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Resource and Attention Adaptation after Crisis

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Abstract

One of the main challenges for firms is to adapt to a crisis situation. However, we do not know enough about how successful firms adapt their resources and attention after a crisis. Based on a sample of large US and EU passenger airlines, we systematically examine such adaptation along the two dimensions: resources and attention. We are interested in the breadth of focus to strategic variables within each one of these two dimensions and the consistency across resource and attention adaptation. Our findings have important implications for strategic adaptation.

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Resource and Attention Adaptation after Crisis

ABSTRACT

One of the main challenges for firms is to adapt to a crisis situation. However, we do not know enough about how successful firms adapt their resources and attention after a crisis. Based on a sample of large US and EU passenger airlines, we systematically examine such adaptation along the two dimensions: resources and attention. We are interested in the breadth of focus to strategic variables within each one of these two dimensions and the consistency across resource and attention adaptation. Our findings have important implications for strategic adaptation.

Key words: adaptation, attention, change, resource, strategic fit.

Resource and attention reconfiguration after crisis

INTRODUCTION

According to the foundational literature in strategic management (Andrews, 1971; Ansoff, 1979; Chandler, 1962), exceptional sustained performance is associated with a firm's ability to adapt to the environment as it changes. In particular, discontinuous changes in the environment are often seen as necessitating substantial adaptation on the part of firms in order to survive, and firms that do so effectively are more likely to survive and prosper despite disruptive events (Chakravarthy, 1982). The inability to change, by contrast, is viewed by much of the strategy literature (and the MBA level core strategy course) as a pathology that needs to be cured by proper management. Adaptation in response to discontinuous change is usually seen in terms of designing more appropriate resource allocation (Burgelman, 1983, 1991). However, the empirical results regarding strategic adaptation are rather mixed and the process of strategic adaptation is not well understood (Jennings and Seaman, 1994).

The reaction of organizations in response to external shocks concerns the adaptation of attention and resource allocation. First, an attention-based view of the firm (Ocasio, 1997) has the potential to help understand this puzzle surrounding the process of strategic adaptation and its relationship to outcomes because "... an attention-based view of the firm provides a unified process-based explanation for the conflicting findings of both inertia and successful adaptation in organizations" (Ocasio, 1997: 202). Due to limits of information processing, organizational decision makers have to *selectively* attend to strategic issues (Ocasio, 1997; 2011).

While the necessity of selectivity is widely recognized in the literature (Ocasio, 1997), the actual mechanism of selection of attention is less investigated. The problem of selectivity is exacerbated by the fact that various strategic concepts that an organization can attend to are interrelated and form a configuration (Siggelkow, 2001, 2002). This implies that the core elements of a firm's strategy are coherent or consistent.

Furthermore, Ocasio argued that 'what decision-makers *do* depends on what issues and answers they *focus* their attention on'¹ (Ocasio, 1997: 190). Although the organizational acting and doing of firms are undisputable somehow related, the two are not always fully consistent (Barr *et al.*, 1992). Therefore, we further examine *whether* and *when* there is consistency between attention allocation and resource allocation. Specifically, we are interested whether more successful firms show greater consistency between their attention focus and their strategic resource allocation than less successful firms subsequent to an environmental shock. Only very few studies (e.g., Barr, Stimpert, and Huff, 1992) study how organizational attention relates to *actual* adaptation of resource allocation. However, the relationship between managerial attention / cognition and resource allocation has a great theoretical relevance as pointed out by Barr *et al.* (1992: 34): 'The link between mental models and patterns of resource allocation may be a potential addition to the resource-based view.' Attention and cognition have become very important areas in strategic management research (Kaplan, 2011; Narayanan, Zane, and Kemmerer, 2010; Ocasio, 2011). In line with recent reflections on the strategy process literature (Chakravarthy *et al.*, 2003; Hutschenreuter and Kleindienst, 2006), we argue that a tighter integration of considerations related to attention and cognition into the process of resource allocation adaptation promises very valuable insights.

¹ Emphases added by the authors.

We investigate the patterns of attention and resource adaptation based on a longitudinal study of eight major US and EU passenger airlines before and after the shock of 9/11/2001. Our paper is organized as follows. First, we discuss the theoretical background of our study and develop two main propositions. This is followed by the presentation of the method, findings, implications, and limitations leading to suggestions for future research.

THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

Adaptation of resource allocation

Bower and Burgelman suggested studying the resource allocation process (Bower, 1970; Burgelman, 1983, 1991). By viewing ‘realized strategy’ as a ‘pattern in a stream of decisions’ (Mintzberg, 1978: 934), strategies become consistencies in the behavior of organizations (Mintzberg and Waters, 1982). Noda and Bower (1996: 159) discussed strategy making as ‘iterated processes of resource allocation’. Therefore, research in this tradition has analyzed the patterns of resource allocation and has paid little to no attention to the organizational decision makers’ expressed intentions that underlie these resource allocations because they were seen as unreliable indicators of strategic action.

Adaptation of attention allocation

Building on assumptions of the strategy process literature (Bower, 1970; Burgelman, 1983), the *The Attention-Based View of the Firm* (Ocasio, 1997, 2011) provides further insights into the intentions and cognition underlying the strategy process. Since the attention-based view of the firm has been introduced to strategic management, there have been a numerous empirical studies. Table 1 lists the studies that are particularly relevant for the current paper.

----Insert Table 1----

Based on Simon (1947), Ocasio argues, ‘what decision makers do depends on how they *selectively* focus their attention on certain characteristics of the organization and its environment, and ignore others.’ (Ocasio, 1997: 203) Selective attention can explain firms’ adaptation behavior and outcomes: ‘Unlike either theories based on rationality or theories based on environmental determinism, an attention-based view of the firm provides a unified process-based explanation for the conflicting findings of both inertia and successful adaptation in organizations’ (Ocasio, 1997: 202). In line with Ocasio’s statement, we think that the study of attention promises great explanatory potential for successful adaptation. In the following, we address the two central areas discussed in this paper: (1) Breadth of focus in adaptation of attention and resources; (2) Consistency between attention adaptation and resource adaptation.

Breadth of focus in adaptation of attention and resources

Given generally limited human information processing capabilities, decision makers in organizations have to focus their attention on certain strategic issues and ignore others (Barr *et al.*, 1992; Kiesler and Sproull, 1982; March and Simon, 1958; Simon, 1947; Walsh, 1988). Rerup (2009) argues that attention is most effective if there is some stability of attention to issues: ‘[Attention stability] implies withdrawal from some things in order to deal effectively with others’ (James, 1982: 382 quoted in Rerup, 2009). The attention-based view of the firm (Ocasio, 1997) emphasizes the role of attention stability in organizations, which is generated through multiple, repeated, and focused scanning of a few key issues over time. Sustained attention is necessary to understand the complexity of certain issues. However, also an understanding of the inclusion and incorporation of one strategic variable into the overall

strategy is important (Rerup, 2009). Therefore, the attention to a limited set of strategic variables appears to be most promising.

Moreover, organizational decision makers need to prioritize certain strategic issues over others when it comes to *actual* resource allocation. This is particularly important when resources need to be shifted in response to environmental changes. It is evident that firms do not have unlimited resources. Resource constraints generally force firms to be selective regarding the elements of their strategy to be adjusted in response to an environmental shock.

However, there is a counterforce, i.e. that strategic issues are interrelated. In strategic management this view is referred to as strategic fit or *gestalts* (e.g., Levinthal, 1997; Mintzberg, 1978; Siggelkow, 2001/2002; Venkataraman, 1989). In line with Siggelkow, we see a firm's strategy as net of different strategic choices that vary in their importance over time but are interconnected and interdependent. Siggelkow (2001) followed Liz Claiborne's strategy adaptation and showed that, although very successful at one point in time, the strategy of this company has evolved into a tightly coupled system of strategic dimensions. When faced with the need for disruptive change, Liz Claiborne had a very hard time to executive this change. Siggelkow (2001) illustrated how the different clusters (product portfolio, presentation, marketing, design, production and distribution, selling prices) are tightly coupled and how this tight coupling made it hard for Liz Claiborne to change when the environmental conditions do. In a paper based on a case study of the Vanguard Group, Siggelkow (20002) demonstrated how such a tightly knit web comes about and identified two different successful evolutionary patterns of such strategic webs. Porter (1996: 173) presents a model of the elements of Southwest Airlines' activity system (e.g., limited passenger service, short-haul, standardized fleet) in a tightly coupled structure. He illustrated with this example how difficult it is for competitors to

imitate Southwest Airlines. Given the pressures of tight coupling for successful companies, we expect highly successful firms to focus their attention and resource allocation to a small set of strategy variables after environmental shocks such as 9/11. Therefore, we propose the following:

Proposition 1: When confronted with the shock related to 9/11, higher performing organizations show a focus on fewer variables in attention and resource allocation than lower performing organizations.

Consistency between attention adaptation and resource adaptation

Although attention is discussed widely (Ocasio, 2011), there are few systematic comparisons between strategic attention and strategic resource adaptation. With their analysis of competitive attacks in the airline industry spanning from 1993 to 1999, explicitly excluding the Gulf war and September 11, Marcel *et al.* (2010) provide, in theory, such a comparison between managerial cognition and strategic action. Those authors identified six competitive actions (pricing, route, ticketing, collaboration, service, and cargo-related actions) and matched these actions with the retaliation actions as coded from Aviation Daily. An important limitation of Marcel *et al.*'s study is that the same data source (i.e. the text in Aviation Daily) underlies the measure of managerial cognition and the measure of retaliation suggesting common methods bias. In addition, based on the text record of retaliation intentions, we cannot say whether these intentions materialized or not. In other words, we cannot be sure whether the companies have indeed reacted to competitors' attacks. Therefore, Marcel *et al.*'s paper does not measure *actual* strategic action.

Other papers (e.g., Barr *et al.*, 1992; Kaplan, 2008; Nadkarni and Barr, 2008; Thomas, Clark, and Gioia, 1993) are interested in certain aspects of this process relating attention and strategic action, but do not systematically compare the consistency between attention and

resource adaptation. It seems that it is taken for granted that firms' cognition is consistent with their strategic resource adaptation. However, what firms say and do is not necessarily consistent. We argue that the more aligned the attention and resource allocation – or in other words the saying and doing –, the more effective a firm is. We expect that high performing firms respond to a crisis such as the one caused by the events of 9/11 with higher alignment between attention and resource adaptation than firms lower performing firms. Hence, we formulate:

Proposition 2: When confronted with the shock related to 9/11, higher performing organizations show higher consistency between attention and resource adaptation than lower performing organizations.

SAMPLE AND METHOD

The sample for our exploratory study consists of major US and EU passenger airlines in the period of [1997–2000] and [2002–2005]. Given that organizational decision makers consider the recent past for their response to events, we focused on four years prior to the shock of 9/11/2001 and studied the four years subsequent to the shock (Cheng and Kesner, 1997). We excluded the year 2001 from the calculation of slopes since the turbulence happened during that year but we included 2001 in our other charts so that the reader can see the adaptation over time. Our illustrative sample contains the following European passenger airline companies: Aer Lingus Group (Irish), British Airways (British), Deutsche Lufthansa (German), Ryanair (Irish), and SAS Scandinavian Airlines (Sweden). The major US passenger airlines examined here include American Airlines, Continental Airlines, and Southwest Airlines. Ryanair outperforms the other European carriers in its growth and profit margin and Southwest Airlines is the only consistently high performing US passenger airline. We collected the annual reports of these eight passenger

airlines from 1997 to 2007 and analyzed them as explained below. Further documents include yearly industry reports of the Air Transport Association of America (ATA), International Air Transport Association (IATA) and the Association of European Airlines (AEA). These reports helped us to capture general industry trends. We complemented this by an analysis of *Aviation Daily*, an industry magazine, as explained below. We used a comprehensive set of seven strategy variables to capture the major aspects of strategy faced by these airlines.

Strategy Variables

We selected variables that were publicly available from the Federal Aviation Administration (FAA, www.faa.gov) and the Air Transport Association (ATA, www.airlines.org) based on previous studies and on their potential as indicators of strategy. None of these is a perfect measure of strategy, and all except for fleet can be influenced by significant forces outside the complete control of management. Nevertheless, we believe each is a partial indicator of various aspects of strategy and together they provide a reasonable overall indication of strategy. These variables are summarized in the following descriptions:

Average Haul Length. Average haul length is the length in miles of the average flight. Airline managements make choices on markets served, frequency, balance of hub and point to point service, fleet configuration, efficient utilization of various airplanes, and other variables that are reflected to some degree in average haul length. At one extreme, an airline could fly primarily long distances of more than a thousand miles. At the other extreme, an airline could fly primarily short distances, but facilitate connections to allow longer travel by customers of the airline. In both cases there are implications for geographic and passenger markets served (e.g., east coast, Midwest, business, pleasure), fleet configuration, etc.

Route density. Route density is revenue passenger miles/kilometers divided by average haul length which is a measure of passengers per mile/kilometer of network. Airline managements make choices on network structure, the fleet, the frequency of service, and other variables that are reflected in route density. This variable also measures the ability of the management to fill the capacity in their system, or alternatively to adjust capacity to meet demand.

Market diversity. Market diversity is total passenger revenue divided by total operating revenue. In addition to passenger revenue, operating revenue can include packages, freight and mail. Hence the measure captures an aspect of market specialization. Airline managements can make direct choices that are reflected in this variable.

Marketing expense per mile. Marketing expense is an indication of managerial attempts to create differentiation that would cause fliers to favor a particular airline or to be willing to pay a premium for flying on a particular airline. Marketing expenses are discretionary and can be changed rapidly by airline management.

Flying cost per mile. Flying cost gives an indication of how efficiently the fleet is composed and operated. In addition it is likely to capture the efficiency of the fleet as applied to the route structure of a particular airline.

Entropy of fleet. The entropy of the fleet of an airline is a measure of how the fleet is configured across various models of airplanes (e.g. 737's, DC-8's and 747's). Specifically it measures the degree of diversity of the fleet. Zero entropy corresponds to only one model of aircraft. Entropy is calculated as the sum of the concentration of each model of plane times the natural logarithm of one over the concentration of each model of plane (Jacquemin and Berry;

1979; Palepu, 1985). The entropy of a fleet is a measure of the one of the most important strategic investment decisions any airline management makes. A diverse fleet is more likely to be flexible, but more expensive to maintain and fly. A narrow fleet is likely to be limited in application, but less expensive to fly and maintain for a narrow range of applications.

General and administrative expense per mile. General expense per mile is an indication of the size of overhead structure that an airline management decides to put into place. Airline managements obviously make many decisions about overhead costs.

Attention-based variables and analysis

With reference to Hambrick and Mason (1984) among others, Ocasio (1997) identified CEOs and the top management group as the critical players in attention regulation. CEOs express their attention allocation through the letters to shareholders (LTS). LTS have been used in various studies (for an overview Duriau, Reger, and Pfarrer, 2007) and are considered a valid document for analyzing attention and cognition (e.g., Barr *et al.*, 1992; Barr, 1998; Kaplan, 2008; Marcel *et al.*, 2010). In this line of inquiry we analyze the LTSs for patterns of attention.

These changes in attention have generally been measured in research by using causal maps (e.g., Barr *et al.*, 1992; Barr, 1998; Marcel *et al.*, 2010), frequency count of words (e.g., Cho and Hambrick, 2006; Kaplan, 2008) and other methods of text analysis (e.g., Kabanoff and Brown, 2008). Reconstruction of events in form of case study research has also been used (e.g., Tripsas and Gavetti, 2000).

In order to identify patterns of attention allocation to the seven strategic areas in our context, we use natural language processing technology for analyzing the LTSs of all airlines in our sample for the period under study. Specifically, we use Latent Semantic Analysis (LSA)

(Deerwester *et al.*, 1990), a technology that allows us to overcome the problem of synonyms and polysemy that traditional approaches of content analysis typically confront (Green, 1995). Synonymy is the phenomenon whereby different words describe the same concept. Thus, automatic categorization may fail to assign a document that does not contain specific keywords to the relevant category even though the document contains words that have essentially the same meaning. Polysemy, on the other hand, is the phenomenon whereby the same word has multiple meanings. A document that contains the desired keywords may be wrongly assigned to a category because the words have an unintended meaning, thus rendering its inclusion in the category irrelevant. By taking into account the context in which specific keywords occur, LSA produces a set of semantic concepts related to documents and terms and thereby overcomes these problems (Landauer, Foltz, and Laham, 1998).

For our analysis, we constructed a term-document matrix of 16,208 articles published in *Aviation Daily*, the main industry magazine, describing the occurrences of words usually used in the airline industry. The term frequencies were weighted using TF-IDF transformation (Salton and McGill, 1983) that accounts for both the word's importance in the particular context and the degree to which the word carries information in the domain of the document in the general context. Using singular value decomposition, a matrix of all latent semantic concepts contained in the airline industry reports was extracted. Subsequently, these latent semantic concepts were used for analyzing LTS of all airlines in our sample for the period under study. Specifically, a vector of latent semantic concepts describing management attention was created for each LTS. For each attention variable, the cosine similarity (Salton, Wong, and Yang, 1975) between each LTS vector and the vector describing the respective latent semantic concept was calculated,

resulting in a score between 0 (not attention to the concept at all) and 1 (exclusive attention towards this concept, a value that usually cannot be expected from analyzing LTS).

We then investigated the patterns of these different constructs and their change in importance over time for each airline company. For comparison of patterns of resource allocation and attention adaptation we examined the development separately and in comparison. For an overview calculate the standardized slopes of the two periods [1997–2000] and [2002–2005] for the selected attention variables and strategy variables. We compared the difference in standardized slopes before and after 2001. Given limited interpretability of difference scores (Edwards, 1995), we use the actual slopes and data points for better understanding. Given that one of our areas of interest is the comparison of patterns of resource allocation with those of attention allocation, we also compare the difference scores of the standardized slopes of resources and attention.

RESULTS

In this section, we present the findings from the analysis of the attention and resource adaptation patterns of the airlines along the seven strategy variables. First, we show the results for breadth of focus in attention and resource adaptation. Second, we provide evidence regarding the consistency between adaptation of attention and the adaptation of resources.

Performance differences of the airlines

The performance of the airlines studied here varies in general and in response to the crisis following 9/11. Gillen and Lall (2003) studied the value differences of 50 US and non-US airlines following the events of 9/11. Most airlines contained in our comparative study of resource and attention adaptation are contained in Gillen and Lall's study. Those authors

calculated bounds of cumulated abnormal return after the event. Qantas Airlines that showed a positive abnormal return after the crisis, Southwest Airlines and Ryanair are among the airlines that showed the least negative abnormal returns after the crisis (Southwest Airlines about -24% and Ryanair about -26%). Some other airlines experienced substantial negative abnormal returns. For instance, Airtran (not contained in our sample but another low cost carrier comparable to Southwest Airlines) had abnormal returns of -70%, United Airlines had abnormal return of -62%. Continental Airlines and US Airways experienced abnormal returns after the crisis of more than -100%. In Table 2, we summarize the general performance results for the airlines studied in this paper listing the earnings before interest, taxes, depreciation and amortization (EBITDA) for the observation period (1997–2007).

----Insert Table 2 about here----

Breadth of focus in adaptation of attention and resources

The airline companies analyzed here vary in the breadth of their attention focus in response to the events of 9/11.

----Insert Figures 1, 2, and 3 about here----

Figure 1 illustrates the patterns of attention allocation at Lufthansa before and after the shock of 9/11. After 9/11, Lufthansa's management increased its attention for six out of the seven strategy variables. Similarly, British Airways (Figure 2) increased its attention to all variables except for haul length. SAS Scandinavian Airlines, another airline in our sample, also increased its attention to most strategy variables subsequent to the events of 9/11 and again in

2004. Ryanair (Figure 3), by contrast, exhibits a very clear pattern of attention adaptation of only two strategy variables that are core to its strategy. Ryanair's management clearly increased its attention to flying cost. Flying cost is not only one of the most important cost factors and strategy variables of airline companies, it is also a factor that has gained a lot of importance over the past years given that for any airline the importance of flying cost has increased (ATA report).

Ryanair's management focused its attention to this central factor immediately after the events. Great attention is also given to the fleet. Considerations regarding the fleet of aircrafts is tightly related to flying cost as the characteristics of the aircrafts that an airline company owns or leases is directly related to fuel efficiency and hence fuel expenses (Kangis and O'Reilly, 2003; Porter, 1996). In sum, we observe a highly focused attention to these two tightly coupled strategy variables for Ryanair.

----Insert Figures 4 and 5 about here----

An examination of the attention adaptation at Southwest Airlines (Figure 4), the cost leader in the US market, shows a similar pattern. After 9/11, we observe a shift of attention to flying cost. Just like Ryanair, Southwest Airlines increasingly pays attention to its fleet. This illustrates a reinforcement of Southwest Airlines' strategic focus of low cost leadership. When examining the shifts in actual resource allocation at Southwest Airlines (Figure 5) we observe very few – except for G&A expenses – rather incremental changes in strategy variables in response to the changed market conditions due to the shock of 9/11. Strategy variables such as market diversity and fleet remain completely unchanged.

----Insert Figures 6 and 7 about here----

As shown in Figure 6, Continental Airlines radically adjusted its resources in several strategic areas (haul length, marketing differentiation, and G&A expenses). With regards to the attention focus at Continental Airlines (Figure 7), we observe upward shifts for almost all strategy variables. Alone haul length and market diversity receive continued or only slightly increasing attention. It is noteworthy that this increase in attention in many of the strategy variables at Continental Airlines is generally not sustained over time.

In summary, the high performing airlines in our sample show great focus in their attention adaptation to a few strategy variables. The same pattern applies to the adaptation of resources: higher performing airlines adapt their resources very selectively.

Consistency between attention adaptation and resource adaptation

In the development of proposition 2, we argued that consistently high performing firms are associated with the alignment of attention and resources. In Figures 8 and 9 we compare and contrast the adaptation of attention with adaptation of resources as the difference of standardized slopes before and after 9/11.

----Insert Figures 8 and 9 about here----

As explained in the methods section, we calculated the slopes from 1997 through 2000 and 2002 through 2005. We show the changes in attention and changes in resource allocation along two strategy variables that are central to airline strategy: flying cost (Figure 8) and marketing differentiation (Figure 9).

With regards to consistency of attention and resource allocation, we find among the eight airlines studied here, all four possible patterns, i.e. (in)consistency (+/-). For attention to

differentiation through marketing (Figure 9), bars in the same direction signify consistency in change of attention and change of resource allocation, bars in opposite direction represent inconsistency. We note an interesting inconsistency for Ryanair: the airline appears to compensate for lower marketing expenses by allocating more attention to differentiation through marketing. This pattern is even more pronounced for AerLingus. We find that other airlines (American Airlines, Continental Airlines, and Southwest Airlines) reduce their attention to marketing differentiation.

Regarding the attention to fuel cost vs. resources spent on buying fuel represented in Figure 8 consistency corresponds here to bars in the opposite direction. An increase in attention is associated with implementing means to lower fuel cost. Therefore, Southwest Airlines, Continental Airlines, and AerLingus show consistent strategies, i.e. attention to fuel is associated with effectively less spending on fuel. The companies exhibiting an incoherent pattern are likely confronted with a search for reducing fuel cost. In this context, it should be noted that all values here are relative (change) values. While Continental Airlines' attention to fuel cost has dropped from 0.540 to -0.177, Southwest Airlines paid only slightly less attention to fuel cost after 9/11 (from 1.182 to 0.859) but as the high attention scores indicate Southwest Airlines fuel cost is still a matter of high concern for the company. Our understanding of this pattern is that the crisis resulted in Southwest Airlines and Ryanair reinforcing what they were doing well already, namely cost management and cost leadership. We also see that other airlines (e.g., British Airways) explicitly mention their LTS that they should follow more closely the recipe of the low cost airlines.

DISCUSSION

In this paper, we compared the adaptation of attention and resources of eight major EU and US passenger airlines subsequent to the terrorist attacks of September 11th 2001. We found that the more successful airlines in our sample have a much more narrow focus of attention adaptation than the less successful ones. In other words, the more successful airlines apply their attention more selectively to issues. This may mean that these airlines can use their attention more effectively because they can pay continued attention to selected strategic issue(s) (Rerup, 2009).

Regarding the magnitude of resource adaptation we found it striking how little Southwest Airlines, the consistently high performing US airline industry changed its resource allocation after the events of 9/11. Generally, one could attribute this to inertia in this industry. However, other airlines shifted their resources substantially more than Southwest Airlines and Ryanair after the events. For Southwest Airlines and Ryanair, the low cost leaders in the US and the EU market respectively, we found that the shock reinforced their strategic orientation. This is in line with Miller and Chen (2004)'s argument that in the short run inertia will be associated with superior performance. Although so far there are no signs that the *relative* success of the airlines such as Ryanair and Southwest Airlines will not be sustained (Barrett, 2004), it is worthwhile asking whether this narrowing of the strategic focus can lead to continued success in the future. In reference to the *Icarus Paradox*, Miller (1992) stated 'It is very hard sometimes to distinguish between the focus, harmony, and passionate dedication necessary for outstanding performance, and the excesses and extremes that lead to decline.' (p. 31) This can lead to an over-reliance on previously successful patterns has further been referred to in strategic management as 'success trap' (Levinthal, March, and Winter, 1993). In general, we find that higher performing firms

show a greater tendency toward focused response to the environmental shocks. This is also in line with ‘strategic simplicity’ (Miller *et al.*, 1996: 863).

This reinforcement of previously established behavior can also be explained by threat-rigidity theory (Staw, Sandelands, and Dutton, 1981: 503). Staw *et al.* (1981) argue that when faced with external shocks, organizations become rigid in their responses and have a tendency toward well-learned dominant responses. Given our insights from this study, we argue firms that pursue a cost leadership strategy may be particularly prone to the increasingly selective attention focus and reinforcement after environmental shocks. We also observe that some companies such as British Airways are torn between imitating the pattern of cost leadership and reinforcing their own strategic orientation (e.g., service-orientation) and oftentimes end up changing along many dimensions. Such change requires a complete reconfiguration of the strategic fit.

Regarding the consistency among adaptation of resources and attention, we note that highly successful companies such as a Ryanair and Southwest Airlines do not show substantially more consistency between attention and resource allocation than the other companies in our sample. We rather think that there are certain compensation mechanisms in place. Ryanair, for instance, pays more attention to differentiation through marketing, but spends less on it.

Our paper makes two main contributions. First, we enhance the understanding of the relationship between focus of attention and resource adaptation and firm success. Second, we gained insights into the assumed consistency between attention and resource adaptation in organizations. According to Mahoney (1995), resources and mental models should be intertwined how it was the intention of Penrose (1959) when she talked about a ‘resource-learning’ theory. We think more needs to be understood on the reciprocal influence of strategy

and intention than it is currently. We strongly hope that future research will explore this interrelationship even more closely, maybe using field studies or experiments with managers.

LIMITATIONS AND FUTURE RESEARCH

This study is one of the very few studies examining the adaptation of attention and resources jointly. We want to point out that this work is strictly illustrative and therefore does not include any tests and proofs of relationships. Also, given that we argue based on a small sample, we are not able to make any normative claims. Further, we cannot say whether the patterns identified here apply to companies in other industries and country contexts. Despite these obvious limitations, we think that we were able to reveal some distinctive patterns of adaptation of attention and resource allocation that are suggestive of relationships with firm performance.

We hope that future research can find ways to more closely analyze the different steps of the organizational decision process. In this paper, we focused on attention that is allocated different strategy variables. Yet, *how* organizational decision makers argue related to these strategy variables is also very important for the outcomes. While this has been done based on the analysis of causality and attribution in annual reports (Barr *et al.*, 1992; Barr, 1998; Barr and Nadkarni, 2008; Bettman and Weitz, 1983; Fahey and Narayanan, 1989), it would be interesting to analyze the attention and connotation changes in real time observations of strategy meetings and / or frequent interviews with managers.

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FIGURES AND TABLES

Figure 1: Adaptation of attention at Lufthansa

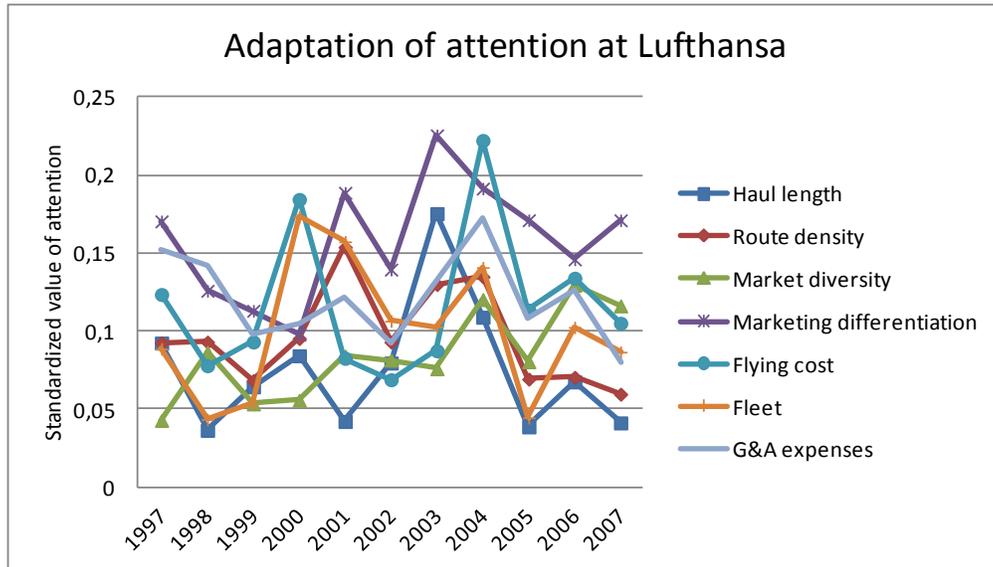


Figure 2: Adaptation of attention at British Airways

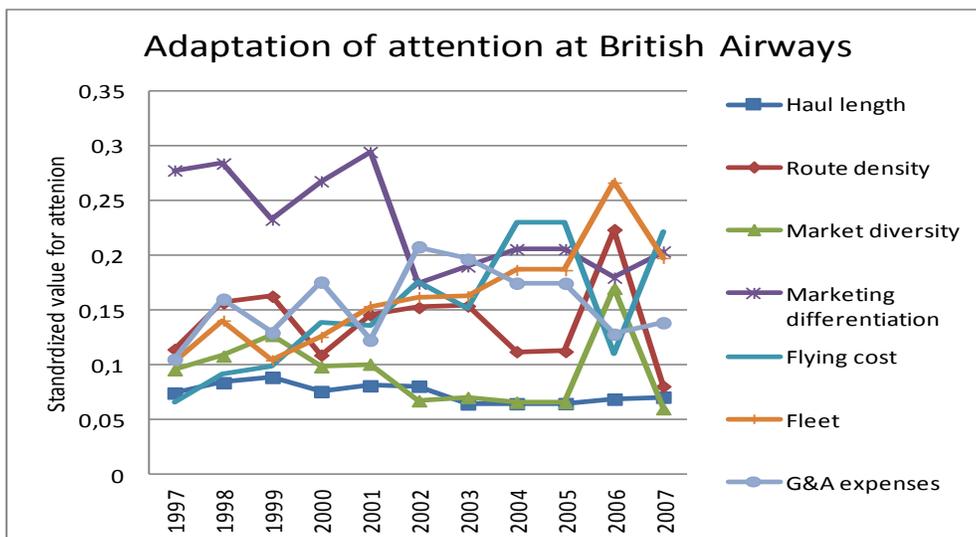


Figure 3: Adaptation of attention at Ryanair

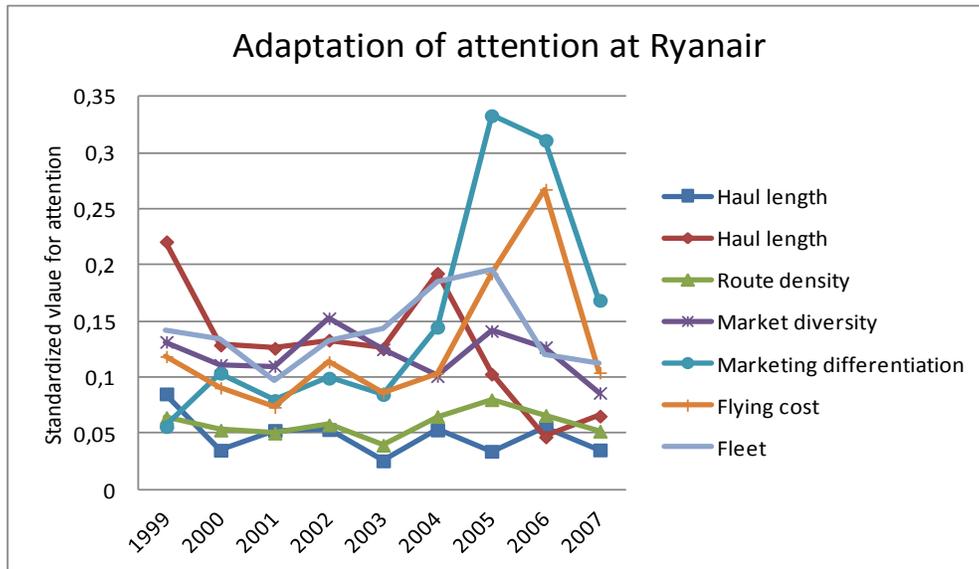


Figure 4: Adaptation of attention at Southwest Airlines

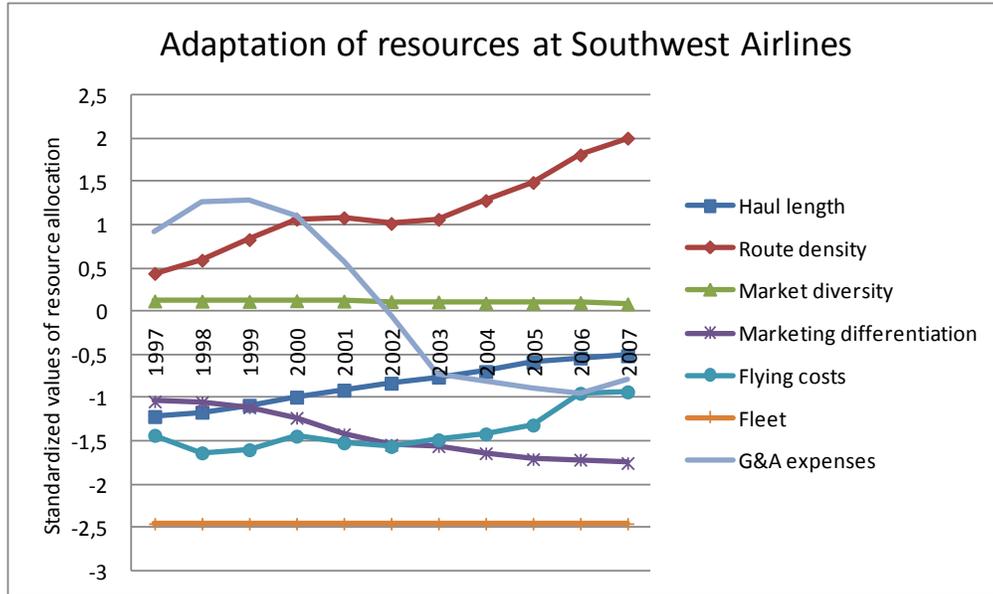


Figure 5: Adaptation of resources at Southwest Airlines

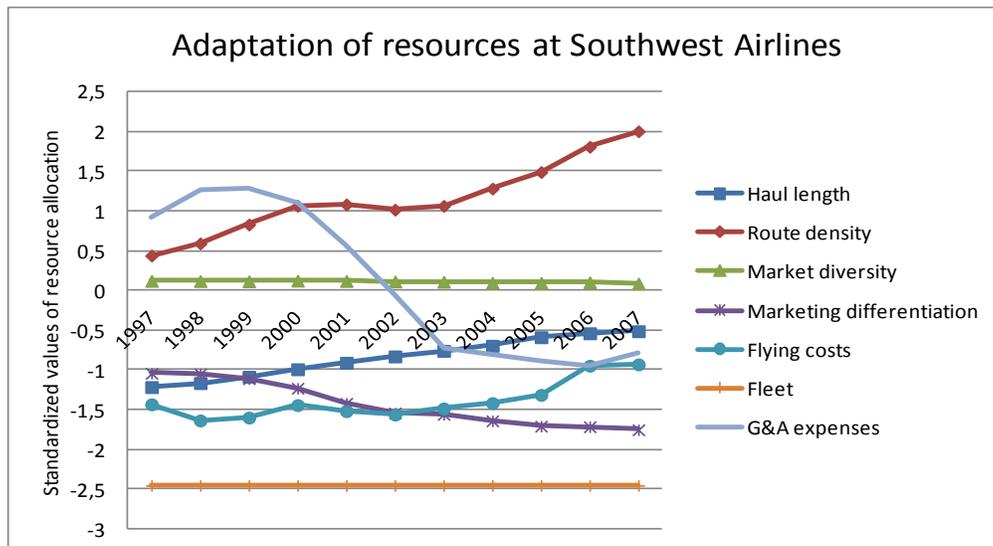


Figure 6: Adaptation of resources at Continental Airlines

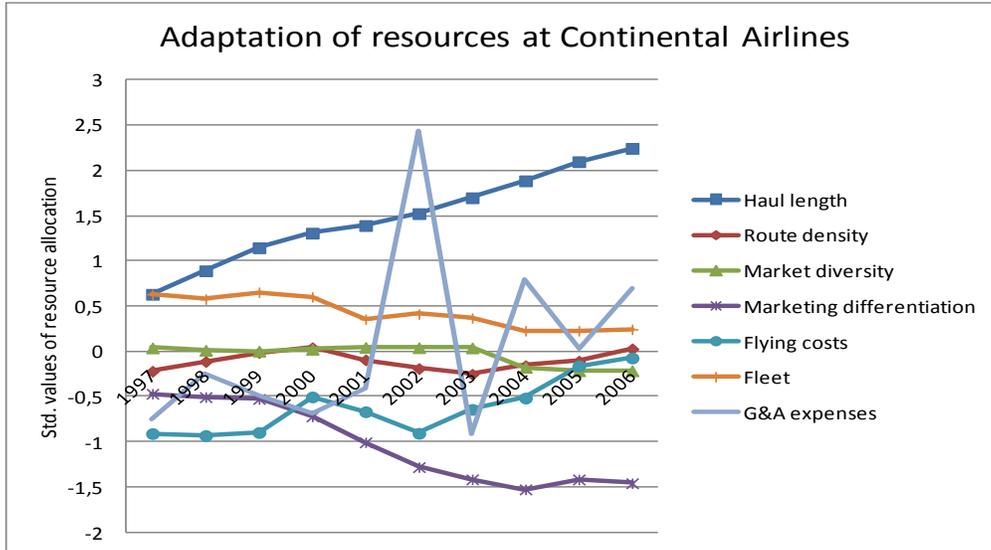


Figure 7: Adaptation of attention at Continental Airlines

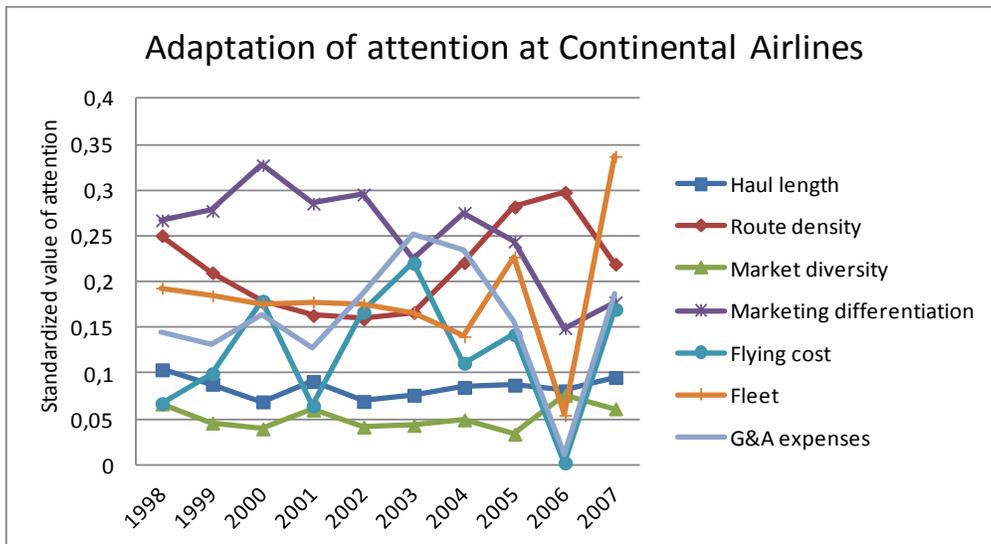


Figure 8: Fuel cost: attention vs. resource allocation

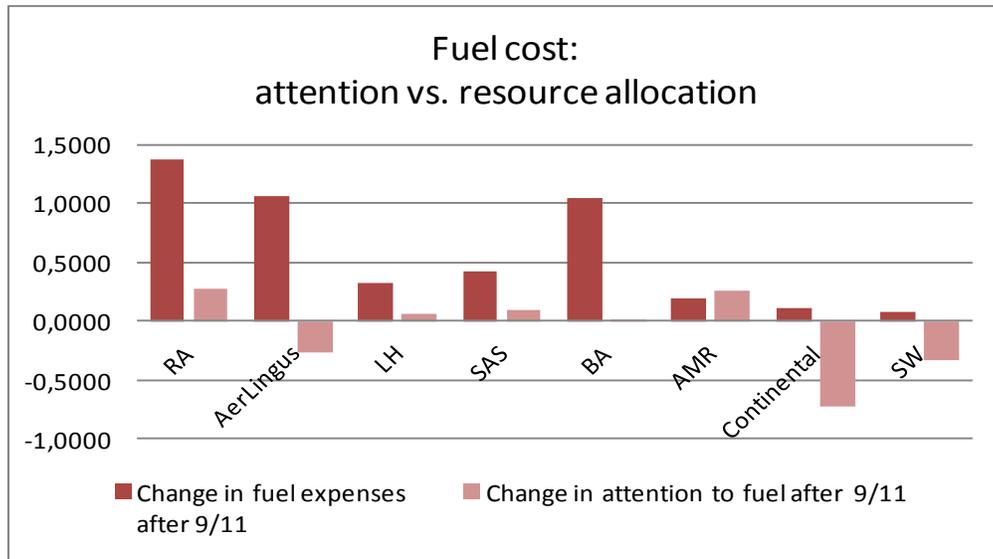


Figure 9: Marketing differentiation: attention vs. action

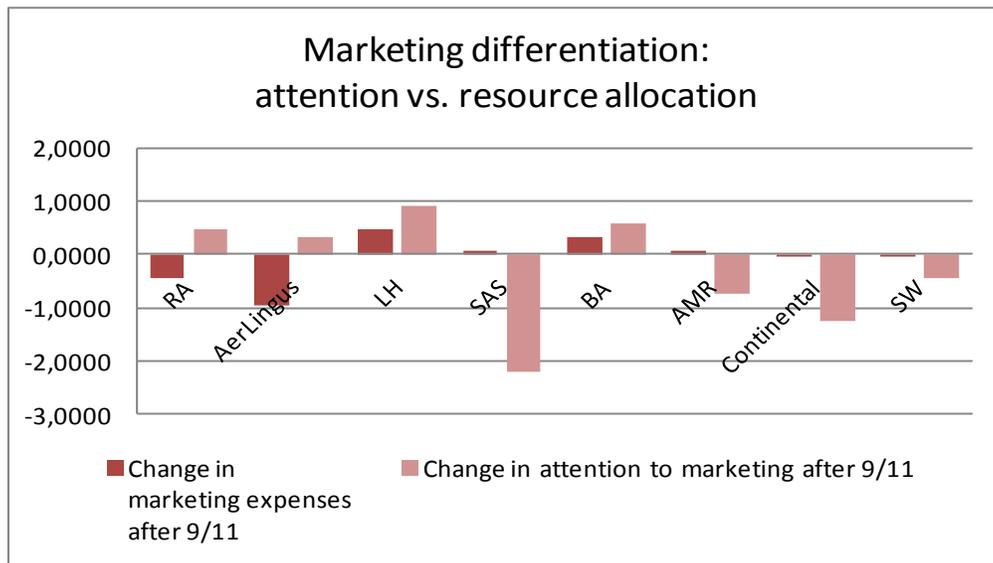


Table 1: Overview of relevant studies of attention

<i>Study</i>	<i>Theory</i>	<i>Sample</i>	<i>Method</i>	<i>Findings</i>
Hoffman & Ocasio (1991)	Attention-based view	Environment-related events from 1960 to 1995	Historical comparison of events	Model of industry attention to external events
Barr, Stimpert, & Huff (1992)	Cognition	Two Midwestern Railroad companies (1949-1973)	Causal mapping	Successful firms and less successful firms do not differ in their recognition of change but their adaptation of the mental model in terms of how organizational performance is affected by changed environment
Kaplan, Murray, & Henderson (2003)	Managerial cognition	23 years of data (1973-1998) of 15 major US/UK pharmaceutical firms and their adaptation to biotechnology	Normalized word counts of letters to shareholders plus triangulation with other text	Recognition at the most senior level can play a critical role in shaping established firms' response to discontinuities
Cho & Hambrick (2006)	Attention-based view, upper echelons	30 large airlines (1973-1986)	Frequency count in letters to shareholders. GLS regression	Shift in attention (entrepreneurial vs. engineering logic) was related to changes in composition and compensation of their TMTs
Kaplan (2008)		Investment decisions in optical technologies by 71 communications firms (1982-2001)	Frequency count of optics related words in letters to shareholders. Censored Tobit regression model	Systematic patterns of association between CEO attention to optical technologies and subsequent response to fiber-optic revolution
Nadkarni & Barr (2008)	Attention-based view, high velocity markets	Firms from 4 industries over period of 25 years	Causal maps from letters to shareholders Auto correlation function to detect major competitive changes	Strong linkage between the attention focus and causal logics developed by top managers and speed of strategic response to environmental events
Eggers & Kaplan (2009)	Managerial cognition	71 communications technology suppliers (1982-2001)	Word count in letters to shareholders Hazard model	Cognition, incentives, and capabilities are each separately important for the adoption of technology. Cognition can compensate for other factors.
Marcel, Barr, & Duhaime (2010)	Cognition Competitive retaliation	US major domestic airlines (1993-1999)	Structured content analysis (Smith et al., 1991), cognitive frameworks, logistic regression	Cognitive frameworks are related to the likelihood of competitive retaliation. Significant and positive interaction between attack intensity and cognitive frameworks
Nigram & Ocasio (2010)	Attention-based view Sensemaking Institutional theory	Clinton's health care reform, managed health care	Theoretically grounded narrative analysis	Event attention offers a new understanding of the emergence of new logics (bottom-up process, accretion, vocabulary change, importance of events after deinstitutionalization, importance of contextual factors)

TABLE 2
Return-on-Assets for US Passenger Airlines *

Year	American Airlines	Continental	Southwest Airlines	Ryanair	SAS Scandinavian	Lufthansa	British Airways	Aer Lingus Group
1997	985	1,010	761	31	50	2,198	2,453	NA
1998	1,306	1,050	969	74	72	3,286	2,205	NA
1999	985	1,340	1,060	121	637	3,006	3,183	283
2000	822	1,160	1,380	131	857	3,453	2,273	341
2001	-1,762	591	1,220	169	479	1,986	2,402	139
2002	-3,511	111	869	219	-144	3,666	1,796	236
2003	-1,228	965	1,180	322	648	2,199	2,269	249
2004	-761	349	1,000	464	928	2,693	2,264	289
2005	-857	719	1,460	586	862	3,399	2,436	249
2006	231	1,170	1,370	651	1,003	3,186	2,653	245
2007	504	1,340	1,670	905	808	4,026	2,466	278

*EBITDA in million US dollar. Numbers are from annual reports of the companies and investment services.