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Effects of Rapid Environmental Change and Speed of Decline on Distressed Firms and Turnaround Outcomes

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Abstract: This paper examines the effects of two specific contextual factors: environmental velocity and decline speed, and timing of response on a firm's turnaround performance. We conducted a 12-year longitudinal study on a sample of U.S.-based, publicly traded firms that experienced a significant decline in performance. We find that environmental velocity impacts the swiftness and nature of the response to performance decline, and that, in turn, affects turnaround outcomes. Firms in high-velocity environments undergo rapid declines and are more likely to undertake a retrenchment strategy. Speed in implementing a retrenchment strategy is linked to turnaround for firms experiencing rapid declines. These results further our knowledge of the nature of the multifaceted association between the nature of change in the environment, managerial action, and performance outcomes. One of the few longitudinal studies to include both industry- and firm-level variables in advancing interpretations of strategic turnarounds.

Keywords: *Rapid change, business turnarounds, retrenchment, longitudinal*

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INTRODUCTION

Deconstructing various elements of organizational distress remains an important goal for management researchers and practitioners as firms must continue to adjust to the complex realities of today's business environment. Ongoing research continues to raise questions regarding the turnaround process and the necessary steps to take to improve performance (Barbero, Di Pietro, & Chiang, 2017; Schweizer & Nienhaus, 2017; Trahms, Ndofor, & Sirmon, 2013; Wang & Bai, 2021). Corporate turnarounds entail complex processes and comprise series of responses to environmental exigencies. In order to understand the effect of turnaround strategies, one must understand the environmental characteristics and nature, speed, and timing of those responses (Barbero et al., 2017; Barbero, Martínez, & Moreno, 2020; Schmitt, Raisch, & Volberda, 2018).

Environmental velocity, or rate of change, has become of increasing importance to strategists and researchers as escalating turbulence of the environment is deemed to impact organizations (McCarthy, Ian P and Lawrence, Thomas B and Wixted, Brian and Gordon, Brian R, 2010; Schmitt, Barker III, Raisch, & Whetten, 2016). Researchers have investigated velocity in the decision-making of top management teams (Eisenhardt & Bourgeois III, 1988), or how rapid

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organizational adaptation and innovation is related to performance in high-velocity environments (Eisenhardt & Tabrizi, 1995). Generally, the research connotes that low-velocity environments permit managers to steadily construct and expand their understanding of the environment. Alternatively, high-velocity environments constitute rapid and erratic changes, making it challenging for top managers to develop a clear interpretation of their environment (McCarthy I. P., and Plangger, K., and Robson K., and Kietzmann J.H., and Pitt, L., 2019).

Understanding what works in environments characterized by rapid change is especially relevant to organizations in the midst of organizational distress. In the turnaround literature, the environment is considered to be one of the fundamental causes of distress and performance declines (Gilang, M., Pradana, Saragih, & Khairunnisa, 2018; Schmitt et al., 2018; Schweizer & Nienhaus, 2017). This research typically focuses on the association between some measure of environmental munificence, firm decline, and turnaround (Barker III & Duhaime, 1997). However, other aspects of the environment-strategy relationship, particularly those related to rapid change (i.e., velocity of change), have mostly been ignored in turnaround research. We suggest that understanding environmental velocity, with its emphasis on the rate of change, is of particular importance to declining organizations and their strategic turnaround processes. We argue that environmental velocity like munificence (e.g., (Agustí, Velasco, & Galán, 2021; Schmitt et al., 2016)) affects firm performance.

Additionally, in turnaround research, the concept of rapid change is not just an element of the organization's environment, but also a key attribute of organizational decline. Turnaround researchers have contended that the way an organization declines has an important influence on appropriate responses. Hofer (1989) suggests that when a firm is in the midst of a decline, a moment of truth occurs as its management realizes the seriousness of the situation, which can be called the crisis stage of decline. Hermann (1969) submits that firms experiencing a decline crisis have only a short time for altering the situation to obtain an advantageous conclusion. As the perceived crisis mounts, the time to search for a satisfactory solution dissolves (Billings, Milburn, & Schaalman, 1980). Although this logic has been researched, it has been tested mainly utilizing measures of decline severity, in terms of how close a firm has come to bankruptcy, as an indicator of decline crisis. The arguments as they relate to the speed of the decline and the appropriate timing of turnaround responses have not been tested (Barbero et al., 2017). Therefore, we consider change in the context of the environment and within the organization.

In their recent review of the turnaround literature, Schweizer and Nienhaus (2017) indicate that accounting for timing in the turnaround process is a research gap that needs to be addressed. The turnaround literature recently has been driven by situational factors (Rico, Pandit, & Puig, 2021; Lim, Celly, Morse, & Rowe, 2013), and turnaround is viewed as a phased and chronological process (e.g., (Abebe, Angriawan, & Liu, 2011; Arogyaswamy, Barker, & Yasai-ardekani, 1995)). Temporal qualities of retrenchment and turnaround research offer a richer theoretical and empirical explanation. Therefore, using a longitudinal, rather than a cross-sectional, research design provides more conclusive verification about the retrenchment–turnaround relationship (Schmitt et al., 2018).

We assert that this approach is a logical step in turnaround research, and we aim to add to this stream of exploration by focusing on the aspect of speed. Our research addresses declining circumstances and turnaround processes by scrutinizing the role of strategic actions by distressed firms. To investigate this, our study addresses two questions: Does industry context affect the process of turnaround? Do certain managerial actions affect the relationship between firm decline and strategic outcomes? Specifically, we consider the effect of rapid change in firm environments, the speed at which firms decline, and the influence of the timing of turnaround strategies on the turnaround outcome.

The structure of the paper is as follows: first we offer brief overview of the literature related to turnaround, velocity of change in the environment, and responses to declining purposes along with the hypotheses. We then discuss the sample and timeline of decline and response. We provide explanation of the measures used. We highlight our results, and then end with the discussion of the specific findings and the overall implication for research and practice.

THEORETICAL BACKGROUND AND FRAMEWORK

Many attributes of the environment, such as munificence, dynamism, hostility, and complexity, have been postulated as important in terms of their effects on organization performance and managerial action (McCarthy I. P., and Plangger, K., and Robson K., and Kietzmann J.H., and Pitt, L., 2019; Schmitt et al., 2016). In early studies of environments characterized by rapid change, high-velocity environments were defined as those categorized by "rapid and discontinuous change in demand, competitors, technology, or regulation, so that information is often inaccurate, unavailable, or obsolete" (Eisenhardt & Bourgeois III, 1988). The organizations that flourished in high-velocity environments were

those that possessed top management teams with successful conflict resolution and integration routines. In addition, fast decision-makers in these environments used more information and developed more strategic alternatives (Eisenhardt, 1989). Judge and Miller (1991) extended this work by examining decision speed and its influence on firm performance in differing contexts of environmental velocity, finding that decision speed is linked with better performance for firms in high-velocity environments. Siggelkow and Rivkin (2005) suggested that rapid environmental change and increased turbulence forces managers to improve their speed of responsiveness rapidly. More recently Garri et al. (2020) argued that in addition to internal antecedents such as corporate control style, external factors (i.e., environmental velocity) may also act as enablers (or inhibitors) of dynamic capabilities of organizations and subsequent performance.

As the research on environmental velocity indicates, the nature of the environment influences aspects of organizational strategy and performance. Wholey and Brittain (1989) maintain that "organizational theorists have generally agreed that there is some relationship between longitudinal environmental change and organizing problems." In one of the seminal studies on corporate decline and turnaround, Schendel, Patton, and Riggs (1976) established that declines in performance were the outcome of unfavorable environmental changes combined with organizational inefficiency or unsuitable competitive strategies. As stated earlier, these shifts usually are categorized by researchers in terms of the carrying capacity of environments and their ability to support a population of firms (D'aveni, 1989). Zammuto and Cameron (1985) classified the shrinkage of carrying capacity as either erosion (slow) or contraction (sudden), suggesting early on that the speed at which the environment's resources deteriorate matters. Both slow and sudden contractions have been postulated by respective researchers as likely settings for failure (Harrigan, 1980). Agustí et al. (2021) find that environmental predicaments, exert a significant influence on business efficiency transcending the basic consideration of the volume of assets or slack resources that companies own. Overall, these studies provide evidence that the pace of change (i.e., velocity) in the environment, in terms of its carrying capacity, is an important influence on failing firms.

Speed of change, in regard to turnaround, also has been researched relating to patterns of internal resource deterioration. D'aveni (1989) found patterns of organizational decline, which he classified as either sudden, gradual, or lingering, that were related to the timing of the consequences of decline (i.e., threat-rigidity responses). Even though these organizational patterns are similar to those that researchers have studied concerning the environment of declining firms, no explicit attempt has been made to link the two empirically.

It can be argued that rapid environmental changes would influence the deterioration patterns found in struggling organizations. Environmental change that is difficult to predict is more challenging in terms of organizational responses (McCarthy, Ian P and Lawrence, Thomas B and Wixted, Brian and Gordon, Brian R, 2010; Shahri & Sarvestani, 2020; Alatrash, 2018). When facing rapid change, there is less time for decision-making, resource allocations, and other moves that enable firms to respond effectively to the environment. In turbulent settings, firms need to be able to respond speedily to change, and many firms do not have the proper design or capacity for making appropriate improvements (Siggelkow & Rivkin, 2005). In keeping with these arguments, the following hypothesis is offered:

H1: *Declining firms in high-velocity environments are more likely to experience sudden declines than firms in low-velocity environments.*

A related area, in the study of velocity, concerns the effects of rapid changes on the actions of declining organizations. An organizational decline occurs/manifests due to a misalignment between firms' changing environmental demands and existing resource configurations, which initiates the need for corrective activities. The most utilized firm response to decline is that of retrenchment (Barbero et al., 2020; Schoenberg, Collier, & Bowman, 2013). Retrenchment is an efficiency-oriented strategy that shrinks the scope of business (asset retrenchment) or decreases its expenses (expense retrenchment) (Chen & Wei, 2017; Lim et al., 2013). Robbins and Pearce (1992) maintain that retrenchment is an appropriate strategy for all firms undergoing decline. Morrow Jr, Sirmon, Hitt, and Holcomb (2007) refine this argument by concluding that specifically, expense retrenchment is positively related to improved performance. Pearce and Robbins (1994) state that this is the first step toward a turnaround, arguing that after the firm's survival is determined, a business can redirect remaining resources toward more promising opportunities. More recently, (Wang & Bai, 2021) find positive effects of new product introductions, asset and cost retrenchment on turnaround achievement.

Even though retrenchment is regarded as an essential strategy for firms in distress, this does not imply that every firm undertakes this action. Prior turnaround studies postulated that the environmental conditions influence firms' restoration and corrective actions and that firms' strategic responses vary depending on the industry, competition, and

decline situations (Shahri & Sarvestani, 2020; Zammuto & Cameron, 1985). Many times, these strategic responses depend on the managerial perception and interpretation of the decline situation (Schmitt et al., 2016). In situations of sudden decline, there is greater certainty (or less ambiguity) related to the misalignment between the organization and environment (Robert Mitchell, Shepherd, & Sharfman, 2011). In these circumstances, managerial interpretation is more important and drives appraisal of the exigencies stemming from decline, consideration of alternate strategic prospects, and its conversion into deliberate choices (Schmitt et al., 2016).

As stated earlier, for firms in crisis, there a sense of threat to the organization and a keen awareness of time pressures (Barbero et al., 2017; Hermann, 1969). It can be argued that without perceived time pressures, the problem situation will be systematically misinterpreted, or even evaded by decision-makers and left to the future (Billings et al., 1980). Several arguments have been made in the literature about why firms undergoing gradual declines have weaker decline responses than firms in crisis. Richardson, Nwankwo, and Richardson (1994) summarize these, including cultural rigidity, complacency, search for compromise, and top management blindness.

Barker and Mone (1994) indicate that many firms do not retrench, and those that do are taking only actions that are, at best, temporary stopgap measures. However, they admit that retrenchment is appropriate for firms in the midst of a survival crisis. This reasoning is in keeping with other researchers who suggest that the severity of decline has a major impact on a firm's turnaround response, and is more likely to precipitate urgent management action than milder downturns (Pearce & Robbins, 1994; Schendel et al., 1976; Schmitt et al., 2016). Firms with a sharper decline in performance were more probable to "employ retrenchment actions as a form of triage" (Trahms et al., 2013). We argue that perceptions of crises will be stronger for firms that experience sudden declines than for those experiencing gradual declines, and thus, be more likely to take action (i.e., retrenchment) that will alleviate the hardships. Based on this discussion, the following hypothesis is offered:

H2: *Firms experiencing sudden declines are more likely to retrench than firms in gradual declines.*

Assumptions about the nature of decline are important to organizational theory in general because they impact decision-makers' selections related to resource allocation and arranging, timing, and urgency of organizational actions (Trahms et al., 2013). Billings et al. (1980) state, "the precise nature of the time pressure will dictate the particular behavioral response." Rico et al. (2021) conclude that spontaneous and ubiquitous retrenchment is not a general remedy to achieve turnaround and should only be implemented as a measured response to decline. Because retrenchment can be categorized as either asset or expense retrenchment, we expect that the type of decline would influence differing organizational responses. Lim et al. (2013) find that cost retrenchment is more effective in industries focusing on exploitative capability, and asset retrenchment is associated more with promising results in industries that reward explorative strategies. Robbins and Pearce (1992) specify that asset retrenchment is more long-term in nature, whereas expense retrenchment addresses short-term, critical revenue needs. Typically, the reduction of assets involves solutions to problems such as selling off manufacturing equipment or unprofitable business units. If the corporate failure is serious, fiscal or time limitations might reduce the ability of managers to sell off assets (Schmitt et al., 2016). It follows that, due to the nature of assets, their sell-off would occur more gradually than the reduction of expenses such as inventories or administrative costs. By examining retrenchment further, we can determine if, in fact, different types of time pressures do, indeed, dictate a specific type of decline response. The following hypotheses are proposed:

H3: *Firms experiencing sudden declines are more likely to reduce expenses than assets.*

H4: *Firms experiencing gradual declines are more likely to reduce assets than expenses.*

The velocity of the environment has been suggested to affect not only organizational strategies, but also the nature of outcomes (Garri et al., 2020; Nadkarni & Barr, 2008). Eisenhardt (1989) and Judge and Miller (1991) profess that success in high-velocity environments is related to rapid strategic decision-making. We contend that firms in high-velocity environments must have the necessary skills to make prompt responses to unremitting environmental changes. Studies by Revilla, Prieto, and Prado (2010) and Wang and Bai (2021) propose that central features and exigencies of high velocity environments require firms to develop better processes to generate sophisticated learning about the environment. Such learning experiences and knowledge repositories can seed new, situation-specific understanding and heighten the certainty of their predictions, take the right course of actions, and strengthen their turnaround efforts that may produce better results (Barbero et al., 2020; Wang & Bai, 2021). As mentioned before, the focus of this study is to test whether such arguments hold true in the context of declining firms and turnaround. We argue that declining firms in high-velocity environments that make swift responses to decline are more likely to

improve performance than firms that take prompt actions in low-velocity environments. This assertion reflects the fundamental importance of rapid strategic actions in order to keep pace with the rate of change within the environment. It also proposes that in low-velocity environments, other determinants of performance are likely to be more important.

As previously indicated, retrenchment is a primary response to a decline in the turnaround literature. Robbins and Pearce (1992) state that retrenchment should be the initial action taken by the firm in order to achieve stability and gain the resources for attempting further turnaround strategies. Research has shown that expense and asset reductions are consistently of value, in terms of the eventual turnaround performance of the firm (Lim et al., 2013; Robbins & Pearce, 1992). As retrenchment is considered the primary decline response taken by the firm, it is perhaps the most relevant strategic action concerning the examination of environmental velocity and turnaround. Therefore, based on this discussion, the following hypothesis is submitted:

H5: *Speed in undertaking a retrenchment strategy is related positively to a firm's turnaround as the velocity of its environment increases.*

H1 states that declining firms in high-velocity environments are more likely to experience sudden declines than firms in low-velocity environments. If this relationship holds true, then it is very likely that prompt actions are necessary, not only for declining firms in high-velocity environments, but also for firms experiencing rapid internal resource deteriorations (Eisenhardt & Tabrizi, 1995). In this situation, the nature of a firm's decline would dictate how important the speed in implementing turnaround strategies is to turnaround performance (McCarthy I. P., and Plangger, K., and Robson K., and Kietzmann J.H., and Pitt, L., 2019). We argue that speed of response has a similar, but distinct, relationship with external changes and rate of decline. Increases in either change would require greater speed of response. In keeping with this logic, the following hypothesis relates to the rate of decline:

H6: *Speed in undertaking a retrenchment strategy is related positively to a firm's turnaround as the rate of decline increases.*

RESEARCH METHODOLOGY

Sample Description

A key component of any turnaround research is to develop an accurate sample of firms that have undergone continuous decline over a period of time (Abebe, 2012; Lim et al., 2013; Robbins & Pearce, 1992). This enables researchers and practitioners to have a richer understanding of the retrenchment actions of organizations facing decline. The literature advocates several criteria that should be met for doing this. Management researchers have suggested focusing on certain businesses at precise points in time as appropriate situations for theory building and testing. Some industries provide unique structures and approaches of competing that allow the testing of theories under more suitable circumstances (Ndofor, Vanevenhoven, & Barker III, 2013; Nadkarni & Barr, 2008). For example, Morrow Jr et al. (2007) use all single-product manufacturing firms from 1982 to 1994 in the COMPUSTAT database for their 2007 study.

Our study sample is drawn from industrial and commercial machinery and computer equipment manufacturing firms present in SIC group 35. This allows the inclusion of different industry segments in order to test the hypotheses, and includes heavy manufacturing as well as electronic, providing industry breadth to the sample, while at the same time limiting the broadness of the categorizations. The timeframe of the sample goes back twelve years, allowing sample firms a suitable amount of time for performance declines and strategic responses (Nguyen Huy, 2001). Strategic management researchers suggest for the aim of examining turnaround efforts; if we study the activities of distressed firms in industries through a time period of a wide range of environmental conditions without any major negative event (such as 9/11 or the great recession of 2008), we then can largely control for one of the two main sources of decline. Morrow Jr, Johnson, and Busenitz (2004) used the time period between 1980 and 1995, as it incorporates times of both growth and downturn, the contraction occurring earlier. Lim et al. (2013) utilize a sample of Japanese firms in the years 1992-1997 in their longitudinal study on retrenchments and their effect on firm performance three years later (i.e., 1995-2000). Abebe (2012) study on environmental scanning, used 70 U.S. manufacturing firms that experienced serious performance deterioration and subsequent turnaround between 1990 and 2000. Lastly, Liang, Barker, and Schepker (2018) analyze the time period between 1987 and 2005. Liango study turnaround strategies and CEO cognition. During the 1986-1998 time frame, when our sample firms deteriorated, U.S. industries remained stable or grew (U.S. Census Bureau, 1999). Therefore, we can attribute the decline to mostly firm-based causes (Arogyaswamy et al., 1995). In

other words, we can largely exclude industry contraction-based failure, and would facilitate the testing of a theory under more ideal conditions. The firms examined in this study met the following performance criteria:

1. Two successive years of Return on Investment (ROI) above the risk-free rate of return. ROI has been used as a primary measure for delineating declining firms (See (Barbero et al., 2020; Hambrick & Schecter, 1983; Robbins & Pearce, 1992)). The return rate for six-month U.S. treasury notes at auction was used as a proxy for the risk-free rate (Barker III & Duhaime, 1997). This requirement ensured that firms had some years of good performance before entering decline. Excluded from the sample were firms that were continually failing.

2. At least three successive years of ROI under the risk-free rate. According to Porter (1980), a firm is deteriorating in economic terms if it does not earn a return greater than the risk-free rate.

3. At least one year within the three years of decline with a negative net income. This is an extra conservative benchmark and denotes a firm's inability to cover its costs (Francis & Desai, 2005).

The initial phase of the study applied the above-mentioned criteria to the COMPUSTAT database and determined 110 potential participants for the study. Data then were collected for each of the hypothesized constructs. Organizations for which some aspect of the required data was not available were removed, yielding a final useable sample of 97 firms. The study collected data at four points in time on a firm-by-firm basis. Time 1 included the year of top performance in the two years preceding the downturn. Time 2 included the year in which the sample firm's decline attained its lowest point. Time 3 measured the year when asset and expense reductions were discontinued. If no reduction was undertaken, then this point equaled the year in which the elapsed time was equal to a firm's average turnaround time of three to four years, as recommended by Robbins and Pearce (1992). Time 4 indicated each firm's turnaround performance, and was considered successful if a firm's ROI had increased above the risk-free rate of return for at least two consecutive years. The study analyzed the data of 97 companies for four years per company, which led to a total of 388 firm-year observations (97 X 4). The time lag permits us to make a possible argument for causal interpretations of the results of numerous managerial initiatives.

Variables and Measures

Environmental velocity, a critical element of this research, concerns the pace of change occurring within a firm's environment. In order to operationalize the environmental velocity of the sample of declining firms, this paper follows the examples of Bourgeois III (1985) and Snyder and Glueck (1982) for measuring environmental constructs with objective measures. Many researchers generally agree that attributes such as market and technological information are appropriate for objectively assessing environmental constructs (McCarthy, Ian P and Lawrence, Thomas B and Wixted, Brian and Gordon, Brian R, 2010; McCarthy I. P., and Plangger, K., and Robson K., and Kietzmann J.H., and Pitt, L., 2019; Nadkarni & Barr, 2008).

We gathered industry information for each firm. Initially, each firm's industry participation was determined at Time 2, which is the critical period of decline. COMPUSTAT was used to ascertain each firm's reported 4-digit SIC code. Of the 97 firms in the sample, all but eight had at least two-thirds of its sales in one 4-digit SIC industry. For these eight firms, each of their major industries was identified, along with the percentage of firm sales attributed to each.

As organizational environments are composed of multiple dimensions (McCarthy, Ian P and Lawrence, Thomas B and Wixted, Brian and Gordon, Brian R, 2010; Nadkarni & Barr, 2008), we captured three distinct industry attributes. Sales velocity and employment velocity were measured in terms of changes in industry sales and employment. Specifically, the sum of the total industry variations from year to year was divided by the number of time periods measured. Previous researchers that measured environmental constructs (Bourgeois III, 1985; Snyder & Glueck, 1982) have used both of these types of industry data. Data for industry sales and employment were collected from the Predicasts Industry Reports for each required 4-digit SIC code for the five years prior to each firm's Time 2. Similar formulas were used to calculate both these measures (for sales and for employment). An example of the formula for sales is shown in Equation 1.

$$\sum_{i=1}^{x} = \frac{(y_2 - y_1)^2 + \ldots + (y_x - y_(x-1))^2}{x-1} \tag{1}$$

where: x is the number of years being considered,

y is sales for the industry in each of the x years.

Technological velocity is captured by summing the change for an industry from year to year in the ratio of R&D expenditures and capital expenditures to total assets for firms per industry divided by the number of time periods measured. Data for the industry information used to calculate technological velocity was gathered from the COMPUSTAT database. This process of measuring technological change also is consistent with previous research (Bourgeois III, 1985; Snyder & Glueck, 1982). The formula used to calculate this measure is shown in Equation 2.

$$\sum_{i=1}^{x}\left(\frac{a_2+b_2}{c_2}-\frac{a_l+b_1}{c_l}\right)^2+\ldots+\left(\frac{a_x+b_x}{c_x}-\frac{a_{x-l}+b_{x-I}}{c_{x-1}}\right)^2 \quad (2)$$

where: x is the number of years being considered,

a is the R&D expenditures for the industry in each of the x years,

b is the capital expenditures for the industry in each of the x years,

c is the total assets for firms in the industry in each of the x years.

Rate of Decline captures the suddenness of decline for sample firms, and was measured in terms of the number of years it took a firm to go from a healthy financial position at Time 1 to the lowest point of the decline phase at Time 2. The lesser the number of years, the more sudden the rate of decline was (Robbins & Pearce, 1992).

Four different aspects of retrenchment were included in the analysis. Overall retrenchment was calculated as a combination of expense and asset reductions gathered from firm financial data at Time 2 and Time 3 (Francis & Desai, 2005; Robbins & Pearce, 1992). Expense retrenchment was said to have ensued if the firm's Total Expenses were diminished during this time frame. Asset retrenchment transpired if the firm reduced Total Assets over this equivalent time period. In order to generate continuous variables, the variables were computed as:

Expense Retrenchment = (Expenses Time 3/Expenses Time 2) - 1

Asset Retrenchment = (Assets Time 3/Assets Time 2) – 1

Thus, a negative value for these variables indicates retrenchment, whereas a positive value denotes an increase in assets or expenses over this time period (Francis & Desai, 2005). The value itself equals the percentage change in either assets or expenses from Time 2 to Time 3. Measuring retrenchment as reductions in total assets and expenses has been utilized by several turnaround researchers, and is considered an appropriate measure for testing hypothesized relationships (See (Barker & Mone, 1994; Morrow Jr et al., 2004).

Retrenchment Speed is another aspect of retrenchment and concerns the time period involved in reacting to the decline of the firm and initiating a response through a retrenchment strategy. This variable was operationalized in terms of the number of years between the initial start of firm decline (i.e., the year following Time 1) and the initial year of expense or asset reduction.

DATA ANALYSIS AND RESULTS

Descriptive statistics for each of the variables are reported in Table 1. The average time of the sample firms for Rate of Decline was 3.01. This means that these firms went from a healthy financial position to a serious state of decline in 3 years. The average time that they started some form of retrenchment was 2.89 years, with a standard deviation of 1.21 years. The Rate of Decline and Retrenchment speed are correlated as well. Table 1 also indicates that Employment and Sales Velocity are correlated. Other correlations are significant between Rate of Decline and Employment Velocity, Asset and Expense Retrenchment. The initial hypothesis, which argued that declining firms in high-velocity environments would experience sudden rates of decline, was tested by regressing environmental velocity on the rate of decline. This test included each of the individual measures of velocity. As Table 2 indicates, the results partially support the hypothesis. Firms in environments of high degrees of sales velocity (β = 0.083, p < .00) and employee velocity (β = 0.184, p < .00) are more likely to experience sudden declines. The coefficients for these were significant at the .001 level while the coefficient for technology velocity (β = 1.897) was not significant.

Table 1 *VARIABLE DESCRIPTIVE STATISTICS AND CORRELATIONS*

	Mean	*SD*	1	2	3	4	5	6	7
1. Employment Velocity	3.57	2.15							
2. Sales Velocity	7.85	4.24	.472**						
3. Technological Velocity	0.01	0.09	-.021	.150					
4. Retrenchment Speed	2.89	1.21	-.098	-.131	.122				
5. Asset Retrenchment	0.04	0.54	-.068	.219*	-.015	.030			
6. Expense Retrenchment	0.04	0.50	.005	.067	.081	.148	.581**		
7. Rate of Decline	3.01	1.05	.214*	-.131	.098	.439**	-.275**	-.202*	
8. Turnaround	1.47	0.50	-.102	-.087	.097	.170	.147	-.211*	-.070

*$p < .05$; **$p < .01$

Table 2 *REGRESSION ANALYSIS OF ENVIRONMENTAL VELOCITY ON RATE OF DECLINE*

Variables	Unstandardized B (Standard Error)	Standardized B
Employment Velocity	.184 (.056)	.373***
Sales Velocity	-.083 (.029)	-.331**
Technological Velocity	1.897 (.218)	.158
F-value		4.677**
R^2		.139
Adjusted R^2		.109

**$p < .01$; ***$p < .001$

The second hypothesis proposed that retrenchment is more likely for firms experiencing sudden declines. This hypothesis focused on overall retrenchment and the rate of firm decline, whereas H3 and 4 dealt with specific types of retrenchment. In order to test these hypotheses whether firms are more likely to attempt retrenchment in general (H2) and expense retrenchment in response to a sudden decline (H3) and asset retrenchment when the decline is gradual (H4), the sample of firms was divided into three groups based on the decline profile. Group 1 included firms whose decline equaled 2 years or less. Group 2 included firms of decline of 3 years. Group 3 included firms of decline of 4 years or greater. The differences in overall, asset and expense retrenchment for these three groups were tested using analysis of variance. A one-way ANOVA revealed that there was a statistically significant difference in mean score between at least two groups for all three variables–retrenchment (F (2, 95) = 3.120, p = .048), asset retrenchment (F (2, 95) = 4.727, p = .011), and expense retrenchment (F (2, 95) = 2.702, p = 0.072).

Table 3 *RESULTS OF ANOVA OF RETRENCHMENT ON RATE OF DECLINE*

	Rate of Decline				
Variables	Sudden Group 1 (1-2years) n = 36	Moderate Group 2 (3 years) n = 31	Gradual Group 3 (4-7 years) n = 30	*F*-Ratio	*F*-Prob
Retrenchment[a,b]	2.667*	2.709*	3.333*	3.120*	.048
Asset Retrenchment[a],	-.228*	.020*	.163*	4.727	.011
Expense Retrenchment[a]	.127*	.069*	-.145*	2.702	.072

Groups significantly different at .05 (Duncan & LSD); [a] Groups 1 & 2 are significantly different from Group 3; [b] Groups 1 & 3 are significantly different from each other

Furthermore, Table 3 reports results for post hoc tests. Duncan's test for multiple comparisons found significant differences for the suddenness of decline between Group 1 (2.667) and Group 3 (3.333) on overall retrenchment at the .05 level supporting H2. Additionally, both asset and expense retrenchment were significantly different for Groups 1 (-.228) and 3 (.163) at .05 level using the Duncan's test. For Group 1-Sudden Declines, expense retrenchment is positively associated (.127), whereas asset retrenchment is negatively associated (-.228), signifying support for H3. The results also support H4. For Group 3-Gradual Declines, asset retrenchment is positively associated (.163), whereas expense retrenchment is negatively associated.

H5, which proposed that the speed of implementing retrenchment is imperative for firms in high-velocity environments and their turnaround performance, was tested using regression analysis. Results are reported in Table 4 (See columns for H5-Velocity on Turnaround). The different types of velocity (employment, sales, and technological) were regressed with retrenchment speed on turnaround performance, with only a significant negative relationship for sales velocity (= - 0.248, $p < .05$) and turnaround being reported. The other two components of high velocity employment (= .028) and technological (= 0.160) were non-significant. This finding suggests that it may be more difficult to achieve turnaround in high sales velocity environments, yet other forms of velocity are not significant. Table 4 also indicates that speed in taking retrenchment actions (= 0.046) in and of itself did not impact turnaround, nor were the interaction variables of retrenchment speed and employment velocity (= 0.030), sales velocity (= -0.150), and technological velocity (= 0.001) significant. In other words, quickly undertaking retrenchment, including high-velocity environments did not appear to influence turnaround performance.

H6 predicts that retrenchment speed influences turnaround when the rate of decline is sudden. This was tested in a separate model in which rate of decline was regressed with retrenchment speed on turnaround performance. The results of the full model including the interaction term are reported in Table 4 (last column). The results indicate that faster rates of decline (β = -.414, $p < .00$) are negatively related to turnaround. More importantly, the results show a significant interaction (β = 0.785, $p < .00$) between retrenchment speed and sudden rates of decline to turnaround success. Based on the results, support is found for H6.

Table 4 *REGRESSION OF VELOCITY AND RATE OF DECLINE ON TURNAROUND*

	Dependent Variables							
Independent Variables	H5 (Velocity on Turnaround)				H6 (Rate of Decline on Turnaround)			
	A	B	A	B	A	B	A	B
Retrenchment Speed	.046 (048)	.113	.080 (.129)	.197	.092 (.052)	.226*	-.144 (.126)	-.354
Employment Velocity	.006 (.030)	.028	-.002 (.050)	-.032				
Sales Velocity	-.029 .016)	-.248*	-.018 (.030)	-.151				
Technological Velocity	.810 (.613)	.160	.916 (.662)	.181				
Retrench Speed x Employ Velocity			.003 (.034)	.030				
Retrench Speed x Sales Velocity			-.007 (.016)	-.150				
Retrench Speed x Tech Velocity			-.014 (.332)	.001				
Decline Rate					-.060 (.060)	-.128	-.195 (.089)	-.414**
Retrench Speed X Decline Rate							.069 (.034)	.785**
F-value		1.664		1.116		1.598		2.496**
R^2		.090		.093		.042		.094
Adjusted R^2		.036		.010		.016		.056
Change R^2				.003				.052**

DISCUSSION

Turnaround scholars have long indicated the importance of the environment on declining firms and the nature of the crisis they find themselves in (Hofer, 1989; Shahri & Sarvestani, 2020; Trahms et al., 2013). More recently, researchers have called for more longitudinal designs as they are more conducive for observing the timing, progression, and performance effects of diverse strategic turnaround undertakings (Abebe et al., 2011; Barbero et al., 2017; Schmitt et al., 2018). In addressing this under-researched area, this paper focuses on understanding rapid changes related to organizational decline, and on capturing the influence of the speed at which declining firms respond to these rapid

changes. Second, our study has been built by blending dual scopes of corrective turnaround activities, the type of activity and timing of activity. We contribute to improving the understanding of the turnaround outcomes and performance implications of decline stemming strategies in several ways. We examine two specific contextual measures that assess rapid changes: environmental velocity and decline speed. Environmental velocity generally refers to the speed of change in a firm's environment. Decline speed is the speed at which a firm declines from healthy performance to a crisis situation. We examine the interrelationship of these two types of change and their influence on turnaround performance. We believe, with this knowledge, insights can be gained into the response processes of declining firms, especially concerning the timing and types of turnaround actions.

Our findings suggest that certain attributes of the environment influence not only the speed of firm decline but also the type of turnaround strategies pursued by the organization. Overall, our results provide support for several of the hypothesized relationships and prior research (e.g., (McCarthy I. P., and Plangger, K., and Robson K., and Kietzmann J.H., and Pitt, L., 2019; Nadkarni & Barr, 2008)). First, environmental velocity does affect the speed at which a performance decline occurs. Firms in high-velocity environments are more likely to experience sudden rates of decline. This relationship indicates that rapid, discontinuous changes in the environment are associated with the swift deterioration of firm resources. Performance downturns resulting from strategic mistakes or increased competition are likely to have immediate ramifications for firms in these environments. However, as we measure velocity in different forms, it is worth noting that only rapid changes in industry revenues and employment relate to sudden declines. Speed in technological change does not appear to have a relationship to sudden declines. One explanation is the nature of the different types of velocity we measure (as theoretically articulated well by (McCarthy I. P., and Plangger, K., and Robson K., and Kietzmann J.H., and Pitt, L., 2019)). Employment and revenue velocity can be considered outcomes of industry performance. When the performance of an industry is changing rapidly, in terms of revenue or employment downturns, it has an effect on a struggling firm's decline. Alternatively, technological change, as we measured, was related to inputs in R&D and capital expenditures that firms in the industry are making. This form of change does not measure outcomes, but instead captures the emphasis industry firms are placing on technology. Researchers have long considered the time lag effects of investments in technology on business performance (Bar-Ilan & Strange, 1996; Lee & Kim, 2006). Investments in technology are intended to have payoffs through innovative products or processes, yet it is likely that these outcomes would take time and that their impacts would be delayed.

The second set of hypotheses examines the specific types of turnaround strategies that firms undertake in response to their respective rates of decline. The results provide evidence that firms experiencing rapid declines are more likely to implement retrenchment strategies and to quickly address the performance downturn. This is consistent with Robert Mitchell et al. (2011), who find that in turbulent environments, managers are able to tune out interferences more readily and make more consistent decisions. Specifically, these firms are more likely to cut expenses than assets. This finding adds further evidence to the recent affirmations made by Rico et al. (2021) and Barbero et al. (2017) related to ineffectiveness of asset retrenchment in stemming decline. Expense retrenchment is involved in reducing costs such as salary reductions, employee layoffs, downsizing, or eliminating other expenses. In sudden declines, it seems that reducing costs, whether they are salary-related or SG&E, is easier and faster than asset retrenchment that involves the time it takes to sell off property, plants, equipment, business units, or other types of assets. In these situations, it is likely that firms understand the nature of the crisis that they are involved in, and thus, not defer taking the critical strategic actions necessary to maintain their survival.

In contrast, firms undergoing declines that are more gradual are more likely to initiate realignment in the asset structures of their organizations. They may realize that they have the time necessary to remove or change outdated technologies and manufacturing processes that are more readily attributable to the primary source of the decline. The results do indicate that in gradual decline situations, managers focus more on long-term solutions to solving organizational performance downturns.

Even though the hypothesized association between the timing of retrenchment actions and turnaround performance in high-velocity environments was not found to be significant, the results do indicate that high-velocity environments, as measured in rapid changes in industry revenues, negatively influence turnaround in general. When industries revenues are changing, particularly in an undesirable direction, it is more difficult for firms to improve their performance, which is in keeping with IO economist arguments that industry structure inordinately influences firm performance (Morrow Jr et al., 2007; Porter, 1980). Specifically, industry velocity measured as changes in revenues impacts a firm's ability to perform by creating conditions where there is less time for firms to formulate appropriate responses to a decline. Our

findings imply that even implementing retrenchment strategies very rapidly does not help in achieving a turnaround in these environments.

Lastly, we examined the relationship between retrenchment speed and turnaround in situations of rapid decline. The results of our study provide support for our arguments that rapid retrenchment is necessary when firm declines are very sudden. Our analysis reveals that rapidly declining firms that take action quickly are more likely to turnaround. This finding provides important evidence that not only must a firm choose an appropriate turnaround strategy, but also that the rapidity by which these retrenchment strategies are chosen and implemented in a highly distressing situation (regardless of the type of environment) is an important aspect of its turnaround effort. This finding is consistent with previous research (Eisenhardt, 1989) that speed in strategic decision making and execution is an important consideration for firm performance. Our results also complement the findings of Barbero et al. (2017) who argue that the timing of retrenchment activities affects turnaround performance more than the volume of retrenchment. In addition, our study goes one step beyond by linking speed of retrenchment to nature of decline. One caveat against speed in strategy has been that moving fast and in the wrong direction can be a problem (Walcott, 2017). However, because the turnaround literature has long argued that retrenchment in the midst of performance declines is a ubiquitous response for all firms (Robbins & Pearce, 1992), it appears that this criticism is less germane.

IMPLICATIONS AND CONCLUSION

In closing, we believe these findings augment the research and dialogue on corporate turnarounds in several key ways. This research has provided an important test of the relationships between the pace of change within the environment and in the firm, decline recovery strategies, and turnaround performance. Empirical studies have presented variances in the strategic actions of firms in high- and low-velocity environments (Eisenhardt, 1989; Nadkarni & Barr, 2008). In highlighting relationships between these variables, our study provides additional evidence that industry velocity affects the nature of decline, which, in turn, drives the speed of strategic actions. The overall implication is that an organization's turnaround process also needs to be compatible with the environmental situations. It may be more prudent to focus less on the resulting yield, and emphasize defining how fitting the restoration process is. Though taking rapid actions in high-velocity environments was not found to influence performance significantly, it was established that environmental velocity and rate of firm decline were related. In light of this, it could be argued that velocity affects retrenchment speed and turnaround performance indirectly by influencing the rate of internal resource decline. If this were the case, then rapid changes in the environment would hinder proper organizational responses by limiting the time in which the organization has the necessary resources available to make the appropriate decline response. However, with an indirect influence on these situations, the nature of problems associated with the source, and the pattern of a firm's own decline become the most important links between retrenchment speed and performance, and primarily what should be the concerns of managers, given these situations. Thus, we believe, that managers should deliberate the velocity settings of their industry when framing and executing strategic activities initiatives.

Our results provide important understandings related to the timing (as in when) of implementation of specific retrenchment strategies (either asset or cost retrenchment) in order to prove beneficial. In times of increasing environmental velocities in multiple industries, these results are significant for firms in decline aiming for a successful turnaround. It is our expectation that this study will encourage renewed/continued attention to the multifaceted relationships in corporate turnaround research, specifically between dynamic environmental situations, firm undertakings, and performance outcomes.

LIMITATIONS AND FUTURE RESEARCH

As in any turnaround research, our empirical study is not without limitations. First, we rely wholly on secondary data. We acknowledge that findings regarding turnaround processes can be augmented using surveys and interviews of managers and other stakeholders. In considering the limitations of this research, our sample consisted of companies from one sector, which may limit its generalizability. Thus, we can proffer our conclusions only to firms from industries with comparable characteristics. In addition, our study developed three measures of environmental velocity: sales, employment, and technological. Our measure of technological velocity did not provide significant associations with any of the variables in our study. Future research should explore additional conceptualizations and measurements of velocity. Lastly, the concept of speed in strategic decisions should continue to be studied to understand under what context this attribute of decision-making is relevant.

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