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RETHINKING THE EFFECTIVENESS OF ASSET AND COST RETRENCHMENT: THE CONTINGENCY EFFECTS OF A FIRM'S RENT CREATION MECHANISM

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This paper posits that the efficacy of different retrenchment strategies depends upon the firm's core rent creation mechanism. We focus on two distinct mechanisms of rent creation: Ricardian rent creation based on the exploitation of resources and Schumpeterian rent creation based on explorative capabilities. We argue that cost retrenchment may have detrimental effects on firms with a relatively high Schumpeterian rent focus. On the other hand, asset retrenchment may erode the basis for future rent creation for firms with a higher Ricardian rent focus. Our findings based on a sample of large nondiversified Japanese firms highlight the differing degrees of fragility and recoverability of the two rent creation mechanisms in the context of different retrenchment strategies.

INTRODUCTION

Today's popular business press contains a flurry of announcements concerning job cuts, plant closings and divestures, reflecting the most severe economic recession since the Great Depression. Often referred to as retrenchment, these actions are among the most common strategies for firms struggling with poor performance (Bibeault, 1982; Hofer, 1980; Robbins and Pearce, 1992). Further, even profitable firms frequently use retrenchment (Love and Nohria, 2005). Thus, retrenchment is one of the most widely used strategies; nevertheless, it is a poorly understood and understudied topic (Morrow, Johnson, and Busenitz, 2004). Empirical research supporting the efficacy of the retrenchment strategies has been limited or equivocal; and little is known about when, how, and in what form retrenchment should be used (Bruton, Ahlstrom, and Wan, 2003; Pearce and Robbins, 1993). To this end, various contingency factors need to be explored: these include both firm-level factors and industry conditions (Guthrie and Datta, 2008).

In this study, we aim to advance retrenchment research by focusing on the moderating roles of an important, yet unexplored, contextual factor in the retrenchment process. Specifically, we investigate the interactions between different retrenchment

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strategies and the firm's rent creation mechanisms, which, in turn, influence firms' long-term performance. We build upon Makadok (2001), who focused on two distinct rent creation mechanisms: the Ricardian (Ricardo, 1963 [1817]) rent creation mechanism based on the exploitation of the resource base, and the Schumpeterian (Schumpeter, 1934) rent creation mechanism based on explorative, dynamic capabilities. We posit that different retrenchment strategies will have contrasting implications for rent creation mechanisms, and, therefore, post-retrenchment performance. Asset retrenchment mainly targets the resources of a firm that can be exploited to create Ricardian rent, whereas cost retrenchment mainly targets capability building activities, such as research and development (R&D) and marketing expenses that are the basis for Schumpeterian rent creation. In essence, we highlight the possibility that a certain type of retrenchment strategy may destroy the basis for future rent creation and, consequently, the prospect for improved long-term performance.

We believe that studying a firm's rent creation mechanism as a moderating factor is an important and timely addition to retrenchment research. By doing so, we will be able to address two questions with important theoretical as well as normative implications: *'In what context can different retrenchment strategies have negative consequences?'* and *'When should a firm NOT use a particular retrenchment strategy?'* In addition, we believe that our study will add a unique perspective to the resource-based view by investigating the consequences of the negative changes to a firm's resource base that can be a source of competitive advantage and economic rent, that is, the impact of the disposal of resources through asset retrenchment or erosion of the capability-building capacity through cost retrenchment.

In the following section, we briefly review the extant retrenchment research. Next, we present our conceptual model based on the different mechanisms of rent creation, and posit the contingency effects of the rent creation mechanism in the retrenchment process. Specifically, we argue that the effectiveness of different retrenchment strategies (that is, asset retrenchment and cost retrenchment) will be dependent upon the firm's rent creation mechanism. We empirically test our hypotheses using a sample of large nondiversified Japanese firms for the period 1992–1997, and their post-retrenchment performance for the period 1995–2000.

THEORY AND HYPOTHESES

Retrenchment

We define retrenchment as deliberately eliminating assets and/or reducing costs as a means of increasing firm efficiency. We adopt a two-category scheme of *asset* retrenchment and *cost* retrenchment, consistent with previous studies (Hofer, 1980; Robbins and Pearce, 1992). Asset retrenchment refers to the net reduction of assets (Robbins and Pearce, 1992), such as closing plants, divesting equity (sell-offs, spin-offs, and equity carve-outs), and reducing stocks of property, equipment, and inventory (Morrow *et al*., 2004). Cost retrenchment refers to the net reduction of total costs such as selling, general, and administrative expenses (SGA); interest expense; and miscellaneous costs (Robbins and Pearce, 1992). SGA include advertising and marketing expenses; R&D costs; bad debts, foreign currency adjustments, and interest payments; commissions, directors' fees, and salaries; pension, retirement, profit-sharing, stock option, and employee insurance plans; engineering costs, freight-out expenses, leases, administrative services, and other indirect costs (Morrow *et al*., 2004).

Early retrenchment studies focused on turnaround in mature industries and found that, in general, retrenchment is positively related to successful turnarounds and improved performance because of increased efficiencies brought about by reducing expenditures and eliminating assets (Schendel, Patton, and Riggs, 1976; Hambrick and Schecter, 1983; Robbins and Pearce, 1992). Pearce and Robbins (1993) further argued that managers should choose between cost and asset retrenchment contingent upon the severity of the decline. That is, more severe situations call for asset reductions in the retrenchment phase, while less severe situations may be stabilized by cost retrenchment alone (Pearce and Robbins, 1993). While there is general agreement that the key to a successful turnaround depends upon effective and efficient management of the retrenchment process whether it be asset or cost reduction (Bruton *et al*., 2003; DeWitt, 1998; Hambrick and Schecter, 1983; Pearce and Robbins, 1993),

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there are a few scholars who question the integral role of retrenchment in the turnaround process based on the lack of consistent empirical support (Barker and Mone, 1994; Castrogiovanni and Bruton, 2000). A recent review of the effectiveness of employee downsizing reported in studies over the time period 1984–2008 revealed similar equivocal findings (see Datta *et al*., 2010).

More recently, researchers have turned to the contingency factors that influence the effects of retrenchment (DeWitt, 1998; Francis and Pett, 2004; Guthrie and Datta, 2008; Morrow *et al*., 2004) and investigated the efficacy of cost and asset retrenchment strategies in different contexts. For instance, Morrow and colleagues (2004) used the product life cycle literature to argue that cost retrenchment works better in mature and declining industries, while asset retrenchment creates more favorable outcomes in growing industries. We believe that this approach points to the right direction for retrenchment research. We aim to add to this stream of research by proposing the firm's rent creation mechanism as a primary contingency factor focusing on either resources or capabilities as the basis for rent creation.

Ricardian vs. Schumpeterian perspective of rent creation

The resource-based view (RBV) defines a firm as a bundle of tangible and intangible resources (Barney, 1991; Penrose, 1959; Wernerfelt, 1984) and posits that organizational success and sustained competitive advantage are tightly linked to the extent that these resources are valuable, rare, inimitable and organized to be exploited (hence VRIO: Barney, 2007; Barney and Arikan, 2002). While the RBV research tends to define resources broadly and inclusively, it is important to distinguish between *resources*, that is, a firm's fundamental financial, physical, individual, and organizational capital attributes, and *capabilities*, that is, a firm's capacity to deploy and exploit resources to implement its strategies (Amit and Schoemaker, 1993; Teece, Pisano, and Shuen, 1997), and, therefore, the different rent creation mechanisms involving them. Accordingly, we build our arguments using Makadok's (2001) approach, which focuses on two distinct mechanisms of rent creation: the Ricardian perspective based on firm resources and the Schumpeterian perspective based on firm capabilities.[1]

Ricardian rents are mainly achieved by owning valuable and rare resources (Mahoney and Pandian, 1992; Ricardo, 1963 [1817]). The key rent creation mechanism for firms with Ricardian focus is resource picking, that is, by purchasing resources from the strategic factor market (Barney, 1986) for less than their marginal productivity (Makadok, 2001). Typical isolating mechanisms used by firms with higher Ricardian focus may include property rights, resource position barriers (Wernerfelt, 1984), immobility of valuable and rare resources (Barney, 1991) and imperfect factor markets (Barney, 1986). Thus, the Ricardian perspective of rent creation has a relative emphasis on the exploitation of the valuable and rare nature (hence relative emphasis on V and R dimensions of the VRIO framework) of a firm's resources (vs. capabilities).

On the other hand, Schumpeterian rents are mainly achieved by entrepreneurial risk taking based on unique capabilities (Mahoney and Pandian, 1992; Schumpeter, 1934). The main rent creation mechanism is building capabilities—the purpose of which is to improve the productivity of the other resources possessed by the firm, for example, R&D (Makadok, 2001). Capabilities tend to be causally ambiguous and firm specific. Accordingly, capabilities are particularly subject to market failure (Amit and Schoemaker, 1993) and, in most cases, must be built internally (Teece *et al*., 1997), which often takes an extended period of time (Dierickx and Cool, 1989). Thus, the Schumpeterian rent creation mechanism has a relative emphasis on explorative capabilities, which are inimitable and organizationally embedded (hence the relative emphasis on I and O dimensions of the VRIO framework).

Although firms use resources and capabilities in a complementary manner and, therefore, use some combination of the Ricardian and Schumpeterian rent creation mechanisms (Makadok, 2001), we observe that one or the other of these rent creation

[1] The essence of Makadok's (2001) work is the contrast between resources (Ricardian rents through 'resource picking') and capabilities (Schumpeterian rents through 'capability building'). While Makadok situates this in the discussion of the RBV (Ricardian rent) vs. a dynamic capability view (Schumpeterian rent), we utilize recent developments in the RBV literature and situate the argument within the broad RBV framework of VRIO. We also extend Makadok's framework by considering both industry-level and firm-level rent creation foci.

mechanisms will be more salient in certain contexts.[2] In general, dynamic capabilities that provide the basis for Schumpeterian rent creation enable firms to adapt and, as such, are more relevant in fast-changing environments where knowledge, innovation, and creativity are highly valued (Teece and Pisano, 1994). Conversely, the property-based competitive advantages that are the basis for Ricardian rent creation are more applicable in environments characterized by stability and predictability because they provide firms with the ability to control (Miller and Shamsie, 1996).

In this study, we build our arguments on the proposition that a firm's rent creation mechanism is determined by its firm-level strategy as well as its industry membership. A firm's relative focus on either the Ricardian or Schumpeterian rent creation mechanism is dependent upon its strategic orientation, such as generic strategy. In general, firms that emphasize exploration and differentiation compete on the basis of innovation and new product development capabilities (i.e., Schumpeterian rent), while firms that emphasize exploitation and cost leadership compete on the basis of scale economy and efficiency in exploitation (i.e., Ricardian rent) (Porter, 1980; Dess and Davis, 1984; White, 1986). Therefore, we expect that a firm's innovative or scale-oriented posture within an industry may reflect its rent creation focus.

Further, a firm's relative focus on either rent creation mechanism is influenced by the attributes of the industry in which the firm competes. For example, it is likely that the dominant rent creation mechanism is relatively Ricardian in capital-intensive sectors, such as shipping, petrochemicals, steel, and hotels. Firms in these industries generate economic rents mainly through exploiting assets and resources previously purchased or internally developed. On the other hand, the dominant rent creation mechanism tends to be Schumpeterian in knowledge-intensive industries, such as information technology and bio-technology. Economic rents in these industries largely depend upon a firm's explorative capabilities to innovate.[3]

Rent creation mechanism and effects of retrenchment

As indicated from the outset, herein we depart from the previous approach that looked into the contextual factors that make certain types of retrenchment strategies desirable, and highlight the possibility that different types of retrenchment strategies may have detrimental effects on a firm's prospects for performance improvement. Specifically, we build upon the proposition that firms using an asset retrenchment strategy may inadvertently discard the resources that can be exploited to create Ricardian rent. On the other hand, firms using a cost retrenchment strategy may hamper their capability building activities, such as R&D, which are the basis for future Schumpeterian rent creation. In what follows, we further discuss this proposition and develop testable hypotheses.

Ricardian rent and asset retrenchment. For firms with a higher Ricardian rent creation focus, the disposal of resources through asset retrenchment is likely to destroy the basis for rent creation (i.e., resources that can be exploited) and prospects for future rent. Makadok (2001) suggested that Ricardian rent creation occurs through resource picking before the actual acquisition of resources, by discerning between resources that are valuable to the firm and ones that are not. Once firms build extensive property-based assets, such as plants and machinery, they should focus on maximizing capacity utilization and increasing standardization to improve performance (Miles, Snow, and Sharfman, 1993). Further, firms that pursue the lowest cost per unit of production in their industry (i.e.,

[2] Our data suggest that few (if any) firms pursue both rent creation mechanisms at the firm level, as we further discuss in the Methods section. Yet, we cannot rule out the complementarity of the two rent creation mechanisms at the industry level, as well as cross-level complementarity. In order to take into account the effects of possible combinatory use of the Ricardian and Schumpeterian rent creation mechanisms, we control for the effects of Ricardian rent focus when we test the effects of Schumpeterian rent focus and vice versa in our empirical analysis.

[3] While we observe that dominant rent creation logic is influenced by the attributes of the industry to which the firm belongs, we acknowledge that a firm's strategic orientation may not always be aligned to that of its industry (Tang, Crossan, and Rowe, 2011). It is also possible that firms may deliberately take the opposite firm-level strategic orientation to that of its industry in pursuit of superior performance. For example, AMD takes a fast-follower strategy focusing on reverse engineering and imitation in a highly innovation-oriented industry. On the other hand, Nucor Steel and W Hotels are known to pursue more innovative, exploratory strategies in traditionally asset- intensive industries. As noted in Footnote 2, our approach takes into account these exceptions in that we consider firm-level rent creation focus (relative to its industry peers) as well as industrywide rent creation focus. We thank an anonymous reviewer for bringing this point to our attention and suggesting examples.

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they have a higher Ricardian focus) in particular need assets to ensure that they have economies of scale. Consequently, asset retrenchment will erode the firm's competitive advantage. We, therefore, hypothesize that an asset retrenchment strategy will have a negative impact on long-term performance outcomes for firms that take a relatively more asset exploitation focus than their industry peers.

Hypothesis 1a: The extent to which a firm has a Ricardian rent creation focus will moderate the relationship between asset retrenchment and post-retrenchment performance, such that for firms with a higher Ricardian focus, the degree of asset retrenchment will have a stronger negative impact on post-retrenchment performance.

We also expect that the negative relationship between asset retrenchment and post-retrenchment performance will be moderated by the extent to which the industry's business model is asset dependent and capital intensive. That is, the negative relationship will be strengthened if the firm operates in an industry with a relatively higher Ricardian rent creation focus, where the disposed assets are likely to have been a crucial source of rent creation. In addition, disposing of resources in capital-intensive industries may effectively lower a barrier to entry, encouraging rivals to take advantage of emptied industry space (Ghemawat, 1984; Lieberman, 1987). This will further undermine a Ricardian focused firm's rent-generating opportunities. Thus, we hypothesize that:

Hypothesis 1b: The extent to which a firm's industry has a Ricardian rent creation focus will moderate the relationship between asset retrenchment and post-retrenchment performance, such that in industries with a higher Ricardian focus, firms that have a higher firm-level Ricardian focus will have a stronger negative relationship than that hypothesized in Hypothesis 1a.

Schumpeterian rent and cost retrenchment. On the other hand, a cost retrenchment strategy can trigger negative consequences for firms with a relatively higher Schumpeterian-focus. Cost retrenchment often targets R&D expenses, marketing expenses, and salaries. However, R&D reflects the firm's innovative posture, and previous studies have reported that R&D expenses are positively related to innovative output (Hitt *et al*., 1991) and new product introduction (Hitt *et al*., 1996). Marketing is also critical to innovation because even the most innovative firms cannot be effective without building brand equity and getting their products to market (O'Brien, 2003). Therefore, we expect that cost retrenchment will have a direct negative impact on a firm's capacity to innovate. Furthermore, workforce downsizing associated with cost retrenchment may indirectly and negatively impact innovation and performance by lowering staff morale and commitment, increasing staff turnover, and breaking information flows (Chadwick, Hunter, and Walston, 2004; Hitt *et al*., 1996; Nixon *et al*., 2004). In brief, the deeper the cut, the worse the post-retrenchment performance will be due to reduced motivation and capacity for Schumpeterian rent creation. Thus, our second hypothesis is:

Hypothesis 2a: The extent to which a firm has a Schumpeterian rent creation focus will moderate the relationship between cost retrenchment and post-retrenchment performance, such that for firms with a higher Schumpeterian focus, the degree of cost retrenchment will have a stronger negative impact on post-retrenchment performance.

We expect that the negative impact of cost retrenchment on post-retrenchment performance will be even stronger if the firm operates in an industry with a higher Schumpeterian rent creation focus. As we asserted earlier, the ability to innovate is required for firms that operate in knowledge-intensive industries where the dominant rent creation mechanism is Schumpeterian. The reduced innovation capacity that occurs as a result of cost retrenchment involving the reduction of expenses associated with R&D, brand equity through advertising, and human resource development and training can be particularly problematic for these firms. A recent study of employee layoffs demonstrated that workforce downsizing is more detrimental for firms in industries characterized by high R&D intensity (Guthrie and Datta, 2008). Therefore, we hypothesize that:

Hypothesis 2b: The extent to which a firm's industry has a Schumpeterian rent creation focus will moderate the relationship between cost

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retrenchment and post-retrenchment performance, such that in industries with a higher Schumpeterian focus, firms that have a higher firm-level Schumpeterian focus will have a stronger negative relationship than that hypothesized in Hypothesis 2a.

METHODS

Data and sample

We used a sample of Japanese firms to examine retrenchments in the years 1992–1997 and their effect on firm performance three years later; that is, in the years 1995–2000. Japanese firms are a useful complement to previous research on U.S. samples (Cascio, Young, and Morris, 1997; Guthrie and Datta, 2008; Morrow *et al*., 2004).[4] The primary data source used in this study was the Nikkei Economic Electronic Databank System (NEEDS) tapes, an electronic database compiled by Nihon Keizai Shimbun (Nikkei), Inc. This database includes consolidated and unconsolidated annual and interim financial statements for Japanese firms listed on the Tokyo Stock Exchange as well as other, major unlisted firms. We obtained industry-level data for the Japanese parent firms from the *Analysts' Guide*, published by the Daiwa Institute of Research, which uses three- and two-digit Standard Industrial Classification (SIC) codes to classify the primary industry of the firm. The NEEDS tapes contained parent financial information for more than 30 years, but we only had access to the industry-level data from 1991–2000. Hence, our sample comprised Japanese firms listed in the Nikkei NEEDS tapes for the period 1991–2000.

From the initial sample of 5,739 firms, we first selected those firms that were relatively nondiversified in order to remove the possible confounding effects of diversification.[5] We used the firms' total product diversity (based on a three-digit SIC code) to select firms that had diversity levels less than or equal to one, that is, firms that earn about 60 percent of their sales revenue from a single three-digit SIC code (see Guthrie and Datta, 2008 for a similar sampling approach). This selection procedure provided us with 2,941 firms. Then, we selected firms with more than 500 employees in order to exclude small- and medium-sized enterprises from the study sample (Lu and Beamish, 2001),[6] which reduced our sample to 2,406 firms.

From these 2,406 firms, we selected those firms that had undergone asset retrenchment (i.e., cut total assets by more than 5%) over the period 1992–1997. There were 383 firms in this group. Next, we selected those firms that had undergone cost retrenchment (i.e., cut SGA costs by more than 5%) over the same period. This group included 367 firms. Table 1 indicates a fairly even distribution of firms by retrenchment year. The descriptive statistics and correlations for the full sample of the nondiversified firms, and each subsample of the retrenched firms, are provided in Table 2, indicating no significant issue in terms of correlations between key variables. Further, the highest variance inflation factor in the regression models was 4.05, indicating no multicolinearity concerns (Aiken and West, 1990).

Measures

Firm performance. We measured our dependent variable, firm performance, as industry adjusted return on sales (ROS)[7] (i.e., firm ROS minus industry average ROS at the three-digit SIC code level).

[4] While Japanese firms may traditionally have been viewed as resistant to downsizing, the situation changed in the 1970s when they faced an economic crisis due to the high price of oil (Ahmadjian and Robinson, 2001). These firms were forced to respond by shutting down entire industries and transferring employees to more profitable ones. The 1990s again saw Japanese firms witnessing an economic recession. The Japanese stock market collapsed and the economic bubble burst. Firms were faced with reduced sales, lower profitability, and overstaffing (see Ahmadjian and Robinson, 2001: 625). According to the Japanese Ministry of Labor, job losses in Japan due to layoffs rose from 2.8 percent in the 1980s to 9.3 percent in 1998. In sum, Japanese firms have had to resort to retrenchment in the 1990s. Our data support this fact with the level of retrenchments ranging from five percent to 29 percent.

[5] For example, we calculated the firm-level Schumpeterian/Ricardian focus variables as relative values to industry peers. The moderating effects of the industry-level Schumpeterian/Ricardian focus were also key building blocks of our conceptual model. As such, we needed to ensure that we could specify in which industry a firm belonged, and include various industry-level variables in our analysis as well as in the calculation of our key variables.

[6] Small and large firms significantly differ in their possession and use of resources and capabilities (Dean, Brown, and Bamford, 1998). In addition, small firms often lack spare resources to buffer themselves from mistakes and failures and, therefore, are inherently fragile (Van de Ven, Hudson, and Schroeder, 1984). As such, including small and medium enterprises in the analysis may make it difficult to interpret the results. In addition, the relatively small base of assets and SGA may have an amplifying effect on our percentage-based retrenchment measures.

[7] We did not use return on assets (ROA), another popular measure of firm performance, because ROA can be directly affected by asset retrenchment.

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Table 1. Year-wise distribution of retrenched firms

Year of retrenchment	Asset retrenchment		Cost retrenchment	
	(# of firms)	(%)	(# of firms)	(%)
1992	50	13.1	32	8.7
1993	76	19.8	72	19.6
1994	89	23.2	94	25.6
1995	58	15.1	57	15.5
1996	45	11.7	60	16.3
1997	65	17.0	52	14.2
Total	383	100.0	367	100.0

Previous retrenchment studies have examined the turnaround outcome by using a two- or three-year time lag, relative to the year of retrenchment (Barker and Mone, 1994; Bruton *et al*., 2003; Robbins and Pearce, 1992; Morrow *et al*., 2004). We measured performance three years after a retrenchment event to account for a potential recovery period.

Rent creation mechanism. We used relative R&D intensity (R&D expenses/total sales) as a proxy for the Schumpeterian rent creation focus. While the Schumpeterian perspective on rent creation is not limited to R&D, Schumpeter (1934; 1950) emphasized the crucial role of R&D in business success (Jacobson, 1992). Previous research argues that the R&D intensity of a firm, relative to its industry rivals, indicates the strategic importance of innovation to the firm (e.g., O'Brien, 2003). Thus:

$$\begin{aligned} &\textit{Firm Schumpeterian Focus}(S_f) \\ &\quad = \textit{Firm R\&D Intensity}/\textit{Industry} \\ &\qquad \textit{R\&D Intensity} \end{aligned}$$

We extended this argument to the industry level and measured *Industry Schumpeterian Focus* as:

$$\begin{aligned} &\textit{Industry Schumpeterian Focus}(S_i) \\ &\quad = \textit{Industry R\&D Intensity}/\textit{Total} \\ &\qquad \textit{Sample R\&D Intensity} \end{aligned}$$

We used relative tangible asset intensity (book value of tangible assets/total sales) as a proxy for the Ricardian rent creation focus, based on the assumption that the Ricardian rent creation requires extensive investments in property-based resources such as buildings (for example, the hotel industry) and plant facilities (for example, the petrochemicals industry). Intangible assets can also be a source of Ricardian rent; however, they are often related to innovation and other capabilities; that is, Schumpeterian rent creation (Hitt *et al*., 1991). By considering tangible assets alone, we maximize the contrast between the Schumpeterian and Ricardian rent focus. Thus:

$$\begin{aligned} &\textit{Firm Ricardian Focus}(R_f) \\ &\quad = \textit{Firm Tangible Asset Intensity}/ \\ &\qquad \textit{Industry Tangible Asset Intensity} \\ &\textit{Industry Ricardian Focus}(R_i) \\ &\quad = \textit{Industry Tangible Asset Intensity}/ \\ &\qquad \textit{Total Sample Tangible Asset Intensity} \end{aligned}$$

Table 3 lists a few industries with high and low Ricardian or Schumpeterian focus in our sample based on our operationalization of the industry-level rent creation focus. As per Table 3, the oil and gas, and the metal industries are the most Ricardian (tangible asset intensive), while wholesale trade is the least Ricardian. On the other hand, the pharmaceutical and the instruments industries are among the most Schumpeterian. These industries include firms such as Tsumura (herbal medicines) and SMC Corporation (pneumatic products). The retail trade industry has the lowest Schumpeterian focus. While we suggested that firms may use the Ricardian and Schumpeterian rent creation mechanisms in a complementary manner (Makadok, 2001), our data further indicated that there are few (if any) firms pursuing both mechanisms at the firm level compared with their industry peers (see Figure 1). On the other hand, we note that our sample firms' firm-level rent focus did not always align with industry-level rent focus.

Degree of cost/asset retrenchment. We used percent reduction in total assets from one year to the next year in order to measure an asset retrenchment, consistent with previous studies (Robbins and Pearce, 1992; Morrow *et al*., 2004). Similarly, we used percent reduction in total SGA from one year to the next in order to measure a cost retrenchment. We defined a retrenchment event as at least a five percent reduction in assets or SGA.

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Table 2a. Descriptive statistics and correlations—full sample

Variables	Mean	S.D.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Post-retrenchment ROS (adjusted)	0.00%	0.18												
2. Pre-retrenchment ROS (adjusted)	0.00%	0.06	0.18**											
3. Asset change	2.33%	0.09	−0.12**	0.29**										
4. Cost (SGA) change	2.67%	0.18	0.03	0.12**	0.22*									
5. Firm Schumpeterian focus (S_f)	0.98	1.32	0.01	−0.07**	−0.05*	−0.06**								
6. Industry Schumpeterian focus (S_i)	0.99	0.95	0.00	0.00	−0.04	−0.01	0.02							
7. Firm Ricardian focus (R_f)	0.99	0.67	−0.03	−0.03	−0.03	0.06**	0.09**	0.01						
8. Industry Ricardian focus (R_i)	1.01	0.65	0.00	0.00	0.00	−0.05*	0.04	0.09**	−0.01					
9. Export intensity	0.11	0.16	−0.06**	−0.03	−0.02	−0.06**	0.19**	0.19**	0.04*	−0.05*				
10. Long term debt to asset ratio	0.58	0.20	−0.09**	−0.33**	0.03	0.01	−0.10**	−0.13**	−0.12**	−0.01	−0.20**			
11. Firm age	50.77	17.29	−0.04	−0.07**	−0.07**	−0.02	0.12**	0.13**	−0.04	0.04	−0.04*	0.22*		
12. Firm size	2264.73	3470.64	0.02	0.02	0.02	0.01	0.03	−0.10**	−0.01	0.04	−0.04*	0.03	0.03	
13. Industry sales growth	1.74%	0.07	0.00	0.00	0.24*	0.24*	−0.04	−0.01	0.00	−0.10**	−0.04	0.04	−0.02	0.02
14. Prior performance (ROS)	3.86%	0.06	0.14**	0.61**	0.19**	0.10**	−0.02	0.07**	−0.07**	0.07**	−0.02	−0.40**	−0.10**	0.00
15. Prior performance change	−2.00	64.30	0.02	0.07**	0.03	0.02	0.01	0.02	0.01	0.01	0.01	0.00	−0.00	0.00
16. R&D intensity	0.01	0.02	0.01	−0.02	−0.02	−0.05*	0.54**	0.57**	0.11**	0.06**	0.27**	−0.16**	0.06**	−0.00
17. Asset retrenched (1/0)	0.16	0.37	−0.04	−0.25**	−0.58*	0.12*	0.05*	0.04	0.01	−0.03	0.05**	0.02	−0.01	−0.06**
18. Cost retrenched (1/0)	0.15	0.37	−0.02	−0.18**	−0.25**	−0.37**	0.04*	0.01	0.05**	0.01	0.11**	0.01	0.01	−0.01

Variables	13.	14.	15.	16.	17.
14. Prior performance (ROS)	0.04*				
15. Prior performance change	0.02				
16. R&D intensity	0.04	0.01			
17. Asset retrenched (1/0)	−0.16**	0.06**	0.05*		
18. Cost retrenched (1/0)	−0.17**	−0.01	0.05*	0.21**	0.21**

N = 2,406. ** Correlation is significant at the 0.01 level (two-tailed); * . Correlation is significant at the 0.05 level (two-tailed).

Table 2b. Descriptive statistics and correlations—asset retrenched sample

Variables	Mean	S.D.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Post-retrenchment ROS (adjusted)	−1.34%	0.06												
2. Pre-retrenchment ROS (adjusted)	−2.83%	0.08	0.37**											
3. Asset retrenchment	9.68%	0.05	−0.18**	−0.34**										
4. Cost retrenchment	2.10%	0.14	−0.15**	−0.19**	0.13*									
5. Firm Schumpeterian focus (S_f)	1.09	1.31	−0.14**	−0.26**	0.08	0.12*								
6. Industry Schumpeterian focus (S_i)	1.09	0.95	0.01	0.01	−0.03	0.01	0.05							
7. Firm Ricardian focus (R_f)	1.05	0.70	0.01	−0.19**	0.08	0.14**	0.25**	0.04						
8. Industry Ricardian focus (R_i)	0.94	0.34	−0.07	−0.00	0.00	0.04	0.07	0.42**	0.03					
9. Export intensity	0.13	0.17	−0.06	0.20**	0.16**	0.19**	0.34**	0.17**	0.12*	0.10*				
10. Long term debt to asset ratio	0.58	0.19	−0.02	−0.13*	−0.00	−0.07	−0.13*	−0.15**	−0.20**	−0.12*	−0.17**			
11. Firm age	50.76	13.83	0.00	0.00	−0.02	0.07	−0.04	0.22**	−0.05	−0.09	0.03	0.12*		
12. Firm size	1828.58	1759.48	0.05	0.12*	−0.09	−0.04	0.09	−0.08	−0.01	−0.11*	0.01	0.04	0.00	
13. Non selection hazard (IMR)	1.40	0.33	0.20**	0.43**	−0.18**	−0.22**	−0.27**	−0.05	−0.26**	−0.15**	−0.26**	−0.02	−0.02	0.18**
14. Prior asset retrenchment	0.34	0.47	−0.08	−0.19**	0.11*	0.10*	0.07	0.02	0.05	0.01	0.13*	−0.02	0.04	−0.09
15. Asset retrenchment × R_f	0.08	0.99	−0.03	−0.12*	−0.23**	0.06	−0.09	0.02	0.08	0.00	−0.02	0.05	−0.03	−0.00
16. Asset retrenchment × R_i	−0.00	0.96	0.16**	0.12*	−0.05	−0.02	−0.04	−0.05	0.00	−0.00	0.01	−0.09	−0.05	0.07
17. $R_f \times R_i$	0.03	1.00	0.04	−0.07	0.00	0.04	0.04	−0.00	0.10*	−0.06	0.06	0.00	−0.00	−0.17**
18. Asset retrenchment × $R_f \times R_i$	0.00	1.02	−0.04	0.02	0.08	0.02	−0.04	0.06	0.06	0.04	−0.03	0.01	−0.03	0.01

Variables	13.	14.	15.	16.	17.
14. Prior asset retrenchment	−0.22**				
15. Asset retrenchment × R_f	−0.03	−0.06			
16. Asset retrenchment × R_i	0.08	−0.04	0.08		
17. $R_f \times R_i$	−0.09	−0.01	0.06	0.04	
18. Asset retrenchment × $R_f \times R_i$	−0.10*	−0.06	0.21**	0.32**	0.02

N = 383. ** Correlation is significant at the 0.01 level (two-tailed); *. Correlation is significant at the 0.05 level (two-tailed).

Table 2c. Descriptive statistics and correlations—cost retrenched sample

Variables	Mean	S.D.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Post-retrenchment ROS (adjusted)	−0.03%	0.07												
2. Pre-retrenchment ROS (adjusted)	−1.97%	0.07	0.34**											
3. Asset retrenchment	3.03%	0.09	−0.17**	−0.29**										
4. Cost retrenchment	10.51%	0.06	−0.04	−0.19**	−0.00									
5. Firm Schumpeterian focus (S_f)	1.07	1.22	−0.03	−0.12*	0.01	0.16**								
6. Industry Schumpeterian focus (S_i)	1.05	0.86	−0.06	−0.08	0.03	−0.02	0.05							
7. Firm Ricardian focus (R_f)	0.99	0.59	0.06	−0.22**	0.07	0.02	0.20**	0.01						
8. Industry Ricardian focus (R_i)	0.96	0.33	−0.01	−0.04	0.01	−0.03	0.22**	0.38**	0.15**					
9. Export intensity	0.16	0.20	0.10	−0.12*	−0.03	0.31**	0.29**	0.16**	0.04	−0.04				
10. Long term debt to asset ratio	0.57	0.22	−0.08	−0.30**	0.03	0.01	−0.20**	−0.05	−0.10	−0.13*	−0.18**			
11. Firm age	52.03	15.30	0.00	−0.03	0.04	−0.15**	−0.02	0.16**	−0.12*	0.02	−0.01	0.20**		
12. Firm size	2242.47	4423.71	0.00	0.06	−0.09	0.00	0.00	−0.09	−0.06	0.09	−0.06	0.06	0.09	
13. Non selection hazard (IMR)	1.36	0.37	0.15**	0.38**	−0.22**	−0.12*	−0.26**	−0.12*	−0.16**	−0.16**	−0.34**	−0.03	−0.04	0.12*
14. Prior cost retrenchment	0.40	0.49	0.01	−0.17*	0.03	0.04	−0.02	−0.02	0.14**	−0.01	0.10*	0.02	0.10	−0.01
15. Cost retrenchment × S_f	0.16	1.67	−0.15**	−0.06	0.02	0.18**	0.33**	−0.01	−0.05	0.02	0.14**	−0.03	−0.11*	0.00
16. Cost retrenchment × S_i	−0.02	0.66	−0.01	−0.05	0.06	−0.07	−0.02	−0.44**	0.09	−0.16**	0.09	0.05	0.02	0.02
17. S_f × S_i	0.05	0.76	−0.03	0.02	−0.03	−0.02	0.04	−0.14**	−0.05	−0.15**	−0.01	−0.03	−0.03	0.13**
18. Cost retrenchment × S_f × S_i	−0.01	0.54	−0.17**	−0.14**	0.04	0.01	0.08	0.08	0.03	0.03	0.11*	−0.00	0.05	−0.10

Variables	13.	14.	15.	16.	17.
14. Prior cost retrenchment	−0.16**				
15. Cost retrenchment × S_f	−0.05	−0.05			
16. Cost retrenchment × S_i	−0.04	0.03	0.01		
17. S_f × S_i	0.02	−0.03	0.03	0.09	
18. Cost retrenchment × S_f × S_i	−0.05	0.03	0.16**	−0.05	−0.20**

N = 367. ** Correlation is significant at the 0.01 level (two-tailed); *. Correlation is significant at the 0.05 level (two-tailed).

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Table 3. Examples of firms and industries with Ricardian/Schumpeterian focus

Trait (industry level)		Industry	Company name (select)	Score
Ricardian focus	High	Oil and gas	Arabian Oil	1.99
		Metal industries	Pacific Metals Co	1.83
			Nippon Steel	1.83
	Low	Wholesale trade	Tokyo Electronics	0.30
			Ryosan	0.30
Schumpeterian focus	High	Chemicals (Pharmaceuticals)	Tsumura and Co	3.99
			Shionogi and Co Ltd.	3.99
		Instruments	SMC Corporation	2.09
	Low	Transport (trucking and warehousing)	Yamato Transport	0.00
			Senko Co Ltd.	0.00

This is consistent with prior work on retrenchment and downsizing (Cascio *et al*., 1997; Guthrie and Datta, 2008). Thus, the retrenchment levels for the firms in our sample range from a minimum of five to 43 percent for cost retrenchment and 29 percent for asset retrenchment, respectively.

Industry classification. We used the *Japan Company Handbook* published by Toyo Keizai Inc. to identify the industries (at the three-digit SIC code level) in which the firms' sales occurred.

Controls. The main control variable was firm performance (industry-adjusted ROS) in the year of retrenchment. This variable enabled us to control for any unknown or unobserved firm-level variables that may have influenced performance. Thus, we isolated the impact of explanatory variables on firm performance and accounted for any endogeneity (Hamilton and Nickerson, 2003) due to firm factors not considered in our model. By including this variable, we could also control for the internal state of the firm (i.e., healthy vs. loss making) which may have impacted the retrenchment process, thereby affecting subsequent firm performance (Love and Nohria, 2005). The industry-adjusted firm performance variable was formed by subtracting the mean ROS for all single business firms in the same industry as the focal firm for the year in which retrenchments occurred.

We also controlled for other factors that may have impacted firm performance. These included a dummy variable in each subsample to denote whether or not a firm had undertaken any prior asset (or cost) retrenchments during the study period.[8] We also controlled for firm size (natural logarithm of number of employees; Morrow *et al*., 2004), age (natural logarithm of years since founding), leverage (long-term debt to asset ratio; Jensen, 1989) and export intensity (ratio of export sales to total sales, in order to account for internationalization; Lu and Beamish, 2001). We also included five year-dummies in order to control for the different time periods of the study. Our rationale for this approach is based on arguments presented by Certo and Semadeni (2006), who suggested that strategy researchers using panel data that have more firm observations than time periods should use time dummies instead of generalized least squares (GLS) techniques because GLS does not account for contemporaneous correlation effects. The lowest number of firms that we had in any one year period was 32, that is, a ratio of 6 : 1 in terms of firms to years, which makes an

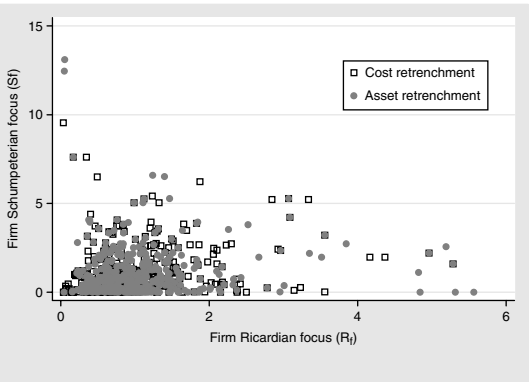

Figure 1. Firm-level rent creation focus and distribution of retrenchment types

[8] Due to left censoring, we could not confirm if the firms that retrenched in 1992 had undertaken any prior retrenchment. However, we believe that this should not be a significant concern considering that neither of these control variables was significant in our results.

ordinary least squares (OLS) regression using time dummies appropriate for our analysis.

In addition to the above controls, we recognize that Schumpeterian firms also have varying degrees of Ricardian focus, as do Schumpeterian industries. Hence, we controlled for firm and industry Ricardian focus in hypotheses tests for the Schumpeterian rent creation mechanism, and vice versa. Further, we also controlled for the level of asset retrenchment when testing the cost retrenchment sample, and vice versa. We note from Tables 2b and 2c that our sample of asset retrenched firms have an average asset retrenchment of 9.68 percent and cost retrenchment of 2.10 percent (Table 2b), whereas our sample of cost retrenched firms had an average cost retrenchment of 10.51 percent and asset retrenchment of 3.03 percent (Table 2c). This suggests that our method of selecting asset and cost retrenched firms is appropriate.

Analysis

We selected our final samples of asset retrenched or cost retrenched firms from the full sample of 2,406 large nondiversified firms. Since it is not reasonable to assume that the decisions as to whether to retrench, and as to which type of retrenchment method(s) to use, are randomly assigned, we employed a two-stage Heckman procedure in order to account for any model misspecification due to sample selection bias (Bascle, 2008; Shaver, 1998) for each of the two samples. We used the industry sales growth (year prior to retrenchment to year of retrenchment) as an instrumental variable. The instrumental variable selected should be correlated with the first-stage outcome variable, decision to retrench, but not with the second-stage outcome variable, adjusted ROS (Bascle, 2008; Morrow *et al*., 2007). As per Table 2a, the industry sales growth was negatively correlated with the asset retrenchment decision (and the cost retrenchment decision); however, no correlation existed between industry growth rate and a firm's post-retrenchment performance. This instrumental variable, along with various factors that may influence a firm's retrenchment strategy,[9] was entered into the first-stage probit model predicting the decision to use asset (cost) retrenchment (a dummy variable). This approach provides a control variable referred to as the inverse Mills ratio, which is then entered into the second-stage performance regression model. STATA's Heckman command was used to analyze the data in all cases.

The first-stage probit results (shown in Table 4) for the asset retrenchment indicate that firms with lower profitability and greater R&D intensity, and firms that are in industries with lower growth rates, were significantly more likely to use asset retrenchment. Larger firms and firms in the years 1993, 1995, and 1996 were less likely to undergo asset retrenchment. In terms of the decision to cost retrench, negative and significant signs on the previous year's ROS and industry growth rate indicated that firms with lower profitability, and firms in industries with lower growth rates, were significantly more likely to engage in cost retrenchment. Firms with higher export intensity also tended to use cost retrenchment. On the other hand, the year of retrenchment decision and firm size did not have a significant impact on cost retrenchment. The significant likelihood ratio chi-square values indicate that our models as a whole are statistically significant and fit significantly better than a model with no predictors. Our models correctly classified 84.29 percent and 83.78 percent of observations, for asset retrenchment and cost retrenchment, respectively.

The second-stage regression involved running several OLS models. We tested the moderation effects of the Ricardian rent creation focus on asset retrenchment (Hypothesis 1) by hierarchical inclusion of the interaction terms in the OLS regression models. First, we included the inverse Mills ratio and other control variables in each model. Then, we added the main effects (firm- and industry-level Ricardian rent creation focus and the degree of asset retrenchment), followed by the *Firm Ricardian Focus* interaction term (i.e., *Asset Retrenchment* $\times R_f$). Finally, we added the three-way interaction term (e.g., *Asset Retrenchment* $\times R_f \times R_i$) along with the two additional two-way interaction terms (e.g., *Asset Retrenchment* $\times R_i$ and $R_f \times R_i$). Similarly, we tested the moderation effects of the Schumpeterian rent creation focus on cost retrenchment (Hypothesis 2) using a hierarchical regression analyses, which

[9] Specifically, we controlled for prior year's performance (ROS), change in performance prior to the retrenchment decision, firm size (natural logarithm of number of employees), leverage (long-term debt to asset ratio), R&D intensity, export intensity, and year dummies representing the year of retrenchment decision.

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Table 4. Results of first-stage probit analyses

Variables	Asset retrenchment	Cost retrenchment
Independent variables		
Return on sales (lagged)	−4.114**	−3.995**
	(0.584)	(0.575)
Change in return on sales	−0.002	−0.000
	(0.002)	(0.000)
Log firm size	−0.104**	−0.018
	(0.043)	(0.041)
Time1	−0.223*	−0.127
	(0.125)	(0.133)
Time2	−0.196	0.004
	(0.126)	(0.131)
Time3	−0.284**	−0.055
	(0.119)	(0.124)
Time4	−0.418**	0.045
	(0.122)	(0.121)
Time5	−0.105	0.032
	(0.114)	(0.123)
Long term debt to assets ratio	−0.169	−0.226
	(0.181)	(0.180)
Research and development intensity	3.551**	1.418
	(1.586)	(1.636)
Industry growth rate	−4.270**	−5.264**
	(0.643)	(0.660)
Export intensity	0.117	0.704**
	(0.207)	(0.193)
Constant	0.202	−0.609*
	(0.340)	(0.332)
N	2,405	2,404
LR χ^2 (degree of freedom in brackets)	157.20(12)**	189.00(12)**
% correctly classified	84.29%	83.78%

Note: Negative coefficients indicate the less likelihood to asset retrench or cost retrench respectively. Standard errors reported in brackets. Significance levels: ** $p < 0.01$ (two-tailed); * $p < 0.05$; + $p < 0.1$

involved the *Firm Schumpeterian Focus* (S_f) and *Industry Schumpeterian Focus* (S_i) terms.[10]

[10] While our focus in this study was the negative impact of asset retrenchment on firms with a Ricardian focus and of cost retrenchment on firms with a Schumpeterian focus, we also took note of the possibility that the right choice of retrenchment strategy might help firms improve their long-term performance in *certain* rent creation contexts. For example, disposing of redundant assets may help a firm gain a lean operation and speedy strategic decision making, which, in turn, will enhance its dynamic capabilities (Eisenhardt and Martin, 2000) and, hence, the prospect of future Schumpeterian rent creation. On the other hand, the relationship between cost retrenchment and post-retrenchment performance may be positive for firms with relatively high Ricardian focus, for example, by reducing the absorbed slack in expenses that are generating scale diseconomies (Barney, 2007; Love and Nohria, 2005). Therefore, we tested additional possible non-hypothesized moderating effects of the Schumpeterian rent creation focus on asset retrenchment and Ricardian rent creation focus on cost retrenchment by including equivalent two- (e.g., *Asset Retrenchment* × S_f) and three-way interactions terms (e.g., *Asset Retrenchment* × S_f × S_i) similar to our hypotheses tests. None of these moderating effects were found to be significant, indicating that no evidence exists that asset retrenchment improves performance in Schumpeterian industries or firms, or that cost retrenchment improves performance in firms with a Ricardian focus in the long term. We also tested the robustness of our findings by running each regression model on a combined sample of firms that underwent either asset retrenchment or cost retrenchment (N = 621). The results (available from the corresponding author) were largely consistent.

RESULTS

Ricardian rent and post-retrenchment performance

Ricardian rent and asset retrenchment. For the firms with relatively high Ricardian rent creation focus, we hypothesized that asset retrenchment would be negatively related to post-retrenchment performance (Hypothesis 1a). We used the sample of asset retrenched firms to test this hypothesis. We controlled for sample selection bias by

Table 5a. Results of second-stage regression analyses—asset retrenchment

Variable	Controls only	Main effects only	Moderation effects of Ricardian focus	
	Model 1	Model 2	Model 3 (H1a)	Model 4 (H1b)
Independent variables				
Firm Schumpeterian focus (S_f)		−0.051	−0.049	−0.050
Industry Schumpeterian focus (S_i)		0.038	0.037	0.058
Firm Ricardian focus (R_f)		0.105*	0.103*	0.102+
Industry Ricardian focus (R_i)		−0.069	−0.069	−0.072
Asset retrenchment		−0.044	−0.047	−0.035
Cost retrenchment		−0.102*	−0.103*	−0.101*
Asset retrenchment × R_f			0.012	0.014
Asset retrenchment × R_i				0.145**
$R_f \times R_i$				0.032
Asset retrenchment × R_f × R_i				−0.106*
Controls				
Time period	Time2* Time5**	Time2* Time5**	Time2* Time5**	Time2* Time5**
Pre-retrenchment ROS	0.358**	0.342**	0.343**	0.343**
Log firm age	−0.012	−0.010	−0.009	−0.011
Log firm size	−0.054	−0.046	−0.047	−0.045
Long term debt to assets ratio	0.023	0.031	0.030	0.043
Export intensity	0.060	0.086	0.086	0.072
Prior asset retrenchment	−0.049	−0.041	−0.040	−0.049
Non-selection hazard (IMR)	0.074	0.064	0.064	0.035
N	383	383	383	383
R^2	0.163	0.189	0.189	0.211
F change	6.024	1.877+	0.059	3.391*

Note: The dependent variable is post-retrenchment ROS (industry adjusted). Standardized beta coefficients reported. Time period (year) dummies are included but not individually reported. Significance levels: ** $p < 0.01$ (two-tailed); * $p < 0.05$; + $p < 0.1$.

including the inverse Mills ratio in all second-stage regression models in Table 5a. We found that the inverse Mills ratio, however, was not significant indicating that the selection bias was not a concern. We formed the interaction term *Asset retrenchment* × R_f and ran a regression analysis. Model 3 in Table 5a reports the results for this test, which show that the two-way interaction was not significant. Thus, Hypothesis 1a is not supported.

In Hypothesis 1b, we hypothesized that the negative relationship we expected in Hypothesis 1a would have an amplified impact on firms that operate in industries with a higher level of Ricardian orientation. Model 4 in Table 5a indicates a significant interaction effect for the three-way term *Asset retrenchment* × R_f × R_i ($b = -0.106$; $p = 0.041$). The plot in Figure 2b demonstrates that increasing or decreasing the levels of asset retrenchment has a relatively neutral impact on post-retrenchment performance for Ricardian firms (high R_f) in industries with a high Ricardian focus (high R_i). On the other hand, Figure 2b further reveals that the degree of asset retrenchment is positively associated with the post-retrenchment performance for firms that have a low firm Ricardian focus (low R_f) operating under the same industry conditions (high R_i). Thus, while the extent to which a firm's industry is asset intensive moderates the interaction effect of asset retrenchment and firm-level Ricardian focus on post-retrenchment performance, the direction of this relationship is not exactly consistent with Hypothesis 1b. We will return to this result and the interaction plots in Figure 2a in the discussion section.

Schumpeterian rent and post-retrenchment performance

Schumpeterian rent and cost retrenchment. We hypothesized that cost retrenchment is negatively associated with post-retrenchment performance for firms with a relatively higher Schumpeterian focus (Hypothesis 2a). We formed the two-way interaction term *Cost retrenchment* × S_f in order to test this effect using the sample of cost retrenched firms. Model 7 in Table 5b reports a significant and

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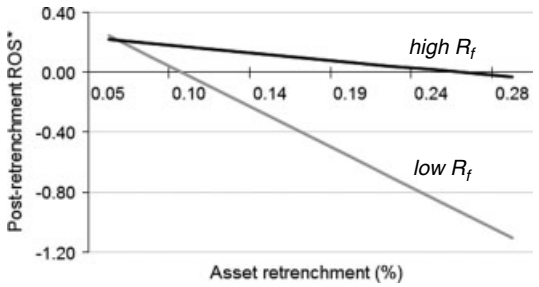
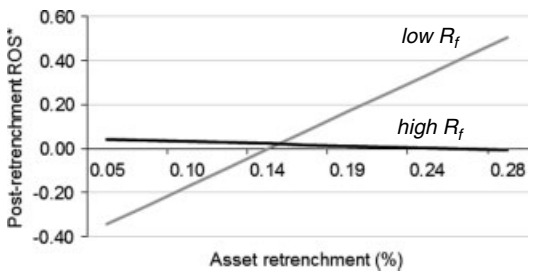
Table 5b. Results of second-stage regression analyses—cost retrenchment

Variable	Controls only	Main effects only	Moderation effects of Schumpeterian focus	
	Model 5	Model 6	Model 7 (H2a)	Model 8 (H2b)
Independent variables				
Firm Schumpeterian focus (S_f)		−0.022	0.031	0.026
Industry Schumpeterian focus (S_i)		−0.088	−0.086	−0.122*
Firm Ricardian focus (R_f)		0.150**	0.132*	0.141**
Industry Ricardian focus (R_i)		0.078	0.074	0.072
Asset retrenchment		−0.049	−0.045	−0.043
Cost retrenchment		−0.015	0.000	−0.021
Cost retrenchment × S_f			−0.146**	−0.120*
Cost retrenchment × S_i				−0.075
S_f × S_i				−0.036
Cost retrenchment × S_f × S_i				−0.145**
Controls				
Time period	NS	Time 5+	NS	NS
Pre-retrenchment ROS	0.367**	0.377**	0.376**	0.351**
Log firm age	−0.003	−0.028	0.009	0.025
Log firm size	−0.071	−0.069	−0.077	−0.088+
Long term debt to assets ratio	0.058	0.079	0.089	0.089
Export intensity	0.176**	0.210**	0.215**	0.244**
Prior cost retrenchment	0.052	0.029	0.024	0.027
Non-selection hazard (IMR)	0.082	0.101	0.105	0.113+
N	367	367	367	367
R^2	0.163	0.195	0.213	0.235
F change	5.762	2.286*	7.849**	3.250*

Note: The dependent variable is post-retrenchment ROS (industry adjusted). Standardized beta coefficients reported. Time period (year) dummies are included but not individually reported. Significance levels: ** $p < 0.01$ (two-tailed); * $p < 0.05$; + $p < 0.1$.



(a) Moderation effect of R_f (under low R_i)



(b) Moderation effect of R_f (under high R_i)

Figure 2. Three-way interaction effects of Ricardian rent creation mechanism and asset retrenchment
Note: * Standardized values

negative interaction term ($b = -0.146$; $p = 0.005$), which indicate that less cost retrenchment results in better performance for higher Schumpeterian focus firms (Figure 3a). Thus, Hypothesis 2a is supported. Table 5b also shows that the inverse Mills ratio was not significant except for in Model 8 where it was marginally significant ($p < 0.1$), which indicated that sample selection bias was not a significant concern.

We then hypothesized that the relationship in Hypothesis 2a would be positively moderated if the firm operates in an industry with a higher level of Schumpeterian orientation (Hypothesis 2b). In order to test this effect, we formed the three-way interaction term *Cost retrenchment* × S_f × S_i as well as two-way interactions, S_f × S_i and *Cost retrenchment* × S_i. Model 8 in Table 5b reports a negative and significant three-way interaction effect ($b = -0.145$; $p = 0.004$). The three-way interaction effect is plotted in the two lower graphs in Figure 3. Figure 3b shows that increasing SGA cuts (cost retrenchment) improves performance to a greater extent for innovation oriented firms (high

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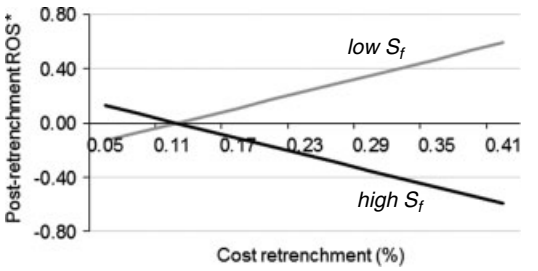
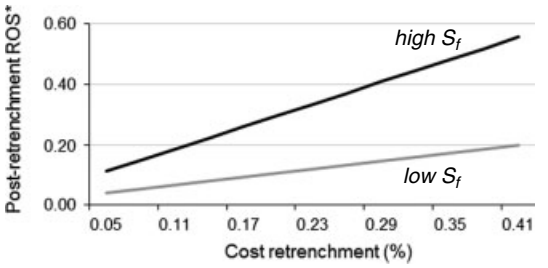
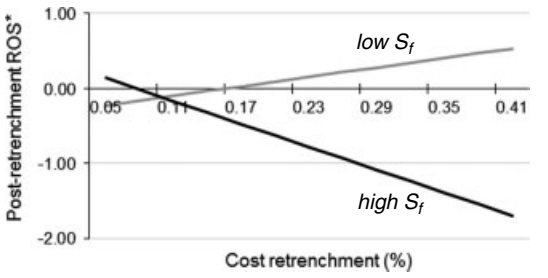


(a) Two-way interaction effect between S_f and cost retrenchment



(b) Moderation effect of S_f (under low S_i)



(c) Moderation effect of S_f (under high S_i)

Figure 3. Interaction effects of Schumpeterian rent creation mechanism and cost retrenchment
Note: * Standardized values

S_f) in less innovation-intensive industries (low S_i). On the other hand, Figure 3c shows that increasing SGA cuts in fact significantly undermines the post-retrenchment performance of firms with high innovative posture relative to their industry peers (high S_f) in industries with a high Schumpeterian focus (high S_i). Thus, Hypothesis 2b is supported.

Control variables

The main control variable, firm performance in the retrenched year, was positive and significant in all of our models, indicating that the retrenched firms that were originally profitable performed better than the retrenched firms that originally had losses. These results confirm Love and Nohria's (2005) findings. In addition, cost retrenched firms with greater exports (higher levels of export intensity) performed better. The asset retrenched sample of firms exhibited a time period effect. Firms that underwent asset retrenchment in 1997 demonstrated particularly stronger performance improvement three years later (in 2000) when compared to the three-year performance improvement of firms that retrenched their assets in 1992. It may be that the Japanese firms whose asset retrenchment coincided with the beginning of the 1997 Asian economic crisis benefited from acting proactively before the crisis fully unfolded. However, this time period effect was much weaker or not significant for the cost retrenchment. Other factors, such as firm size, age, and leverage were not significant.

DISCUSSION

This study sought to examine the efficacy of two commonly used retrenchment strategies—asset and cost retrenchment—in the context of two different strategic orientations—Schumpeterian and Ricardian rent creation mechanisms. Significantly, we found that cost retrenchment has a negative impact on post-retrenchment performance when a firm has a relatively high Schumpeterian rent creation focus. Further, this negative effect is amplified when the firm belongs to an industry with Schumpeterian competitive dynamics. Cutting SGA costs as a means to improve performance can prove very costly to Schumpeterian focused firms. These deleterious effects are worsened for firms in more innovation oriented industries. These findings are consistent with Guthrie and Datta (2008) in general, but our *post hoc* analysis of the two-way interaction terms that we conducted in order to examine the relative importance of the firm- and industry-level Schumpeterian focus also revealed that the Schumpeterian focus of a firm relative to its industry peers had a stronger effect on the post-retrenchment performance than the Schumpeterian focus of the industry to which it belonged as evident by the fact that $Cost\ retrenchment \times S_i$ was not significant ($p = 0.198$), whereas $Cost\ retrenchment \times S_f$ was significant ($p = 0.005$).

Our results for asset retrenchment in the Ricardian focused firms are not as clear-cut as our

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results for cost retrenchment in the Schumpeterian focused firms, but they are no less interesting. To begin with, our findings indicated that the relationship between asset retrenchment and post-retrenchment performance is not significantly moderated by the extent to which a firm has a Ricardian rent creation focus relative to its industry peers. The nature of the three-way interaction effect lends overall support for our rationale behind Hypothesis 1b: in capital-intensive industries (high R_i), a deeper asset retrenchment is more desirable for low Ricardian focused firms (low R_f). However, a closer investigation of Figure 2 reveals that the incremental effect of asset retrenchment is, in general, negative in less asset-intensive industries (low R_i: see Figure 2a) and positive in more asset-intensive industries (high Ri: see Figure 2b). Figure 2a shows that increasing levels of asset retrenchment undermine the post-retrenchment performance of firms in less Ricardian industries. Further, this negative effect is stronger for firms that are relatively less Ricardian focused than their industry peers (low R_f). As such, the moderation effect of an industry-level Ricardian focus contradicts our underlying proposition that Ricardian rent creation and competitive advantage should be based on a strong asset base.

A number of arguments can be deployed to explain this result. First, Ricardian focused firms create economic rents through resource picking and subsequent exploitation of these resources. According to Makadok (2001), these firms generate rents not only by picking resources that are valuable to them but also by staying away from resources that may be relatively less productive. It may be possible, then, that Ricardian focused firms may be able to discern rent-generating assets from nonproductive assets and focus their retrenchment on the latter. In addition, even though they discard some of the valuable and rare rent-generating assets, they may be able to reacquire some of them, or resources with equivalent rent-generating potential, once they regain financial stability. It is also possible that some firms may maintain continued access to, and the exploitation of, the discarded assets through a sale-and-leaseback scheme. Accordingly, it is plausible to expect that the negative impact of asset retrenchment on post-retrenchment performance, if any, will be relatively short term.

This is an interesting contrast to the previously discussed findings regarding Schumpeterian rent focus and cost retrenchment (Hypothesis 2). Capabilities that are the basis for Schumpeterian rent creation tend to be organizationally embedded (Makadok, 2001) and, therefore, it is not generally feasible to distinguish between rent-generating capabilities and nonproductive capabilities. Further, once rent-generating capabilities are destroyed, it is much harder to recover them: first, it is difficult to acquire dynamic capabilities through strategic factor markets due to their lack of transferability (Amit and Schoemaker, 1993; Barney, 1986), and second, rebuilding those capabilities internally are subject to time-compression diseconomies (Dierickx and Cool, 1989; Teece *et al*., 1997). Accordingly, we expect that cost retrenchment will have a prolonged negative impact on performance. Our results were consistent with this view.

In sum, our study highlights the theoretical significance of a firm's rent creation mechanism as a contingency factor for *(un)*successful retrenchment. Our findings provide key insights into when the adoption of a particular retrenchment strategy (asset or cost retrenchment) would prove detrimental. Specifically, our work demonstrates the importance of carefully considering a firm's rent creation mechanism based on both the firm- and industry-level factors so that the core rent creation mechanism will not be compromised as the firm undertakes retrenchment. Thus, our research extends the work of Morrow *et al*. (2004) and Guthrie and Datta (2008), who introduced industry as an important determinant of retrenchment success. Future studies of retrenchment would also benefit from such an approach.

Our results also indicated that the Schumpeterian rent creation mechanism, which is based on organizationally embedded capabilities, is more vulnerable to the negative impact of retrenchment, and is harder to recover once compromised, when compared with the Ricardian rent creation mechanism, which is mainly based on the exploitation of valuable and rare resources. Further, our results suggest that firms may be able to reinvent or reorganize themselves by discarding less productive assets through large-scale asset retrenchment, as shown by our findings in Ricardian industries. In this vein, our study adds to Makadok's (2001) view that Ricardian rent creation occurs *before* the acquisition of resources by applying superior resource picking skills. Our findings indicate that Ricardian focused firms can also strengthen their rent

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creation mechanism by reevaluating the changing values of their resources, and adjusting their asset base through retrenchment *ex post* resource acquisition. Strategy scholars may need to reexamine the sources of firm competitive advantage in light of these findings and more closely consider the interactions between firm and industry competitiveness.

Finally, we observed that some firms adopted both Ricardian and Schumpeterian foci, and that some firms underwent both cost and asset retrenchment. For example, our results indicated that the degree of cost retrenchment was negatively related to the post-retrenchment performance among asset retrenched firms as shown in Table 5a. Future studies could seek to understand the effect of simultaneously undertaking cost and asset retrenchment. Additional studies could examine the efficacy of focusing on a single rent creation mechanism vs. attempting to use both, as well as the cross-level alignment (or misalignment) of the rent focus. Such studies would further advance theories about firm competitive advantage.

Limitations

Our conceptual model and empirical approach are not without limitations. First, our empirical approach relied exclusively on secondary data. As a result, we could not investigate the internal dynamics and processes through which the retrenchment strategy operates. We believe that a longitudinal study of retrenchment, through surveys and interviews of managers and other stakeholders, should yield many insightful findings regarding retrenchment mechanisms and processes (Barker and Duhaime, 1997). Second, our study focused exclusively on retrenchments in a given year as an indicator of firm performance in the subsequent time period. Our empirical model controlled for a variety of performance influencing factors; nevertheless, post-retrenchment performance may depend not only on the successful retrenchment but also on various follow-up recovery actions. For example, Robbins and Pearce's (1992) two-stage turnaround model suggests that, after successfully completing a retrenchment, firms should adopt an appropriate recovery strategy, such as a revenue-generating strategy or product/market refocusing strategy (Hambrick and Schecter, 1983; Hofer, 1980). The question of whether and how cost and/or asset retrenchment strengthens a firm's position for the second stage of the turnaround remains to be addressed in future research (Morrow *et al*., 2004).

Implications

This very limitation, on the other hand, provides a basis for our unique contribution to retrenchment research. The question of whether different types of retrenchment strategies strengthen a firm's position for the subsequent stage of the turnaround was beyond the scope of our study. However, our findings strongly suggest that selecting and implementing the wrong retrenchment strategy may destroy a firm's core rent creation mechanism, thereby making it extremely difficult to improve future performance. According to Rigby and Saenz (2009), managers can unwittingly eliminate activities essential to driving sales and profits. This logic provides the underlying rationale for our arguments: rather than *endorsing* a particular retrenchment strategy in a particular context, we suggest that firms should *refrain* from using a particular retrenchment strategy in certain contexts.

As such, we believe that our study has several important implications for academics and practicing managers. For academics, our findings provide a much needed advance in theoretical and empirical retrenchment research by investigating an unexplored contextual factor in the retrenchment process. Our study explains the boundary conditions that determine when a particular retrenchment strategy is (or, more importantly, is *not*) appropriate. Our findings also highlight the differing degrees of fragility and recoverability of the two distinct rent creation mechanisms—Ricardian rent creation based on the exploitation of resources and Schumpeterian rent creation based on the explorative capabilities—in the context of different retrenchment strategies: asset retrenchment that mainly targets resources, and cost retrenchment that pertains to capability building activities such as R&D. We believe that our investigation of the negative changes to the resources and capabilities that are the sources of competitive advantage is a unique contribution to the RBV research.

For managers, our study provides a decision making framework. Both types of retrenchment strategies are popular because they are widely viewed as a 'quick fix' for firm performance (Morrow *et al*., 2004). However, our research suggests that managers should consider various strategic

DOI: 10.1002/smj

factors related to their business when they develop a retrenchment strategy. For one thing, managers should be careful not to destroy the firm's core rent creation mechanism through retrenchment. In particular, managers should think twice before engaging in drastic cost retrenchment if they are a highly Schumpeterian focused firm operating in a highly Schumpeterian focused industry.

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