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PERFORMANCE GOALS, FIRM RESOURCES AND STRATEGIC CHANGE

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Abstract

Although prior research suggests that both performance feedback and organizational characteristics matter for organizational risk taking, little is known about how a firm's resource base affects the relationship between performance feedback and risk taking. We first hypothesize that larger stocks of specific resources make firms less responsive to performance feedback. Second, although slack resources might confer flexibility advantages upon firms we argue that slack resources isolate the firm from environmental pressures and let them persevere in turbulent environments. Third, the dynamic capabilities of a firm affect organizational responsiveness and strategic flexibility since adapting to new options often requires changing and extending existing resources. Thus, we propose that firms with more dynamic

capabilities are less performance feedback sensitive. We test our hypotheses by studying changes in the product portfolio of electronic game publishers. Using an unbalanced panel data set of 68 publishers we find that generic resources, slack resources and dynamic capabilities decrease performance sensitivity.

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Abstract:

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INTRODUCTION

Turbulent markets provide unique challenges for organizational adaptation. Recent research stresses the need for strategic flexibility to rapidly sense and seize emerging business opportunities in turbulent markets (Eisenhardt, 1989; Nadkarni & Narayanan, 2007; Aaker & Mascarenhas, 1993). Strategic flexibility allows firms to proactively initiate changes in current strategic actions, resource deployments, and investment strategies. The literature on strategic flexibility points to a firm's resource base as a main driver of adaptiveness. In contrast, the behavioral theory of the firm suggests that organizational adaptation primarily depends on performance feedback (Cyert & March, 1963; Greve, 2003). Negative performance feedback prompts a firm to engage in organizational adaptation, while positive feedback signals success and makes a firm less inclined to change (Greve, 1998; Iyer & Miller, 2008). Slack resources, on the other hand, foster adaptation independent of performance feedback (Singh, 1986; Bromiley, 1991; Chen & Miller, 2007). However, what appears to be little understood is how performance feedback and the resource base of firms influence organizational adaptation in turbulent markets.

We combine insights from the behavioral theory of organizational adaptation with considerations from the resource-based view of the firm to develop a set of hypotheses on organizational adaptation in turbulent markets. We test our hypotheses with a longitudinal dataset on firm behavior and financial performance in the entertainment software industry. We find that performance feedback is indeed a key driver of strategic and organizational changes even in turbulent markets. The characteristics of a firm's resources moderate the relationship between performance feedback and organizational adaptation. Specifically, highly specialized productive resources make firms less responsive to performance feedback, since prior resource commitments constrain organizational adaptiveness. Slack resources and dynamic capabilities only lead to

more flexibility if performance feedback is positive, while they promote stability if performance falls short of aspiration levels. Slack resources and dynamic capabilities therefore insulate a firm from performance feedback.

THEORY AND HYPOTHESES

Turbulent markets force firms to continuously adapt to changing business opportunities (Andersen, Denrell, & Bettis, 2007; Eisenhardt & Tabrizi, 1995; Teece, Pisano, & Shuen, 1997). Firms do this by staying flexible. Strategic flexibility is the willingness and ability to bring about intentional changes and adapt through adjustments in current strategic actions, resource deployment, and investment strategies (Eisenhardt, 1989; Nadkarni & Narayanan, 2007; Aaker & Mascarenhas, 1993). It helps firms rapidly sense and seize emerging business opportunities while abandoning prior commitments in declining opportunities. Firms must initiate changes before the sources of superior performance are eroded and seek out new opportunities in turbulent markets.

Conversely, the behavioral theory of the firm suggests that an organization's willingness to engage in risky strategic and organizational changes primarily depends on performance feedback and the availability of slack resources. Negative performance feedback – performance falling short of aspirations – prompts problemistic search for new opportunities to improve performance (Cyert & March, 1963; Greve, 2003). Positive performance feedback signals success and makes organizations less inclined to search and initiate changes (Bromiley, 1991). This fundamental relation between performance feedback and organizational behavior is also expected to hold in turbulent markets (Greve, 2002), leading to our first hypothesis:

Hypothesis 1: Firms operating below their aspiration levels engage in more strategic change.

The second driver of strategic and organizational changes identified by the behavioral theory of the firm is the availability of slack resources. Slack resources are excess resources available for experimentation and exploring new opportunities (Nohria & Gulati, 1996; Voss, Sirdeshmukh, & Voss, 2008). The literature on strategic flexibility also stresses slack resources as an important ingredient of flexibility as they may quickly be reallocated across business opportunities (Lewin & Volberda, 1999; Sharfman, Wolf, Chase, & Tansik, 1988; Sidhu, Volberda, & Commandeur, 2004). This forms our second hypothesis:

Hypothesis 2: Firms with larger stocks of slack resources engage in more strategic change.

Recent research on performance feedback and risky organizational change highlights further contextual factors moderating the effect of feedback on organizational decision-making (Audia & Greve, 2006). Some studies find that older firms respond less to performance feedback than younger firms, suggesting that they are more inert in decision-making and risk-taking (Audia & Greve, 2006; Desai, 2008). Further, firms threatened by bankruptcy focus on survival by lowering risk-taking (Audia & Greve, 2006; Miller & Chen, 2004). Voss et al. (2008) show that slack resources only result in higher exploration when the perceived environmental threat is high.

While prior work in the behavioral tradition therefore has established that organizational factors such as firm size, resource endowments and threat perception moderate an organization's proclivity to engage in risky organizational and strategic changes, less is known about how the characteristics of a firm's resources impact organizational responsiveness to performance feedback. This appears to be an important limitation, especially in light of prior work in other research streams. The resource-based view of the firm argues that resource characteristics influence the menu of strategic options available to a firm (Grant, 1996; Montgomery & Wernerfelt, 1988; Wernerfelt, 1984). The literature on organizational change also points to the

resource base of a firm as a source of organizational inertia (Colombo & Delmastro, 2002; Kraatz & Zajac, 2001) and adaptability (Nohria & Gulati, 1996; Voss et al., 2008). We now highlight three fundamental types of resources that might affect the responsiveness of organizations to performance feedback in turbulent environments.

First, the specific resources of a firm, while a cornerstone of competitive advantage (Ghemawat, 1991; Peteraf, 1993), are specialized toward specific uses (Lippman & Rumelt, 1992). They constrain the strategic options available to a firm and reduce strategic flexibility. We hypothesize that larger stocks of specific resources make firms less responsive to performance feedback. Second, slack resources, being less specialized and more mobile, confer flexibility advantages upon firms and could make them more responsive to performance feedback. However, we argue that slack resources isolate the firm from environmental pressures and allow them to persevere in turbulent environments characterized by ambiguous performance feedback. If feedback is ambiguous, economic agents may find it difficult to disentangle the causes of success and failure and make inferences from performance feedback (Levinthal & March 1993; Adner & Levinthal 2004; Levinthal & Rerup 2006). Accordingly, slack resources may only lead to more strategic and organizational changes if performance is above aspiration levels. Finally, the dynamic capabilities of a firm affect organizational responsiveness and strategic flexibility, since rapid adaptation to new options often requires the modification and extension of a firm's existing resource. We thus combine insights from the behavioral theory of the firm with considerations from the resource-based view of the firm.

Specific resources result from prior sunk cost investments into the specialization of tangible or intangible resources (Becker, 1962; Ghemawat, 1991; Lippman & Rumelt, 1992; Williamson, 1988). Sunk costs create strategic commitments and a lock-in to prior strategic options (Adner &

Levinthal, 2004; Bowman & Hurry, 1993; Ghemawat, 1991). Specialization leads to the imperfect mobility of resources (Jacobides, Knudsen, & Augier, 2006; Peteraf, 1993) and makes organizational behavior path-dependent (Adner & Levinthal, 2004; Dixit, 1989). Following Dixit (1989), the performance threshold for abandoning a specific resource should optimally be raised in the face of uncertain future prospects. That is, abandoning a specific resource, for example in the face of temporary negative performance feedback, locks the firm out of a domain, and reentering when prospects have improved would imply investing sunk costs again. It is therefore better to hold on to a specific investment even if feedback is negative and to hope for future improvements. Hence, firms with larger stocks of specific resources tend to be less responsive to performance feedback, since they need stronger reasons to believe that prospects will not improve before abandoning an opportunity. Empirical studies of organizational change have also identified specific resources as a significant factor in explaining hysteresis and organizational inertia (Colombo & Delmastro, 2002; Kraatz & Zajac, 2001). Specific resources therefore appear to be a critical moderator between performance feedback and organizational change:

Hypothesis 3: Firms with higher stocks of specific resources are less sensitive to performance feedback.

As argued above, prior research suggests a direct link between slack resources and the organizational proclivity to change. However, recent work highlights contextual factors moderating this relationship (Desai, 2008). We hypothesize that the use of slack resources interacts with the performance feedback received. In contrast to specific resources, (unabsorbed) slack resources tend to be more generic and applicable to many domains and business opportunities. They contribute to strategic flexibility and could make firms more responsive to

performance feedback. Firms with larger stocks of slack resources can respond rapidly to negative performance feedback by reallocating slack resources to exploring new opportunities.

However, behavioral and organizational factors might prevent a firm from being responsive to performance feedback, even if well-endowed with slack resources, especially in turbulent environments characterized by ambiguous feedback conditions. Adner and Levinthal (2004) argue that strategic flexibility stems from a readiness to abandon investment projects and to reallocate resources to new options. If feedback is ambiguous, further investments might hold the potential to improve the value of prior investments. For example, negative customer feedback in product development might be perceived as calling for further development efforts rather than as a signal to abandon the project. Ambiguous feedback may thus lead firms into options traps hindering the abandonment of existing options. The tendency to reinforce potential failure is also stressed in the literature on escalating commitments to troubled projects (Brockner, 1992; Starbuck, Barnett, & Baumard, 2008; Staw, 1981).

In short, these contributions point to a firm's failure to interpret environmental signals as valid feedback, making them less responsive to performance feedback for allocating resources. Deploying slack resources to stay on course and disregard feedback could also be an effective approach in turbulent environments (Kim & Rhee, 2009; Stieglitz, Knudsen, & Becker, 2009). These are often characterized by fleeting opportunities rather than stable trends (Bettis & Hitt, 1995; Siggelkow & Rivkin, 2005). Performance feedback under those conditions might be misleading since performance changes could be temporary. An appropriate organizational response is to pursue stability in strategic actions and eschew too much flexibility in resource allocation. Otherwise, the firm may abandon attractive options too early while chasing short-lived opportunities. Viewed from this perspective, larger stocks of slack resource confer stability

advantages, allowing an organization to preserve and to hold on to valuable options even in the face of temporary performance setbacks. The flexibility advantage of slack resources comes into play only if performance feedback is positive. Overall therefore, we propose the following:

Hypothesis 4: Firms with larger stocks of slack resources are less sensitive to performance feedback.

Strategic flexibility and organizational responsiveness also rests upon the managerial competencies of a firm, commonly defined as dynamic capabilities (Teece, 2007; Teece et al., 1997; Winter, 2003). Helfat et al. (2007: 4) define a dynamic capability as “the capacity of an organization to purposefully create, extend, and modify its resource base”. They contribute to flexibility in a turbulent environment, since the rapid adaptation to new opportunities requires the realignment of the firm’s existing resource base. Dynamic capabilities emerge from experiential learning processes (Teece et al. 1997; Zollo & Winter, 2002).

Turbulent environments pose unique challenges for organizational adaptation and the application of prior experience. Ambiguous feedback conditions – difficulties in pinpointing the causes of success and failure – foster overconfidence in managerial decision-making and less sensitivity to performance feedback (Camerer & Lovallo, 1999; Simon & Houghton, 2003). Managerial experience embodied in dynamic capabilities might actually magnify the problem of overconfidence, since past success may be interpreted as superior ability and promote an illusion of control (Duhaimé & Schwenk, 1985). Overconfident decision-makers may therefore hold on to a previously chosen option even in the face of negative feedback, making them less responsive to performance feedback. From this perspective, overconfidence dissipates the flexibility gain deriving from dynamic capabilities. However, dynamic capabilities might be valuable in a turbulent environment by stabilizing organizational behavior in the face of negative performance

feedback. Echoing the argument developed above, perseverance in the face of temporary negative feedback may hold the key for superior long-term performance in turbulent environments. Dynamic capabilities aid the firm in interpreting performance feedback and deciding when to be flexible and when to persist. Overall, we expect that:

Hypothesis 5: Firms with larger stocks of dynamic capabilities are less sensitive to performance feedback.

METHODS

Research Setting

In the last 30 years the electronic game industry has become the most important and fastest growing segment of the entertainment industry. In 2008, the industry, including hard- and software, grew at a rate of 19%, reaching total sales of \$21.4 billion in the US. Software sales grew at 23%, reaching \$11.7 billion (NPD, 2009), approximately on par with the \$9.79 billion in US movie box office revenues for the same year (MPAA, 2009).

The electronic game industry consists of three different actors: platform providers, game publishers and game developers. Platform providers (like Nintendo or Sony) design and manufacture hardware and charge licensing fees to publishers. Publishers finance the games that are either created by an in-house developing studio or by an independent, external developer. They also manage the relationship with retailers and package and market the game to consumers. Game developers create and code the games. Although the decision on how to manage the game development process is the choice of the developer, publishers are highly involved as they ensure that the project is on time and on budget and meets their expectations (Chandler, 2009).

We focus on electronic game publishers. As shown in Figure 1 the number of new game publishers entering the market in a given year is high. A reason is that the electronic game industry offers one of the most attractive investments in the entertainment business. However, the number of market exits is also very high and even surpasses the number of entries between 2000 and 2005, emphasizing the high volatile nature of the industry. Apparently, electronic game publishers face several risks affecting their financial performance and survival.

INSERT FIGURE 1 ABOUT HERE

A first risk, the electronic game industry is blockbuster driven. While many new games are introduced every month, a relatively small number of games (blockbusters) accounts for the largest share of total sales. In 2008, the best selling game “Wii Sports” sold more than 19 million units in the US alone, whereas the game ranked twentieth, “Kung Fu Panda”, sold a mere 14% of this (VGChartz, 2010). As publishers know that only some of their projects will pay off, they build up game portfolios to spread the risk: “We believe the diversification of our product mix will reduce our operating risks and increase our revenue” (TakeTwo, 2008). To increase the likelihood of releasing a hit a publisher focuses on sequels or licensed intellectual property from movies or books (e.g. Harry Potter or Indiana Jones) or sports leagues and players’ associations (e.g. National Football League (NFL) or Fédération Internationale de Football Association (FIFA)). However, as competition for these licenses is high, royalties that must be paid to licensors are also high (Edge, 2005). This increases the pressure on the game to be successful.

Second, electronic games have very short product life cycles, and an average game makes 80% of its total revenue in the first year after the release (Dezsö, Grohsjean, & Kretschmer,

2010): “In a cyclical market due to new technologies, and one penalized by a short product lifetime, a good start for a game is essential” (Ubisoft, 2009).

Third, the industry is highly seasonal as demand and supply peak in November and December. In 2008, 42% of the yearly sales were made during the holiday season. Publishers often try to launch games during big events like the introduction of a new platform, the release of a related movie or the beginning of a sports event. As Electronic Arts states: “If we miss these key selling periods for any reason, [...] our sales will suffer disproportionately” (Electronic Arts, 2009). Thus, publishers have to consistently meet their release schedules to succeed. The ability to introduce a new game on time “is affected by a number of factors, including the creative process involved, the coordination of large and sometimes geographically dispersed development teams [...], and the need to fine-tune our products prior to release” (Electronic Arts, 2009).

Fourth, most of the costs of a new game are incurred long before the first revenues are generated and the firm gets feedback from the market. Publishers pay a fee to the hardware manufacturer that lets them publish the game for the designated console. If the game uses external intellectual property like movie characters publishers also pay for this in advance. Moreover, publishers bear the cost of game development, which increased from \$1,000 in 1977 to \$30 million in 2005 (Novak, 2008).

Fifth, preferences in genres fluctuate over the time. Table 1 shows the top five genres regarding yearly revenues in the US between 2005 and 2009.¹

¹ Data are from NPD, an US market research.

INSERT TABLE 1 ABOUT HERE

While games classified as general action games are the top selling games in 2005 they almost constantly lost revenues in the subsequent years. On the other hand the categories of music/dance games or 1st person shooter did not make the list until 2007 when they reach the top positions. In 2008 revenues within the music/dance genre are even nearly doubled while revenues of 1st person shooter games stay constant. Summarizing the table, we could argue that predicting the success of different genres and consequently games is hard.

Data and Sample

We use two different sources to construct our dataset: the *MobyGames* and *Osiris* databases. MobyGames is the world's largest and most detailed electronic game documentation project, containing comprehensive information on more than 53,000 games published from 1972 up to now. All information is provided by users of the site on a voluntary basis. To ensure accuracy, MobyGames has a strict set of coding instructions and requires all entries to be peer reviewed prior to publication. For all games we have amongst others information on the genre, release date, license, and the publisher. We use the MobyGames dataset to build our dependent variable measuring changes in the composition of a publisher's product portfolio in a given year. We also use the data to calculate how many games of a publisher are based on licensed IP.

This data is matched with the Osiris database by Bureau van Dijk, which provides firm balance sheets and income statements. Osiris has information on over 45,000 companies from over 140 countries. As well as descriptive information and the company financials, Osiris contains further detail such as ownership and M&A data helping us match information on

product portfolios with financial data. The level of detail depends on how demanding the accounting standards of a country are and which firms indeed report. Therefore, our sample is biased toward countries with more demanding accounting standards and more transparent firms. 50% of all firms in our sample are located in Europe, 20% in the United States and 30% in Japan. Survivor bias should be limited as Osiris provides not only information on active but also dissolved firms. In fact, 11 out of 76 firms (15%) went bankrupt during our observation period. Combining both datasets yields 487 publisher-year observations of 68 different publishers between 1989 and 2008 which we use in our analysis.

Dependent Variable

Our dependent variable *portfolio change* measures the change in the composition of a publisher's portfolio of newly released games in a given year compared to the releases of the previous year. The measure is built as follows:

$$\frac{\sum_n |g_{t,n} - g_{t-1,n}|}{g_{t,n} + g_{t-1,n}} * \left(\frac{n_{t,new}}{n_t} + 1 \right), \quad (1)$$

where $g_{t,n}$ denotes the number of games released in a market niche n at time t . n_t (respectively $n_{t,new}$) is the number of active market niches (respectively new market niches) at time t . A market niche in the electronic game industry is the genre of a game. Each genre represents a distinct product in terms of story, game design, level design, art and sound. Further, each genre requires a different set of skills and knowledge of the developer and the publisher as they appeal to distinct consumer groups with different preferences. Each game is classified into one or more genres. We rely on the classification by MobyGames which uses eight different basic genres: action, adventure, role playing game, strategy, sports, simulation, racing and educational. The first term in our measure captures the *actual* number of all changes in all genres in relation to all *possible*

changes in all genres. The right hand side can be interpreted as a weight that takes a minimum value of one if the publisher does not enter a new genre in a certain year and a value above 1 if the publisher does so. The weight captures the idea that entering a new niche is riskier than just moving games across existing niches. The variable *portfolio change* ranges between 0 and 2. While a value of 0 indicates no change at all, a value of 2 means a complete overhaul of the portfolio..

We build this variable to measure how risky the product portfolio change of the publisher is. We assume that a publisher who enters new genres or changes the composition of its portfolio faces more risk. To illustrate this, we split our sample by the mean of *portfolio change*. As shown in Figure 2 we find that the standard deviation of the return on assets increases from 24.4 for low change to 34.5 for high change publishers.

INSERT FIGURE 2 ABOUT HERE

Independent Variables

Following the literature on performance feedback we focus on *historical comparison* and *social comparison* of performance to study the relationship between performance feedback and strategic change in a turbulent environment. While the former means that a firm compares its recent performance with its past performance, the later indicates a comparison of the own performance with the performance of peers. Further, we include the variables *share of licenses*, *unabsorbed financial slack* and *industry experience* to investigate how the different types of

resources and capabilities affect performance sensitivity. All five independent variables are lagged by one year to address reverse causality problems.

Historical Comparison. *Historical Comparison* is measured as the difference between the performance of the publisher and its historical aspiration level. We use return on assets as a proxy for the performance of the publisher. Similar to prior studies, dating back to Levinthal and March (1981), the historical aspiration level is measured as follows:

$$A_t = \alpha P_{t-1} + (1 - \alpha)A_{t-1}, \quad (2)$$

where A denotes the historical aspiration level, P is the performance measure, i.e. return on assets, t is a time subscript and α is the weight of the historical aspiration level in the previous period. The weight parameter α can be interpreted as the speed of adjustment and lies between zero and one. To determine the appropriate value of α we did a grid search, i.e. we calculated 100 historical aspiration levels for values of α between 0.01 and 0.99, plugged them into the variable historical comparison and ran our basic regression. We get the best overall model fit for values around 0.1 and 0.9. Given the highly volatile nature of the industry we use a value of 0.1 for α , indicating relatively slow goal adjustment (Greve, 2002).

Social Comparison. The second type of performance feedback stems from the comparison of the own performance with that of other firms operating in the same business context (Greve, 2003). Thus, our second feedback measure is *social comparison*, the difference between the performance (return on assets) of a publisher and its social aspiration level. The social aspiration level is calculated as the average return on assets of all other active firms in the same year.

We include three further independent variables measuring different resource and capability types.

Share of Licenses. This variable is the percentage share of newly released games in a year drawing on external intellectual property. License-based games are becoming more popular as they secure that the publisher can build upon an audience that is already familiar with the brand. As licenses can typically only be used in particular genres we consider them to be specific assets.

Unabsorbed Slack. To test if a change in the product portfolio is also driven by slack resources, and how the interaction of slack resources and performance feedback affects change we construct the variable *unabsorbed slack*. Slack in general refers to an excess resource available for the exploration of new opportunities and taking risky strategic decisions (Singh, 1986; Voss et al., 2008). We construct the variable as the ratio of cash and cash equivalent divided by current liabilities. The former represents the total of all immediate negotiable media of exchange or instruments normally accepted by banks for deposit and immediate credit to a customer account; this item also represents funds that can be used to pay current invoices. The latter includes all short term liabilities, namely accounts payable, short-term debt, current portion of long term debt, and other current liabilities.

Industry Experience. *Industry experience* is measured as the difference between the year in which the publisher released its first game and the focal year. As dynamic capabilities arise from prior learning and experience (Zollo & Winter, 2002; Helfat et al., 2007: 3) we consider *industry experience* as a proxy for the development of dynamic capabilities.

Control and Indicator Variables

We include several control variables to account for factors other than performance feedback and assets that might affect change of product portfolios. Like the independent variables all control variables are lagged by one year.

Lagged Portfolio Change. To capture the effect of both path-dependency and inertia we include the variable *lagged portfolio change* in our regressions. The variable is simply the dependent variable lagged by one year.

Number of Games. We include the *number of games* to control for the product range of the publisher. The variable counts the number of all games a publisher released in the previous year.²

Turnover. To control for publisher size we include the variable *turnover*, which is the natural logarithm of turnover of the publishing firm in thousand US Dollars in the prior year. We took the natural logarithm to account for the skewed distribution of the turnover.

As the change of the portfolio might also be influenced by longer-term macroeconomic and technological factors, we include a full set of dummies for the year the portfolio was built. Finally, given the large-sample, multi-year, multi-firm nature of our data, we include publisher-level fixed effects to control for unobserved, time-invariant heterogeneity that might capture important drivers of product portfolio change.

Analysis

We ran ordinary least squares (OLS) panel data regressions to test our hypotheses. A Hausman test revealed fixed effects to be superior to random effects models. Standard errors were clustered at the publisher level to allow for intragroup correlation.

To establish our basic result we first investigated if positive performance feedback decreases organizational risk taking. In a second step we wanted to see whether this effect is stronger if

² Using logs gives identical results.

performance is above or below the aspiration level. To do so, we specified a spline function (Greene, 2008: 111-112) of the following form:

$$Y_{t+1} = F[\beta_1(P_t - A_t)I_{P_t > A_t} + \beta_2(P_t - A_t)I_{P_t \leq A_t} + \beta X_t], \quad (4)$$

where Y_{t+1} is the portfolio change at time $t+1$, P_t is the performance realized at time t , A_t is the aspiration level at time t , i is an indicator that equals 1 if the expression in the subscript is true and 0 otherwise, and X_t is a set of control variables. β_1 is the slope of the feedback effect if the feedback is positive, β_2 is the slope of the feedback if the performance is below the aspiration level, and β is the slope of the controls. Using a spline function allows the variables *historical comparison* and *social comparison* to have different slopes above and below zero.. We then tested with a simple f-Test whether β_1 equals β_2 to see if the kink in the curve at zero is statistically significant.

RESULTS

Table 2 presents descriptive statistics and correlations for the study variables. Multicollinearity is not a concern. We report our results in Tables 3 to 5.

 INSERT TABLE 2 ABOUT HERE

Controls

First, we note the coefficients of our control variables. We refer here to column (1) in Table 3, but signs and significance of our controls are comparable in most of the subsequent tables.

INSERT TABLE 3 ABOUT HERE

Our control for change in the previous year has a positive and significant coefficient. This implies that there is some persistence in the degree of change across firms. However, the coefficient is fairly small in magnitude (around 0.12 in most specifications – perfect persistence would have a coefficient of 1) and significant at the 10% or 5% level.

The number of games is negative and significant in all specifications, suggesting that firms with a bigger portfolio change less in the following period. Our dependent variable implies a degree of change relative to the maximum change possible with a given portfolio, so bigger portfolios are more difficult to replace wholesale than smaller ones, as expected.

Our control for the overall size of the firm (measured in turnover) is insignificant in all specifications, suggesting that the amount of revenues does not affect the propensity to change. This is expected as our dependent variable refers to the changes in the product portfolio, so the product range seems a more sensible proxy for size.

Main Effect – Performance Feedback and Change

In Table 3, we analyze the effect of performance feedback on portfolio change (Hypothesis 1). We find that better past performance relative to one's historical performance (column (2)) or industry performance (column (4)) results in less change, in line with prior work on aspiration levels and the behavioral theory of the firm.

In column (3), we split up performance feedback below and above the firm's historical performance and find that firms that approach their historical performance from below (i.e. get less negative performance feedback) will change their portfolio less. Conversely, firms

outperforming their historical performance are not affected as the coefficient on *Historical Comparison* > 0 is insignificant. In column (5), the results above are confirmed using performance feedback relative to social comparison.³

Specific Assets

In Table 4 we investigate the effect of specific assets, namely the share of licensed games in a firm's portfolio. Licenses are typically issued over a longer period of time, and licensed games generate higher average revenues (Dezsö et al., 2010). A firm with a high share of licensed games may then be less willing to change their portfolio based on performance feedback (Hypothesis 3).

 INSERT TABLE 4 ABOUT HERE

Throughout our specifications, we find that the share of licenses has no direct effect on the degree of change. However, the interaction term with social comparison (column (6)) is positive and significant. This suggests that firms with a large share of genre-specific assets are less inclined to react to performance feedback than firms with a low share.

³ We experimented with alternative versions of our social comparison measure using different reference groups as a robustness check. In one specification we used all firms with a similar level of industry experience (i.e. time active in the industry) as peer group and in another one we included all firms with a similar portfolio size. To group the publishers according to their industry experience we split the sample based on terciles of the variable *industry experience* into young, intermediate and old firms. We proceed analogously with the variable *number of games* to build the second type of peer group. Results are qualitatively unchanged and available from the authors.

Slack Resources

In Table 5 we investigate if firms who have an abundance of assets that can be used for any purpose and genre display different levels of change (Hypothesis 2) and if they react differently to performance feedback (Hypothesis 4).

INSERT TABLE 5 ABOUT HERE

We find that unabsorbed slack – the of cash flow not needed to cover short-term liabilities – does not affect the extent of change as such, as the linear term is insignificant in all regressions (columns (2), (3), (5) and (6)). Hypothesis 2 is therefore not confirmed. However, as we see in columns (3) and (6), interacting unabsorbed slack with performance feedback shows that firms with a large degree of unabsorbed slack are less performance-sensitive – the positive and significant interaction terms counteract the negative linear term on performance feedback, so the combined effect is closer to zero.

Dynamic Capabilities

Finally, in Table 6 we study the role of industry experience as a proxy for the dynamic capabilities of a firm on the firm's propensity to change (Hypothesis 5).

INSERT TABLE 6 ABOUT HERE

The degree of experience a firm has in the industry will not affect the level of change as can be seen in the insignificant linear term in all specifications. Interestingly however, experience

also has a dampening effect on sensitivity to performance relative to social comparison, as shown by the positive and significant interaction term in column (6).

DISCUSSION

Our results confirm our basic Hypothesis 1: Better-performing firms will change their strategy less, and underachieving firms will try something new to change their fortunes. While this result confirms findings from prior literature, it is interesting and novel for several reasons: First, our setting and the resulting dependent variable differ from previously studied settings: We consider an industry in which change happens on a regular basis and firms enter and exit genres frequently. Therefore, a study simply tracking the likelihood of this happening would not be useful. Hence, we propose a continuous measure of change that takes into account both the quantitative (how many games?) and the qualitative (how novel?) aspect of strategic change in a highly dynamic industry. To see prior findings confirmed in this setting is reassuring and suggests that the change we measure indeed reacts to performance feedback in a similar way to discrete changes in other industries. Second, in the video game industry exit and bankruptcy is a common occurrence. This means that an underperforming firm will have to consider bankruptcy a real possibility when considering different strategic options. Prior research has shown that this can lead to threat rigidity in firms (Audia & Greve, 2006; Miller & Chen, 2004), leading firms to stick to their core activities and abandon everything else, let alone engage in new, and risky activities. Our results suggest that this is not the case. Indeed, firms below their aspiration level appear to react more strongly to performance feedback than firms above it, and the bigger the shortfall in performance, the greater the change. Our results therefore suggest that firms in distress still engage in change, perhaps suggesting that they are taking “one last roll of the dice”.

Our second hypothesis on the linear effect of unabsorbed slack was not confirmed. That is, firms with comparably larger amounts of free resources do not appear to spend it to engage in strategic change unless they see a reason to do so. This is also in line with Figure 2, which shows that more change does not have significantly higher (or lower) performance associated to it. If returns increased with change, firms would use extra resources to initiate change. Given Hypothesis 2 was not confirmed it would appear that (financial) resource constraints are not a key limiting factor of strategic change.

Hypothesis 3 is confirmed for social comparison. That is, a high proportion of specific assets in the form of licensed games will make firms less performance sensitive, even though they are not more inert on the whole (the linear term is insignificant). This suggests that specific assets have an option value that induces their owners to persist through periods of low performance. This is not because firms with high specific assets are more inert as such given the insignificant linear term, but rather because specific assets lead to a “steady hand” in times of below-par performance because these assets can become more valuable again in the future. The option value of specific assets poses an interesting managerial question: Does investing in specific assets pay off even if the market is highly volatile as suggested by Dezsö et al. (2010)? Our results indicate that firms seem to think so given they hold on to them even if current performance is below par.

Hypothesis 4 refers to the interaction effect between slack resources and performance feedback. Our regressions confirm the hypothesis: Firms with large amounts of slack resources react more slowly to performance feedback. Again the fact that the linear term is insignificant implies resource constraints do not change reduce firms’ propensity to change across the board. Instead, the significant interaction term points towards the opposite intuition: In periods of low performance firms without a sizable “war chest” may feel pressured into taking risks and

initiating strategic change. Firms with slack resources on the other hand can afford to act largely unaffected by short-term (negative) performance feedback. Note that generic resources could be used for any activity unlike specific ones that will bias a firm towards stability. Still, it appears that such free resources will not be used for short-term strategic changes, which again suggests that in an industry in which bankruptcy is a real danger being shielded from short-term pressures to act is a luxury afforded by sufficient resources.

Our final hypothesis studies the effect of dynamic capabilities on strategic change. We find support for Hypothesis 5 in the social comparison specification. Dynamic capabilities, measured in our paper as the experience a firm has in the industry, lower responsiveness to performance feedback. This suggests that having developed routines for product introduction, but also for structuring a product portfolio, makes a firm less willing to make changes triggered by performance feedback. This could be an indication of confidence in one's own strategies, or experience in maintaining a long-term perspective on the industry's evolution.

The results on our three different types of assets all point in the same direction: Well-endowed firms take performance feedback less seriously, i.e. they react less strongly to it. This seems puzzling: why do firms not use their generic resources to experiment when results suggest that the current strategy does not work? While the results on specific assets could superficially be explained by a lock-in effect (Ghemawat, 1991; Dixit, 1989), the fact that specific assets do not diminish a firm's overall tendency to change makes this an unlikely story. Hence, we offer two explanations for our general result: First, firms might be able – they have the resources – but not willing to react to negative performance feedback. In a turbulent industry like the video games industry this would imply that firms that have sufficient resources simply “sit out” a period of below-par performance and maintain their previously chosen strategy. This suggests that

resources allow firms stability rather than flexibility. Indeed, Figure 2 suggests that the performance of firms changing their portfolio relatively little is higher on average than of firms changing their portfolio drastically.⁴ In other words, external pressure from investors and the threat of bankruptcy may put pressure on firms to initiate change for change's sake in situations where a steady hand may offer more promising long-term returns. A second, related explanation may be that firms simply do not believe that they need to change. This suggests that stability is not an explicit strategy to weather periods of low performance, but it is a failure to interpret signals from the market as valid feedback. Organizational inertia may be the result of superior past performance, which in turn may have led to large amounts of disposable cash (and therefore high unabsorbed slack) or survival (and therefore high industry experience). This interpretation relies on firms' confidence in their own capabilities and judgment, and future research will be aimed at distinguishing the two explanations outlined above.

Finally, in line with Greve (2003) we find that social comparison seems to be more important in triggering firm responses than historical comparison for this turbulent environment, as the level of significance is typically higher for social than for historical comparison. Given the strongly cyclical nature of the industry and the fact that individual firm performance is highly volatile to begin with, it seems intuitive that firms would rather try to outperform a peer group facing similar shocks and changes rather than compare current performance to a "former self" that may have operated under completely different circumstances. We find this a highly interesting finding, and future research should aim at investigating the process of selecting a peer group against which to measure oneself in more detail.

⁴ The median values for ROA for low- and high-change firms are 5.81 and 5.36, respectively.

CONCLUSION

This study considers a highly dynamic setting in which strategic change, firm exit and performance fluctuations are common. Using the theory of aspiration levels and organizational change under uncertainty, we propose that a firm's resource base affects a firm's reaction to performance feedback. We find that, contrary to conventional theory, firms with a large stock of generic assets react less to performance feedback, suggesting that it is not a lack of resources forcing firms to stay put in turbulent times. Instead, it appears that stability in the face of turbulence is a "luxury" that only well-resourced firms can afford, or that firms with a large resource base simply disregard signals about their performance and carry on with a longer-term strategy instead. Future research should look at the performance implications of these different reactions to performance feedback to distinguish between these explanations.

Our study has a number of limitations. First, our sample is biased towards comparably large firms that publish their financial data. These firms make up for a large part of the industry, however, and they are subject to market fluctuations in the same way as smaller ones. Nevertheless, it would be interesting to study strategic decision-making in smaller firms to see if an even higher risk of bankruptcy would change decisions, as suggested by some prior literature. Second, we have no direct information on the decision-making process and we consequently proxy strategic change by observable portfolio changes. However, given that structuring the product portfolio is the key strategic decision firms make in the industry, we believe that the outcome of the decision process is captured well by our study. Third, our measures of firms' resource base are imperfect. While we have tried to rule out alternative explanations by controlling for other potentially interfering variables and interpreting both linear and moderating effects, finding more accurate measures of firm resources is another line of future research.

We believe that the results of our study are relevant both to scholars of aspiration levels and performance goals and to scholars of the resource-based view of the firm. Both audiences will find that their approaches offer at best a partial view of the determinants of strategic change, and even more interestingly, that a firm's resource base (both in size and composition) and its performance relative to its goals interact in nontrivial ways. However, as much research, we hope that this is the first step in a series of studies in which the generalizability of our results to other contexts, industries and strategies will be tested.

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Table 1. Top 5 Genres regarding Yearly Revenues in the US between 2005 and 2009

	2005	2006	2007	2008	2009
Nr.1	General Action (\$759mil)	Role Playing Game (\$734mil)	Music/Dance Games (\$1050mil)	Music/Dance Games (\$1470mil)	1 st Person Shooter (\$337mil)
Nr.2	Jump 'n' Run (\$516mil)	General Action (\$651mil)	1 st Person Shooter (\$1030mil)	1 st Person Shooter (\$933mil)	Action Oriented Racing (\$326mil)
Nr.3	Action Oriented Racing (\$501mil)	Jump 'n' Run (\$513mil)	General Action (\$680mil)	Action Oriented Racing (\$633mil)	Music/Dance Games (\$294mil)
Nr.4	Role Playing Game (\$489mil)	Football (\$494mil)	Jump 'n' Run (\$610mil)	General Action (\$601mil)	Fight/Head to Head (\$265mil)
Nr. 5	Football (\$432mil)	Action Oriented Racing (410mil)	Role Playing Game (\$610mil)	Role Playing Game (\$534mil)	General Action (\$255mil)

Table 2. Descriptive Statistics and Correlation (N=487)

Variable	Mean	S.d.	Min	Max	1	2	3	4	5	6	7	8
1 Portfolio Change	0.473	0.341	0.000	2.000								
2 Historical Comparison ($\alpha=.1$)	-0.043	0.411	-5.502	1.885	0.029							
3 Social Comparison	-0.012	0.415	-6.048	0.902	-0.075*	0.781***						
4 Share of Licenses	0.114	0.144	0.000	0.667	-0.279***	-0.039	0.004					
5 Unabsorbed Slack	0.868	1.157	0.000	9.133	0.004	0.066***	0.141***	0.028				
6 Industry Experience	12.752	6.849	0.000	30.000	-0.258***	-0.104**	0.058	0.165***	0.124***			
7 Lagged Portfolio Change	0.540	0.469	0.000	2.000	0.455***	0.086*	-0.020	-0.232***	0.054	-0.351***		
8 Number of Games	23.125	23.645	1.000	146.000	-0.491***	-0.067	-0.001	0.447	0.001	0.391***	-0.452***	
9 Turnover (LN)	12.442	2.618	4.382	18.300	-0.346***	0.048	0.200***	0.239***	0.071	0.472***	-0.331***	0.497***

*, **, *** denote significance at the 10%, 5%, and 1% levels respectively.

Table 3. Impact of Performance Feedback on Change

	Portfolio Change				
	(1)	(2)	(3)	(4)	(5)
Historical Comparison ($\alpha=.1$)		-0.090** (0.042)			
Historical Comparison ($\alpha=.1$) <0			-0.068** (0.027)		
Historical Comparison ($\alpha=.1$) >0			-0.098 (0.188)		
F-Test for Equality of <0 and >0			[0.43]		
Social Comparison				-0.096** (0.038)	
Social Comparison <0					-0.069** (0.027)
Social Comparison >0					-0.194 (0.286)
F-Test for Equality of <0 and >0					[0.21]
CONTROLS:					
Lagged Portfolio Change	0.117* (0.064)	0.124* (0.064)	0.124* (0.064)	0.124* (0.064)	0.121* (0.061)
Number of Games	-0.005*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)
Turnover (LN)	0.004 (0.031)	0.017 (0.033)	0.016 (0.031)	0.020 (0.033)	0.019 (0.031)
Constant	0.233 (0.396)	0.105 (0.406)	0.135 (0.386)	0.090 (0.396)	0.149 (0.354)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Number of Observations	487	487	487	487	487
Number of Publishers	68	68	68	68	68
Adj. R ²	0.093	0.104	0.104	0.107	0.108
F Statistic	5.985***	4.268***	5.250***	5.137***	5.971***

Notes. OLS estimation with publisher fixed effects. Regressions of performance feedback on change in release portfolio. Variables are defined in the text. Regressions include dummies for years. Robust standard errors are in parentheses. *, **, *** denote significance at the 10%, 5%, and 1% levels respectively.

Table 4. Performance Feedback and Specific Assets

	Portfolio Change					
	(1)	(2)	(3)	(4)	(5)	(6)
Historical Comparison ($\alpha=.1$)	-0.090** (0.042)	-0.089** (0.042)	-0.102** (0.046)			
Historical Comparison x Share of Licenses			0.170 (0.264)			
Social Comparison				-0.096** (0.038)	-0.093** (0.038)	-0.132*** (0.043)
Social Comparison x Share of Licenses						0.464* (0.235)
Share of Licenses		-0.218 (0.179)	-0.219 (0.180)		-0.209 (0.180)	-0.210 (0.175)
CONTROLS:						
Lagged Portfolio Change	0.124* (0.064)	0.124* (0.065)	0.124* (0.064)	0.124* (0.064)	0.124* (0.064)	0.121* (0.063)
Number of Games	-0.006*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)
Turnover (LN)	0.017 (0.033)	0.019 (0.032)	0.017 (0.032)	0.020 (0.033)	0.021 (0.032)	0.013 (0.033)
Constant	0.105 (0.406)	0.105 (0.405)	0.112 (0.403)	0.090 (0.396)	0.092 (0.395)	0.135 (0.389)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	487	487	487	487	487	487
Number of Publishers	68	68	68	68	68	68
Adj. R ²	0.104	0.108	0.107	0.107	0.111	0.114
F Statistic	4.268***	3.942***	3.821***	5.137***	4.236***	5.072***

Notes. OLS estimation with publisher fixed effects. Regressions of performance feedback moderated by specific assets on change in release portfolio. Variables are defined in the text. Regressions include dummies for years. Robust standard errors are in parentheses. *, **, *** denote significance at the 10%, 5%, and 1% levels respectively.

Table 5. Performance Feedback and Slack Resources

	Portfolio Change					
	(1)	(2)	(3)	(4)	(5)	(6)
Historical Comparison ($\alpha=.1$)	-0.090**	-0.092**	-0.110**			
Historical Comparison x Unabsorbed Slack	(0.042)	(0.045)	(0.045)			
			0.057*			
			(0.033)			
Social Comparison				-0.096**	-0.099**	-0.121***
Social Comparison x Unabsorbed Slack				(0.038)	(0.040)	(0.041)
						0.115*
						(0.061)
Unabsorbed Slack		0.006	0.002		0.007	0.006
		(0.021)	(0.022)		(0.021)	(0.019)
CONTROLS:						
Lagged Portfolio Change	0.124*	0.124*	0.131**	0.124*	0.123*	0.130**
	(0.064)	(0.064)	(0.064)	(0.064)	(0.064)	(0.064)
Number of Games	-0.006***	-0.006***	-0.005***	-0.005***	-0.005***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Turnover (LN)	0.017	0.020	0.011	0.020	0.023	0.005
	(0.033)	(0.033)	(0.033)	(0.033)	(0.032)	(0.038)
Constant	0.105	0.074	0.164	0.090	0.051	0.230
	(0.406)	(0.439)	(0.459)	(0.396)	(0.429)	(0.465)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	487	487	487	487	487	487
Number of Publishers	68	68	68	68	68	68
Adj. R ²	0.104	0.103	0.106	0.107	0.105	0.117
F Statistic	4.268***	3.896***	4.828***	5.137***	4.643***	5.767***

Notes. OLS estimation with publisher fixed effects. Regressions of performance feedback moderated by slack resources on change in release portfolio. Variables are defined in the text. Regressions include dummies for years. Robust standard errors are in parentheses. *, **, *** denote significance at the 10%, 5%, and 1% levels respectively.

Table 6. Performance Feedback and Dynamic Capabilities

	Portfolio Change					
	(1)	(2)	(3)	(4)	(5)	(6)
Historical Comparison ($\alpha=1$)	-0.090**	-0.090**	-0.106			
	(0.042)	(0.042)	(0.121)			
Historical Comparison x Industry Experience			0.002			
			(0.009)			
Social Comparison				-0.096**	-0.096**	-0.248**
				(0.038)	(0.038)	(0.108)
Social Comparison x Industry Experience						0.015*
						(0.008)
Industry Experience		0.011	0.011		0.010	0.009
		(0.013)	(0.013)		(0.013)	(0.013)
CONTROLS:						
Lagged Portfolio Change	0.124*	0.124*	0.124*	0.124*	0.124*	0.120*
	(0.064)	(0.064)	(0.064)	(0.064)	(0.064)	(0.062)
Number of Games	-0.006***	-0.006***	-0.006***	-0.005***	-0.005***	-0.006***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Turnover (LN)	0.017	0.017	0.017	0.020	0.020	0.015
	(0.033)	(0.033)	(0.032)	(0.033)	(0.033)	(0.032)
Constant	0.105	0.104	0.108	0.090	0.090	0.178
	(0.406)	(0.407)	(0.402)	(0.396)	(0.396)	(0.376)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	487	487	487	487	487	487
Number of Publishers	68	68	68	68	68	68
Adj. R ²	0.104	0.104	0.103	0.107	0.107	0.113
F Statistic	4.268***	4.268***	5.269***	5.137***	5.137***	5.065***

Notes. OLS estimation with publisher fixed effects. Regressions of performance feedback moderated by dynamic capabilities on change in release portfolio. Variables are defined in the text. Regressions include dummies for years. Robust standard errors are in parentheses. *, **, *** denote significance at the 10%, 5%, and 1% levels respectively.

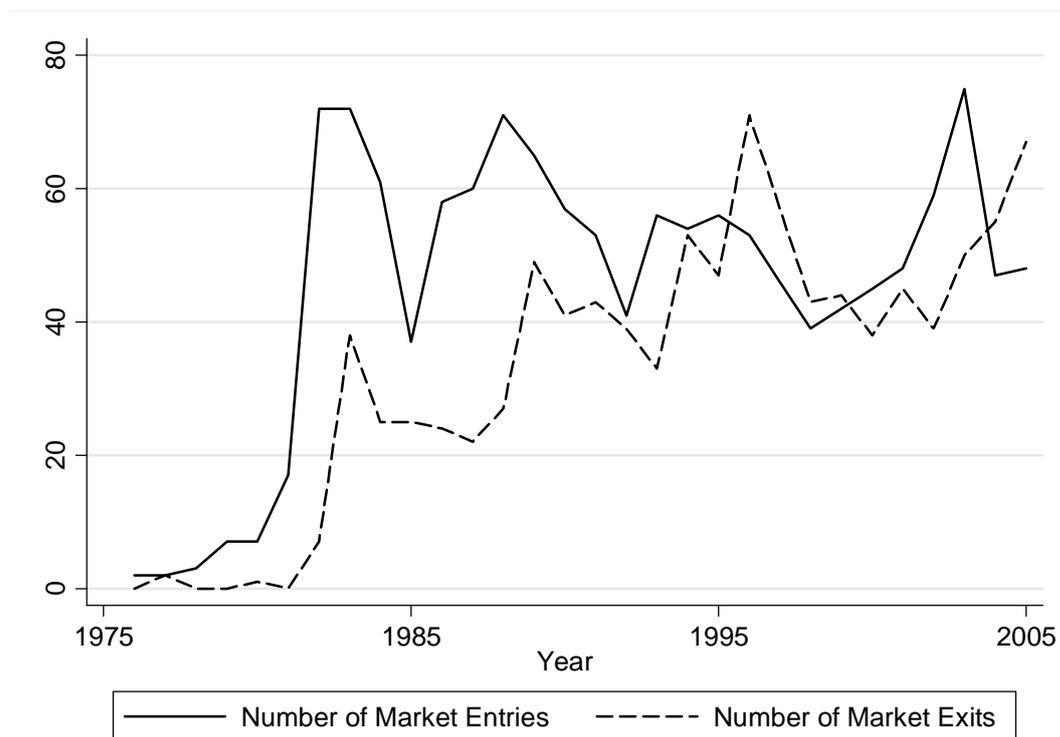
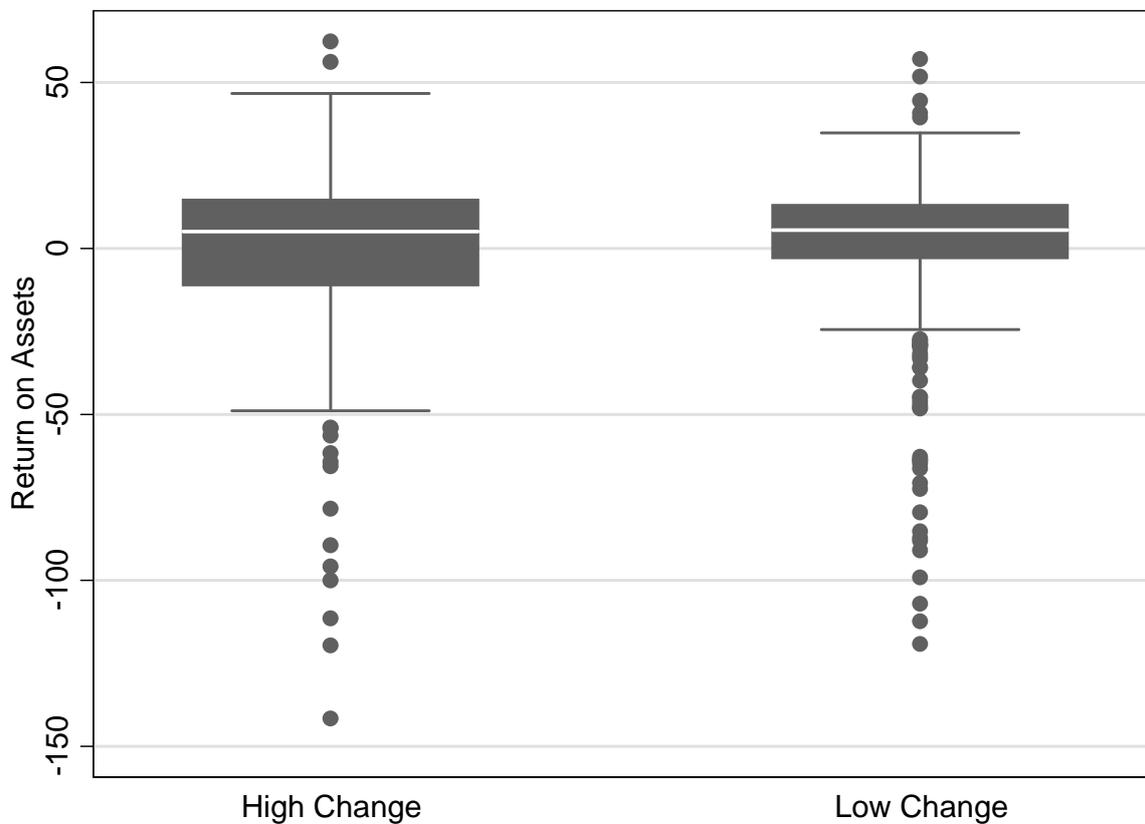
Figure 1. Number of Market Entries and Exits of Publishers between 1975 and 2005

Figure 2. Distribution of Return on Assets depending on Change Measure



Appendix 1: Numerical Example of the Dependent Variable

To better understand the construction of our dependent variable, consider the following fictitious example of a publisher whose portfolios of the years 2000-2006 are given in Table A1. For simplification, we use only four genres in our example instead of the eight genres used in our analysis:

 INSERT TABLE A1 ABOUT HERE

If we assume that the publisher is founded in the year 2000 we cannot calculate a change measure for this year so that 2001 is our starting point. As the publisher does not change its portfolio in 2001 compared to 2000, *portfolio change* takes a value of 0. In 2002, the publisher releases four new action games and four new role-playing games (RPG). We first have to subtract the four games in each category from the two games in each of the genres in 2001 yielding to a difference of 2 in each genre. We then sum the differences up, so that we end up with 4. This is the number of all changes in all genres. We then divide this term by 12 which is the sum of all games launched in 2001 and 2002 or put differently the number of all possible changes. This leads to a value of 0.3 for the first term of our formula, which we then multiply with the weight. As the publisher does not enter a new genre the weight takes a value of 1, leading to an overall value of 0.3 for *portfolio change*.

In 2003 the publisher cut in half its releases in every active genre. Because he does exactly the opposite of what he does in the year before where he doubles his positions in every active genre the portfolio change measure again takes a value of 0.3.

In 2004 the publisher doubles the number of new games in active genres and enters the sports genre with two games. This increases both the first and the second term of our measure. The left side (the first term) is the result of six actual changes in all genres divided by fourteen

possible changes. Because the publisher enters a new genre the weight takes a value of 1 plus 0.3 that is one new genre divided by three active genres. Multiplying the two numbers we get an overall value of 0.57 for *portfolio change*, which is above the 2002 value where the publisher doubles the number of games but does not enter a new genre.

In 2005 the publisher again cut in half the number of new games in the action and RPG genres but he also leaves the sports genre. This leads to an overall value of the variable of 0.43. This value is above the 2003 value when the publisher also halves the size of its portfolio but does not leave a genre, but below the 2004 value when the publisher doubles its portfolio and enters a new genre. Hence, we see that our measure takes higher values if a publisher enters a new genre compared to situations where he abandons one. This is in line with the consideration that starting something new bears more risk than ending something.

In 2006 the publisher completely changes the structure of his portfolio. He leaves the action and RPG genres and enters the sports and strategy genres with two games respectively. Here, there are eight actual changes across all genres divided by eight possible changes giving 1 for the first term. The weight takes a value of 2 (two new genre/two active genres + 1) so that *portfolio change* takes a value of 2, the highest value of our measure. Indeed, a complete portfolio overhaul occurs 6 times in our sample.

Table A1. Numerical Example of the Dependent Variable

	Action	RPG	Sport	Strategy	$\sum_n g_{t,n} - g_{t-1,n} $	$g_{t,n} + g_{t-1,n}$	$n_{t,new}$	n_t	portfolio change
2000	2	2	0	0	N/A	N/A	N/A	N/A	N/A
2001	2	2	0	0	0	8	0	2	0
2002	4	4	0	0	4	12	0	2	$0.\bar{3}$
2003	2	2	0	0	4	12	0	2	$0.\bar{3}$
2004	4	4	2	0	6	14	1	3	0.57
2005	2	2	0	0	6	14	0	2	0.43
2006	0	0	2	2	8	8	2	2	2