Downsizing strategies and organizational performance: a longitudinal study

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Abstract
Purpose – How does downsizing affect long- and short-term organizational performance? The present study aims to address this important question and attempts to extend previous research by examining the effect of both personnel and assets reduction on long- and short-term firm performance.


Findings – Econometric analyses indicate the positive impact of a combination of downsizing strategies on short-term performance, and the negative effect of this combination on long-term performance and high-tech industry performance is negatively related to assets and personnel cutbacks. Whereas downsizing affects the short-term performance of larger and established companies positively, it generally affects long-term performance inversely.

Originality/value – This study offers a first examination of the effects of simultaneous cutbacks in personnel and assets. This combined strategy goes further than dismissing employees, since layoffs are linked to the sale of such tangible assets as product lines or manufacturing facilities. By so doing, firms downscale their activities commensurate with the reduction in workforce and are less likely to generate excess workload on the remaining employees.

Keywords Downsizing, Organizational performance

Paper type Research paper

Introduction
Organizational downsizing is a prevalent strategy designed to improve organizational performance while selectively decreasing costs. It refers to “an organizational decision to reduce the workforce in order to improve organizational performance” (Kozlowski

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Firms often decide to engage in downsizing in response to external shocks and poor organizational processes (e.g. Budros, 1999; Cappelli, 2000; Cascio, 2002; Freeman and Cameron, 1993). In essence, there is a widespread belief that through cutting back the workforce, firm performance would be improved significantly. Several intervening factors, however, may limit benefits anticipated through downsizing including employees’ behaviors, approaches and attitudes in response to downsizing, impairment of intra-organizational processes and costs incurred by severance payments and repeated recruitment (Mishra and Spreitzer, 1998; Pfeffer, 1998). Some authors (Fisher and White, 2000; Lei and Hitt, 1995) maintain that downsizing is detrimental to organizational learning and forestalls adaptation to fast changing environments as it adversely affects informal communication networks. In the long run these elements often lead to declining performance and loss of competitiveness (DeRue et al., 2008). The assumptions and findings relating to the association between personnel downsizing and financial-business performance reflect a contradiction between improving efficiency in the short run, and the need to develop and preserve sustainable competitiveness mirrored in long-term improvement in performance (Collins and Rodrik, 1991).

A review of the literature reveals two partially unexplored areas which this study attempts to address. First, organizational downsizing takes various forms of reduction in physical, financial, organizational and human resources. Research on downsizing has tended to focus on a planned reduction of personnel. With the exception of Robbins and Pierce (1992), most investigators ignored the merit of estimating the effect of combinations of downsizing strategies on organizational performance. To address this issue, we use combinations of downsizing strategies focusing on concurrent reductions in personnel and assets. Additionally, we consider the cause of downsizing, i.e. whether it was induced by reactive or proactive reasons, as well as industrial effects on combinations of downsizing strategies. We apply an econometric methodology that highlights the dynamics of the process longitudinally.

Second, there are contradictory theories and mixed evidence regarding downsizing effectiveness in improving business performance (De Meuse et al., 2004). In view of inconsistent findings and substitute terminologies this study examines how various downsizing strategies influence long and short-term financial performance, and how firms’ reactive or proactive antecedents influence performance. We test the interactive effect of firms’ reactive or proactive strategies, industrial affiliation and time periods on various performance outcomes. By integrating the above explanatory factors into a robust and dynamic study design, we provide a more comprehensive theoretical and empirical framework in which to explore effects of downsizing on various performance measures.

We applied our model to a population of Israeli publicly traded companies over a ten-year period, capturing the implications of privatization and free market policies that have shaped the economy since the late 1970s.

**Theoretical background and hypotheses**

**Downsizing**

Downsizing is referred to as a selective reduction in organizational resources, including different combinations of reductions in physical, financial, organizational, and human resources (DeWitt, 1998; Morrow, 2003). It covers a deliberate series of actions affecting...
workforce size, costs and work processes designed to improve organizational efficiency and performance (Cameron, 1994). In the narrow sense, the definition is limited to a planned reduction in the workforce (DeWitt, 1998). Specifically, downsizing is planned and intentional (Cameron et al., 1991), but can occur involuntarily or reactivity because of poor adjustment to the environment (Freeman and Cameron, 1993; McKinley and Scherer, 2000). Irrespective of its antecedents downsizing is synonymous with layoffs (Hitt et al., 1994; Lee, 1997) though other authors contend that layoffs are only one of the possible means applied during organizational downsizing (Makawatsakul and Kleiner, 2003; Wayhan and Werner, 2000).

As the workforce constitutes a key factor in firms’ cost structure, most authors addressing downsizing accentuate this component and because firms strive to improve competitiveness, employee layoffs become a preferred element (Bowman et al., 1999; Cascio, 2002). Downsizing may include a reduction in a number of alternative resources. By contrast, the term “personnel downsizing” distinguishes workforce reduction from other downsizing strategies. Additionally, personnel downsizing is a broader term than dismissals and also includes voluntary resignation and early retirement (Wayhan and Werner, 2000). As it is often impossible to separate data concerning layoffs and other alternatives for workforce reduction, the term “personnel downsizing” is compatible with the nature of the empirical data collected here.

Until the mid-1980s it was commonly held that continuous growth in organizational indices, as well as personnel quotas, was a natural and desired process in organizational development, attesting to enhanced business performance (Whetten, 1987), whereas downsizing was perceived as a sign of decline (Fisher and White, 2000). As the frequency and magnitude of business failures and organizational crises increased (Probst and Raisch, 2005), researchers began to doubt the conventional equation whereby organizational size equals value for success. Gradually, the recognition that superfluous size is a burden began to emerge, as did the realization that small organizations too can excel (Appelbaum et al., 1999; Cameron, 1994). Accordingly, personnel downsizing gained legitimacy as a favored restructuring strategy (McKinley et al., 1995).

In addition, downsizing is a response to increased complexity and uncertainty that require the organization to change its systems (Anthony et al., 1996). For instance, research has shown that both industry and organizational change are associated with downsizing (Carmeli and Sheaffer, 2009). Organizations aspiring to managerial flexibility and high adaptability tend to be smaller and to apply job redefinitions, often leading to a reduction in the number of employees (Cascio, 1993). During continuous recessions business activities decrease and thus necessitate restructuring. Consequently, the number of firms resorting to downsizing increases. In two periods of recession (1985-1986 and 1990-1991) over 25 percent of the companies downsized, eliminating over 5 percent of the workforce (Morris et al., 1999). Oftentimes, downsizing is applied reactively. Hence firms downsize in response to financial pressures and excess leveraging (Scott and Ueng, 1999). These antecedents often intertwine. During a recession the number of companies struggling for survival increases, particularly leveraged ones. However, downsizing does not only typify firms beset by crises or periods of recession and can be implemented proactively when it is integrated with a broader restructuring strategy that prepares for future threats and business slowdown (Lee, 1997), or as a means of increasing profitability in times of...
prosperity (Burke and Nelson, 1998; McKinley and Scherer, 2000). Thus, downsizing is not merely a reactive response to recession, crisis, or decline (DeWitt, 1998; Love and Nohria, 2005). Consequently, flourishing companies seeking enhanced profitability and improved market position endorse this strategy (Fisher and White, 2000). According to Burke and Nelson (1998), 81 percent of the companies that downsized in a particular year profited that year.

**Downsizing and performance**

Like any strategic decision, the choice to downsize is affected by the prevailing assumption that it will boost performance. Thus, when downsizing is considered an important question that arises is “Are cutbacks effective?” (Bowman et al., 1999). Although cutbacks have become conventional, their effectiveness in increasing organizational efficiency is equivocal (De Meuse et al., 2004); theories are divided, and research findings inconsistent (Chalos and Chen, 2002; Wayhan and Werner, 2000). Subsequently, positive and negative results must be examined as the basis for a more comprehensive research question: when and under which conditions does downsizing improve business performance, and is the improvement sustainable?

*The efficiency assumption.* It is widely assumed that downsizing diminishes expenses and streamlines processes and therefore improves competitiveness and profitability (Cascio, 2002; Rigby, 2002). Authors (cf. Bowman et al., 1999) distinguish organizational performance and economic results: the latter include cutting costs, competitive advantage, profitability and improved share value, while the former entails the reduction of structural redundancies, rapid decision-making, enhanced communications and increased initiative (Bruton et al., 1996). Streamlining occurs when the elimination of redundant organizational layers enables a focus on core capabilities and increased output (Hitt et al., 1994). A leaner hierarchy may also eliminate superfluous costs (Fisher and White, 2000) and it shakes up burnt-out employees (Appelbaum et al., 1999). Contingency theorists (Kast and Rosenzweig, 1985) suggest that a leaner organizational structure and reduced red tape increase flexibility and facilitate the fit between intra-organizational processes and the environment. Therefore, positive organizational results are ultimately expressed in the company’s economic robustness.

Economically, a key reason for downsizing is to reduce costs as executives seek to maximize efficiency (Cascio et al., 1997) and business objectives can be best achieved with fewer employees. Several strategies seem pertinent, notably a cost leadership strategy which enables the organization to increase return on sales, or to increase market share through aggressive costing. Following staff downsizing the company can transmute the leaner cost structure into competitive advantage (Mentzer, 1996) by increasing profitability or lowering prices, which will be expressed in increased market share.

From a shareholder perspective, share value constitutes a major business performance index for the company’s operation (Cascio et al., 1997, Hillier et al., 2007). Companies that downsize expect to increase their value to their shareholders by either reducing costs or increasing revenues. Executives believe that future costs can be anticipated more than future revenues, and that wage expenses are fixed costs. Therefore, cutting costs through layoffs is a safe bet for increasing profitability, and consequently raising share value (Cascio, 2002). Additionally, shareholders are
expected to react favorably to downsizing announcements although recently, Blancard and Couderc (2007) have shown that layoff announcements have an overall negative effect on stock market prices. Notwithstanding, cutbacks communicate streamlining and raise expectations of a future growth in profits (cf. Chalos and Chen, 2002; Rigby, 2002). A positive response will be expressed in an increase in shareholder returns and should enhance the company’s attractiveness to investors (Cascio et al., 1997; De Meuse et al., 1994).

Our study focuses on financial performance, because of the assumption that firms’ raison d’être is profit maximization, which is in fact covertly intertwined at the base of all arguments favoring organizational downsizing (Mentzer, 1996). Researchers claim that organizational results only constitute a mediatory influence, and one should focus on the end result which is the economic derivative of these influences, perceived through changes in profitability and/or changes in market share (Bowman et al., 1999). Because firms’ bottom line is their economic state and market position (Bruton et al., 1996), it is clear that the association between downsizing and economic results is of major importance.

Studies attest to a positive correlation between cutbacks and financial performance and market response. Burke and Nelson (1998) indicate that 85 percent of firms report a reduction in costs, 63 percent report increased profit and 58 percent report improved output. Wayhan and Werner (2000) found that cutbacks significantly improve financial performance, mainly in the short term. Furthermore, they note an improvement in revenues relative to competitors that had not downsized. The impact of cutbacks on market value was positive in each of the six years following the event, and greater in the first three years. Scott and Ueng (1999) also identified a higher return on shares in downsizing companies compared to those refraining from doing so. However, the possibility of a negative response by the market to announcements of dismissals does not abrogate the effectiveness of layoffs as a strategy aimed at increasing firm and workforce efficiency (Chalos and Chen, 2002). Elayan et al. (1998) identified a significant increase in the ROE and net income per employee despite a negative market reaction. Bruton et al. (1996) identified a positive impact of downsizing on profitability for growing and declining companies alike. Consequently, rather than improving financial capabilities, downsizing may adversely affect them, as dismissals result in “organizational anorexia”. In other words, although downsizing streamlines the firm it will not necessarily improve its financial structure and instead of being “lean and mean” the organization becomes “lean and lame” (Anthony et al., 1996).

Often, cutbacks achieve an immediate saving in expenses but the substantial cost linked to severance pay or post-downsizing outsourcing (Davis et al., 2003) considerably reduces the savings achieved in the cost of wages (Rigby, 2002). Another argument against downsizing relates to organizational results and includes impairment of human resources (Nixon et al., 2004), and intra-organizational processes (Gombola and Tsetsekos, 1992). Costs incurred by this impairment are difficult to quantify and therefore the tendency is to diminish their value (De Meuse et al., 1994). Workforce reductions are liable to impair HR overall value when following layoffs the organization is left without the unique cluster of skills, competences and know-how accumulated overtime at high cost, which the organization may need in the future (Pradhan, 2000). Moreover, employees’ deteriorating motivation and alienation owing to survivors’ syndrome adversely affects performance (Appelbaum et al., 1999;
Makawatsakul and Kleiner, 2003; Rosenblatt and Sheaffer, 2000). Consequently, social capital (Karake-Shalhoub, 1999), communication channels, creativity and learning abilities are impaired (Cascio, 2002; Pradhan, 2000). These negative results limit the economic and the expected strategic benefits. Corroborating the inefficiency assumption, De Meuse et al. (1994) reported that in downsizing firms most of the financial indices deteriorate faster in the two years after the workforce reductions, compared to the two preceding years. Essentially, companies that merely lay off without reducing assets do not achieve a higher ROA than the industry average (Cascio, 1998). This was later corroborated by Cascio (2002), who found no significant improvement in performance even when dismissals were accompanied by asset reduction. In the long run, share performance in downsizing companies was found to be inferior to corresponding rates in companies that had refrained from personnel cutbacks (Rigby, 2002).

*Long- and short-term performance.* The interrelatedness between downsizing and financial performance reflects inconsistency between improved efficiency in the short term and the need to develop and sustain competitiveness in the long run (Hitt et al., 1994). Much like other radical changes, cutbacks are not carried out quickly and the results must be examined over time (Bowman et al., 1999). Several studies have examined the long-term impact of personnel downsizing on business performance and they mostly define “long term” as a period of two to three years (Cascio, 2002; Morris et al., 1999). Other investigators, however, argue that the rebuilding processes following layoffs lasts longer (Mentzer, 1996). A few studies have applied a longitudinal methodology to accommodate time spans (Love and Nohria, 2005; Wayhan and Werner, 2000). However, no corroboration is evident to uphold arguments suggesting that downsized firms’ performance over even a decade can teach us more about the long-term nature of the relationships between layoffs and financial performance. Hence, a study examining the long-term, dynamic effect of downsizing on financial performance is likely to provide insights and perhaps resolve previous contradictions.

Researchers have charted the differences between long and short-term results (Bowman et al., 1999; McKinley and Scherer, 2000). Generally, downsizing may improve performance in the short-run because dismissals decrease expenses and thus improve profitability and liquidity indices, enabling industry dominance chiefly through a cost leadership strategy. In the short run, downsizing allows for creating the desired impression of the company’s robustness, rapid response and adaptability, irrespective of long-term financial results (Wayhan and Werner, 2000). Moreover, organizations benefit from an initial increase in output, as survivors work harder and more competitively in an attempt to keep their jobs (Appelbaum et al., 1999). In the long run, it occasionally transpires that the companies may look good, but are organizationally dysfunctional (McKinley et al., 1995). Despite the improvement in liquidity, initial growth in output is short-term and accompanied by pathologies including the survivor syndrome (Appelbaum et al., 1999). In the long term, diluting human resources, curtailing intra-organizational processes, cost of severance pay and new recruitment become apparent and cause deteriorations in performance and competitiveness (McKinley and Scherer, 2000). Additionally, a cost leadership strategy may be erroneously emulated and applied in the wrong context.
Liquidity ratios test firms’ ability to comply with their undertakings and cope with financial pressures in the short term (Stickney et al., 1999). By contrast, profitability ratios and market value are indicative of firms’ financial robustness and competitive position in the long term, and are not influenced by short-term biases (Wayhan and Werner, 2000).

Types of downsizing strategies. In what follows, we discuss theoretical reasoning as to why:

- a workforce or asset downsizing strategy has a positive impact on short-term financial performance, but negative or no impact on long-term performance;
- a stability strategy is not significantly related to short- or long-term financial performance;
- a strategy involving assets upsizing and personnel downsizing will result in enhanced short- and long-term performance; and
- a combination of both workforce and asset downsizing would have a positive impact on short-term financial performance but negative on long-term performance.

Budros (2002, p. 335) suggests that a conceptual distinction should be made amongst different downsizing strategies. Other researchers argue that strategies accompanying downsizing should be considered with respect to the effectiveness of the former (Chalos and Chen, 2002). Overlooking these accompanying strategies may explain contradictory findings concerning downsizing effectiveness. For example, Chalos and Chen (2002) identified different financial results and a selective market response to downsizing according to the specific strategy applied.

Studies have categorized different personnel downsizing strategies according to the broader context of organizational change (Chalos and Chen, 2002; Guthrie and Datta, 2008), e.g. including structural or process changes, and a narrower scope exclusively involving layoffs (Love and Nohria, 2005: 1095). A common classification of downsizing strategies uses different combinations of workforce cutbacks and change in the scale of assets (Cascio, 2002; Morris et al., 1999). This classification is compatible with the comprehensive downsizing approach entailing different combinations of reductions in physical, financial, personnel and organizational resources (Morrow, 2003). It has been argued that the answer to the question of when and in what circumstances personnel downsizing improves or worsens financial performance depends on the extent to which other assets are restructured. Assets downsizing refers to changes that limit growth to a level that is less than the rate of depreciation in plant, property and equipment with the view of improving operating cycle by shrinking receivables and inventory (Pearce, 1993). By considering personnel cutbacks with changes in assets, conclusions can be drawn regarding differential impacts on performance variables (Cascio et al., 1997). Consequently, downsizing strategies should be examined with respect to the combination between changes in the number of employees and the change in the scope of assets.

Single versus combined downsizing strategies. Companies applying assets only strategy reduce their assets instead of personnel by 3 percent (Bruton et al., 1996) and hence retain their human capital because of legal constraints (Cascio et al., 1997) or since management prefers to “weather the storm”, believing that it would be
detrimental to the firm to dispose of HR competences (Morris et al., 1999). This strategy is likely to incur surplus operating income but financial performance and strategic positioning will be impaired in the long run. This is because substantial costs involved in retaining potentially superfluous HR might negatively affect cost structure, and hence reduce profitability in the long run.

Firms endorsing a “no change” or stable strategy (Cascio and Wynn, 2004, p. 426) in fact perpetuate previous policies regardless of the circumstances in their task environment (Beaver, 2003). This is due to either strategic or organizational inertia or because stakeholders’ behavior is interpreted as mandating strategic constancy (Leana and Rousseau, 2000). Hence, companies in this category perpetuate their strategy by keeping the same human and tangible assets, and thus no significant change is expected in their short- and long-term performance and in profitability.

In an assets upsizing and personnel downsizing strategy, firms replace their workforce and other assets mostly as a result of endorsing new technologies. Should firms intensify the usage of automation to replace dismissed employees, their assets turnover will be reduced (De Meuse et al., 1994). The underlying rationale is that this change arises from a technological breakthrough or an investment and thus will eventually result in improved profitability and competitiveness. Likewise, investors will ascribe reasons other than financial stress to personnel downsizing. Others identify an improvement in financial performance in firms that lay off employees and concurrently increased capital expenditures (Ballester et al., 1999).

Companies endorsing a combination of asset reduction and personnel downsizing want to do the right thing (Bruton et al., 1996; Freeman and Cameron, 1993) (e.g. when these assets are neither intended nor needed for the firm’s strategy). Specifically, workforce reduction arises from restructuring through the sale of manufacturing facilities, product lines, etc. When, in addition to personnel cutbacks the company downsizes its assets, it improves overall effectiveness as it focuses on its strengths while cutting down on expenses (Bruton et al., 1996; De Meuse et al., 1994), and is therefore likely to achieve a sustainable improvement in performance (Cascio and Wynn, 2004).

The effect of the chosen strategy varies according to the costs of maintaining the workforce versus the costs incurred by a cycle of layoffs and rehiring when the need to rebuild the workforce arises.

The moderating effect of industry type. Morris et al. (1999) argue that in industries that make use of readily available labor that does not require specialized or firm-specific skills (so-called low-tech), carrying the minimum number of employees with no excess personnel may be the best solution. By contrast, there are industries where labor is relatively in short supply, and where employees must be highly trained with firm-specific skills (high-technology or specialized services). In this case, it would be desirable to maintain a stable complement of employees in the long run even through cyclical periods when there are excess personnel. Further, increased competition that features high-tech industries may aggravate the problems of cyclical hiring and firing (Gregerson and Johnson, 2001). Thus, the following hypotheses are formulated:

H1a. There is a positive impact of combined workforce and assets downsizing on short-term financial performance, but negative or no impact on long-term performance.
$H1b$. An assets-only downsizing strategy will be positively related to short-term performance, and negatively associated with long-term performance.

$H1c$. A stability strategy is not significantly related to short- or long-term financial performance.

$H1d$. A strategy involving asset upsizing and personnel downsizing is positively associated with short- and long-term performance.

$H1e$. Industry type moderates the relationship between downsizing and long- and short-term performance such that in low tech industries, downsizing will affect short-term performance positively and long-term performance negatively. Ceteris paribus, hi-tech industries’ financial performance will be affected positively in the short run and negatively in the long run by a concurrent personnel and asset downsizing.

The cause for downsizing. Researchers claim that the results of downsizing are influenced by the reason that triggered management to apply this strategy (Love and Nohria, 2005). It is also claimed that a company’s financial situation following downsizing is often impacted by its financial situation before downsizing (De Meuse et al., 1994; Mentzer, 1996). Furthermore, Worrell et al. (1991) noted that market reaction is influenced by the cause for dismissals; staff cutbacks resulting from financial difficulties elicit a negative reaction, as opposed to layoffs that could be attributed to proactive restructuring rather than financial difficulties. Consequently, it would be sensible to distinguish a proactive and reactive approach (Love and Nohria, 2005). Reactive downsizing is implemented in response to a crisis or decline-related decrease in profitability (DeWitt, 1998; Lee, 1997). In this case, downsizing is a symptom of an erroneous strategy endorsed by flawed management (Rigby, 2002).

By contrast, proactive downsizing is implemented as part of carefully orchestrated restructuring in preparation for an impending slowdown in operations or strategic repositioning (Hitt et al., 1994; Lee, 1997). Companies endorsing proactive downsizing are often characterized by rising performance prior to downsizing. Thus, we may expect reactive downsizing arising from decline and/or financial distress to positively affect performance in the short run, but poor management will be expressed in deteriorating profitability and an eroding market position in the long run. Conversely, proactive downsizing reflects effective strategic management considering business life cycle and long-term planning, and will hence lead to sustainable improvements in performance. Based on these arguments we offer the following hypothesis:

$H2$. Short-term financial performance will be improved when the cause for downsizing was reactive and negative in the long run. Ceteris paribus, the proactive cause for downsizing improves both short and long-term performance.

Method

Research context

Empirical studies have primarily focused on downsizings in US-based industries. Recently, however, downsizing was studied in other national contexts, including Slovenia (Zupan and Kase, 2005), and Australia (Farrell and Mavondo, 2005), each highlighting
some national characteristics. While in the main, Israeli firms do not differ markedly in terms of strategy and structure because they are well integrated with and influenced by global trends, some differences are noteworthy. Unlike their American counterparts, Israeli firms combine elements of the structure of the national economy, which in turn determines board membership (Maman, 2000). Israel’s economy is known for its distinctive human capital in both the industrial and public sectors (Carmeli, 2004; Carmeli and Schaubroeck, 2005; Carmeli and Tishler, 2004; de Fontenay and Carmel, 2001). However, no known publication distinguishes Israeli, American or other companies in terms of downsizing strategies, an issue which is beyond the scope of this paper.

Sample
The research population was made up of firms traded on the Tel Aviv Stock Exchange (TASE) traded between 1992 and 2001. These firms were drawn from ten industries including a variety of low- and high-tech areas. Firms included in the final sample were required to meet two criteria:

1. They must have been traded on the TASE for ten consecutive years; and
2. They had no missing financial and demographic data (employees) for the duration of the study, and the firm was not involved in mergers and acquisitions (M&A).

This left us with a sample of 196 firms, or 1,960 observations. In order to ascertain the absence of potential for selectivity bias we ran a t-test that showed no significant differences on all pertinent parameters (p > 0.10). The average firm age in 1992 was 24 years (SD = 17.7). All accounting measures used in this study were drawn from TASE database. Sample selection bias was avoided as the remaining 196 firms were not preferentially included, nor were the excluded firms. Inclusion in the final sample was predicated solely on the aforementioned criteria.

Measures
Dependent variables. The Shapiro-Wilks goodness-of-fit test for normal distribution of all dependent variables showed all to be abnormally distributed or positively asymmetric. We therefore logarithmically transformed market capitalization, profit-to-sales and current ratio to improve residual distributions in the ensuing regression models. Following Cleveland (1984), we opted for LAN in order to prevent further loss of data resolution normally attributed to other log transformations.

The question as to how to measure financial results is not straightforward (Cascio et al., 1997). The studies of Elayan et al. (1998) and Wayhan and Werner (2000) show that market response to downsizing may be different from the effect of downsizing on accounting variables. In order to better balance differences with previous studies (Chalos and Chen, 2002; Stickney et al., 1999; De Meuse et al., 2004; Wayhan and Werner, 2000), we used a variety of financial measures as dependent variables to evaluate performance from different perspectives and over various time spans. The accounting measures used (generally accepted accounting principles; GAAP) are comparable to those of US firms and those listed outside the USA and appearing on a primary US exchange.

Profitability. Return on sales (ROS) was used to measure firm profitability. This ratio compares the financial situation overtime (Stickney et al., 1999) and normally
reflects firms’ financial robustness and competitive positioning, and is less biased by short-term deviations (Wayhan and Werner, 2000). It directly reflects the cost of producing every dollar of sales. A higher ratio reduces the risk of loss (Stickney et al., 1999). Should the cost of producing a dollar of sales decrease due to downsizing, profit-to-sales will increase (De Meuse et al., 2004).

Market capitalization. Market capitalization evaluates the firm’s worth if put up for sale. It also mirrors firms’ long-term competitive positioning and investor confidence (Mehra, 1996). Reduced costs owing to downsizing are likely to increase revenues and improve firms’ ability to control product/service prices and competitiveness, as a result of which market capitalization is expected to rise (Nixon et al., 2004, p. 1122). This measure also serves as a market-based indicator attesting to how strategies boost shareholders’ wealth (Montgomery et al., 1984; Wayhan and Werner, 2000) and represents the extent of trust investors have in the firm’s future performance (De Meuse et al., 1994). Downsizing is said to decrease costs, and this will increase revenues or improve control over product/service price aimed at enhancing competitiveness whose outcome is to boost market capitalization (Cascio et al., 1997). This measure suits longitudinal studies as it is less sensitive to short-term deviations (Wayhan and Werner, 2000).

Current ratio. Current ratio is total current assets divided by total current obligations. The current ratio measures short-term liquidity attesting to financial robustness (Geczy et al., 1997), or the ability to meet obligations and face short-term financial pressures (Stickney et al., 1999). Layoffs reduce current obligations and thus improve the current ratio.

Independent variables. Strategy type. Downsizing strategies are defined according to the wider context of the organizational change implemented (Chalos and Chen, 2002). Classification is based on the proportional change in the number of employees and the extent of assets. We followed Bruton et al.’s (1996) assertion that a 3 percent reduction in both personnel and assets amounts to downsizing.

Cause for downsizing. The financial measure used to determine whether the firm is reactive or proactive was its ROA, considered a key financial indicator (Bruton et al., 1996; Stickney et al., 1999) indicative of firms’ pre-downsizing financial situation. We calculated “cause” by comparing the firm’s profitability two years prior to downsizing with its profitability a year after downsizing. If there was a decline in profitability then the cause for downsizing is reactive (Hitt et al., 1994; Lee, 1997). Otherwise, if profitability was on the upswing or there was no change in ROA then the cause for downsizing was denoted as proactive (Love and Nohria, 2005).

Control variables. We controlled for organizational age and size, and industry type. Normally, such contextual structural characteristics as size and age correlate with indices of financial performance (Morris et al., 1999). Established and large firms are expected to be more consolidated and cohesive strategically (Hannan and Freeman, 1989), and the size of the organization may impact on its stability and its ability to successfully accomplish change (Cascio, 2002). The association of size and age with staff downsizing and financial performance in the short run may differ from their influence on long-term association (Scott and Ueng, 1999). Small and young companies are generally flexible and therefore adjust swiftly to changes as opposed to the more stable and conservative large and established firms (Hannan and Freeman, 1989). Also, the same rate of personnel cutbacks would impact a small firm more severely than it
would a large one (De Meuse et al., 2004, p. 162). Moreover, one cannot expect an immediate financial change in a large company; radical change requires complex preparation, is more expensive and protracted, and is likely to yield returns solely in the long run. Age was measured in terms of year founded. Size was defined as the number of employees in a given year. Owing to substantial differences in size, we transformed size logarithmically, and hence reduced potential oscillations in the series. As regards industry, our data consisted of firms affiliated with ten different industries. Aggregating the firms into industries simplifies computation, especially when entering many dummies into the regression equation. Specifically, we followed Hatten and Schendel (1977) by assigning to industries only homogenous firms (not involved in M&A). An ANOVA procedure showed the differences amongst these industries to be statistically non-significant or marginally significant on all dependent variables. Hence, we aggregated the ten industries into three statistically different categories. The aggregation was performed to form thematically logical categories as follows:

1. high-tech (computers and electronics);
2. low-tech (textile and clothing, chemicals, plastic, construction, food and tobacco); and
3. commerce (commerce, banks, hotels and real estate).

Time periods. The initial time-span was ten years of repeated measures (1992-2001). However, owing to high heteroskedasticity in preliminary analyses, where all years short of one were entered into the equations, we conducted t-tests that showed three distinct time periods:

1. 1992-1994;
2. 1995-1996; and

During these years the Israeli economy went through substantial structural changes, including major privatizations of governmental services (Maman, 1999), and notably shifting into a hi-tech based orientation (Teubal and Avnimelech, 2003). Aggregating time periods is a common technique in time-series designs (Olzak, 1989). We followed Love and Nohria’s (2005) study where the time frame was also reduced to three periods albeit for different conceptual reasons.

Interactions. We used an interaction of industries (high- and low-tech) and downsizing (personnel and assets) to establish the extent to which industries affect performance given downsizing. Hence, two interactions were entered into the regression equations. Additionally, we interacted both age and size with the same strategy, with the aim of exploring size and age effects on performance given firm size and age. While it could be advantageous to explore additional interactions involving all strategies and industries, this would inflate the $R^2$ and hence render the models biased and unstable.

Data analysis. We used a pooled cross-section and time-series (CSTS) design enabling us to capture average effects across observations and dynamic effects across the entire sample (Beck and Katz, 2007). Such designs require pooling of cross-sections (industries) and time-series data (Sayrs, 1989) – for example the three aggregated periods. Several items were measured, most importantly the effects of the model. Pooled CSTS models enable analyses to adequately reflect temporal dynamics (Nixon
et al., 2004, p. 1125) that cannot be accounted for by ordinary regression analyses. The pooled results mirror the average effect of the explanatory variables over the full study period, yielding more accurate estimates than would year-by-year sub samples (Geletkanycz and Hambrick, 1997, p. 669). This dynamic econometric procedure also minimizes the potential of erroneously substituting cause and effect although causal inferences should be drawn with caution.

In this model, dummy variables (time periods, industry aggregates, strategies and cause for downsizing) are introduced, allowing the intercept term to vary over cross-section units and time-series, since the assumption of constant intercept and slope would be unreasonable (Pyndick and Rubinfeld, 1991, p. 225). Specifically, we employed a first-order temporal-autoregressive model or a reduced model of the more general one (i.e. auto regressive moving average with \(X\)'s; ARMAX) including cross-sections. The general form of this regression equation is:

\[
Y_{it} = \alpha_i + \beta^*X + \varepsilon_{it},
\]

where \(i = 1, \ldots, k\), \(\beta\) is the coefficient vector, and \(X\) is the matrix of \(K\) explanatory variables. Specifically, we do not estimate different coefficients for each cross-section. Differences amongst cross-sections are represented by different intercepts (\(\alpha\)'s).

Specifically:

\[
\log(Y) = \text{AR}(1) + b_1*\log(\text{age}) + b_2*\text{cause} + b_3*\log(\text{em}_n) + b_4*\text{industry}_d2 \\
+ b_5*\text{industry}_d3 + b_6*\text{str}_d1 + b_7*\text{str}_d2 + b_8*\text{str}_d3 + b_9*\text{str}_d4 \\
+ b_{10}*\text{str}_d5 + b_{11}*\text{period}_d2 + b_{12}*\text{period}_d3,
\]

where \(\text{AR}\) is the autoregressive term; \(\log(\text{age})\) is the natural logarithm of age, cause of downsizing; \(\log(\text{em}_n)\) is the natural logarithm of size (employees); \(\text{industry}_d2\) and \(\text{industry}_d2\) are the commerce and hi-tech industries; \(\text{str}_d1\) to \(\text{str}_d5\) are the five different strategies (1 = actual strategy, otherwise 0); and \(\text{period}_d1\) and \(\text{period}_d2\) are ordinal-effect dummies where the periods are 1995-1996 and 1997-2001. The \(Y\)'s are \(\log(\text{current ratio}), \log(\text{return on sales}), \text{and } \log(\text{market capitalization})\).

This models entails several estimation problems, particularly the problem of heteroskedasticity and second, or overtime autocorrelation of the residuals and abnormality. As all three are interrelated, treating each of them affects all the others. We addressed these problems as follows.

To reduce heteroskedasticity and abnormality we first removed extreme cases. Next, dependent and continuous variables were transformed logarithmically to improve normality in the abnormally distributed series. Treating heteroskedasticity is integrated with the autoregressive coefficient \(\text{AR}(i)\). When \(Y\), moved in \(i\) lags, is entered into the regression equation we actually explain \(Y\) using its history in the series. By so doing, autoregression is reduced. Additionally, when \(\text{AR}(1) = 0\), it shows that no first-order autoregression exists. We also used Fisher and White's (2000) heteroskedasticity consistent covariance matrix estimator, which provides correct estimates of the coefficient covariances in the presence of heteroskedasticity of unknown forms. This estimator is embedded in the EViews procedure, enabling investigators to assess the extent to which the model is heteroskedastic. As heteroskedasticity is inherent in this type of matrix, it cannot be eliminated entirely as
all series are “contaminated” and so it was reduced to a reasonable level to enable estimation of all regressors. The Durbin-Watson statistic in all models proved to be in the “safe” zone ($\pm 2$), indicating that autoregression stemming from inherent serial correlation in the longitudinal matrices did not bias the results.

### Results

Table I displays the means, standard deviations and correlations among the research variables. Table II presents the results organized into three models with identical predictors, each of which estimates a different dependent variable:

1. “short-term performance”;
2. “long-term performance”; and
3. “profitability”.

Since the goal was to capture the multi-dimensionality of performance, we discuss the research hypotheses with respect to each performance measure.

The findings for Models 1 and 2, as shown in Table III, indicate that combined personnel-assets downsizing is not significantly related to either short or long-term performance ($t = -0.14, p = ns$ and $t = -0.34, p = ns$, respectively). The results for Model 3 show a significantly negative relationship between combined personnel-assets downsizing and profitability (ROS) ($t = -2.16; p < 0.05$). These findings are not consistent with $H1a$, which posited that there would be a positive impact of combined workforce and assets downsizing on short-term financial performance, but negative or no impact on long-term performance.

### Table I. Operationalization of four strategies and cause for downsizing

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Operationalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy 1</td>
<td>Personnel and assets downsizing</td>
<td>If (no. of employees$<em>{year(t)}$ - no. of employees$</em>{year(t-1)}$/ no. of employees$<em>{year(t-1)}$) ≤ (-3 per cent) and (assets$</em>{year(t)}$ - assets$<em>{year(t-1)}$/ assets$</em>{year(t-1)}$) ≥ (-3 per cent)</td>
</tr>
<tr>
<td>Strategy 2</td>
<td>Assets downsizing</td>
<td>If (no. of employees$<em>{year(t)}$ - no. of employees$</em>{year(t-1)}$/ no. of employees$<em>{year(t-1)}$) &gt; (-3 per cent) and (assets$</em>{year(t)}$ - assets$<em>{year(t-1)}$/ assets$</em>{year(t-1)}$) ≥ (-3 per cent)</td>
</tr>
<tr>
<td>Strategy 3</td>
<td>No personnel, no assets downsizing</td>
<td>If (no. of employees$<em>{year(t)}$ - no. of employees$</em>{year(t-1)}$/ no. of employees$<em>{year(t-1)}$) &gt; (-3 per cent) and ($3$ per cent) &lt; (assets$</em>{year(t)}$ - assets$<em>{year(t-1)}$/ assets$</em>{year(t-1)}$) &gt; (-3 per cent)</td>
</tr>
<tr>
<td>Strategy 4</td>
<td>Personnel downsizing and assets expansion</td>
<td>If (no. of employees$<em>{year(t)}$ - no. of employees$</em>{year(t-1)}$/ no. of employees$<em>{year(t-1)}$) ≤ (-3 per cent) and (assets$</em>{year(t)}$ - assets$<em>{year(t-1)}$/ assets$</em>{year(t-1)}$) ≥ (3 per cent)</td>
</tr>
<tr>
<td>Cause for downsizing</td>
<td>Proactive (1)</td>
<td>If ROA$<em>{year(t-1)}$ = ROA$</em>{year(t-2p)}$ then CAUSE$_{year(t)}$ = 1</td>
</tr>
<tr>
<td>Cause for downsizing</td>
<td>Reactive (0)</td>
<td>If ROA$<em>{year(t-1)}$ &lt; ROA$</em>{year(t-2p)}$ then CAUSE$_{year(t)}$ = 0</td>
</tr>
</tbody>
</table>

Note: Strategy 5 (personnel downsizing) is the base line and is thus not entered in the analyses.
Table II. Descriptive statistics and correlations amongst the research variables

<table>
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<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
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</thead>
<tbody>
<tr>
<td>Org. age (log)</td>
<td>3.1</td>
<td>0.69</td>
<td>-0.04</td>
<td>-0.01</td>
<td>-0.01</td>
<td>0.29</td>
<td>-0.04</td>
<td>-0.07</td>
<td>0.02</td>
<td>0.02</td>
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<td></td>
</tr>
<tr>
<td>Cause</td>
<td>0.47</td>
<td>0.50</td>
<td>-0.10</td>
<td>-0.01</td>
<td>0.39</td>
<td>-0.42</td>
<td>-0.29</td>
<td>0.17</td>
<td>-0.05</td>
<td>0.15</td>
<td>0.16</td>
<td>0.17</td>
<td>0.18</td>
<td>0.20</td>
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<td>0.22</td>
<td>0.23</td>
<td>0.24</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Org. size (Log)</td>
<td>5.09</td>
<td>1.12</td>
<td>-0.01</td>
<td>0.02</td>
<td>0.02</td>
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</tr>
<tr>
<td>Low-tech</td>
<td>0.41</td>
<td>0.49</td>
<td>-0.01</td>
<td>0.02</td>
<td>-0.01</td>
<td>0.02</td>
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</tr>
<tr>
<td>Hi-tech</td>
<td>0.23</td>
<td>0.41</td>
<td>-0.01</td>
<td>0.02</td>
<td>-0.01</td>
<td>0.02</td>
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</tr>
<tr>
<td>Strategy 1</td>
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<td>0.26</td>
<td>0.10</td>
<td>0.07</td>
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<tr>
<td>Strategy 2</td>
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<td>0.40</td>
<td>0.02</td>
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<tr>
<td>Strategy 3</td>
<td>0.12</td>
<td>0.32</td>
<td>-0.02</td>
<td>-0.02</td>
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<td>-0.02</td>
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<tr>
<td>Strategy 4</td>
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<tr>
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<td>0.88</td>
<td>0.33</td>
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<tr>
<td>Period 3</td>
<td>0.62</td>
<td>0.48</td>
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<tr>
<td>Low-tech*Strt1</td>
<td>0.04</td>
<td>0.19</td>
<td>0.14</td>
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<td>Hi-tech*Strt1</td>
<td>0.01</td>
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<td>-0.01</td>
<td>-0.01</td>
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<tr>
<td>Log(age)*Strt1</td>
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<td>0.89</td>
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<tr>
<td>Log(size)*Strt1</td>
<td>0.38</td>
<td>1.40</td>
<td>0.12</td>
<td>0.12</td>
<td>0.12</td>
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</tr>
<tr>
<td>Log(current ratio)</td>
<td>0.96</td>
<td>0.70</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
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<td></td>
</tr>
<tr>
<td>Log(market cap)</td>
<td>-1.44</td>
<td>0.57</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
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<td>Log(ROS)</td>
<td>9.52</td>
<td>1.18</td>
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</tbody>
</table>

Notes: Listwise, n = 196; Strt1: employee and assets downsizing; Strt2: assets only downsizing; Strt3: stability, no assets, no employees; Strt4: Employee downsizing, assets upsizing. *p < 0.05, **p < 0.01, ***p < 0.001

### Table III.

Results of the pooled CSTT models of the effects of strategies, cause of downsizing, industries, age, and time periods on financial measures of performance.

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t-statistic</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Log(age)</td>
<td>0.11</td>
<td>3.59</td>
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<tr>
<td>Cause</td>
<td>0.02</td>
<td>1.20</td>
<td>-0.03</td>
</tr>
<tr>
<td>Log(employees)</td>
<td>-0.02</td>
<td>-1.17</td>
<td>0.37</td>
</tr>
<tr>
<td>Low-tech</td>
<td>0.42</td>
<td>7.18***</td>
<td>-0.35</td>
</tr>
<tr>
<td>Hi-tech</td>
<td>0.71</td>
<td>10.41***</td>
<td>-0.08</td>
</tr>
<tr>
<td>Personnel and assets downsizing</td>
<td>-0.41</td>
<td>-0.14</td>
<td>-0.11</td>
</tr>
<tr>
<td>Assets downsizing</td>
<td>0.12</td>
<td>3.11**</td>
<td>-0.31</td>
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<td>No personnel, no assets</td>
<td>0.13</td>
<td>3.05**</td>
<td>-0.12</td>
</tr>
<tr>
<td>Personnel downsizing, assets upsizing</td>
<td>0.09</td>
<td>2.66**</td>
<td>-0.02</td>
</tr>
<tr>
<td>Period 2 (1995-1997)</td>
<td>-0.19</td>
<td>-5.40***</td>
<td>-0.08</td>
</tr>
<tr>
<td>Period 3 (1998-2001)</td>
<td>-0.13</td>
<td>-4.01***</td>
<td>0.21</td>
</tr>
<tr>
<td>Lo-tech*personnel and assets downsizing</td>
<td>0.13</td>
<td>1.10</td>
<td>-0.45</td>
</tr>
<tr>
<td>Hi-tech*personnel and assets downsizing</td>
<td>0.18</td>
<td>1.40</td>
<td>0.53</td>
</tr>
<tr>
<td>Log(age)*personnel and assets downsizing</td>
<td>0.10</td>
<td>1.2</td>
<td>-0.04</td>
</tr>
<tr>
<td>Log(employees)*personnel and assets downsizing</td>
<td>0.01</td>
<td>0.27</td>
<td>0.04</td>
</tr>
<tr>
<td>AR(1)</td>
<td>0.71</td>
<td>35.79***</td>
<td>0.99</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.56</td>
<td>0.71</td>
<td>0.42</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.557</td>
<td>0.70</td>
<td>0.41</td>
</tr>
<tr>
<td>SE of regression</td>
<td>0.47</td>
<td>0.644</td>
<td>0.44</td>
</tr>
<tr>
<td>Durbin-Watson</td>
<td>2.015</td>
<td>2.166</td>
<td>2.084</td>
</tr>
</tbody>
</table>

**Notes:** Two-tailed tests. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
H1b was supported. The findings for Model 1 indicate a positive relationship between assets downsizing and short-term performance \((t = 3.11, p < 0.01)\). Likewise, the findings for Models 2 and 3 show that assets downsizing is negatively related to both long-term performance \((t = -6.70; p < 0.001)\) and profitability \((t = -3.02; p = 0.01)\) respectively.

H1c, which posited that stability strategy would not be related to short- or long-term performance, was not borne out. Rather, a stability strategy had a significant and positive effect on short-term performance \((t = 3.05, p < 0.01)\), and a significant and negative effect on both market capitalization \((t = -2.24, p < 0.05)\) and profitability \((t = -1.97; p < 0.05)\).

H1d was partially supported. We found a positive and significant relationship between upsizing and an employee-downsizing strategy for short-term performance \((t = 2.66, p < 0.01)\), but no significant relationship with respect to market capitalization and profitability.

We also tested H1e. The findings for Model 1 in Table III show no significant interactive effect of industry type and personnel and assets downsizing on short-term performance \((p > 0.05)\). We found that the interactive effect of low-tech industry and personnel and assets downsizing on market capitalization was significant and negative in sign \((t = -3.22, p < 0.01)\), whereas the interactive effect of high-tech industry and personnel and assets downsizing on market capitalization was significant and positive in sign \((t = 3.43, p < 0.01)\) (see Model 2, Table III). The findings for Model 3 in Table III show that the interactive effect of both low- and high-tech industry and personnel and assets downsizing on profitability was significant and negative in sign \((t = -2.77, p < 0.01; t = -2.52, p < 0.01,\) respectively). Thus, H1e was partially supported.

H2, which stated that short-term financial performance would be enhanced as a result of a reactive cause for downsizing but negative with respect to long-term performance, was not supported for either short or long-term performance. We also found that profitability soared rather than declined \((t = -1.96, p = 0.05)\). In fact H2 was refuted.

We found that organizational size (measured by number of employees) is negatively and significantly related to profitability \((t = -8.71, p < 0.001)\). We also identified a positive interactive effect of personnel and assets downsizing and size (measured by number of employees) on profitability \((t = 3.24, p = 0.01)\).

**Discussion**

In this study, we took a different perspective regarding the ongoing scholarly attempt to determine how downsizing affects organizational performance. Most previous studies have attempted to predict the short- and long-term impact of personnel downsizing on various performance measures. Although recent studies have employed longitudinal research designs that enable more reliable causal inferences (Love and Nohria, 2005), they stop short of predicting simultaneous effects of several downsizing strategies, including the cause for downsizing and industrial affiliation. Unlike previous studies, our major predicting variable involved simultaneous cutbacks in personnel and assets. This combined strategy goes further than dismissing employees, since layoffs are linked to the sale of such tangible assets as product lines or manufacturing facilities. By so doing, firms downscale their activities commensurate
with the reduction in workforce and are less likely to generate excess workload on the remaining employees.

Our findings indicate that combined downsizing of assets and personnel affects profitability negatively. These results appear contradictory to the logic underpinning Bruton et al.’s (1996) supposition that this strategy constitutes the “right thing” to do. There are several explanations for this finding. First, the methodology used did not log performance, and hence the time elapsed between the endorsement of the strategy and actual performance results cannot be shown or accurately measured. Second, the advantages associated with concurrent downsizing of assets and personnel – in particular matching physical assets and the number of employees left to undertake the jobs by contrast to leaving a reduced workforce to do the same jobs with the same manufacturing facilities – takes time to result in actual performance gains.

The assets-only downsizing strategy affects short-term performance positively but it has a negative impact on both ROS and market capitalization. Disposing of assets in the form of manufacturing facilities without the corresponding dismissals may be indicative of management’s decision to retain HR because of legal constraints or loss of human capital. Likewise, management is often briddled by inertia, which implies a reluctance to undertake such severe measures as dismissals, regardless of environmental perturbations construed as “not rocking the boat”. Likewise, certain managers are aware of the detrimental effect of dismissing employees during recessions given that when demand soars they will be left with manpower shortages that are likely to incur hasty and uncalculated hires. In fact, Greer and Ireland (1992) found that firms engaging in counter-cyclical hiring (e.g. upsizing during recessions) actually have higher longer-term performance. While this strategy may result in relatively high operating costs in the short run, the consequences of holding on to employees in the long term are liable to result in deteriorating financial performance owing to costs associated with retaining redundant personnel. Firms endorsing this strategy can benefit if they chiefly retain core employees and concurrently reduce or eliminate fringe benefits altogether (Rigby, 2002) until after business downturns necessitating retrenchment have passed and the market rebounds. There are also benefits in keeping valuable human capital regarded as critical resource according to the RBV (Nixon et al., 2004).

Contrary to our hypothesis that there would be insignificant changes in performance by perpetuating previous strategies (less than 3 percent change in either personnel or tangible assets), this strategy does affect short-term performance positively and significantly. A possible explanation is that most of the firms sampled were performing well and thus discontinuance of previous strategies was not considered as a valid alternative (why replacing a winning horse?) As no economic upheavals earmarked the period under study, no triggers for change were apparent. Hence, firms were not forced by exogenous stakeholders to embark on fundamental changes and opted for a reactive strategic approach. Contradicting our hypothesis, enacting a no-go stable strategy affects long-term performance and profitability negatively, namely escalation to a course of action may prove beneficial in the short-run but reflects negatively when it comes to firm worth or profitability. This is because shareholders may view inaction on the part of firms they invest in as indicative of indifference or inability to capture lucrative business opportunities that could eventually benefit them.
The replacement of personnel with technology, notably in the case of technological breakthroughs, normally results in improved business performance. The finding indicating an upswing in short-term performance is not surprising even though the inverted impact of assets upsizing and personnel downsizing on long-term and profitability performance merits further analysis. As assets upsizing in our study is not broken down into its components and can also include capital investments, these investments are likely to need a longer period to reach fruition. Thus while laying off employees may result in improved short-term liquidity as a result of reduced salary payments, the financial advantages of the newly acquired technology could not be felt because of the relatively short time window examined in this study.

Studies that have addressed the timing of downsizing or the impact of downsizing on performance as a result of declining or rising performance prior to endorsing the strategy are inconclusive as to whether reactive or proactive strategies are preferable (cf. Love and Nohria, 2005, pp. 1091-2). Our data also show no clear trend. For instance, consonant with previous works, we hypothesized a negative impact of reactive performance on profitability (Lee, 1997), yet the results indicate exactly the opposite with respect to ROS. An additional aspect regarding postponement of radical measures until such time that the firm can no longer ignore explicit declining performance seems to hold in this case, since regardless of which strategic reorientation is taken to remedy the situation, the firm often either vacillates or switches strategies haphazardly (Hambrick and D'Aveni, 1988) in an attempt to extricate itself from the grip of down spiraling. Improved, albeit transient, profitability is thus likely to follow reactive downsizing, despite some arguments to the contrary. This is because dismissals associated with divestments often provide temporary relief. This transitory financial improvement, however, will not normally be sustained in the long run. Although we were unable to corroborate this in the short-term model, there was a consistent trend in this direction alluding to a possible association given a different operationalization of either downsizing or long-term performance measures.

The negative impact of downsizing on hi-tech and specialized service firms in the long run again illustrates the detrimental outcomes of diluting human capital by a layoff of highly skilled employees and making concurrent cutbacks in the accompanying physical assets. Specifically in hi-tech firms, structural, strategic and cultural features need to be carefully aligned. A breakdown in this critical synch, along with a tendency towards a corporate transaction orientation, will be reflected in competitive disadvantages leading to poorer performance (Bae and Rowley, 2001). Though controversial, this holds true in terms of downsizing both firm- and industry-specific capabilities. Abandoning intangible competences during a recession or low demand often results in these competences “wandering” to competitors. This is crucial considering how crucial intangible elements are in a knowledge economy (Carmeli and Tishler, 2004). This, in turn, compels downsizing firms to resort to expensive outsourcing or costly rehiring of downsized employees (Cappelli, 2000). This, however, may not be the case for firms operating in volatile environments where job requirements may have changed and the laid-off employees have been rehired elsewhere (Cappelli, 2005). Similarly, costly endeavors that have as yet to come to fruition are liable to prove costly to firms that downsized across the board only because demand has gone down temporarily. While shareholders hail downsizing...
announcements in the short run they may view these cutbacks as threatening their long-term investments, and financial markets downgrade downsizing companies.

Another effect on performance involves large companies’ improved profitability following downsizing of assets and personnel. While empirically corroborating earlier studies, this overall positive effect of downsizing on performance may be misleading, since performance relates to overall financial results. Hence negative performance of divisions within the firm that were affected negatively by cutbacks may be camouflaged by the total. Alternatively, certain strategic units may have been adversely affected, while in others operational improvement owing to the cutbacks presumably drove them to substantially improved performance. Naturally, these circumstances are more likely to occur in larger firms. To summarize, this study employed a dynamic-longitudinal design to investigate the impact of several strategies, along with the cause for downsizing, industrial affiliation, timing, size and age as estimators of various performance measures. It used combined downsizing measures to fill in gaps in previous works where layoffs alone constituted the key estimator of performance.

**Implications, limitations and future studies**

The increasingly complex and volatile business climate of the twenty-first century indicates no let-up in corporate endeavors to restructure. Hence, downsizing is likely to remain a well tested, if often questionable countermeasure for economic, structural and strategic inefficiencies. Floundering organizations will always resort to making immediate financial savings and will attempt to stay solvent in the wake of stakeholders’ incessant demands, irrespective of the empirically corroborated findings suggesting that these practices seldom produce positive and sustainable results. New financial difficulties will soon arise when the root problems (e.g. inadequate managerial practices and/or deficient strategies) are infrequently addressed (Wilkinson and Mellahi, 2005). Future researchers will serve these challenges well by focusing on actual managerial practices prior to and during downsizing. These pivotal antecedents are likely to increase our knowledge and understanding beyond the use of financial data as proxies. For this to be implemented, existing corporate data will not suffice because they do not incorporate “soft” internal features. Additional research should perhaps limit the research population and conduct interviews to glean hard-to-get-by information as a basis for qualitative analyses. This intra-organizational information should include HRM practices, structural properties, managerial decision-making patterns, managerial-demographic data, etc. In the main, we believe that employing institutional theories to account for a variety of managerial fads known to be instrumental in downsizing decisions, could help explain hitherto unsubstantiated and unattended to postulates. Future research would also benefit from entering macro-exogenous variables that may affect fluctuations in the workforce, notably when the research time frame is long. These influences may offset endogenous effects on downsizing.

Generally, our results differ slightly from other studies that have mostly focused on American companies, although these differences may be attributed to dissimilar research design and in particular independent and dependent variables. Our results seem generalizable to similar business settings. However, future studies should pursue cross-cultural research designs to capture potential differences and increase
generalizability. The exclusion from the sample of firms involved in M&A may have skewed it towards smaller and less prosperous ones. Future investigators should be aware of this exclusion and perhaps focus on the impact of workforce reductions on performance in merged and acquired firms that tend to engage in intensive layoffs.

Considering the practically complete range of downsizing strategies employed, our evidence indicates that strategies that include personnel layoffs and additional variations enhance explanations of financial performance. Nonetheless, effects on short and long-term performance generally support previous studies. Some concern should be raised about the generalizability of our findings given that our sample included exclusively publicly traded firms. While NGOs and non-profits have no market value and thus cannot be compared to for-profits, various accounting measures can be used when organizational samples include both categories. Limitations also ensue from the relatively small number of performance measures used. Additionally, we resorted to a dichotomous distinction between just two major industries. While the results support some of our hypotheses, broader industrial scope is warranted so as to identify differences between industries with respect to the impact of various downsizing strategies. Future studies would benefit from employing longer time frames as they are likely to reflect temporal alterations in firms’ task environments, which in turn affect corporate decisions regarding downsizing.

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