-border acquisitions are discussed.

2.2.1.3 Strategic Management

Strategic management literature has mainly focussed on the identification of strategic and process factors that explain the variance in performance between acquisitions. The acquisition process and integration strategies fall within a sub stream referred to as 'process literature'. Process literature within the management domain is concerned with the post-merger integration processes. The contribution of this sub stream lies mainly in frameworks and models guiding and optimizing the integration between acquirer and target. The main thesis is that, citing Bauer: an effective and efficient integration process is decisive for the post-merger integration phase and, therefore, for the success of a transaction (Bauer, 2014). Within strategic management research, another body of research has grouped around the theme of 'strategic fit'. It links acquisition performance to the fit between the strategic characteristics of the merging firms. The degree of relatedness features prominently within this stream and is often connected to acquisition performance.

This study will draw on the strategic management literature and within that, will be primarily concerned with strategic fit literature. Strategic Management literature has produced the most knowledge on strategic relatedness between target and acquirer and is therefore the best fit for this study (King e. a., 2004) (Cartwright S. , 2006).

Yet even within this field, researchers are still finding and using different concepts for explaining M&A-activity. Capron (1999) aggregates those theories in two main classes: (1) value-maximizing theories and (2) managerial theories. Several researchers have followed this classification (Capron, 1999) (Krishnan H. P., 2007).

Resource based view theorists adhere to the first class and see M&A's as a way of combining resources to enhance the efficiency of their usage. However, this rational way of looking at M&A's has been centred on the assumption that organizations are focussed on maximizing shareholder value. It has therefore been under fire from researchers focusing on theories centring on managerial interests. Well-known theories from this angle stem from agency problems, where managers (agents) are said to pursue their own interest rather than those of the shareholder (owner). Both Cartwright (2006) and Devos (2008) suggest that these managerial theories account for a relatively small portion of all M&A-activity. Both authors stated that the majority of M&A-activity under their study was based on synergistic motives (value-maximizing).

This paper will therefore follow the value-maximizing perspective which is mainly grounded in resource based theory and thereof derived efficiency theory. Efficiency theories, building on resource based theory explain the potential for efficiency increases through creating economies of scale and scope (Capron, 1999). In more recent work Hauschild (2013), positions the RBV as a paradigm that is capable of explaining the motivation to diversify as well as the advantages of choosing a certain degree of relatedness between acquirer and target (Hauschild, 2013). This confirms the high applicability of the RBV for this study.

2.2.2 M&A motives from the Resource Based View

Theoretically two firms, trying to maximize their value, will merge if combining their operations increases value as assessed by acquiring firms' managers (Lobo, 2016). The most straightforward and high level motive used to explain M&A activity, is therefore firms' quest to establish higher performance/create value (King, 2008; Hitt, 2012).

According to O'Shaughnessy (1998) there are two popular rationales for M&As. The first being and creating synergy and the second rationale is the disciplining of inefficient target organizations. It is grounded in theories suggesting acquirers can create value through reducing inefficiencies within targets, thereby improving the performance of the target. According to this theory, inefficiently ran organizations can be 'disciplined' to realize performance improvements (O'Shaughnessy, 1998).   Summarizing, value creation can thus occur through two mechanisms: the realization of synergies and the reduction in managerial inefficiency.

2.2.2.1 Synergy

Different definitions of synergy circulated within strategic management resource. They share a high level of abstracteism which is commented on by King (2004) and also implicitly by Krishnan (2009) who emphasizes the elusiveness of the concept. Most definitions state that synergy is the value that arises from the combination of two firms or resource bases such that the value is of the combined entity exceeds the sum of its parts.
Research on synergistic gains tends to find that integration between the organizations is needed to realize those synergies. The vagueness of the concept makes it hard to measure and firms often overestimate the potential synergies (Krishnan, 2009).

Following the synergy motive, as drawn from resource-based theory, potential synergies are the main driver and justification for organizations to engage in M&A (Seth, 2000) (Krishnan, 2002). Organizations aim to create synergy from acquisitions in several ways. They aim to combine complementary assets to produce unique products or services, to generate economies of scale and scope through consolidation, to eliminate firm wide inefficiencies and redundancies, to redeploy assets and to achieve market power (Krishnan H. P., 2007). Organizations, it is reasoned, that are able to use their experience in a certain area to build up resources in an acquired firm may face lesser friction in doing so then competitors. Creating and expanding assets will therefor come at a lower effort then competitors will face. This transfer of experience and knowledge leading to efficient creation of assets and resources is what enables synergies to be realized. These motives tend to be used to justify the high acquisition premiums that are often payed (Krishnan H. P., 2007) (Hitt, 2012).

2.2.2.2 'New' motives

Recently, in their quest towards competitive advantage, firms have turned to M&A's as a strategy to speed up innovation in order to (re)gain or sustain their competitive advantage (Hitt, 2009). Organizations are increasingly using M&A strategies in an attempt to gain highly developed technical expertise and R&D skills, experienced personnel and specific new technologies (Valentini, 2012a).

Haleblian et al (2009) also specifically note that 'obtaining know-how and developing technical capabilities are increasingly important motives for acquisitions' (Haleblian, 2009). Other authors support that notion (Ahuja, 2001) (King, 2008), Makri (2010) states that: 'the strategic use of acquisitions to acquire new knowledge and capabilities has become a well institutionalized corporate phenomenon' (Makri, 2010). Several researchers describe the innovative benefits acquisitions can bring (Haleblian, 2009). Still explainable by the resource based view, M&A-activity, according to Sevilir represents an increasingly important strategy for firms to enhance their innovation output (Sevilir, 2012).

2.2.3 Acquisitions and performance

The most commonly used measures to gauge M&A-performance are financial performance data and accounting data. Financial scholars have measured the impact M&A's had on an organizations value, using stock prices. Older research tends to favour short term financial

performance data while more contemporary research is incorporating long term financial data as well. Strategic management scholars tend to favour the use of long term accounting data (King e. a., 2004) (Zollo, 2008). However no matter the measurement used, acquisition success according to research has been limited. Several studies have shown that firms create little value, no value or even negative value by engaging in these activities (Cartwright S. , 2006) (Haleblian, 2009) (Hitt, 2009) (Hitt, 2012). Researchers so far, have not been able to pinpoint the cause of these often unsatisfactory outcomes and consensus has not been gained (Cartwright S. , 2006) (Hitt, 2009). In a meta-analysis King notes that the outcomes are not in line with the popularity of M&A-activity in the business landscape and authors seem puzzled about the this seemingly contradictory situation (King e. a., 2004). King (2004) even suggested that the body of work conducted on M&A and performance failed to identify key variables as M&A success rates remain unchanged (King, 2004). King is supported by Cartwright et al (2012), who call, in general, for the development of new and adequate theories and better integration of existing ones (Cartwright, 2012).

So, if outcomes are mixed at best, why do firms keep on engaging in M&A-activity? Taking a resource-based view, would suggest that failure arises when the synergies created do not surpass the premium payed. The literature on M&A indeed supports this view as it explains acquisition failure due to a miss evaluation of potential synergies when organizations engage in M&A-activity (Homberg, 2009).

3   Downsizing

In order to study the link between M&A-activity and downsizing, research on downsizing is addressed in the next paragraph. After discussing the current state of research on downsizing as a stand-alone phenomenon, this study will make an effort to connect it to M&A activity and post-acquisition performance.

3.1   Definition and classifications

Organizational downsizing points to certain reductions. These reductions can be focused on assets, employees, capital or a combination thereof (Datta, 2010). This research focusses on employee downsizing.

The definition of downsizing in this paper relies on definitions from both Mellahi (2010) and Datta (2010). Mellahi defined downsizing simply as a significant reduction in workforce (Mellahi, 2010). Datta (2010) adds two important aspects as he states that downsizing is planned and that its goal is to improve organizational performance (Datta, 2010). Gandolfi, in a meta-study, nuances that last point by stating that downsizing is not necessarily aimed at improving performance. In a narrow sense, he states, downsizing can be viewed as a practice to make a firm more cost-effective (Gandolfi, 2009) and improving organizational performance could be an outcome of that.

This paper defines the conceptual definition of downsizing as: a planned and significant reduction in workforce with the aim of making a firm more cost-effective.

A more operational and practical definition of downsizing is defined by the US Bureau of Labor Statistics as: a layoff of more than 50 workers for more than 31 days, in a set period of time (Bureau of Labor Statistics, 2007). Most researchers however, have used relative measures of downsizing, viewing 5-10% reductions in personnel over the course of a year as downsizing. This is done to take into account the size of organizations, which may employee 10's of thousands of employees, rendering an absolute number of 50 insignificant.

3.2   Past research & Perspectives

Datta et al (2010), found from a meta-study involving 91 studies (1984-2008), that studies on downsizing can be accommodated in four different research streams. Two of those address precipitators of downsizing and two address the outcomes. Factors precipitating downsizing can be environmental and organizational. M&A-activity is acknowledged as a precipitator and within that an organizational factor.

Like the perspective on M&A-motives and M&A performance, this body of research is mainly grounded in the resource-based view of the firm. The organizational efficiency perspective is used to establish that the goal of downsizing is to strive for more efficient utilization of human resources (Datta, 2010).

Researchers have also extended this reasoning to the specific case of M&A-related downsizing. The organizational efficiency perspective can explain how the consolidation process can lead to personnel redundancies caused by duplicated parts of the value chain. These redundancies will undercut financial performance as the efficiency in the utilization of

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human resources decreases. Employee downsizing can then represent a way of improving the degree of efficiency in which human resources are utilized (Datta, 2010). O'Shaughnessy (1998) refers to this as eliminating slack and realizing operational synergies (O'Shaughnessy, 1998).

However, downsizing after M&A activities can be explained through other lenses as well. Next to the resource based view, prominent views are based on the institutional theory and agency theories.

Institutional theory focuses on forces that are not necessarily based on classic rational strategic thinking, instead institutional theorists take into account the often seemingly irrational decisions made by managers. McKinley lists three social forces (McKinley et al, 1995) constraining, cloning and learning that provide a major driver for downsizing. It is reasoned that firms feel pressured into downsizing by social constrains promoting leanness (Krishnan, 2002). Gaining industry legitimacy by mimicking similar (leading) firms is suggested as a cause as well. Next to that, many executives are influenced by the business schools they attend, which seem to emphasize a focus on cost reduction. Institutionalization though, can be viewed as an invisible hand, firms may not consciously choose to mimic other firms just for the sake of mimicking them.

From an agency theory perspective, it has been argued that acquisitions and corporate restructuring often occur together in large organizations. This relates back to the class of managerial theories discussed in paragraph 2.2.1. Managers may be acquiring other firms for reasons that are beneficial to the manager and his position (Krishnan 2002). As these acquisitions may not be in the best interest of the firm results may be falling behind, which in turn leads to pressures from other managers to boost performance, often by work force reduction (Krishnan H. P., 2007).

Reasoning from both institutional perspective and agency theory, the occurrence of downsizing is not related to value-maximizing efforts of the organization. Having established that this class of theories is the main reason for organizations to engage in M&A-activity (paragraph 2.2.1) this research will be based on the Resource Based View and thereof derived Organizational Efficiency theories.

From this theoretical perspective, it could be argued that work-force reduction is a way to harvest synergies based on creating economies of scale and scope through removing redundancies (Capron, 1999) (King, 2004) (Kim, 2009). Which is also suggested by Krishnan et al (2007), when they stated that workforce reductions are generally necessary to eliminate redundancies and thereby extract operational synergies (i.e. economies of scale) (Krishnan H. P., 2007).

This study follows that view and posits that M&A-activity causes a temporary situation in which the utilization of human resources is sub efficient. Lay-offs may be expected to occur, as the organization tries to find its way towards the optimum level of employment (Conyon, 2002).

3.3 Causes and Motives for Downsizing

According to Gandolfi (2009) causes of downsizing are aplenty. He lists several frequently cited causes in a review of downsizing research, thereby acknowledging that no single cause is able to explain the pervasiveness of downsizing.

Ironically downsizing itself is named as one of these causes. Cascio, on the basis of anecdotal evidence, suggests in his 1993 paper, that downsizing may cause downsizing. He observed several large firms experiencing multiple layoffs in a relatively short time frame.

The question of what may have started off this first round of downsizing is split into three main categories: marco-economic, industry specific and company specific. Increased competition may be an example of a macro-economic driver of downsizing while slowing sales may industry specific. Poor financial results may be considered a company specific indicator (Gandolfi, 2009).

In researching the performance effects of downsizing on a firm-by-firm level, this research will be concerned with those company specific drivers.

Organizations used to handle these drivers on reactive basis but more recently firms have been seen to utilize downsizing on a more proactive bases (Datta, 2015; Dolfsma, 2014). Aalbers & Dolfsma state that while downsizing used to be seen as a last resort practice focused on battling severe economic downturn, it has now developed into a common management practice (Dolfsma, 2014). They are supported in this by Datta (2015) who states

downsizing has reached unprecedented levels and has now become a 'fact of organizational life' (Datta, 2015).

These proactive downsizing strategies can be motivated by a number of situations and goals. Aalbers & Dolfsma (2014) list examples such as "rectifying historical tendencies towards overstaffing, managing cyclical business declines, introducing new information technology and the use of automation, as well as shifting business strategies, mergers and acquisitions (M&A), globalization, and cost-reduction strategies aimed at achieving competitive advantages." They suggest that the main goal of these reorganizations often is to improve the productivity and the competitive position of a firm (Dolfsma, 2014).

3.4 Downsizing in the aftermath of acquisitions

Studies on organizational factors that may cause downsizing acknowledge M&A-activity as an antecedent of downsizing (Datta, 2010) and multiple scholars have studied the employment effects of M&A-activity (Conyon, 2002) (Gugler, 2004) (Letho, 2008). Budros (2004) reported that in 80's, 10% of all US downsizing activity was directly related to M&A-activity. The main reason was believed to be the elimination of personnel redundancies caused by consolidation (Budros, 2004). O'Shaugnessy (1998), in a seminal work, found that this downsizing activity is influenced by the degree of relatedness between target and acquirer (O'Shaughnessy, 1998). Conyon (2002) studying the employment effects of downsizing finds empirical evidence for this when he notes a drop in employment following M&A-activity. Krishnan (2002 & 2007) focussing on the specific case of downsizing after M&A-activity, follows Budros (2004) partially by departing from the same reasoning however he finds that the premium paid was the most prominent predictor of downsizing activity (Krishnan H. P., 2007). Both Krishnan (2007) and Conyon (2002) recognize the effect of size difference between acquirer and target and the high correlation between prior and post-acquisition performance (Conyon, 2002) (Krishnan H. P., 2007).

3.4.1 Synergy and Premiums

The topic of synergy was already touched upon in paragraph 2.2.2., where different types are described. This paragraph will link synergy to downsizing via paid premiums.

The value of the potential synergy between two organisations is the main driver of M&A-activity. It is the term used to describe the value that a fusion of both organizations will add

on top of the value of both separate organisations. The premium an acquirer pays is closely linked to the estimated synergy and is usually defined as the amount an acquirer pays on top of the market value of the target.

Krishnan et al. (2007) researched downsizing in the aftermath of M&A-activity and connected this to the amount of premium acquirers paid for their target. They suggested that premiums are justifiable by potential cost savings, synergetic effects or efficiency gains. To recoup from their investment, acquiring managers must be capable of leveraging these justifications so that the value surpasses the cost of the acquisition (Krishnan H. P., 2007).

They found that this was often complicated by high premiums. Acquiring managers are therefore likely to be under pressure from company boards or superiors to maximize the value from the acquisition. Managers, knowing that revenue and profit increases are harder to achieve than cost reductions, are motivated to cut wherever possible. Human capital will in those cases be a predictable and relatively easy way to bring the overall cost level down (Datta, 2015).

3.4.2 Consolidation and Relatedness

Synergy is a potential value, estimated before the acquisition. This imagined value, at some point, needs to be materialized in tangible value for the acquisition to be successful. To 'harvest' these synergies, effective integration between the two organizations is needed (Krishnan, 2009). This is where the concept of consolidation comes into play. Strategic management scholars have often linked this to the degree of relatedness between both parties (O'Shaughnessy, 1998).

Researchers from the strategic management field tend to use references to resource based theory and thereof derived organizational efficiency perspectives to justify downsizing following M&A's. The main line of reasoning is that when similar firms merge, consolidation of operations generates personnel redundancies, undercutting financial performance. In this context, employee downsizing represents a practice to reduce slack and to unlock operational synergies (O'Shaughnessy & Flanagan, 1998) (Datta, 2010) (Hitt, 2012) (Krishnan, 2002). That similarity is often viewed as a certain level of relatedness.

Organizational relatedness is a quintessential theme in strategy research. Relatedness as a construct, points to the degree that businesses look-a-like. It is closely related to the idea of

'economies of scope'. The two concepts are connected by the idea, that organisations operating in similar industries will be able to reap certain benefits when they combine or integrate (parts of) their value-chains. After all, this 'industry-similarity' indicates that those organizations are likely to resemble each other to the degree that sharing resources, technologies, skills, knowledge and processes will be beneficial (Elisabeth Nocker, 2016). Following this rationale, organizations that are very much alike will be more prone to downsizing in the aftermath of M&A's (O'Shaughnessy, 1998) (Capron, 1999) (Conyon, 2002) (Datta, 2010) (Aggarwal, 2013).

This implies that relatedness will play a key role in predicting downsizing following a merger or acquisition (Conyon, 2002). In fact, relatedness is one of the most researched variables by strategic management scholars (Hitt, 2012). Surprisingly, quantitative research taking into account the degree of similarity between target and acquirer and its relation to subsequent downsizing and post-acquisition performance has been largely absent from recent literature (Krishnan, 2002).

Conyon (2002) in a study on country wide employment effects of M&A's in the UK, also found that mergers tend to reduce employment. In the UK, it was found that related mergers reduce employment by more than unrelated mergers (Conyon, 2002). This empirical evidence supports the expectations derived from resource based theory. Intriguingly however, Conyon (2002) found that this relationship was the other way around for Continental Europe, where unrelated acquisitions seemed to cause larger declines in labour demand, and suggest this might be caused by labour legislation (Conyon, 2002). He is supported in this by Gugler (2004) who compares the effect of M&A on employment levels between Europe and the US and suggests European firms may face higher labour adjustment costs, preventing them from reaching their optimal employment levels (Gugler, 2004).

Capron (1999) addressed downsizing while investigating value creation in horizontal related mergers and acquisitions. Using a survey of 253 mergers and acquisitions, Capron showed that both asset divesture and resource redeployment from target companies are causing a significant risk of damaging acquisition performance (Capron, 1999). Capron (1999) strikes an important topic when addressing asset divesture. Theoretically it is not hard to imagine that organizations with personnel redundancies will face similar redundancies in their assets. This

is likely to result in asset divestures as well. Performance measurements, such as yearly revenue, may be affected when parts of the business are being divested. To control for this, researchers have advocated the use of Return On Assets (ROA) as a performance measure (Krishnan, 2002). To make the connection between performance researchers have mainly used ROA or ROS (return on sales) or ROE measures, which they combined with the degree of relatedness between the merging firms. This degree of relatedness has traditionally been measured using the SIC-classification system. Krishnan (2007), Conyon (2002) and Gugler (2004) all used measures of relatedness based on this system (Conyon, 2002) (Gugler, 2004). There is however significant critique on the validity of the system and other measure may be more appropriate. This research uses the NAICS-classification system to determine the degree of relatedness. Reasons for doing so and a more in depth explanation of both systems are discussed in Appendix 10.1.

3.4.3 Prior Performance

Researchers tend to find that M&A-activity does not lead to increased performance and that most acquirers are not able to recoup their investment (Krishnan H. P., 2007). As the link between weak performance and downsizing has been well researched (Datta, 2015), post-acquisition performance may therefore be a motive for post-acquisition downsizing. Multiple studies show that the pre-acquisition shows a strong correlation with post acquisition performance. It may therefore be the case that acquirers that were underperforming before the acquisition will be more likely to downsize in the aftermath of the acquisition, simply because acquisitions tend not to have significant positive effects on an acquirers performance. Workforce reduction may be expected in those situations (Hitt, 2012).

3.4.4 Size differential

Size differential has been known to complicate the M&A process and more specifically the post-M&A integration. A lower size differential, (i.e. a more equally sized acquirer and target) has been associated with poorer post-acquisition performance (Krishnan, 2002).

3.5 Downsizing and subsequent performance

The performance effects of downsizing are well researched. A huge and diverse body of research ties downsizing practices to multiple measures of performance (Taoufik, 2007; Conyon, 2002; Gugler, 2004). Following Datta's classification of research streams, post-downsizing performance is considered an organizational outcome (Datta, 2010).

Within this stream, the majority of research paints a dark picture for the case of downsizing. While some organizations show downsizing related improvements, most do not seem to be able to harvest the desired efficiency, effectiveness, productivity and profitability effects they were looking for. Moreover, the opposite may very well be the case, as organizations have been known to face devastating economic and financial effects related to their downsizing practices (Gandolfi, 2009).

Datta (2015) in a meta-study supports this notion and describes the practice as being subject to 'significant controversy' (Datta, 2015). He describes two camps that are opposing each other on the effect of downsizing: proponents and detractors. Proponents base themselves mainly on the rationale that to improve a firm's profitability, one can either improve revenue or decrease costs. While improving revenue is hard and results are unpredictable, reducing costs is relatively easy with very predictable cost levels. Downsizing, for their case, represents a strategy to reduce costs, enhance efficiency and improve the productivity.

Detractors make a case for the opposite, when they state that the potential benefits are 'illusory'. They state that downsizing is an ineffective tool in creating value for an organization as the associated benefits are likely to be overshadowed by other costs (Datta, 2015). Severance fees are a well-known example of such costs. In some countries they are obligatory in others they are expected. The detractor camp basically states that although very visible, these costs are not the majority of the costs associated with downsizing. The hidden costs are said to have a way more significant effect on downsizing performance and instead of being connected to the employees who are leaving, they are associated with the 'survivors'. The attitude and motivation of survivors is said to face a severely negative

impact by downsizing practices. Loss of motivation and commitment, along with higher stress levels and lower morale may lead to higher turnover, more absenteeism and lower productivity. Additional negative effects may occur when the downsizing effort is covered in the news media and leads to negative publicity (Datta, 2015).

The resource based view can also be used to derive these two perspectives on downsizing following an M&A. Positive effects of workforce reduction as well negative effects of workforce reductions can both be conceptualized using the resource based view.

At the foundation of the RBV lies the idea that a firm is able to develop a sustainable competitive advantage if it is able to develop and deploy certain resources. It is in this context that management scholars often refer to the acronyms VRIN or VRIO which describe such a resource. It is assumed that resources need to be valuable, rare, inimitable and Non-substitutability. The goal of integrating two organisations would in this case be to spur the development of these resources and/or the efficient utilization of such resources. When a firm can leverage its experience in a certain area to develop new resources in a different area, with less friction.

Related acquisitions are said to offer greater potential for realizing such synergies through the consolidation of human and physical assets and opportunities for generating economies of scale and scope. Through resource sharing and removing redundancies, superior performance can be reached. Chatterjee (1992): *"An important scale economy often involves the elimination of redundancies by having the employees of one firm assuming the responsibilities of the other"* (Chatterjee, 1992).

The other side of the coin offers a less positive outlook on the performance effects of workforce reduction: (1) sharing and transferring acquired resources in practice, turns out to be difficult, (2) reductions that are carried out with short-term profits in mind may cause the loss of valuable resources in the form of knowledge held by employees, (3) Angered employees may lack motivation and commitment to facilitate the needed resource sharing and transfer and the relationship with their managers may be strained, and (4) markets and customers, knowing the negative consequences of downsizings, may be worried about the organizations ability to handle the loss of employee held skills and competencies (O'Shaughnessy, 1998).

3.5.1 Relatedness

It is often reasoned that related acquisitions will be more successful than unrelated ones. However evidence for this hypothesis remains mixed. In an extensive analysis of existing research Hitt suggests this may be caused by nonlinear relationships or studies failing to control for other contextual factors (Hitt, 2012).

Downsizing depends on the complementarities between target and acquirer (Conyon, 2002) (Krishnan, 2002). Workforce reduction in related acquisitions should therefore occur more often than reduction in unrelated acquisitions, as was explained in paragraph 3.4. Even when controlling for premiums one should find that related acquisitions cause more acquisition related downsizing in an effort to normalize personnel levels, simply because there will be a higher need for rationalization.

Conyon (2002) agrees and his results suggest that the potential for rationalization of labour is twice as high in related acquisitions when compared to unrelated acquisitions. It is Conyon's phrase on labour rationalization potential that should make a difference when it comes to post-downsizing performance (Conyon, 2002).

Relatedness and its measures a discussed in detail in appendix 8.1.

3.5.2 Unfamiliarity

Organizations tend to downsize the target three to five times more often then they cut in their ´own´ personnel base (Capron, 1999). Both Krishnan and Capron warned against this by stating that acquirers tend to be incapable of estimating the exact number of lay-offs needed. Merging firms are said to often not understand the context of the upcoming consolidation well enough to make downsizing decisions. (Capron, 1999).

Krishnan (2007) states three reasons that explain why downsizing managers may be expected to be incapable of identifying the exact number of employees to unlock the sought after synergies: (1) the process is complicated by information asymmetries that exist between acquirer and target, (2) the complexity involved in integrating the two operations and (3) managerial hubris. These conditions are expected to cause managers to overestimate the amount of lay-offs needed, leading to excessive downsizing that may harm critical capabilities (Krishnan H. P., 2007).

This research will conceptualize two forms of unfamiliarity. Industry unfamiliarity, occurring when the acquiring organization picks a target that does not operate in the acquirers primary industry. And target unfamiliarity, occurring in every acquisition. The first is captured by relatedness, which will be a measure of industry similarity.

Now, relatedness does more than directly signalling the potential for downsizing. It also has a role in predicting the success of the downsizing effort. When organizations downsize an unrelated firm, the impact on performance is expected to be worse than in acquisitions of similar firms, due to unfamiliarity with the industry. This unfamiliarity can also be seen in the height of the premium paid as unrelated acquisitions can be subject to higher than average premiums (Flanagan, 2003).

Target unfamiliarity is expected to occur in every acquisition as acquirers will rarely, if ever, have full knowledge of the intimate workings of the acquiring organisation.

3.5.3 Magnitude

In a review of recent research on workforce reductions Datta (2010) showed that downsizing efforts often fail to reach their economic objectives (Datta, 2010). Krishnan (2007) adds that, unless downsizing is planned and implemented carefully, with special sensitivity to human resources and the manner in which these resources are managed, it may often lead to lower performance (Krishnan H. P., 2007).

Following a resource based view, excessive downsizing is tough to be detrimental to organizational performance as it harms its competitive advantages (Krishnan H. P., 2007) through the loss of human capital (Hitt, 2012). However, excessive downsizing is likely to occur, as identifying the number of employees to lay off to recoup investments and achieve synergy, is cumbersome because of the information asymmetries. Adding managerial hubris and pressures to recoup the acquisition premium to this unfamiliarity with the target will result in over-downsizing. Losses of valuable knowledge reduce the potential to create the synergies needed. Therefore, the loss of valuable human capital is likely to have a negative effect on organizational performance (Krishnan H. P., 2007) (Hitt, 2012).

Many acquisitions are believed to fail because they engage in workforce reduction without a clear understanding of the resources involved (Krishnan, 2002) (Hitt, 2009) and when doing

so they are also likely to overestimate the magnitude of the required downsizing (Krishnan H. P., 2007). O'Shaugnessy reasons the same and finds evidence that organizations tend to neglect the context in which they integrate activities after a major acquisition (O'Shaughnessy, 1998).

Support comes from Nixon (2004), who suggests that the majority of an organization's knowledge is held by individuals in the firm. Given the importance of this knowledge for a competitive advantage, firms laying off employees are likely to suffer. If these layoffs are not carefully planned Nixon warns, they may turn out to damage the organizations core capabilities thereby directly harming its competitive advantage (Nixon, 2004), which is exactly what Krishnan reports on in the case of merging firms (Krishnan, 2002).

Both Nixon and Krishnan emphasize 'if not carefully planned' when describing the negative impact of downsizing on subsequent performance. Thereby they implicitly acknowledge that downsizing may have positive effects if undertaken under certain conditions. Contemporary research on downsizing shows much the same direction and has made a case for focussed and pro-active downsizing (Datta, 2015; Krishnan H. P., 2007; Nixon, 2004). This type of downsizing is expected to have positive effects on post-downsizing performance.

Above may point to the moderating character that the magnitude of downsizing may have on subsequent performance; heavy downsizing may lead to negative results while focussed downsizing may lead to positive outcomes.

4   Conceptual model and development of hypotheses

Chapter four starts with a general overview of the conceptual model. This model structures the development of the hypotheses in the subsequent paragraphs.

4.1 Introduction

Mass lay-offs are likely to occur in the aftermath of M&A-activity and are expected to have a negative influence on performance. The premium organizations paid for their target is expected to influence downsizing decisions.

The relatedness between acquirer and target is expected to offer potential for downsizing. Personnel redundancies are expected to be higher in very similar M&A's as opposed to less similar M&A's. This is expected to affect subsequent downsizing by showing that similar M&A's, on average downsize more often. When downsizing follows these related acquisitions it is expected to be less harmful than in unrelated M&A's due to the already difficult task of downsizing is exemplified by the unfamiliarity the acquirer's management has with an unrelated industry. This last hypothesis is symbolised by the black lines and in effect, joins together hypothesis 1 and 3, expecting the effects of downsizing on performance to be less negative when relatedness is higher
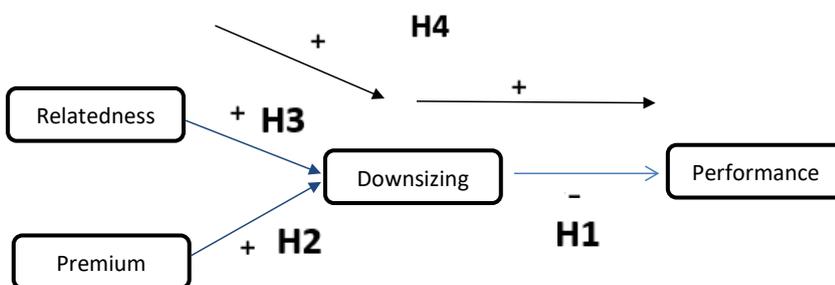

Figure 1 Conceptual model

4.2 The performance effect of downsizing

On a high level, research on post-downsizing performance has delivered mixed results with an inclination towards the negative effects. Reasoning from the RBV can accommodate the positive as well as the negative effects of downsizing on organizational performance. The main take-away from this perspective is twofold: (1) combining resources can lead to synergies and (2) skills and knowledge that are vital for competitive advantage are held within employees (Krishnan, 2002).

Combining resources is expected to lead to more efficient use (O'Shaughnessy, 1998). The organization will therefore need to find its new optimum level of employment. This will likely lead to a drop in labor demand following the acquisition (Conyon, 2002), or framed differently: a need to downsize.

Laying off excess or redundant employees will improve the organization's cost level and thereby its performance, is the main thesis of downsizing proponents.

Why is downsizing than so often connected to decreasing performance, researchers asked. The explanations vary from difficulties surrounding the sharing of resources to the motivation of employees that 'survive' the downsizing rounds (Datta, 2015).

Present-day researchers suggest that downsizing can be successful but only under certain conditions. It should be pro-active, focused and carefully planned. Some researchers doubt if these conditions can be met in the aftermath of an M&A event. The complexity of the integration and the unfamiliarity of the acquiring management with the target (industry) are said to make it near impossible to decide the number of employees, let alone the individuals, to let go. This, among other factors (discussed in the next paragraph), will cause organizations to fall victim to excessive downsizing (Krishnan H. P., 2007).

It is expected that the negative effects of downsizing in the aftermath of an acquisition outweigh the positive effects, hence,

H1 : Acquisition related downsizing will have a negative effect on post-acquisition performance.

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4.3 The role of premia on performance

With research showing that over 70% of acquisitions do not recoup the premium paid, a significant group of managers may be expected to be under high pressure to take action. Restructuring of assets is often not enough to ensure positive return on investment and managers are likely to resort to lay-offs (Krishnan H. P., 2007), making workforce reduction one of the most popular methods of reducing operating costs (Taoufik, 2007).

The Krishnan study goes on to show that there is a direct positive relation between the height of a premium and the likelihood of subsequent downsizing. This downsizing Krishnan suggests, may not have the desired effect as it may adversely affect the performance of the organization (Krishnan, 2002).

Krishnan is not alone in recognizing the relation between premia and synergy. Several researchers regard premia as an overpayment, to the point that some have even used is as a measure of the quality of decision making in the acquiring firm. They state that premia will consume the expected synergy's, thereby making it impossible for the acquiring organisation to uphold the targets value. The premia paid vary over sectors but on average US companies pay acquisition premia in the range of 30-50% (Laamanen, 2007).

Two prominent papers from Krishan point to the importance of the height of the premium paid by the acquirer. Krishnan suggests that high premia are a motivator for excessive downsizing because they influence the business case of the acquisition. Higher premia mean that the cost of the acquisition is harder to recoup. In order to maximize value managers will revert to the easiest and most predictable way of influencing the costs and benefits from the acquisition. It was found that this often means laying off employees. According to their research the premium has a direct effect on the chance an organization engages in acquisition related downsizing (Krishnan H. P., 2007).

Ideally, organizations strike the perfect balance; they lay off enough employees to gain economies and reduce costs without harming essential human capital.

Krishnan (2002 & 2007) suggests that this is difficult for two reasons: (1) the complexity of integrating the two organizations, (2) the information asymmetries that often exist between the two parties. Managerial hubris will influence these two reasons and cause managers to overestimate the level of personnel reductions needed. This situation is exemplified by the premium payed (Krishnan, 2002; Krishnan H. P., 2007).

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The Krishnan paper (2007) has some severe limitations. It is focused on related acquisitions based on a two digit SIC-level and only includes organizations with a minimum revenue of 200 million USD. This may be cause for concern as (1) the number of unrelated acquisitions is on the rise, (2) the measure used to determine relatedness has since been replaced by a potentially more valid measure.

The Krishnan paper (2007) suggests the premium-effect exists in related acquisitions, with workforce reduction being a full moderator. Krishnan suggests that their findings have the potential to be generalized towards unrelated acquisitions as well. (Krishnan H. P., 2007)

However, other research suggests that premia paid for unrelated acquisitions may differ from premia in related acquisitions (Flanagan, 2003). Unrelated acquirers are said to suffer from a greater degree of industry unfamiliarity and may therefore overpay for their target (Krishnan H. P., 2007).

As the effect of premia on workforce reduction in related acquisitions is known but the effect in unrelated acquisitions is not, this study will control for the premium paid.

Following Krishnan we suggest that acquiring managers will be under pressure to maximize value from their acquisition. The height of the premium will make this harder to achieve which causes managers to resort to downsizing. When combining this with the complexity of the integration, existing information asymmetries and managerial hubris will increase the chance that the downsizing effort is overestimated and therefore more harmful:

H2: The negative effect of downsizing on post-acquisition performance is expected to be bigger for acquirers paying higher than average premia.

4.4 The effect of relatedness on downsizing

The resource based view dictates that downsizing is more likely in related acquisitions as they are expected to have more potential for synergy through removing redundancies and creating economies. This makes the level of relatedness one of the most researched variables in acquisition research. Following this rationale and earlier work by Conyon (2002), we expected the majority of downsizers to be related (Conyon, 2002).

Both the negative as well as the positive effects discussed in the preceding paragraph are likely to occur post-downsizing as conceptually the reasoning is sound. This research uses relatedness to hold the negative effect steady and vary only in the positive effects. Operating under the assumption that the negative effects will be equal in both unrelated and related acquisitions, the latter will have more potential for labour rationalization and loss of skills and competencies will be less harmful when they are duplicated.

The potential for rationalization seems to be mediated by the size differential between acquiring and target companies. Conyon (2002) shows that related acquisitions tend to have a lower size differential (Conyon, 2002), which will complicate the acquisition and integration processes which is why this should be controlled for.

H3: Related M&A-activity is more likely to lead to subsequent downsizing than unrelated M&A-activity.

4.5   The performance effects of related and unrelated downsizing

The resource based view dictates that downsizing is more likely in related acquisitions as they are expected to have more potential for synergy through removing redundancies and creating economies. From this it follows that downsizing in related acquisitions, more often than in unrelated ones, will be due to removing redundancies and creating economies of scale. Both practices are viewed as ways to extract synergies. Conyon's (2002) findings support this argument. Conyon (2002) however, does not take into account subsequent effects on performance (Conyon, 2002). So where Krishan (2007) focusses on performance effects of downsizing in related acquisitions, Conyon (2002) addresses the level of downsizing in both related and unrelated acquisitions but does not consider performance. This leaves the performance effects of unrelated acquisitions uncaptured.

Related M&A's offer more potential for downsizing (Conyon, 2002) and acquiring managers exhibit a higher level of familiarity with the industry (Kruse, 2007). Risks of excessive downsizing, as warned for by Krishnan, should therefore be lower in related acquisition when compared to unrelated ones. Multiple authors suggest excessive downsizing to be harmful for performance as, through the loss of human capital, the organization may lose skills and other intangible assets that are essential for its competitive advantage (O'Shaughnessy, 1998).

Both acquisition types are expected to suffer from downsizing, however unrelated acquisitions are expected to suffer more. To isolate this effect a number of interacting variables will need to be controlled for. Krishnan makes a case for controlling for premia paid (Krishnan H. P., 2007) and Conyon (2002) adds that size differential may cause a structural difference between unrelated and related acquirers (Conyon, 2002), hence why we control for this.

This will result in a better post-downsizing performance, hence:

H4: *Unrelated acquirers will be impacted harder by downsizing than related acquirers.*

5   Method

5.1   Research design and procedure

To connect acquisition related downsizing with post-acquisition performance a number of databases was used to collect financial data on a total of 207 deals.

Every acquisition was classified according to the degree of relatedness between target and acquirer. Two systems where used: the SIC-classification and the NAICS-classification. Following previous research, a two-digit SIC-match classifies as related. This research uses both a 2 and 3 level digit match on NAICS-codes as measure of relatedness, with the 3 digit match representing a higher level of relatedness.

Additionally, every deal was enriched with performance variables. ROE was measured for the year of the acquisition as well as three subsequent years. From previous research it was concluded that there is a number of variables one should control for, namely: premium, size difference and prior performance. These were also added to the data set.

To collect data on downsizing, news articles from LexisNexis were scanned for downsizing announcements.

Data was statically examined using linear regression models based on the ordinary least squares models. This method was used because it allowed for the introduction of control variables. When control variables where used, they were introduced first and independent variables were added in subsequent models. All variables were forced into the model using the 'Enter' method to prevent the statistical software to influence the results (Field, 2012)

5.2   Data collection

Data on organizations and deals was collected from three databases: Thomson One, DataStream and Orbis. It was found that (1) data got a lot harder to collect when acquisitions aged and (2) got distorted more as acquirers where either acquired themselves, went private or have gone bankrupt. For this reason it was decided to look into deals from 2006 onwards. Acquirers that got acquired themselves went bankrupt or have gone private where excluded from the sample due to data not being (publicly) available. Also the available secondary data (newspaper articles) on these deals was severely limited.

5.3 Operationalization of variables

This paragraph discusses the operationalization of the main variables. It starts by discussing the independent and dependent variables and concludes with the control variables.

Independent variables

Downsizing

Downsizing is operationalized as workforce reduction. This can be measured for three entities, namely: the target, the acquirer and the consolidated firm (Krishnan, 2002). Downsizing can be measured as the relative workforce reduction in the total organization. This approach is commonly used in research (Krishnan, 2002). However existing research shows only modest correlation, because besides merger related employee reductions, firms often undertake workforce reductions as part of a broader restructuring strategy and in other businesses in their portfolio (unrelated to the merger). Such actions are more likely in large companies (Krishnan H. P., 2007), which may distort the validity of this type of measurement. Due to above argumentation this study uses press releases to check for downsizing. This is the method initially employed by O'Shaugnessy (1998) and seen it subsequent research as well. This method has been deemed more valid than tracking yearly employee numbers (O'Shaughnessy, 1998; Krishnan H. P., 2007). This study uses articles derived from LexisNexis to determine downsizing events and to distil the number of layoffs. As Capron states, mass lay-offs are far more likely to occur in the target organizations (Capron, 1999), hence why we contrast the number of laid off employees against the total employee base of the target in the year of the acquisition.

Relatedness

The relatedness between to organizations is usually measured according to the SIC -level (Krishnan H. P., 2007). Studies focusing on related acquisitions have labeled acquisitions related when belonging to the same two digit SIC level (Krishnan, 2002) (Conyon, 2002). This research however, will use the NAICS-approach which uses a production oriented-approach, i.e. it is looking at how products and services are created as opposed to the SIC-approach that looks only at what is produced. Both groupings result in significantly different groupings (Bureau of Labor Statistics, 2007). The NAICS-approach is expected to deliver more valid

results as production process relatedness is expected to be a better predictor of redundancies than product similarity.

Dependent variable 'Performance'

Performance effects will be measured through financial results. A commonly used measure is the return on equity (ROE) metric. This can be averaged and adjusted for the industry performance but more importantly it is able to control for large shifts in assets that often occur during M&A-activity (Krishnan, 2002). Like downsizing, performance will be measured for the combined organization. Krishnan made a case for the performance effect of the acquisition to be 'lagged', to not be visible directly. As this studies primary interest lies with the performance effect of downsizing it looks at the performance change. Taking into account that this effect may be lagged, the study looks at the change between year one and year two following the acquisition year.

Control Variables

Prior performance

Multiple studies reported that prior performance is strongly associated with post-acquisition performance (King e. a., 2004) (Krishnan H. P., 2007). To isolate the effect of downsizing, this study will control for prior performance, which will be gauged according to the same metric used to judge post-acquisition performance, namely ROE.

Size differential

Relative size will be represented by the employee base of the target firm as compared to the number of employees from the acquiring firm. The more equal the size of acquirer and target, the more likely it is to have several redundancies and duplication of activities (Krishnan H. P., 2007). Also, size affects efficiency in the use of labour, with smaller acquirers showing greater labour demand falls than larger organizations. This might indicate that smaller acquirers are better able to achieve efficiency gains (Conyon, 2002). As the precise effects are unknown this needs to be controlled for.

Premium

Premium paid is an important control variable because unrelated acquisitions can be subject to higher than average premiums (Flanagan, 2003) and next to that, the height of a premium has directly been connect with lay offs (Krishnan H. P., 2007).

Country

As both Conyon (2002) and Gugler (2004) suggested, the cost of employment adjustments can be influenced by the local legalities. For this reason they threated the US and UK different from main-land Europe where labor adjustments tend to be more costly due to legislation. They expect European organization to be unable or to be slowed down in reaching their optimal employment levels due to the rigid labor market (Conyon, 2002; Gugler, 2004). We do not explicitly control for country as the majority of the acquisitions in our sample takes place in the US.

5.4 Raw data analysis

After data collection the data set contains 207 deals with 42 variables. The univariate characteristics of the data were examined to determine appropriateness for use in further analysis. Missing cases depend per variable on data availability.

Kurtosis and skewness where used as indicators of the normality of the variables. This is of importance given that further statistical analysis requires the use of models that assume normality. Variables indicating non-normality where further investigated and actions to correct where taken when justified.

Below we present descriptives on the continuous variables used. Looking at the continuous variables the large differences between mean and median indicate non-normal data. This assumption is further enforced by the large standard deviation as compared to the mean. This resulted in problematic levels of skewness and kurtosis on all continuous variables.

Continuous variables	N	Mean	Median	St. dev	Range	Skewness	Kurtosis
Prior Performance	202	9,62	11,47	27,82	228,04	-2,38	12,04
Post-Performance	183	0,19	-0,05	33,80	357,31	1,09	14,60
Premium	203	66,47	43,82	99,36	1181,99	6,81	65,44
Employee multiple	199	68,91	6,17	216,84	1960,58	5,21	30,14

Table 1 Raw data: descriptive statistics for untransformed variables.

Two steps were taken to correct this. First, the options to transform data were explored. The large ranges shown on all variables were indicative of high values at both ends of the spectrum. Transformations can be used to bring these values more towards the center, possible reducing non-normality. Three transformations were tried: (1) a square root transformation, (2) a log transformation and (3) a reciprocal transformation.
Before applying these transformations two actions were taken: (1) a constant was added to all variables with negative values. The constant comprised of the largest negative value plus one. This resulted in the elimination of negative values thereby enabling square root transformations and log transformations. And (2) values with negative Skew were reversed by subtracting them from their highest positive value.
The criterium used for accepting a transformation was the improvement of both skewness as well as kurtosis. Based on this criterium, below variables where transformed. The table shows substantial improvements in both Skewness and Kurtosis for three variables.

The Prior Performance variable, due to its negative Skewness, had to be reversed fist. A square root transformation yielded the best results for this variable, as did it for Premium. Employee_multiple showed the best results after a log transformation. Square root transformation did not lead to better normality on post-performance data, nor did reciprocal or log transformations. An overview of the results of the different transformations can be found in the appendix. Below table shows the results chosen.

Continuous variables_T	N	Mean	Median	St. dev	Range	Skewness	Kurtosis
Prior Performance_Sqrt	202	8,64	8,67	1,55	14,13	0,06	7,70
Premium_Sqrt	203	10,69	10,05	3,07	33,39	3,04	18,93
Employee multiple_Log	199	0,92	0,79	0,68	4,08	0,47	-0,15

Table 2 Descriptive statistics for transformed variables

Triggered by the large range of most variables, the data was also analyzed for outliers. Boxplots where used to get an idea of the specific variables causing the outliers. Zooming in on the individual outliers, calculation and entry mistakes where ruled out and no entries were removed.

6 Results

6.1 Introduction

Chapter 6 discusses the results from this study. It starts by discussing the variables and their relations and follows with a discussion on each hypothesis and accompanying statistical results. These results are interpreted in paragraph 6.4 'Discussion and conclusion'. This paragraph connects and contrasts the results to existing research in order to provide the reader with the appropriate context for interpretation. It also discusses the contribution of this study to science as well as the business community. It warns for it limitations and offers directions for future research.

6.2 Interpretation of correlation

To study the performance effect of acquisition related downsizing, we first present descriptives of all (transformed) variables (Table 3). The mean, standard deviation and Pearson correlation for all variables are shown below.

	Mean	St. dev	1	2	3	4	5	6
1 Premium	10,77	3,26						
2 Employee multiple	0,95	0,87	0,099					
3 Prior Performance_A	8,65	1,45	-0,012	-0,27**				
4 Prior Performance_B	0,0023	0,00014	0,09	-0,32**	-0,55**			
5 Post Performance	0,97	33,21	-0,001	-0,24	,24**	-,35**		
6 Downsized	N/A	N/A	-0,036	-0,061	0,14	-0,017	-,15*	
7 Relatedness	N/A	N/A	0,013	0,24**	0,12	-0,049	0,14	0,001

Table 3 Means, standard deviations and correlations (Downsized=IV, Post Performance. =DV). Correlation significant * at 0.05, and ** at 0.01 levels (2 tailed); n=175

After inspection of the data, several outliers where detected. As discussed, there were no compelling reasons to remove these outliers. To prevent non-normality from biasing the results, bootstrapping was used while building up the correlation model. Above table shows the results of the correlation analysis. VIF scores remained below <2,5 and accompanying tolerance levels were close to 1 and therefor do not cause concern. Residuals were uncorrelated as the Durbin Watson test statistic was close to 2 (2,073) (Field, 2012) (Hair, 2010).

Correlation findings

There is no evidence of high inter-correlation. As expected, the performance variables are significantly correlated. Both prior performance variables, describing the performance in the year prior to (A) and the year of the acquisition (B), are correlated significantly. Both have a significant correlation with post-acquisition performance.

The employee multiple, used to describe the size differential between the organizations, does not show a correlation with post-acquisition performance nor to downsizing. It does however, correlate with relatedness. This is not unexpected, as there is some evidence suggesting that related acquisitions show different buying behavior in terms of the size of the organizations they acquire.

Surprising is the lack of correlation between premium and the other variables. From the work of Krishnan, a correlation was expected with post-acquisition performance. This correlation seems almost non-existent and this will limit chances that the relation will be interpretable using regression models. One significant correlation is found, it shows a positive relation between prior performance and premium. This may suggest that well-performing organizations are more likely to overpay for their targets.

Downsizing shows a significant correlation with post-acquisition performance, as is expected. Relatedness on the other hand does not show a significant relationship with post-acquisition performance. In the midst of contrasting research results on how relatedness affects post-acquisition results this was not unexpected. The absence of a significant correlation will influence overall R-value of our regression models and will also influence r-changes. This means that the expected effects, from regression analysis, are small.

6.3   Hypothesis and statistical results

All four hypotheses are statistically examined. Variables are placed into context by descriptive statistics and bilateral correlations. In paragraph 6.4 the results will be placed against the existing research.

The performance effect of acquisition related downsizing

H1: Acquisition related downsizing will have a negative effect on post-acquisition performance.

Downsizing after an acquisition is expected to cause a negative financial effect on the combined organization. Model 1 contains all the control variables. It shows a significant relationship with the dependent variable 'Post-Acquisition Performance'. This is expected as the role of these controls is well-documented in past research.

IV: Downsized	DV: Post acquisition performance	
	Model 1a	Model 1b
Constant	-49.79**	-46,45**
Premium	0,01	-0.55
Employee multiple	1.48	1.19
Prior Performance_A	5.74**	5.74**
Downsized	-	-12,36*
N	174	174
F-value	3,58*	3,83**
R2	0,059	0,083
Adjusted R2	0,043	0,061
F-test for incremental R2	-	4,380*

Table 4 Regression model for Downsized=IV (Yes = 1, No = 0), Post acquisition performance = DV. Significant values are marked with * at 0.05, ** at 0.01 and * at 0.001 levels.**

Model 1b adds the independent variable 'Downsizing', indicating whether an organization has downsized (coded 1) or not (coded 0). The results show that organizations that downsize, suffer substantial and significant performance declines (B=-12.36 , p<0.05 (one-tailed)). Adding downsizing to the model improves the explanatory power of the model from R2 0.059 to R2 0.083 (adj. R2 change = 0.24). This improvement is significant at p<0.05. The estimated population value (adj. R2) for model 2 is .061. The overall R-value for the model remains rather small (Field, 2012).

According to Krishnan, poorly performing firms are more likely to downsize. Hence, to isolate the effect of acquisition related downsizing from prior performance-related downsizing we control for organizational performance prior to the acquisition. We follow Krishnan (2007) in this general approach, however earlier research by Krishnan (2007) used a two-year average ROS to measure prior performance. This is consistent with the approach they use to measure

post-acquisition performance (Krishnan H. P., 2007). We argue however that, since prior-performance measures are used as a control, they should reflect the prior performance of the organization closer to the actual acquisition. This is why, in an additional model, we control for the performance of the year the acquisition was effectuated. This levels the playing field for good and worse performers even more and therefore isolates the effect of the downsizing more precisely.

Below we present descriptives in which the prior performance variable (2) has been replaced by the performance in the year the acquisition was effectuated.

	Mean	Std. Dev.	1	2	3	4
1 Post Performance ch.	0.98	32.78				
2 Performance_B	0.002	0.00014	0,313**			
3 Employee multiple_log	0.95	0.87	-0,025	-0,28**		
4 Premium_sqrt	10,78	3.22	0.00	-0,089	0,1	
5 Downsized	N/A	N/A	-0,15*	-0,027	-0,065	-0,035

Table 5 Means, standard deviations and correlations (Downsized=IV, Post Performance ch. =DV). Correlation significant * at 0.05, and ** at 0.01 levels (2 tailed); n=175

The majority of the variables are similar to the previous model, hence normality cannot be assumed. Bootstrapping was used to generate below regression model. It shows the same set of controls as model 1 except for the replaced 'prior performance' variable.

Replacing this variable to measure performance in the year of the acquisition substantially increases R values (see below, models 2a and 2b), yielding a better model fit and higher explanatory power of the overall model. The r- change, showing the impact of downsizing on performance, however remains virtually equal to the first model.

IV	DV: Post acquisition performance			
	Model 1a	Model 1b	Model 2a	Model 2b
Constant	-49.79**	-46,45**	169,917*	174,11*
Premium	0,01	-0.55	0,241	0,196
Employee multiple	1.48	1.19	2,41	2,05
Prior Performance_A	5.74**	5.74**	-	-
Prior Performance_B	-	-	-76720*	-77012,57*
Downsized	-	-12,36*	-	-12,509
N	174	174	175	171
F-value	3,58*	3,83**	6,54***	6,22***
R2	0,059	0,083	0,1	0,13
Adjusted R2	0,043	0,61	0,087	0,107

F-test for incremental R2	-			4,38*	-	4,83*

Given the small but consistent R-change, seen over both model 1 and 2, we accept proposition 1.

Post-acquisition performance and premium

H2: The negative effect of downsizing on post-acquisition performance is expected to be bigger for acquirers paying higher than average premia.

Following Krishnan (2007) we expect post-acquisition performance to be influenced by the height of the premium paid. Krishnan found a direct negative effect from premium on post-acquisition performance; higher premia lead to lower performance (Krishnan H. P., 2007). Dissecting this effect, they found it to be caused by the interaction between premium paid and downsizing. High premia would cause downsizing and in turn, downsizing would lead to lower post -acquisition performance (Krishnan H. P., 2007). That last link is discussed in the previous hypothesis. This hypothesis was built upon the first link. Following Krishnan, premium paid is expected to show a significant correlation with workforce reduction as well as with post-acquisition performance.

We state that the pressure caused by the height of the premium will not only cause downsizing, but will also cause the downsizing to be more reckless and therefore more hurtful with regard to post-acquisition performance.

For this to be true we first looked at the relationship between premium and downsizing. Second, we introduced premium as a moderating factor between downsizing and post-acquisition performance, proposing that at high levels of premia paid, workforce reductions are more harmful.

Premium causes downsizing

Surprisingly, the descriptives for hypothesis one show that premium does not correlate significantly with downsizing and post-acquisition performance. In fact, it shows barely any correlation at all. Given that the Krishnan (2007) study only looks at related acquisitions, the process was repeated for related acquisitions, using Krishnan's measure of relatedness, however the results were similar to our initial observation.

	Mean	St. dev		Premium
1 Premium		10,69	3,07	1
2 Prior Performance_A		8,64	1,55	-,024
3 Prior Performance_YE_B		4,79	6,67	0,098
4 Post Performance ch		10,69	3,07	0,013
5 Downsized (YES/NO)	N/A		N/A	-0,037

Table 7 Correlations between premium and prior, post perfomance and downsizing. No significant results found.

This table shows that Premium is only weakly correlated with prior as well as post-acquisition performance. Also, to our surprise, it shows only a very small correlation with downsizing. None of these correlations were found to be significant.

Introducing the controls, using a bootstrapped linear regression model, shows the non-significant contribution of premium to downsizing. A regression analysis was used to control for the size difference between organizations and their prior performance. Below model shows that, even when using prior performance and size difference as control, premium does not have significant explanatory power.

IV: Premium	DV: Downsized	
	Model 3a	Model 3b
Constant	0,225	0,271
Employee multiple	-0,46	-0,44
Prior Performance_A	0,008	0,008
Premium	-	-0,005
N	190	190
F-value	0,983	0,721
R2	0,01	0,011
Adjusted R2	0	-0,004
F-test for incremental R2	0,983	0,204

Table 8 Regression model for Premium=IV, Downsized (Yes = 1, No = 0) = DV. Significant values are marked with * at 0.05, ** at 0.01 and *** at 0.001 levels. NOTE: due to the use of two different prior performance variables the total N will slightly change. This is caused by data availability.

Met opmerkingen [LJ2]: Would you capture this information in the discussion of correlations at the beginning of the chapter? I feel it is very relevant for this hypothesis to say something about the unexpectedly low correlation between premium and post acquisition performance

However, when we dissect Premium, we arrive at its building blocks: the value of the transaction and the value of the target 4 weeks prior to the transaction. Introducing those variables into the correlation table shows a very different result. Downsizing is strongly and significantly correlated with both the value of the transaction and the target's value prior to the acquisition. The correlation is negative as downsizing is coded 1 for downsizing and 0 for non-downsizing.

	Mean	St. dev	Value of the transaction	Target value, 4 weeks prior
1 Prior Performance_A	8,64	1,55	-,297**	-,151*
2 Prior Performance_YE_B	4,79	6,67	0,232*	0,104
3 Post Performance ch	10,69	3,07	-0,139	-0,132
4 Downsized (YES/NO)	N/A	N/A	0,348**	0,413**

Table 9. Means, standard deviations and correlations for dissected premium. Correlation significant * at 0.05, and ** at 0.01 levels (2 tailed); n=175.

Now, when we extend the rational of premium causing pressure, to the value of the transaction causing pressure, we get a very different model. Below regression model shows that the value of the transaction has a strong influence on the downsizing. This significant and positive relation, suggests that organizations engaging in higher value transactions are more likely to downsize.

IV	DV: Downsized			
	Model 3a	Model 3b	Model 3c	Model 3d
Constant	0,225	0,271	0,203	-0,643*
Employee multiple	-0,46	-0,44	-0,41	-0,054
Prior Performance_A	0,008	0,008	0,01	0,42*
Premium	-	-0,005	-	-
Value of transaction	-	-	-	0,233***
N	190	190	191	191
F-value	0,983	0,721	0,86	11,303***
R2	0,01	0,011	0,009	0,153
Adjusted R2	0	-0,004	-0,001	0,139
F-test for incremental R2	0,983	0,204	0,86	31,909***

Table 9 Regression model for Value of transaction=IV, Downsized (Yes = 1, No = 0) = DV. Significant values are marked with * at 0.05, ** at 0.01 and *** at 0.001 levels. NOTE: due to the use of two different prior performance variables the total N will slightly change. This is caused by data availability.

These results suggest that the sheer dollar amount of the acquisition trumps the effect of the 'over payment' being the premium. However, these last statements fall outside the scope of the current hypothesis and will be discussed in more detail in the discussion. Summarizing, no support was found for this hypothesis.

Relatedness predicts downsizing

H3: Related M&A-activity is more likely to lead to subsequent downsizing than unrelated M&A-activity.

Following the Resource Based View, related acquisitions would be more prone to downsizing as they are expected to exhibit a higher level of redundancy (O'Shaughnessy, 1998).

Below table shows a simple cross tabulation, showing the number of downsizers and their dispersion across the relatedness spectrum (NAICS, 2). 29.9% of acquirers downsized following their M&-activity.

In the group related acquirers 32% engaged in acquisition related downsizing versus 26,6% in the group labeled unrelated acquisitions. This 5,4% difference is noteworthy but not significant at the 5%-level. The results are equal when using a stricter relatedness measure (NAICS 3).

Relatedness NAICS (2) * Downsized			Downsized		Total
			0	1	
NAICS (2)	Unrelated	Count	58$_a$	21$_a$	79
		Expected Count	55,4	23,6	79
		% within Relatedness NAICS (2)	73,40%	26,60%	100,00%
	Related	Count	83$_a$	39$_a$	122
		Expected Count	85,6	36,4	122
		% within Relatedness NAICS (2)	68,00%	32,00%	100,00%
Total		Count	141	60	201
		% of Total	70,10%	29,90%	100,00%

Each subscript letter denotes a subset of Downsized (YES/NO) categories whose column proportions do not differ significantly from each other at the ,05 level.

Table 10 Crosstabulation of Relatedness (NAICS - 2) versus Downsized (Yes = 1, No = 0).

Using a SIC-based relatedness indicator, reverses the result and suggests that unrelated acquisitions tend to be more often subject to downsizing (32,3%) than their related counterparts (28,1%). This difference is also non-significant but does hint at a difference in validity of the measurements used.

Relatedness SIC (2) * Downsized			Downsized		Total
			0	1	
SIC (2)	Unrelated	Count	44$_a$	21$_a$	65
		Expected Count	45,9	19,1	65
		% within Relatedness SIC (2)	67,70%	32,30%	100,00%
	Related	Count	100$_a$	39$_a$	139
		Expected Count	98,1	40,9	139
		% within Relatedness SIC (2)	71,90%	28,10%	100,00%
Total		Count	144	60	204
		% of Total	70,60%	29,40%	100,00%

Each subscript letter denotes a subset of Downsized (YES/NO) categories whose column proportions do not differ significantly from each other at the ,05 level.

Table 11 Crosstabulation of Relatedness (SIC - 2) versus Downsized (Yes = 1, No = 0).

Although not the subject of this hypothesis, the relatively old SIC-measure and its replacer NAICS seem to yield different results. Given the former's prevalence as a relatedness indicator in a number of important publications, the difference between SIC and NAICS may require a review of existing research. This topic will be discussed in more detail in the discussion.

Summarizing, no support was found for this hypothesis as no significant differences in downsizing rates were found between related and unrelated acquirers. The results were similar for multiple measures of relatedness (NAICS 2, NAICS 3 and SIC) and remained intact when a regression analysis was used to control for size difference, prior performance and premium.

The impact of downsizing and relatedness

H4: Unrelated acquirers will be impacted harder by downsizing than related acquirers.

Similar to hypothesis 1 we build on two prior performance indicators. Namely, the ROE in the year prior to the acquisition and the ROE in the year of the acquisition.

Below regression models show the impact of relatedness on post-acquisition performance. Models 4a and 5a show the effects of the control variables. Model 4b and 5b show the effect of downsizing on performance (hypothesis 1) as a build up towards the effect of relatedness. For this hypothesis we introduce the relatedness between acquiring and target organizations as a variable. Model 4c and 5c show the effect of relatedness on performance. Relatedness shows a positive and significant relationship with post-acquisition performance in both model 4 and 5. This relationship is significant at the 5% alpha level (one-tailed). However, the 0,015 increase in R2 from model 4b to 4c was not found to be significant at p = 0,092. The same holds true for the increase between 5b and 5c at p = 0,099. Also similar to the results in the first hypothesis, we note that although both prior-performance variables cause slightly different results when included as control variables, the R2-change remains stable. This strengthens our confidence in having isolated the effect of the added variable.

When relatedness is introduced, both models show a change in the unstandardized beta for two variables. The effect of Employee multiple drops substantially and the negative effect of downsizing on performance increases slightly.

IV	DV: Post-acquisition performance					
	Model 4a	Model 4b	Model 4c	Model 5a	Model 5b	Model 5c
Constant	-50,06*	-46,49*	-45,35*	203,277**	205,925**	192,923**
Premium	-0,022	-0,068	-0,056	0,245	0,198	0,196
Employee multiple	1,63	1,29	-0,17	3,57	3,149	1,806
Prior Performance_A	5,76*	5,75*	5,18*	-	-	-
				-	-	-
Prior Performance_B	-	-	-	92139,57**	91728,53**	87574,45**
Downsized	-	-12,33*	-13,55*	-	-12,04*	-13,32*
Relatedness	-	-	8,79*	-	-	8,52*
N	170	170	170	171	171	171
F-value	3,51**	3,74**	3,58**	8,30***	7,47***	6,62***
R2	0,059	0,083	0,098	0,13	0,15	0,17

Adjusted R2	0,042	0,061	0,07	0,11	0,13	0,14
F-test for incremental R2	-	4,232*	2,75	8,30***	4,47*	2,9

Table 12 Regression model for Downsized=IV (Yes = 1, No = 0), Relatedness=IV, Post acquisition performance = DV. Significant values are marked with * at 0.05, ** at 0.01 and * at 0.001 levels. NOTE: due to the use of two different prior performance variables the total N will slightly change. This is caused by data availability.**

6.4 Discussion and conclusion

This discussion starts with the interpretation of the results. Hypothesis are discussed in light of the statistical results and in light of earlier research. Special attention was paid to contrasts and similarities with research from Krishnan (2002&2007) and Conyon (2002). Based on this interpretation of results, the contribution to and implications on, the scientific knowledge base were discussed. A separate paragraph is devoted for the practical implications of this research for business leaders.

We conclude with a critical review of the research's limitations and following that, a discussion on directions for future research.

6.4.1 Interpretation of results

Both M&A-activity and downsizing are large and disrupting events in an organization's life-cycle. They share three similarities: they are both popular, they are both controversial and they both cause a split between business practitioners and researchers. The first make avid use of both strategies to boost their organization's performance and the latter group tends to find that these practices are more likely to cause the opposite effect.

Theoretically, two views on downsizing can be derived. The first view states that engaging in workforce reduction following M&A-activity makes sense. Several researchers have argued for the use of workforce reduction after M&A-activity to, amongst others, unlock operational synergies. They used the Resource Based View of the firm to base their argumentation on. Businesses seem to agree, given workforce reduction is often seen in the aftermath of M&A-activity.

The second view, based on the same theoretical perspective (RBV), can simultaneously accommodate several counter arguments. The loss of intangible resources in the form of tacit knowledge is one of the most prominent. Employees leaving the firm may erode the competitive advantage due to the knowledge and capabilities that leave with them. The disruption caused by the lay-offs may demotivate the survivors. This second view shows explains why downsizing to improve performance, may actually cause the opposite. The majority of research support this: mass lay-offs will harm performance. Research however, has not addressed the effect of workforce reduction when performed subsequent to an M&A-event.

The effort and enormous amounts of money spend on M&A-activity and the huge impact downsizing has on employees begs the question: is acquisition-related downsizing the key to unlocking synergy or is it an ill-informed business practice, holding back post-acquisition performance?

Hypothesis 1 addresses the effect downsizing has on performance when conducted just after a M&A-event. It shows that organizations that downsize after an M&A-event, perform worse than their non-downsizing counterparts. Including downsizing as an independent variable significantly improved the regression model (Model 1b; F-test for $\Delta R2 = 4,380$, $p<0.01$), showing the relation between downsizing and subsequent performance to be significant (Model 1b; beta -12.36, $p<0.05$). This contradicts the popular notion that downsizing is an adequate strategy to unlock synergies in the aftermath of an acquisition. This notion, derived from resource based view and thereof derived organizational efficiency theories, states that (multiple kinds of) synergy can come into existence following an M&A-event. Workforce reduction would be a way to reap (some of) those synergies. Conyon (2002) provided support for this line of reasoning by showing that organizations, after an M&A-event, need to find their new optimum level of employment (Conyon, 2002). Doing so would often involve workforce reduction. Krishnan (2007) follows this view and connects downsizing to performance, arguing that the negative effects of workforce reductions would outweigh the positive effects, making the practice harmful for organizational performance. The Krishnan study finds support for this hypothesis, albeit on a sample confined to related acquisitions (Krishnan H. P., 2007).

We extended the sample to include both related and unrelated M&A-activity in the 2006 – 2013 period, and find that our results regarding downsizing are confirming Krishnan's. In our broader sample we find that workforce reduction is harmful for organizational performance by looking at the performance change between year one and year two subsequent after the acquisition.

Additionally, Krishnan (2007) suggests that workforce reduction is partially explained by the height of the premium the acquirer paid (Krishnan H. P., 2007). This statement is not so much grounded in the RBV as it is in common sense: paying (too) much will complicate the process of making the investment profitable. For this statement to be true we would expect to find a

correlation between premium and workforce reduction as well as post-acquisition performance. This relationship is addressed in hypothesis two.

This hypothesis is arguably the most interesting of this research due to the disparities it creates with the work of Krishnan (2007). The Krishnan study (2007) showed the importance of the height of the premium paid on both workforce reduction and thereby on post-acquisition performance. Our sample however, shows the correlations between premium and workforce reduction and premium and post-acquisition performance to be miniscule, even when limiting the scope to related acquisitions. We were therefor not able to find support for the relationship between Premium and Workforce reduction, let alone the relationship between premium and workforce reduction as mediated by downsizing.

Therefore, adding premium as an independent variable did not make a significant contribution to the regression model (Model 3b; F-test for ΔR2 = 0.204, insignificant), showing the relation between premium and subsequent performance to be insignificant (Model 3b; beta -0.005, insignificant).

Surprised by the insignificant relation, we opened up the Premium variable, finding that the total value of the transaction may hold the explanatory power Krishnan finds using Premium. This is surprising, as Krishnan's (2007) theoretical argument seems sound. Revisiting, they state that to benefit from an acquisition an organization needs to be able to recoup its investment. Recouping acquisition investments is complicated by the height of the premium; acquirers need to find synergies bigger than this amount to earn back their investment. Often overestimating synergies and therefore overpaying premia, managers will be under pressure due to disappointing results, causing them to downsize (Krishnan H. P., 2007).

Despite its overarching reasoning about recouping investment, the Krishnan (2007) study does not control for the overall value of the transaction/investment nor does it adduce strong argumentation against the necessity of doing so. It therefore implicitly assumes that misevaluation of the premium is the sole part of the transaction causing this pressure. However, premium paid is only part of the transaction, as the total amount covers both the valuation of the organization by its stockholders as well as the as the premium. Also, strong correlations were seen between the total value of the transaction and downsizing as well as performance. Not controlling for this or arguing against including this variable is, in our opinion, a missed opportunity to further isolate the effect of the premium.

When we use a regression model, to control for the premium when looking at the effect of the value of the transaction on downsizing, we find that the latter has a highly significant effect combined with large explanatory power. Therefore, adding premium as an independent variable did not make a significant contribution to the regression model (Model 3d; F-test for $\Delta R2 = 31.909$, $p<0.001$), showing the relation between premium and subsequent performance to be insignificant (Model 3d; beta 0,233, $p<0.001$).

This is a shocking contrast when compared to the low explanatory power and insignificant relation between premium and downsizing. This model would suggest that the total value of the transaction trumps the role premium fulfils in explaining downsizing. Summarizing, this suggests that Krishnan's (2007) rationale may need to be adjusted to cover the value of the transaction, encompassing the premium, rather than focussing on the premium alone. At a minimum we would suggest to add the value of the transaction as a control. It is beyond the scope of this study to further elaborate on the potential of using the value of the transaction as a predictor but we do note its potential and suggest to control for it in future research on premia and workforce reductions.

Hypothesis three covers the view that related acquirers are more prone to downsize. This rationale is also based on the resource based view. It suggests that the more organizations look-a-like, the more redundancies they will have. (Larger) Parts of their value chain may be duplicated and integrating these, will amongst others, result in redundant personnel. Unlocking these synergies effectively means engaging in workforce reduction. It was therefore expected that related acquirers engage in workforce reduction more often. Indeed, Conyon (2002) was able to show that acquisitions cause a significant drop in employment and that this situation is more pronounced in related acquisitions. This is explained by the higher level of redundancies between those related organizations (O'Shaughnessy, 1998) (Conyon, 2002). However, Conyon used a SIC-based measure of relatedness, possibly less valid than the NAICS measurement.

Our study used the NAICS-based system to measure relatedness and measured the drop in employment by scanning downsizing announcement in the years following the acquisition. This reduction percentage was only recorded for 40 downsizers, which was not enough to effectively contrast related versus unrelated acquisitions on the drop in employment.

Hence we reverted to a measure of frequency, stating that related acquirers were more likely to downsize than unrelated ones. Despite the cross tabulation showing related acquirers to downsize more often (5%), that difference was not significant.

In hypothesis 4 however, we are able to show that the success of downsizing efforts differs between related and unrelated acquirers. When relatedness is added to the model it does not make a significant contribution (Model 4c; F-test for $\Delta R2$ = 2.75, insignificant), however independently the model is significant (Model 4c; F-test = 3.58, p>0,01) as well as the relation (Model 4c; beta = 8.79, p<0.05).

We reason, in accordance to the RBV, that related acquirers as opposed to unrelated ones, are less likely to cut excessively since they have more redundancies and understand the acquired business better. Conyon's (2002) findings also point in this direction as he shows that after acquisitions, employment demand will fall and this being more so for related ones (Conyon, 2002). Adding to Conyon's (2002) work, we follow the same reasoning but look at performance instead of efficiency. Our contribution is the theory that related acquirers are less likely to cut excessively, which is the most harmful type of downsizing, due to the simple fact that they have more redundancies and are better equipped for making downsizing decisions via industry knowledge. As a result, they suffer less and will perform better. Following the rationale that premia are justified by synergy, one could counter argue that the higher level of redundancies in related acquisitions would increase estimated synergy thereby driving up the amount premium. Or contrary, one would be able to argue that the lack of industry knowledge of an unrelated acquirer would cause them to fall victim to overpayment, which would effectively be the premium. Either way, when looking at downsizing, controlling for premium is critically important and we miss this control in the work of Conyon (2002).

Our results show, that when controlled for premium, and a number of other variables, downsizing is indeed less harmful in related acquisitions as opposed to unrelated ones. This finding is supportive of the RBV and refines the theoretical debate on downsizing following acquisitions. We prove in hypothesis one that downsizing is harmful for performance and in hypothesis four we show that this is less for related acquirers. This suggests that downsizing may be the beneficial in certain conditions and we believe it focusses the debate towards how to downsize.

6.4.2 Contribution to knowledge and implications for research

This study examines the performance effects of workforce reductions in both types of acquisitions.

This study empirically challenges the long hold theoretical assumption that workforce reduction after M&A-activity is performance enhancing.

It explicitly includes premium and tried to generalize the findings of the Krishan (2007) study to unrelated acquisitions as well.

This study is heavily grounded in work from Krishnan (2002 & 2007) and Conyon (2002). The Krishan (2007) study focusses on premium being the catalyst behind excessive workforce reductions. However, their study is limited to related acquisitions. Our study shows aligns with their theoretical reasoning however is not able to replicate the effect of premia described by Krishnan (2007). We do find the effect of the total transaction to be of critical importance to predicting downsizing. We suggest that this still fits Krishnan's theory but would require adding it as a control or potentially replacing premium as with the total value of the transaction. Additionally, in hypothesis 3 we find that the measures used for relatedness deviate substantially. Both Krishnan (2007) as well as Conyon (2002) used SIC-codes to measure relatedness, we used their successor. Theoretically we argue that this measurement is a more valid method to measure relatedness and would therefore argue against the use of SIC-measures.

Building on Conyon's work (2002), which includes both types of acquisitions, we suggest that related acquirers will be susceptible to performance declines after downsizing due to higher redundancies. We find support for this theory by showing that related acquirers perform better after downsizing.

On a more general level we make an effort to connect downsizing research to M&A-research by providing a theoretical framework as well as empirically testing the performance effects of downsizing after M&A-activity. We show that although the RBV accommodates pro as well as con downsizing arguments, in practice the result is negative.

6.4.3 Managerial implications

This research pulls downsizing research into an M&A-context. It suggests that acquirers when engaging in subsequent downsizing are more likely to hurt their performance then to improve it. Summarizing the two arguments made, pro and con downsizing, this research finds that the loss of tacit knowledge, the potentially demotivated workforce and the costs of workforce reduction outweigh the synergies achieved by the downsizing effort.

This means that business leaders can take away that (1) downsizing after acquisitions is on average unsuccessful, and (2) that this is more pronounced when the acquisition takes place inter-industry. Placing this in the context of the scientific knowledge base, the theoretical foundations for downsizing after an acquisition remain strong which, may seem contractionary to the results of this study. Contemporary research on downsizing, may offer a solution by showing that a certain type of downsizing, carefully planned downsizing, can be successful. Not yet connected to M&A-events, this type of downsizing subsequent to M&A-activity holds some promise.

6.4.4 Limitations

More effort is needed to substantiate the conclusions drawn from this study. Three types of limitations are of importance: (1) the sample size and its generalizability, (2) available variables and their validity and (3) the theoretical constructs.

Even though the sample size as such is not small (n=207) not all variables are complete. This impacts the data available for regression models with multiple variables. Contrasting groups, reduces the effective sample size even more and this causes the power to detect significant differences to drop. Amongst others, we were not able to incorporate the magnitude of downsizing. The sample encompasses organizations within high tech and software industries. We should therefore be conscious with generalizing the results to all M&A and related downsizing activity.

The validity of some variables is another key limitation. Downsizing is hard to measure directly as organizations do not publicly list the details about their mass lay-offs. Downsizing announcements do pose a credible source but are effectively a proxy for measuring 'real downsizing'. At best they provide us with the number of lay-offs (magnitude) and the date the announcement was made public. Information on how downsizing is planned, executed or

internally communicated is seldom available however is likely to significantly contribute to the outcome.

Relatedness is another key variable within this study. Due to the quantitative nature of the research, a system of industry classification was used to determine relatedness. This method is used by other prominent studies in this area as well, they mainly use the SIC-classification. Research on methods used within acquisition studies criticizes the validity of this type of measure (Elisabeth Nocker, 2016). We partly mitigate this by using a more valid NAICS measure however some key points raised by the critics of industry classification systems remain standing.

The theoretical constructs on which this study is based stem mainly from the Resource based view. This view has been criticized due to its lack of concreteness and its openness to interpretation (King e. a., 2004). In the case of downsizing following M&A-activity it offers argumentation that predicts a positive outcome as well as a negative outcome. This study takes in both angles and contrasts them in an attempt to further refine the resource based theory as well as to prevent falling victim to locking in on just one of the multiple interpretations possible.

6.4.5 Future Research

In order to firm up the theory underlying hypothesis four, one needs to be able to show that related acquirers can downsize deeper than unrelated ones before they start to hurt their performance. This is only possible when the magnitude of each downsizing event is fully recorded. Potentially this would show that there is an average threshold for both types of acquirers; i.e. related acquirers would on average be able to downsize 8% without hurting their performance while unrelated ones would face a threshold of 4%.

Additionally, there is the matter of the type of downsizing. Although the majority of downsizing research paints a dark picture with regards to its performance effects, multiple researchers have made a compelling case for planned and careful downsizing. Instead of across the board cuts, this type of downsizing may be performance enhancing. We therefor suggest that the variable downsizing, is dissected into across the board cuts/mass lay-offs and planned and careful downsizing efforts. The theoretical foundation for downsizing after M&A-

events remains sound, despite the negative performance effects shown by this research, we would expect a study on careful downsizing to find opposite results.

Also, although the header refers to future research, we would ask researchers to reconfirm the findings of Krishnan. Three adjustments would follow from our research: (1) to replace SIC-measures with their successor NAICS, (2) to address the role of the total value of the transaction, and (3) to generalize their findings to unrelated acquisitions.

7 References

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8   Appendix

8.1   Introduction of new measure of relatedness

Previous research on the effect of relatedness on M&A-activity has produced mixed results. The common denominator in this past research has been the use of the Standard Industry Classification System (SIC). Researchers have used the acquirer and target SIC-codes to determine their degree of relatedness. This paragraph discusses the SIC's successor and the potential benefits it brings to new research.

The North American Industry Classification System (NAICS) and the Standard Industry Classification (SIC) are methods of grouping organisations in industry areas. Both are based on a string of digits that forms a code. This code represents a hierarchy that, top down, indicates an organizations membership of increasingly more granular industry groups. The first digit of the code will therefor classify organizations in the broadest available category and the following digits will indicate smaller and more precise categories.

SIC-codes originated in the US in 1937 as a means to classify industry areas and are based on a 4 digit code. Given their 'age' they have serious limitations and according to the agency responsible for both classification systems, replacing the SIC-system was needed. SIC-codes were developed for traditional industries prior to 1970. Business has changed considerably since then from manufacturing-based to mostly service-based. The SIC system has been slow to recognize new and emerging industries, such as those in the technology sector. Additionally, the SIC-approach grouped organizations according to the product they produced.

The NAICS-method groups companies according to their production process (Bureau of Labor Statistics, 2007), which may be more valid for research into relatedness, synergies and redundancies.

In the sample this study uses, this creates different industry groupings, which has a direct impact on relatedness/unrelatedness ratio within the sample.

A significant amount of deals that would be labelled related under the SIC-classification are now viewed as unrelated. This is cause for worry, as most major studies on relatedness and M&A have used the SIC-classification as an indicator for relatedness. Seminal papers, such as the 2007 Krishnan paper and the 2002 Conyon paper, operationalize relatedness on a two

digit SIC-level, causing a very broad category of organizations to be dubbed 'related' – according to this measure 'Poultry Slaughtering and Processing' is related to 'Malt Beverages' which is an appealing example of companies that, at least at face value, are not related at all. The rationale behind this classification is that both products resemble each other as they are both considered food.

8.2 Transformation of variables

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ROE1_2_trans_rec	183	-20,00	6,25	-,1501	1,82502	-7,025	,180	78,363	,357
ROE1_2_trans_log	183	,00	2,55	2,1139	,20095	-7,172	,180	69,544	,357
ROE1_2_trans_sqr	183	1,00	18,93	11,6021	1,62827	-2,047	,180	15,672	,357
ROE_plus1_plus2	183	-136,06	221,25	,1858	33,79663	1,090	,180	14,603	,357
Valid N (listwise)	183								

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Premium_trans_Rec	203	-,40	,86	,0324	,08689	5,042	,171	50,824	,340
Premium_trans_log	203	,00	3,07	2,0265	,24456	-2,154	,171	24,541	,340
Premium_trans_sqr	203	1,00	34,39	10,6874	3,07396	3,042	,171	18,925	,340
Premium	203	-56,15%	1125,83%	66,4713%	99,36492%	6,812	,171	65,440	,340
Valid N (listwise)	203								

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ROE_YE_min1_rev_log	202	,00	2,36	1,8544	,20222	-4,440	,171	37,145	,341
ROE_YE_min1_rev_rec	202	,00	1,00	,0197	,06987	13,883	,171	195,542	,341
ROE_YE_min1_rev_sqrt	202	1,00	15,13	8,6356	1,54512	,062	,171	7,702	,341
ROE_Year Effective -1	202	-142,47	85,57	9,6202	27,81605	-2,381	,171	12,039	,341
Valid N (listwise)	202								