



PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
ESCUELA DE INGENIERÍA

JUMP! THE EFFECT OF RECESSIONS ON COMPETITIVE POSITIONING

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Thesis submitted to the Office of Research and Graduate Studies
in partial fulfillment of the requirements for the degree of
Magíster en Ciencias de la Ingeniería

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Santiago de Chile, October 2017

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A mi familia y amigos.

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ABSTRACT

We analyse the effect of recessions on the stability of firms' strategic positioning in an industry. Our main argument is that recessions temporarily alter the relative value of the competitive isolating mechanisms that sustain firms' strategic positions, increasing the strength of supply-side isolating mechanisms and decreasing the strength of demand-side mechanisms. This allows for changes in firms' positions – i.e. competitive leapfrogging. We also argue that firms can turn such temporary boosts into permanent advantages if they have enough strategic flexibility to embrace these changes. Empirical results from multiple industries in the US during the period 1982-2015 strongly support our reasoning.

Keywords: recessions, isolating mechanisms, strategic flexibility, life cycle.

RESUMEN

Analizamos el efecto de las recesiones en el posicionamiento estratégico de las empresas. Proponemos que las recesiones cambian temporalmente el valor de los mecanismos de aislamiento competitivo, aumentando el valor de los mecanismos por el lado de la oferta y disminuyendo el valor de los mecanismos por el lado de la demanda. Esto le permitirá a las empresas cambiar su posicionamiento dentro de la industria. No obstante, las empresas verán este cambio como una oportunidad solo si cuentan con suficiente flexibilidad estratégica. Lo anterior es demostrado empíricamente, luego de analizar múltiples industrias Americanas entre los años 1982 y 2015.

Palabras Claves: recesiones económicas, mecanismos de aislamiento competitivo, flexibilidad estratégica, ciclo de vida.

1. ARTICLE BACKGROUND

1.1. Introduction

Countries around the world have experienced different periods of economic growth rates throughout their lives, varying both in duration and amplitude. For simplicity, all of these movements have been grouped into one common definition: the business cycle. Literature has defined the business cycle as deviations in the economy, changing between periods of recessions and economic growth (Kydland & Prescott, 1990). The business cycle can be divided into four different phases: economic growth (expansion), turning peak (expansion stops), economic contraction (recession) and finally another turning peak (Bromiley et al., 2008). Despite the economic differences, all countries around the world have experienced these cycles.

Within the business cycles, recessions stand out as punctuated and less common phase, which have a negative effect on companies' main performance indicators. They represent periods of uncontrollable and unpredictable variations in the environmental munificence, threatening the survival of firms (Latham, 2009). Within these variations, countries suffer a reduction in the gross domestic product (GDP) and employment (Ayyagari et al., 2011). The former generates a jolt inside industries, removing weaker competitors, and enhancing the positioning of stronger ones.

The study of recessions is crucial for the strategic management theory, due to its heterogeneous effect on firms' competitive position, profitability and market share (Chakrabarti et al., 2007, 2011; Garcia-Sanchez et al., 2014; Ghemawat, 2009; Latham, 2009; Mascarenhas & Aaker, 1989). Despite recessions impact the entire economy, its effect on firms, is known to be dissimilar, causing a lot of confusion in the management literature (Garcia-Sanchez et al., 2014).

Recent strategic management oriented researchers have attempted to explain the heterogeneous effect of recessions on firm performance and competitive evolution. Literature studying

these effects can be classified at three different levels: firm level (i.e., different areas inside the company), business strategy level (i.e., how to increase the performance of the business) and corporate level level (i.e., to determine which business to invest in). Among the research studying the effect of recessions at the firm level, Bishop et al. (1984), after analyzing the human resources area, determine the convenience of hiring during recessions. At the business strategy level, stands out the work of Garcia-Sanchez et al. (2014), who determine the convenience of building cost advantages and financial flexibility to increase performance during recessions. Finally, within the corporate level, Chakrabarti et al. (2007), show that diversified companies are more likely to exhibit inferior performance during recessions.

Despite these findings, the challenge still remains at the business strategy level. Theoretical studies and empirical evidence analyzing the effect of recessions on firms' competitive positioning remain scarce (Bromiley et al., 2008; Flammer & Ioannou, 2015). It is essential to address in more detail this relationship as the effect of recessions on competitive advantages and positioning can be permanent (Mascarenhas & Aaker, 1989; Garcia-Sanchez et al., 2014).

The remainder of the chapter is organized as follows: Section 1.2 focuses on the main objectives of this thesis. Section 1.3 reviews previous literature on the effect of recession on competitive positioning and firm performance. Section 1.4 details the methodology used. Section 1.5 presents the main findings and conclusions of the research and 1.6 suggests new opportunities for future developments. Following this, Chapter 2 contains the main article of this thesis and it is divided in 5 sections. Sections 2.1 briefly introduce recessions and the main topic of the research. Section 2.2 describes the theoretical framework and builds the main hypothesis. Section 2.3 describes the data and methodology used to build the empirical models. Section 2.4 details the empirical findings, including the summary statistics, regression results and robustness tests. Finally, Section 2.5 concludes and discusses the research.

1.2. Objectives and Hypothesis

The aim of this thesis is to determine the relevance of recessions in the competitive evolution by analyzing its effects on firms' strategic positioning. Specifically, attempts to provide empirical support for recent theoretical papers and mathematical simulation (Garcia-Sanchez et al., 2014, n.d.), which argue that recessions have heterogeneous effects on firms. These changes will create an opportunity for competitive leapfrogging, allowing stronger competitors to permanently increase their market share, and threatening weaker firms, forcing them to exit the industry.

In order to demonstrate and explain that recessions changes firm's competitive positioning, the manuscript has three main objectives. The first objective is to show that recessions generate significant changes in firms' market shares. The second objective seeks to explain these changes in firms' positioning by showing that recessions change the value of their isolating mechanisms, enhancing the value of the supply side (i.e. costs), and decreasing the value of the demand side mechanism (i.e. advertising). These temporarily shifts provide a unique opportunity for companies that have a cost-based strategy to change their competitive positioning and gain permanent changes in their market shares. Similar to the above, the third and last objective is to show that firms' strategic flexibility help firms to take advantage of these temporary changes in the relative value of their competitive isolating mechanisms. Therefore those firms which enter a recession with strategic flexibility will gain positioning compared to their peers.

The research addresses these objectives by studying the competitive evolution of multiple US industries belonging to the manufacturing sector, between the years 1982 and 2015. Firms' changes in the market shares will be measured to test whether recessions have a significant impact on firms' positioning. Moreover, different constructs are built to represent the supply-side mechanism, demand-side mechanism and strategic flexibility and test their effect on firm's positioning during recessions.

1.3. Literature Review

Recessions are temporary deviations from the overall pattern of positive economic growth (Kydland & Prescott, 1990; Lucas, 1977). They are transitory contractions of the level of economic activity that vary in intensity and duration, and involve changes in absolute prices, as well as relative prices among inputs and outputs (Mascarenhas & Aaker, 1989). Recessions are exogenous to industry selection forces but cause changes in firms' competitive positioning and also bankruptcies. This is a non-trivial phenomenon; in the US alone, over 500,000 companies of different sizes failed in each of the three recessions that have occurred since 1990 (Pearce & Michael, 2006)

Studies analyzing the effect of recessions on competitive evolution remain scarce. The topic has been balkanized through its treatment by functional silo, only rarely subjected to empirical testing and considerably hampered by the lack of any unified general theory that explains observed heterogeneity on the impact of recessions across organizations (Bromiley et al., 2008). In order to provide a meaningful review on the state of the art of research on this topic, antecedents are organized in three groups: those that analyze the effect of recessions at the functional level (e.g., at human resource level, consumer level), at the business strategy level, and at the corporate strategy level (i.e., diversification).

Studies at the functional level tend to focus on the advantages and the risks of following a countercyclical behaviour – i.e., pursuing some sort of expansion during contractions in the business cycle and regulating growth during expansions (Greer & Ireland, 1992; Knudsen & Lien, 2015; Flammer & Ioannou, 2015). Bishop et al. (1984) analyze whether countercyclical hiring is an advisable staffing strategy. Taking a conceptual approach, they recommend reducing the negative effects of a recession using salaries instead of commissions in salespersons, flexible pricing, and direct distribution; having with these strategies greater price control. Greer & Ireland (1992) empirically found that companies emphasizing planning tend to be more likely to hire counter cyclically. Knudsen & Lien (2015) empirically show that firms with high emphasis on exploration tend to increase investments in training and hiring

talent during recessions, exploiting inefficiencies in the labour market to increase their stock of firm-specific knowledge. Flammer & Ioannou (2015) propose, and empirically support, that companies that mainly focus on investing in intangible assets and stakeholder relationships are better, relative to those that focus on investing in human and physical capital, in the aftermath of an economic contraction.

The former array of studies provides a fine-grained analysis of strategic practices that seem to work best in managing the ups and downs of the business cycle, and suggests when and how it is convenient to follow a countercyclical strategy. The studies also anchor their specific analyses in more general management theories, indirectly linking these strategies with competition. However, the changes in competitive dynamics that might result from recessions are not the focus of such line of research.

Studies on the effect of recessions on competitive strategy started with Mascarenhas & Aaker (1989) seminal work. They examine whether it is preferable for a firm to follow a countercyclical or a procyclical strategy over the business cycle. They argue that the answer depends on the link between contemporaneous strategy and intertemporal relationships, which ultimately determine the optimal strategy. They propose that the best strategies for both, recessions and recovery periods, are not necessarily the best from a long-term intertemporal perspective.

Studies at the firm level expand the countercyclical analysis by focusing on the effect of recessions on industry-specific selection mechanisms (Garcia-Sanchez et al., 2014, n.d.; Sevil et al., 2016). Garcia-Sanchez et al. (2014) analyze the tension between the need to achieve isolating mechanisms (in their case, supply-side mechanisms) and the financial risk of taking on debt to secure such mechanisms during times of recession. Using a mathematical simulation model, they demonstrate that, compared to their peers in stable environments, firms building isolating mechanisms in a context where recessions might be imminent should do so as long as they do not lose financial flexibility in the process. Additionally, laggards can more effectively catch up to incumbents by working to close gaps in financial flexibility, rather than following the conventional strategy of closing gaps in isolating mechanisms. The main

limitations of this study are that it fails to provide empirical support for its findings and that it does not consider the effect of the demand-side isolating mechanisms.

Sevil et al. (2016) is among the first studies at the business strategy level to test the proposition that recessions create an opportunity for competitive leapfrogging. Focusing on the initial years of the global smartphone industry, they demonstrate that, in those countries experiencing deeper and longer recessions, Android caught up (and ultimately surpassed) iOS faster, and made larger market share gains. Their focus is on the leapfrogging phenomenon, that is, a change in firms' competitive position made possible by a recession.

These studies at the business level are consistent with those that focus on certain functional areas or strategic dimensions. The advantage of this latter line of research is that it allows for better integration of the individual mechanisms under a competitive dynamic umbrella. However, these theoretical developments and their empirical support are still in incipient stages.

The aim of research at the corporate strategy level has been to understand the impact of recessions on vertical integration, diversification and firms' performance (Chakrabarti et al., 2007; Wan & Yiu, 2009; Knudsen & Foss, 2014; Chakrabarti et al., 2011). Chakrabarti et al. (2007) argue and empirically show that highly diversified companies are more likely to exhibit inferior performance during recessions, since firms with more complex organizational architectures find it harder to adapt during those periods. Wan & Yiu (2009) show that acquisitions during recessions are positively related to firm performance. Based on an analysis of Asian companies during the 1990s, they observe that firms with higher slack are more active in acquisition activity during recessions, but pay a cost in inferior performance before recessions and also face problems related to integrating acquisitions in the recession's aftermath.

Knudsen & Foss (2014) complement this research stream by analyzing decisions on vertical integration during recessions. Using a sample of Norwegian firms during the last Great Recession, along 2008-2009, they observe that both increments and reductions of vertical integration occur as a consequence of this macroeconomic shock. Moreover, they observe a negative effect of the interaction between declines in access to credit and drops in demand

on insourcing of core activities, but no such effect on outsourcing of core activities. Overall, the literature on horizontal and vertical diversification provides support for a significant and heterogeneous effect of recessions on diversification activities, which varies based on firms' strategies and conditions at the beginning of the recession.

In spite of these various findings, the analysis of pressures that recessions generate on current competitive positioning and their leapfrogging potential remain mainly unexplored.

1.4. Methodology

Empirical testing is the main methodology used in this thesis. The advantage of this approach is that it allows conducting a long-run multi-industry analysis. Moreover provides large-scale empirical support to the main hypothesis.

In order to fulfil the main objectives, the research analyzes the effect of recessions on companies competing in the manufacturing sector in the United States. The sample is constructed with a list of all the manufacturing industries belonging to the Standard Industrial Classification (SIC), which have less than 20 subindustries within them. The purpose is to exclude all those industries which have companies that do not compete directly. Combining this information, with the data bases used to construct the different variables, leads to a final sample that covers the years between 1982 and 2015. This period covers the 1990-1991 and the 2001 recessions, and the Great Recession of 2008-2009.

Two different models will be used to test the hypotheses. First, to test if recessions alter significantly firms' market share, a panel-data model will be used to compare firms' changes in market shares between recession and non-recession years. For this purpose the dependent variable will be the absolute percentage change in each firm's market share, as it enables to test for any change in firms' positioning, independent of whether they are positive or negative. Moreover, the main independent variable will be a binary variable which takes the value of 1 in recession years and 0 otherwise. This construct will be used to test the impact of recessions on the positioning of the industry.

The second model focuses only in recession years in order to test the effect of the supply-side isolating mechanism, demand-side isolating mechanism and strategic flexibility on firm's market share during recessions. In contrast to the previous model, the dependent variable is the percentage change in firms' market shares, without the absolute value, since the model needs to determine the specific mechanisms affecting the direction of these changes. Furthermore, two main covariates will be added independently as a proxy for each of the mechanisms described above. To test the effect of the supply-side isolating mechanism, firms' nonproduction overhead costs and property plant and equipment will be used. These variables are good proxies for cost efficiency (Crossland et al., 2014) and scale economies (Garcia-Sanchez et al., 2014), respectively. Demand-side isolating mechanism will be measured using advertising, and research and development expenses, as they represent the allocation of resources in intangible assets (Crossland et al., 2014; Flammer & Ioannou, 2015). Finally, the Altman's Z-score and firms' total debt will be used to measure firms' strategic flexibility. The Altman's Z-score directly relates to firm's probability of bankruptcy filing (Altman, 1968).

1.5. Main Results and Conclusions

Recessions produce heterogeneous and permanent changes in firms performance. These differing impacts have raised an opportunity for researchers to analyze in detail the relationship between recessions and strategic positioning. Despite the importance of the topic, theoretical studies and empirical evidence on the impact of recessions on firm strategy remain scarce (Bromiley et al., 2008; Flammer & Ioannou, 2015). Bearing this in mind, this thesis develops an empirical model to determine the effect of recession in the competitive positioning of firms inside industries.

Results suggest that recessions transitorily increase the relative value of supply-side isolating mechanisms and decrease the value of demand-side mechanisms. These changes temporarily alters firms strategic positioning, creating an opportunity for those firms that have a cost-based competitive advantage. Moreover, in order to take advantage of the opportunities generated by recessions, companies need to have a certain level of strategic flexibility.

Among the implications of these findings, stands out the importance of considering the effect of recessions on firms strategic planning. Recessions generate permanent changes in firms positioning, which can be seen as an opportunity for stronger competitors, but nevertheless as a threat to weaker firms. Determining the effect of recessions on firms positioning helps managers to understand and predict how their firm will react under future recessions. Moreover, results not only focus on what managers should expect during and after a recession, as they also serve as a warning in the way managers should build their firms strategies before a recession: build supply side over demand side isolating mechanism and avoid the risk of excessive leverage in the prelude of a recession.

1.6. Further research

On first instance, it would be worthwhile to explore the factors that determine whether a manager can navigate a recession more effectively. The latter refers to the managers tenure as CEO and the probability that he or she will face a recession while holding the position. The frequency of recessions often exceeds the typical CEO tenure, imposing a non-trivial solution to the creation of incentives aligned with recession periods.

In this research most of the variables were extracted from the 10k. This approach allows conducting a long-run multi-industry analysis. However this procedure might cause potential endogeneity issues. Therefore future studies should incorporate a wider degree of sources in the empirical regressions.

Moreover, future research must look in further depth the relationship between strategic flexibility and isolating mechanisms. Even though our results strongly support that strategic flexibility in the prelude of a recession increases the firms market share during and in the aftermath of a recession, it does not delve in which isolating mechanisms firms allocate their resources when counting with strategic flexibility. Counting with financial flexibility, fortifies

firms positioning during a recession. However an inefficient use of it (e.g. commit excessive resources in building demand-side isolating mechanisms before a recession) might cause adverse effects.

Finally, considering that this research focuses only in US firms, would be interesting to analyze to what extent results would change in an emerging market context.

2. JUMP! THE EFFECT OF RECESSIONS ON COMPETITIVE POSITIONING

2.1. Introduction

Recessions are punctuated and recurrent phases of the business cycle that negatively affect companies' main performance indicators. Although they are exogenous to the evolution of an industry, the study of recessions is fundamental to strategic management because of their heterogeneous effects on firms' competitive positions, profitability and market share (Chakrabarti et al., 2007, 2011; Garcia-Sanchez et al., 2014; Ghemawat, 2009; Latham, 2009; Mascarenhas & Aaker, 1989). Moreover, although recessions are a transitory phenomenon, their effects on competitive advantages can be permanent (Mascarenhas & Aaker, 1989; Garcia-Sanchez et al., 2014). Over recent decades, a growing body of research in strategic management has examined the effect of recessions on competitive evolution and firm performance. However, theoretical studies and empirical evidence on the impact of recessions on firm strategy remain scarce, despite the importance of the topic (Bromiley et al., 2008; Flammer & Ioannou, 2015). The goal of this manuscript is to analyze the effect of recessions on firms' strategic positioning. We propose that recessions temporarily alter the relative value of competitive isolating mechanisms, enhancing the value of supply-side isolating mechanisms and decreasing the value of demand-side ones. This shift temporarily alters the optimal fit between firms and the environment, providing a unique opportunity for companies that base their strategy predominantly on supply-side isolating mechanisms to change their competitive position. However, in order to take advantage of this opportunity, companies need to enter the recession with certain levels of strategic flexibility. Such strategic flexibility usually has a cost in terms of market share and profitability, creating a fundamental tension for firms to navigate.

To test our hypotheses, we analyze the market share evolution of firms in 64 US industries during 1982-2015, a period that includes 3 recessions. We observe that, during recessions, those companies that base their strategy on supply-side isolating mechanisms increase their market share. On the other hand, those companies that base their strategy on demand-side isolating mechanisms decrease their market share. Finally, companies entering the recession

with strong financial reserves increase their market share. Our research makes several contributions to the literature. First, it provides large-scale empirical support for recent theoretical papers and mathematical simulation propositions (Garcia-Sanchez et al., 2014, n.d.). In doing that, it not only confirms these antecedents' results but also empirically validates the theoretical implications of recessions for competitive evolution. Additionally, the manuscript has important managerial implications. Our results stress that managers must incorporate the likelihood of facing a future recession into their strategic planning processes; to do so, they need to analyze the sources of the isolating mechanisms they rely on.

2.2. Theory on the effect of recessions on competitive Positioning

We take the theoretical approach of considering recessions to be contingencies affecting established theoretical mechanisms. Consequently, in order to understand their effects, we first review the mechanisms that help companies to achieve a sustainable strategic position within an industry and then examine the effect of recessions on these mechanisms. We analyze the establishment of a sustainable strategic position by applying an evolutionary perspective based on competitive isolating mechanisms.

The concept of strategic positioning is among the first to appear in the strategic management literature, and refers to the space occupied by a firm in the competitive landscape (Mintzberg, 1987; Porter, 1980). It reflects a firm's current domain, combining the market that the organization serves and the technologies or combination of resources it uses to serve it (Deephouse, 1999). In ecological terms, it denotes the niche (either wide or narrow) that firms occupy to survive and grow. We use the term "strategic positioning" to refer to the space adopted by a firm in the competitive landscape that minimizes competitive pressures.

The term "isolating mechanism" refers to a phenomenon that limits the equilibration of rents among individual firms in an industry (Rumelt, 1987). Isolating mechanisms are important because they make strategic positions stable and defensible (Rumelt & Lamb, 1984). As an industry matures, strategic positions consolidate and mobility becomes more difficult

to achieve (Agarwal et al., 2002). Therefore, firms that occupy an adequate strategic position have a sustainable competitive advantage. Our goal is to explore how recessions affect the stability of a firm's strategic positioning, either positively or negatively.

Recessions are unique events that temporarily and homogeneously affect the entire economy; however, since economic agents are heterogeneous, the competitive consequences of a macroeconomic contraction are diverse and not obvious. That is, recessions transitorily affect the entire value chain. In that sense, they are different from other unexpected changes, such as the entrance of a new competitor, the emergence of a disruptive technology, or the introduction of a new regulation in the market. Recessions affect every aspect of an industry in which a company competes, from suppliers to customers, as well as other unrelated industries. Recessions cause a decline in resources available to the firm, because customers spend less and lenders lend less. Therefore, competitive rivalry increases; however, these changes are not homogenous (Tong & Wei, 2009), since: (1) the reduction in consumption depends on the cost and quality of products and services within an industry, which is clearly heterogeneous, and (2) the increment in the cost of capital depends on firm-level leverage. Consequently, recessions' effects on competition are necessarily mediated by the type of isolating mechanism that competitors build. Recessions produce a temporal misfit between competitors' isolating mechanisms and the environment, eventually allowing firms to change their competitive positioning.

The potential irreversibility of these changes has at least two sources: business failures and the path-dependent nature of the competitive isolating mechanisms. On one hand, the rate of business failures increases dramatically during recessions (Duncan, 1991; Pearce & Michael, 2006). As some competitors exit the industry, survivors' optimal fit conditions necessarily change, permanently altering the relative value of the competitive isolating mechanisms. On the other, recessions affect the path dependence of the competitive isolating mechanisms, providing time to build new ones.

Therefore, our basic hypothesis is:

H1: A recession temporarily alters the market shares in an industry; some of these changes persist after the recession ends.

2.2.1. The Effect of Recessions on Supply-Side and Demand-Side Isolating Mechanisms

Competition is a process that tends to equilibrate rents among firms, but the existence of various isolating mechanisms inhibits this process. Since strategy is the process of positioning in order to protect firms from the process of equilibration of rents (Mintzberg, 1987), it is fundamental to understand the mechanisms that inhibit equilibrium. There are two types of isolating mechanisms, supply-side and demand-side (Rumelt, 1987; Mueller, 1997). Supply-side isolating mechanisms are efficiency based, allowing firms to build a cost-based competitive advantage (Rumelt, 1987; Suarez & Lanzolla, 2007). The most typical supply-side isolating mechanisms are scale or scope economies, learning economies, or access to a critical input. Scale competition, for example, reduces a particular product's cost per unit, and is possible when sales increases are larger than fixed-cost increases. In this case, smaller competitors face a cost disadvantage that reduces their capabilities to outperform larger ones and, as market growth rates decrease, catching up with the market leaders becomes harder and eventually impossible. To overcome this, smaller competitors must make a major investment in fixed assets, but, after a certain point, this is not viable, because it creates conditions of excess capacity in the entire industry. When this is the case, scale economies act as a competitive isolating mechanism for larger competitors.

Demand-side isolating mechanisms are based on inertia (Rumelt, 1987; Suarez & Lanzolla, 2007). They include, for example, consumers' switching costs, capability for product differentiation, and network externalities. Firms can differentiate their products from their competitors' and secure customers' loyalty by investing in advertising, research and technologies (Dickson & Ginter, 1987). For example, when consumers have setup and switching costs associated with a product, it becomes extremely costly for other competitors to increase their

market share. This is the case of ERP companies¹, which form part of an industry dominated by large competitors like SAP or Oracle.

The existence of competitive isolating mechanisms leads to, and determines the sustainability of, a strategic position. Overall, supply-side isolating mechanisms, such as cost, economies of scale, or technological leadership, have less power than demand-side mechanisms. Therefore, supply-side isolating mechanisms are insufficient to explain observed levels of industry concentration (Mueller, 1997; Gilbert & Harris, 1984). Nevertheless, these mechanisms build barriers that explain the stability of firms' positioning in an industry.

Recessions alter the relative value of the two types of mechanisms and temporarily open an opportunity for firms to change their competitive situation by jumping from behind and surpassing their competitors (Garcia-Sanchez et al., 2014). Exactly how recessions alter these mechanisms, however, remains theoretically and empirically underexplored.

Recessions imply an increase in unemployment rates (Calvo et al., 2006). As a result, a large number of consumers suffer from severe budget constraints. They have less money to spend and cut back personal spending in response to the overall decline in economic activity. Typically, they become more deliberate in their purchases and more sensitive to price (Pearce & Michael, 2006). Overall, consumers buy less, look for cheaper products such as private labels, spend more time on comparison shopping, buy more through wholesale outlets, and become more likely to undertake DIY projects (Shama, 1981).

Consumers' reactions to recessions can be categorized into two typical behaviors (Anon, 1975; Ang, 2001). First, consumers delay purchasing any goods that they do not immediately need. Since they have less money to spend, consumers cut back personal spending in response to the overall decline in economic activity. This trend can most frequently be observed in capital goods (like cars or appliances), leisure, accessories, fashion clothing, and expensive liquor (Ang et al., 2000).

¹ERP stands for Enterprise Resource Planning

Second, for those goods that must be purchased (e.g., food), consumers tend to substitute brands, increasing the acquisition of generic products (Ang et al., 2000; Pearce & Michael, 2006). In particular, they are more deliberate in their purchases and much more sensitive to prices (Pearce & Michael, 2006). This trend is particularly significant in grocery items, where consumers switch from premium brands to challenger brands first, and to generic brands later, as the recession becomes longer and deeper. In the decision process, consumers tend to spend more time searching for information, especially for items with high price tags (Ang et al., 2000).

This consumer behavior gives a temporary competitive advantage to those companies that base their positioning on cost advantages and threatens those that base their strategic positioning mainly on product differentiation. It has been shown that recessions accelerate the market share gains of cheaper value propositions relative to more differentiated ones (Sevil et al., 2016). Anecdotal evidence tends to support this line of argumentation. During the 2008-2009 Great Recession in the US, Walmart leveraged its cost advantage to the detriment of its market share. Similarly, during the 2001-2002 US recession, Hyundai increased its market share relative to GM and Ford, although it had a lower quality perception during those years.

Therefore, we hypothesize that:

H2: Firms with stronger supply-side isolating mechanisms increase their market shares during recessions.

H3: Firms with stronger demand-side isolating mechanisms decrease their market shares during recessions.

2.2.2. The Role of Strategic Flexibility in Recessions

During recessions, firms face a fundamental tension between the competitive risk of not investing and the financial risk of investing (Ghemawat, 2009). Given that recessions alter the relative value of competitive isolating mechanisms, firms may find it necessary to compensate for these changes from a defensive or offensive perspective. Firms can invest and develop

assets that will result in future isolating mechanisms like brand investments, or they can keep cash in order to maintain leverage and a low risk rate. However, it is financial markets that suffer most during recessions, increasing the risk of any strategic initiative that implies resource commitments. These competitive strategic decisions are easier when firms have high levels of strategic flexibility (Sanchez, 1993).

The term “strategic flexibility” denotes a firm’s ability to respond to a changing environment (Sanchez, 1993). In essence, the concept relates to the management of uncertainty and assesses a firm’s capability to adapt quickly to different scenarios (Sanchez, 1996). The closest construct to strategic flexibility is financial flexibility: a firm that has higher financial flexibility has greater slack to react to adverse environmental conditions. However, in our line of reasoning, strategic flexibility includes financial flexibility but also goes beyond this concept. A firm’s strategic flexibility depends on the degree of strategic options it keeps open (Sanchez, 1996). The value of strategic flexibility is the possibility it provides of investing and growing during recessions (Ghemawat, 2009). But increasing strategic flexibility has a cost and, therefore, imposes a trade-off.

Garcia-Sanchez et al. (2014), applying a mathematical simulation, point toward the fact that financial flexibility introduces a trade-off when firms are building isolating mechanisms and a recession is imminent. They argue that if the task of building isolating mechanisms implies an increment of the debt to equity ratio, growing too fast (i.e., building order of entry isolating mechanisms) might generate significant weakness that eventually reverses the achieved positioning and may even cause the firm to exit the industry. This happens because, during recessions, financial markets reduce the availability of credit, leaving companies with a higher debt exposure that might force them to exit. Therefore, strategic flexibility might benefit financially sound companies due to the exit of inflexible competitors.

Pearce & Michael (2006) argue that after recessions, consumers tend to return to the purchasing habits they held before the economic contraction. If this is true, it challenges the idea that firms can create a sustainable competitive advantage from a transitory event. However, evidence shows that this premise is not necessarily true and that recessions may give firms

the opportunity to permanently improve their positioning and thus increase their brand equity (Ang et al., 2000). In the same vein, competitors that invest in pushing sales might generate scale and learning economies that might eventually build isolating mechanisms in the aftermath of the macroeconomic contraction (Garcia-Sanchez et al., 2014). Strategic flexibility, therefore, helps firms take advantage of temporary changes in the relative value of competitive isolating mechanisms. Therefore, we hypothesize:

H4: Firms with higher strategic flexibility experience greater market share gains during recessions.

2.3. Data and Methods

2.3.1. The Industries

We focus our analysis on the effect of recessions on companies competing in the manufacturing sector in the United States. To construct our sample, we begin with a list of all manufacturing industries from the Standard Industrial Classification (SIC) System (codes starting with the digits 2 or 3). Subsequently, in order to eliminate those industries comprised of multiple non-competing firms, we analyze each industry at the four-digit level and exclude those with more than 20 subindustries within them.² For example, we exclude the Paper Mills industry (SIC code 2621), which encompasses a range of noncompeting products such as toilet paper and writing paper. Because we want to test the impact of recessions on firms' strategic positioning vis-à-vis their competitors, we must focus on industries in which companies directly compete with each other.³

2.3.2. Sample and Sources

We gather data from four different databases: S&P Compustat, Thomson One, National Bureau of Economic Research, and the Federal Reserve. We take accounting and financial

²In the robustness section, we ease this restriction, including industries with more than 20 subindustries.

³The final industries which comprise the sample can be seen in Table A.1

data from the S&P Compustat Database, which reports key company, index and industry indicators for North American and international companies. This database contains over 19,000 North American companies (excluding Canadian firms) and annual data is available from 1950.

The Thomson One SDC Platinum Database contains reliable information about mergers and acquisitions (M&A) transactions since 1982.⁴ From this database, we obtain all of the M&A transactions completed by publicly traded US companies that involve a change of control (i.e., acquirer ends up with a 50% or higher stake in the target).

Data on recessions comes from the National Bureau of Economic Research, which lists all of the expansions and contractions in the US economy since the year 1857, including the start and end dates of each recession. Our final source of information is the Federal Reserve, which provides data about monetary policies in the United States. We use this database to obtain the historical interest rates for primary credit in the US.

For the industries described above, we combine the information gathered from all four data sources and end up with a sample that covers the years between 1982 and 2015. This period covers the 1990-1991 and the 2001 recessions, as well as the Great Recession of 2008-2009. The sample includes 1,504 different companies and 16,306 firm-year observations, reported in US dollars. During the sample period, we observe that 74 companies enter chapter 11 and six companies enter chapter 7. Additionally, there are 1,835 M&A transactions.⁵ This first sample is used to test H1.

In order to test the remaining hypotheses, we create a subsample that only considers the five recession years. This sub-sample contains 599 firms and 1,177 firm-year observations.

⁴Technically, this database contains information from 1979; however, according to its description the data is more reliable starting in 1982.

⁵We hand-collected bankruptcy data for all companies in the sample

2.3.3. Dependent Variables

This study includes two dependent variables. The first is *Absolute change in market share*. We compute market share by dividing a firm's annual sales by the sum of the sales of all the firms belonging to the same industry:

$$Absolute\ change\ in\ market\ share_{ijt} = \left| \frac{\frac{Annual\ sales_{ijt}}{\sum_j Annual\ sales_{ijt}} - \frac{Annual\ sales_{ijt-1}}{\sum_j Annual\ sales_{ijt-1}}}{\frac{Annual\ sales_{ijt-1}}{\sum_j Annual\ sales_{ijt-1}}} \right| \quad (2.1)$$

In the equation, the sub-index i represents the industry, j the firm, and t the year.

We use this variable, computed at different periods during and after each recession (t can take the values of t , $t+1$ and $t+2$), to test whether recessions alter market shares and determine whether these effects last beyond the economic crisis. We use the absolute value, since H1 refers to any changes in market share during a recession, independent of whether they are positive or negative. Additionally, the sum of market shares within any industry is always 100%; therefore, when a company sees a drop in its market share due to an economic crisis, other firms in the same industry must see an increase. Using signed (not absolute) values will produce no overall effect since positive and negative changes will cancel each other out, making it impossible to test whether a recession alters the market shares of the companies within the industry.

The second dependent variable is the *Change in market share*. It is calculated simply as the change in the market share between the year of the economic crisis (t) and the preceding year ($t+1$). Here, we do not use the absolute value because this variable is used to test hypotheses related to isolating mechanisms (H2 and H3) and strategic flexibility (H4), for which it is important and necessary to differentiate between positive and negative effects.

2.3.4. Main Covariates

In the case of H1, the main independent variable is *Crisis*, which is used to test the impact of recessions on the structure of the industry. We measure it as a binary variable, which takes the value of 1 in recession years and 0 otherwise.

We measure supply-side isolating mechanisms using *Nonproduction overhead intensity* and *Tangible resources*. The first variable is calculated as one minus the ratio between the firm's nonproduction overhead and its annual assets. We use *Nonproduction overhead intensity* as a supply-side variable because it measures firms' overhead efficiency. This is a good proxy for capital investment and cost efficiency in the strategic dynamism field (Crossland et al., 2014).

We define *Tangible resources* as net property, plant and equipment normalized by sales. This variable is a proxy for investment in physical capital. Anticipated investments in property, plant and equipment allow firms to develop scale economies (Garcia-Sanchez et al., 2014), and therefore increase productivity and reduce average costs. This, in turn, allows firms to build barriers against new competitors, consolidating their position.

We measure demand-side isolating mechanisms using *Advertising intensity* and *Research and development intensity*. The former is calculated as the ratio of advertising expenses to assets and the latter as the ratio of research and development expenses to assets. Both measures relate to product differentiation, although in different ways. The variable *Advertising intensity* has been used to measure allocation of resources to intangible assets (Crossland et al., 2014) and to measure communication expenditures in marketing (Graham & Frankenberger, 2011). *Research and development intensity* has been used to measure allocation of resources to intangible assets (Crossland et al., 2014; Flammer & Ioannou, 2015).⁶

To measure strategic flexibility, we also use two different variables. The first is the Altman's *Z-score*, which is computed as a weighted sum of EBIT, sales, retained earnings and

⁶For many firms, advertising and R&D data is missing from Compustat. Therefore, following past work (Hirshleifer et al., 2012), firm-years with missing advertising and R&D information are assigned a 0 value.

working capital divided by assets and market value of equity divided by total liabilities. A higher *Z-score* implies a lower possibility of bankruptcy filing (Altman, 1968). Second, we use *Financial health*, which is computed as one minus the ratio of total debt to total assets. This is a proxy for the company's financial health, as lower values would indicate that assets were mainly financed by long-term and short-term debt, lowering the degree of strategic flexibility.

2.3.5. Control Variables

We use several control variables at the firm, industry and macroeconomic levels. At the firm level, we include *Firm size* and *Employees*, measured as the log of the firm's total assets and the number of employees divided by sales, respectively. Large firms offer more extensive product lines, have more potential synergies to exploit, and suffer more from managerial diseconomies (Lee et al., 2010). In addition, more complex organizations tend to have inferior performance during recessions (Chakrabarti et al., 2007), so we expect that bigger firms will reduce their market share during these periods.

We also include *Days sales outstanding*, which represents the number of days a company takes to collect revenues after a sale has been made. This variable is calculated as the ratio between the average of accounts receivable and total sales, which is then multiplied by 365 (Filbeck & Krueger, 2005). *Days sales outstanding* is a crisis management control, as firms with higher costs might loosen up customers' payment deadlines in periods of recession to avoid the loss of customers in the long term. A longer delay in the receipt of income from sales during recessions reduces strategic flexibility; therefore, we expect that firms with higher *Days sales outstanding* will decrease their market shares during recessions.

Additionally, we include *Return on equity* to control for firm performance. This allows us to disentangle whether a firm's gain in market share is accompanied by an increase in performance, or whether it sacrifices performance in order to maintain market share. We expect that firms with higher returns will have more slack and therefore more investment opportunities to improve their positioning during recessions.

We also include relevant M&A transactions in which the acquirer gains control of the target (i.e., comes to own more than 50% of the target's shares); these are the only transactions after which the acquirer's and target's accounting statements are consolidated. For each company and year, we compute the *Mergers and acquisitions* variable as the natural logarithm of the sum of the market capitalization (in millions of dollars) of all of the companies acquired:⁷

$$Mergers\ and\ acquisitions_{jt} = \ln \left(\sum_z^N \frac{transaction\ value_{jtz}}{percentage\ of\ the\ company\ acquired_{jtz}} \right) \quad (2.2)$$

Where the sub-index j represents the firm, t the year and z the transactions. Wan & Yiu (2009) argue that acquisitions during recessions are positively related to firm performance, as firms can eliminate competitive threats, gain scale economies, and adapt to a changing environment. This, coupled with the fact that firms consolidate their sales, leads us to conjecture that M&A transactions during recessions will help improve firms' positioning.

We also control for bankruptcy filings, since firms close to exiting the industry leave market share on the table to be redistributed between the remaining competitors. Controlling for bankruptcy filings allows the model to isolate the positive jumps in market share due to firms' own isolating mechanisms and strategic flexibility rather than a reduction in the number of competitors. For each company and year, the indicator variable *Bankruptcies* takes the value of one if the company files for bankruptcy that year and zero otherwise.⁸

At the industry level, we introduce *Industry dummies* to control for industry-specific effects that do not change over time, as rivalry levels also affect firms' performance. We also control for Industry growth, which is computed as the average of the industry's sales growth during the last three years (i.e., from $t-4$ to $t-1$). Industries that grow faster partially mitigate the resource restrictions that emerge from recessions (Garcia-Sanchez et al., 2014). Hence, we expect that firms in those industries undergo larger changes in market share during recession periods.

⁷To obtain the market capitalization for each target company, we divide the value of the transaction by the percentage of the company acquired. Both data items were obtained from Thomson One.

⁸Since there are only six companies which filed for chapter 7, we created a unique bankruptcy filing variable including those companies who filed for chapter 7 and chapter 11.

At a macroeconomic level, we include *Recession dummies*. The purpose of this variable is to control for recession-specific effects, as each crisis has different peculiarities that may affect market structure differently. Finally, we also include *Change in interest rate*, which is computed as the change in the interest rate between year t and $t-1$. The Federal Reserve adjusts its monetary policy based on economic conditions, with the goal of improving overall economic health. We expect that variations in the interest rate will proxy for changes in economic conditions (e.g., changes in consumers' saving trends), and therefore impact the market shares of firms in an industry.

All of the main covariates and control variables are measured one year before the crisis, except for *Days sales outstanding*, *Bankruptcies*, *Mergers and acquisitions* and *Change in interest rate*. Since, the former variables cause immediate changes in market shares.

2.3.6. Estimation Technique

For testing H1, we fit a panel-data model that includes all years between 1982 and 2015. The dependent variable is *Absolute change in market share* and the main covariate is the recession dummy *Crisis*. We run three different specifications of the model. The difference among them is the timing of the dependent variable *Absolute change in market share*. The first model uses the absolute change in market share between years $t-1$ and t , to test whether recessions contemporaneously alter the strategic positioning in an industry. The second and third models use the absolute change in market share between years t and $t+1$, and $t+1$ and $t+2$ to test the duration of the effect.⁹

The econometric model is specified as follows:

$$|\Delta Market\ share|_{it} = \beta_0 + \beta_1 Crisis_t + \beta' CV1_{i,t-1} + \beta'' CV2_{i,t} + \gamma_i + \tau_t + \epsilon_{it} \quad (2.3)$$

Where $CV1_{i,t-1}$ and $CV2_{i,t}$ are sets of control variables with and without a lag, respectively, and γ_i and τ_t capture fixed effects at the company and time (year) level, respectively.

⁹This is equivalent to keep the left-hand side variable at time t and lag all right-hand side variables one and two years, respectively.

One of the challenges of studying firm performance dynamics is the potential presence of two econometric problems that can bias the results: heteroscedasticity and serial correlation. In our context, heteroscedasticity might arise, for example, from an omitted variable, and serial correlation might appear since we are working with panel data, in which observations are collected repeatedly across time. We test for the presence of these potential problems with a likelihood-ratio test for heteroscedasticity and a Wooldridge test for autocorrelation (Wooldridge, 2003). Since we observe evidence of both heteroscedasticity and first order autocorrelation, we fit a panel-data model accounting for the presence of AR(1) within time observations and heteroscedasticity across firms.

As previously mentioned, we test H2, H3 and H4 using a panel-data model that includes only recession years. In contrast to the previous model, the dependent variable in this case is *Change in market share*, without the absolute value, since now we are exploring the specific mechanisms affecting these changes.

The econometric model is specified as follows:

$$\Delta Market\ share_{it} = \beta_o + \beta_1 MC_{i,t-1} + \beta' CV1_{i,t-1} + \beta'' CV2_{i,t} + \gamma_i + \tau_t + \epsilon_{it} \quad (2.4)$$

Where $CV1_{i,t-1}$ and $CV2_{i,t}$ are sets of control variables with and without a lag, respectively. $MC_{i,t-1}$ is a stand-in for each main covariate, added independently to the model. Finally, γ_i and τ_t capture fixed effects at the company and time (year) level, respectively.

In this second model, we also control for the presence of heteroscedasticity. However, we do not control for autocorrelation, since we have a reduced panel with gaps that covers only recession years.

To exclude the possibility that outliers are driving our results, we winsorize the data below the 1st percentile and above the 99th percentile of *Change in market share* and all other variables, except for *Absolute change in market share*, for which the winsorization was above the 98th percentile.¹⁰

¹⁰The values below the 1st percentile and above the 99th percentile for *Change in market share* should be roughly the same as those above the 98th percentile for *Absolute change in market share*.

2.4. Empirical Findings

2.4.1. Summary Statistics

Table 2.1 shows descriptive statistics for our main variables and Table 2.2 shows pairwise correlations for our primary variables during recession years.¹¹

Table 2.1. Descriptive Statistics

VARIABLES	N	Mean	SD	Min	Max
Change in market share	1.177	0.114	1,818	-0.925	36.75
Nonproduction overheads intensity	1.177	0.638	0.803	-24.28	0.979
Tangible resources	1.177	0.233	0.274	0	2,938
Advertising intensity	1.177	0.0147	0.0401	0	0.428
Research and development intensity	1.177	0.0452	0.157	0	4,543
Financial health	1.177	-0.00733	13.68	-463.7	0.962
Z-score	1.177	2,059	40.53	-1.352	91.03
Bankruptcies	1.177	0.0102	0.100	0	1
Days sales outstanding	1.177	61.80	39.52	0	634.8
Employees	1.177	6.25e-06	4.68e-06	0	6.38e-05
Firm size	1.177	5,479	2,360	-1,332	11.28
Mergers and acquisitions	1.177	0.348	1,273	0	8,924
Return on equity	1.177	0.0518	1,462	-9,266	20.99
Industry growth	1.177	0.124	0.385	-0.466	6,657
Change in interest rate	1.177	-0.426	0.290	-0.791	0.00722

¹¹Correlations and summary statistics for the complete panel data are similar

Table 2.2. Pairwise Correlations

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)
(a) Change in market share	1														
(b) Nonproduction overheads intensity	0.0118	1													
(c) Tangible resources	0.0177	0.116***	1												
(d) Advertising intensity	-0.0232	-0.0976***	-0.0733*	1											
(e) Research and development intensity	-0.0296	-0.881***	-0.106***	-0.0443	1										
(f) Financial health	0.0143	0.915***	0.0219	0.0126	-0.862***	1									
(g) Z-score	0.0162	0.919***	0.0133	0.0206	-0.868***	0.990***	1								
(h) Bankruptcies	-0.0104	0.0200	0.0595*	-0.0226	-0.0138	0.00129	-0.00371	1							
(i) Employees	-0.00934	-0.0297	0.106***	-0.113***	0.0233	0.0107	-0.00976	0.0138	1						
(j) Days sales outstanding	-0.0560 [†]	0.00790	-0.0222	-0.102***	0.0143	0.0349	0.0289	-0.00330	0.0929**	1					
(k) Firm size	-0.0221	0.278***	0.152***	0.0208	-0.195***	0.0940**	0.111***	-0.00232	-0.334***	-0.0977***	1				
(l) Mergers and acquisitions	0.00661	0.0437	-0.0380	-0.0420	-0.0183	0.0101	0.0251	-0.0278	-0.0712*	-0.00631	0.223***	1			
(m) Return on equity	-0.00659	0.0151	0.0734*	0.0358	-0.0120	-0.00489	-0.00139	0.101***	-0.0158	-0.0697*	0.0247	0.0130	1		
(n) Industry growth	-0.0172	-0.0210	0.0197	0.0185	-0.0217	0.00287	0.0109	-0.00956	0.0542 [†]	-0.00941	-0.0323	0.0117	0.0196	1	
(o) Change in interest rate	-0.0252	0.00148	0.0350	0.0518 [†]	-0.0342	0.0393	0.0449	-0.000407	0.423***	0.0464	-0.296***	-0.0602*	0.0304	0.0901**	1

[†] : $p < 0.10$, * : $p < 0.05$, ** : $p < 0.01$, *** : $p < 0.001$

2.4.2. Regression Results

Table 2.3 reports the results for the panel-data model used to analyze the effect of recessions on market share. Results show that economic recessions have a positive and significant effect on the absolute change in contemporaneous market share (model 2), in contrast with the subsequent two years, in which the effect loses significance (models 4 and 6). The estimated coefficient for *Crisis* in model 2 is 0.0660 ($p < 5\%$).

The Wald test shows that this model fits the data significantly better than the respective base model that includes only control variables (model 1). Overall results show that recessions alter market shares in an industry, and that these changes are not reversed over the subsequent years, generating long-term effects on firms. These findings provide robust evidence to ***strongly support H1***.

Table 2.3. Effect of Recession on Industries' Market Share Contemporaneously and Over Time

VARIABLES	(1)	(2)	(2)	(4)	(5)	(6)
Bankruptcies	-0.101 (0.176)	-0.101 (0.176)	0.0286 (0.119)	0.0286 (0.119)	-0.345 (0.235)	-0.345 (0.235)
Days sales outstanding	-0.000305 (0.000271)	-0.000287 (0.000264)	0.000819* (0.000340)	0.000819* (0.000339)	0.00139*** (0.000401)	0.00138*** (0.000400)
Employees	3,513*** (842.5)	3,529*** (843.5)	2,702** -1,028	2,703** -1,028	566.5 -1,005	555.2 -1,007
Firm size	-0.0380*** (0.00393)	-0.0385*** (0.00391)	-0.0346*** (0.00423)	-0.0346*** (0.00426)	-0.0321*** (0.00436)	-0.0317*** (0.00435)
Mergers and acquisitions	0.0107*** (0.00304)	0.0112*** (0.00305)	0.00223 (0.00295)	0.00225 (0.00295)	-0.00979** (0.00323)	-0.00997** (0.00323)
Return on equity	-0.0176 (0.0162)	-0.0181 (0.0163)	0.000663 (0.00500)	0.000646 (0.00500)	-0.0171 (0.0105)	-0.0169 (0.0105)
Industry growth	-0.0434 (0.0289)	-0.0420 (0.0289)	-0.00802 (0.0220)	-0.00797 (0.0219)	-0.0123 (0.0138)	-0.0131 (0.0137)
Change in interest rate	0.00741 (0.0219)	0.0345 (0.0258)	0.0127 (0.0208)	0.0137 (0.0241)	0.0210 (0.0213)	0.0107 (0.0245)
Crisis		0.0660* (0.0287)		0.00244 (0.0282)		-0.0245 (0.0273)
Constant	0.516*** (0.105)	4.969 [†] -2.666	0.414*** (0.0547)	3.793 -2.694	0.574*** (0.0617)	2.754 -1.752
Industry dummy	yes	yes	yes	yes	yes	yes
Observations	10,277	10,277	9,267	9,267	8,364	8,364
R-squared	0.153	0.153	0.155	0.155	0.159	0.159
Number of firms	1,026	1,026	918	918	825	825
Wald test	-	5.287*	-	0.008	-	0.804

Standard error in parenthesis

† : $p < 0.1$, * : $p < 0.05$, ** : $p < 0.01$, *** : $p < 0.001$

Linear regressions with Panel-specific AR(1) correlation heteroskedastic.

Table 2.4 shows results for the models used to test H2, H3, and H4. We test H2 by introducing the main covariates *Nonproduction overhead intensity* and *Tangible resources* (models 2 and 3, respectively). The regression coefficients for *Nonproduction overhead intensity* and *Tangible resources* are 0.0642 and 0.374, ($p < 1\%$ and $p < 5\%$, respectively). These results

confirm that efficiency via supply-side isolating mechanisms increases market share during recessions. The Wald test shows that both models fit the data significantly better than a base model that includes only control variables (model 1), providing further support for the relationships. These findings provide robust evidence to *strongly support H2*.

Table 2.4. Relative Value of Supply-Side and Demand-Side Mechanisms and Strategic Flexibility

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bankruptcies	-1.239	-1.257	-1.295	-1.251	-1.253	-1.248	-1.248	-1.297
	-1.023	-1.024	-1.029	-1.023	-1.024	-1.023	-1.023	-1.031
Days sales outstanding	-0.00336***	-0.00341***	-0.00333***	-0.00349***	-0.00345***	-0.00340***	-0.00341***	-0.00358***
	(0.000867)	(0.000867)	(0.000849)	(0.000908)	(0.000885)	(0.000874)	(0.000875)	(0.000957)
Employees	3,779	3,094	-1,41	2,015	3,789	3,325	3,562	-270.6
	-9,103	-8,963	-9,239	-9,192	-9,033	-9,07	-9,049	-9,096
Firm size	-0.0492*	-0.0573*	-0.0541*	-0.0505*	-0.0541*	-0.0524*	-0.0531*	-0.0554*
	(0.0249)	(0.0259)	(0.0257)	(0.0254)	(0.0262)	(0.0255)	(0.0256)	(0.0239)
Mergers and acquisitions	0.0387***	0.0393***	0.0433***	0.0384***	0.0387***	0.0389***	0.0385***	0.0384***
	(0.0117)	(0.0117)	(0.0119)	(0.0117)	(0.0117)	(0.0117)	(0.0116)	(0.0111)
Return on equity	0.0217	0.0218	0.0187	0.0231	0.0221	0.0219	0.0218	0.0199
	(0.0278)	(0.0277)	(0.0277)	(0.0278)	(0.0277)	(0.0278)	(0.0278)	(0.0279)
Industry growth	0.0186	0.0202	0.0130	0.0208	0.0146	0.0184	0.0174	0.000810
	(0.0305)	(0.0305)	(0.0313)	(0.0302)	(0.0306)	(0.0306)	(0.0306)	(0.0361)
Change in interest rate	0.175	0.137	0.197	0.179	0.136	0.149	0.137	0.108
	(0.463)	(0.463)	(0.463)	(0.462)	(0.464)	(0.463)	(0.463)	(0.467)
Nonproduction overheads intensity		0.0642**						-0.103
		(0.0201)						(0.206)
Tangible resources			0.374*					0.361*
			(0.146)					(0.153)
Advertising intensity				-1.834*				-1.844 [†]
				(0.886)				-1.072
Research and development intensity					-0.332**			-0.336
					(0.119)			(0.497)
Financial health						0.00313***		-0.0232 [†]
						(0.000881)		(0.0126)
Z-score							0.00122***	0.00977*
							(0.000347)	(0.00459)
Constant	0.731*	0.719*	0.703*	0.797*	0.737*	0.736*	0.729*	0.743*
	(0.310)	(0.310)	(0.306)	(0.327)	(0.311)	(0.311)	(0.310)	(0.353)
Industry dummy	yes	yes	yes	yes	yes	yes	yes	yes
Recession dummy	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1,177	1,177	1,177	1,177	1,177	1,177	1,177	1,177
R-squared	0.328	0.328	0.329	0.329	0.328	0.328	0.328	0.331
Number of firms	599	599	599	599	599	599	599	599
Wald test	-	10.252**	6.577*	4.290*	7.779**	12.602***	12.260***	13.451***

Robust standard error in parenthesis. Panel linear regression accounting for the presence of heterodastik

[†] : $p < 0.1$, * : $p < 0.05$, ** : $p < 0.01$, *** : $p < 0.001$

We test H3 by introducing the main covariates of *Advertising intensity* and *Research and development intensity* (models 4 and 5, respectively). Results show that the regression coefficients for *Advertising intensity* and *Research and development intensity* are -1.834 and -0.332 ($p < 5\%$ and $p < 1\%$, respectively). Additionally, the Wald test shows that both models fit the data significantly better than model 1. These results support the idea that demand-side isolating mechanisms lose value during an economic crisis and provide evidence to *support H3*.

We test H4 by introducing *Financial Health* and *Z-score* in models 6 and 7 respectively; these variables serve as proxies for a firm's strategic flexibility. The regression coefficients for *Financial health* and *Z-score* are 0.00313 and 0.00122 (both with $p < 0.1\%$). On that basis, we conclude that firms with higher strategic flexibility increase their market share during recessions. The Wald test shows that both models fit the data significantly better than model 1, providing further evidence to *strongly support H4*.

Additionally, results evidence the significance of some of the control variables. As expected, Table 2.4 shows that bigger firms reduce their market share during periods of recession ($p < 5\%$). Also, it can be seen that the crisis management control, *Days sales outstanding*, is significant and negatively affects market share ($p < 0.1\%$). As we predicted, relaxing customers' payment deadlines to avoid losing customers during recessions has a negative impact on market share. Finally, the *Mergers and acquisitions* control has a positive and significant relation with market share ($p < 0.1\%$). As we argued, firms that conduct M&A transactions during recessions improve their performance, gain scale economies, and adapt to a changing environment. In addition to this, firms consolidate their sales, helping them increase their market share.

2.4.3. Robustness Checks

There are at least two potential sources of bias in this study. First, both, M&A transactions and bankruptcy filings generate abnormal changes in market shares. We measure market share as the ratio between a firm's sales and its industry's total sales; therefore, when one

company buys another, there is a significant increase in its market share. Similarly, when one firm goes bankrupt, it leaves market share on the table to be redistributed between the remaining competitors, improving their positioning. The challenge is to avoid having the model erroneously assign these shifts in market share to the isolating mechanism and strategic flexibility variables rather than the M&A transactions and bankruptcy filings.

In the models presented previously, we control for M&A and bankruptcy filings to avoid this issue; in this section, we check for bias using further analyses. Specifically, we test the robustness of the models with respect to each concern using two different samples. The first excludes all firm-year observations with M&A transactions, while the second excludes all observations with bankruptcy filings.

Tables A.2 and A.4 present our results after excluding observations with M&A transactions and bankruptcy filings, respectively. In both tables, the variable *Crisis* remains positive and significant in model 2 and loses significance in the subsequent years (models 4 and 6), as expected. We can conclude that, even if we exclude M&A transactions and bankruptcies, recessions still have a significant effect on industries' market shares, which does not reverse in subsequent years. Similarly, Tables A.3 and A.5 show that the coefficients for the supply-side isolating mechanisms and strategic flexibility remain positive and significant. On the other hand, coefficients for the demand-side isolating mechanisms are negative and significant. These results confirm the robustness of our findings and show that evidence to support all hypotheses remains even after dropping M&A and bankruptcy filing years.

Another potential source of bias is the sample used to test our hypotheses. For this reason, we remove the restriction of a maximum of 20 sub-industries per industry and present results in Tables A.6 and A.7. Easing this restriction gives a final sample that contains nearly four times more industries and firms than our initial sample. Despite this clear increase in the number of industries and firms, due to the inclusion of industries with non-competing firms, Tables A.6 and A.7 confirm that recessions do modify firms' positioning within their industries by increasing the value of supply-side isolating mechanisms and decreasing the value of demand-side ones. Moreover, the models reinforce the importance of strategic flexibility for gaining

market share during recessions. Notwithstanding, the variables *Tangible resources* and *Research and development intensity* lose significance. This is to be expected, given that easing the restriction introduces industries which contain multiple non-competing firms. Therefore, it is much more difficult to obtain a reliable measure of a firm's market share, reducing the precision of our models.

2.5. Discussion and Conclusion

Recessions affect firms' strategic positioning in a heterogeneous way. We propose and empirically show that recessions transitorily increase the relative value of supply-side isolating mechanisms and decrease the value of demand-side mechanisms. These changes alter firms' strategic positioning. Moreover, firms' strategic positioning depends directly on the degree of strategic flexibility with which they enter the recession. In order to support our empirical findings, we analyze changes in market share that result from the onset of a recession and explore the causes of these changes under different constructs for supply-side isolating mechanisms (i.e., *Nonproduction overhead intensity* and *Tangible resources*), demand-side isolating mechanisms (i.e., *Advertising intensity* and *Research and development intensity*) and strategic flexibility (i.e., *Z-score* and *Financial health*).

Our results have some limitations. First, the fact that we base our analysis solely on US data imposes potential problems of generalizability to other countries. Macroeconomic actions undertaken to face recessions will depend directly on the government in office, which is one of the reasons why the effects of recessions may differ among countries. Bearing this in mind, our results might look different in countries with dissimilar political contexts. Furthermore, our focus on isolating mechanisms does not take into account firms' idiosyncratic capabilities, which could be an alternative source of sustainable competitive advantages (Peteraf, 1993; Lavie, 2006).

Additionally, several of the main covariates and dependent variables rely on accounting information from the companies' 10-Ks. However, we have incorporated other sources to

improve the identification strategy and avoid potential endogeneity issues. Related to the main covariates, our measures of supply- and demand-side isolating mechanisms are indirect; we are not capturing direct measures of firms' capabilities. However, since we analyze multiple industries, we are confident that these indirect measures provide valuable information that can help create more highly refined proxies in the future.

Finally, we focus on the years during and immediately after recessions to test the effects of isolating mechanisms and strategic flexibility on firms' positioning. However, decisions on the degree of strategic flexibility relate to the entire industry life cycle. As antecedents suggest (e.g., Bishop et al. (1984); Garcia-Sanchez et al. (2014)), the decision to grow strategic flexibility has a competitive cost in term of market share. This forces a complex decision in a context of uncertainty, since managers have shown severe cognitive impairments in predicting the timing and the magnitude of recessions. We can evaluate ex-post the effect of their decisions, but it is invalid to make ex-ante recommendations (although we can clearly illuminate strategic decisions in non-recession periods). The previous point also relates to the cognitive power it is reasonable to expect from managers and the incentive alignments they receive.

Our findings have several managerial implications. First, they explain what managers should expect during periods of recession. It is straightforward to expand our findings to the particular competitive situation a firm faces during recessions and extrapolate them to preview the evolution of competitive pressures and opportunities it might have in the future. In this vein, our findings are consistent with Ghemawat (2009) recommendations for making decisions during recessions: focus on long-term competitive position and avoid the risk of failing to invest during recessions.

Our results also serve as a recommendation to the way managers establish their firms' strategies before recessions. Firms' outcomes during a recession will be highly influenced by their managers' conduct and decisions before the recession begins. Not taking into account that a recession is coming might lead managers to take suboptimal intertemporal strategies.

Our study provides some broad opportunities for future research. First, it would be worthwhile to explore the factors that determine whether a manager can navigate a recession effectively, such as educational level, gender, and other personal characteristics. Moreover, the frequency of recessions often exceeds the typical CEO tenure, imposing a non-trivial solution to the creation of incentives aligned with recession periods, which could also be the focus of future studies.

Moreover, future research must explore the relationship between strategic flexibility and isolating mechanisms in more depth. Even though we show that strategic flexibility ahead of a recession increases the firm's market share during and in the aftermath of that recession, we have not delved into the question of which isolating mechanisms firms allocate their resources to, given that they do have strategic flexibility. Despite the fact that strategic flexibility, in general, fortifies a firm's positioning during a recession, an inefficient use of it (e.g. investing in demand-side isolating mechanisms before a recession) might cause adverse effects. Furthermore, it would be interesting to determine whether the effects of isolating mechanisms or strategic flexibility on firms' market share last longer, and to analyze to what extent our conclusions would change in an emerging market context.¹²

In spite of the above, our study is among the first to provide a comprehensive theoretical approach to, and empirical tests of, the effects of recessions on firms at the business strategy level. We complement Mascarenhas & Aaker (1989) seminal work, as well as other more recent studies, to obtain a deeper understanding of the relationship between strategy and the business cycle.

¹²We developed a general test to determine whether the effect of strategic flexibility lasts longer than that of isolating mechanisms. We reran the same models presented in Table 2.4 with a one-year lead in the *Change in market share* as the dependent variable. Broadly, results in Table A.8 show that the isolating mechanisms lose their significance, in contrast with *Financial health* and *Z-score*. In other words, the coefficients on strategic flexibility proxies are larger and more significant than before, showing that their effects last longer.

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APPENDIX

A. APPENDIX A

Table A.1. Industries Included in the Sample

Industry Name	SIC	Sub-industries
Ice Cream and Frozen Desserts	2024	15
Cookies and Crackers	2052	12
Malt Beverages	2082	9
Wines, Brandy, and Brandy Spirits	2084	5
Distilled and Blended Liquors	2085	13
Bottled and Canned Soft Drinks and Carbonated Waters	2086	10
Prepared Fresh or Frozen Fish and Seafoods	2092	15
Cigarettes	2111	1
Carpets and Rugs	2273	19
Mobile Homes	2451	5
Prefabricated Wood Buildings and Components	2452	12
Office Furniture, Except Wood	2522	14
Public Building and Related Furniture	2531	10
Pulp Mills	2611	6
Plastics, Foil, and Coated Paper Bags	2673	7
Newspapers: Publishing, or Publishing and Printing	2711	4
Periodicals: Publishing, or Publishing and Printing	2721	6
Books: Publishing, or Publishing and Printing	2731	5
Book Printing	2732	4
Miscellaneous Publishing	2741	18
Manifold Business Forms	2761	9
Greeting Cards	2771	5
Adhesives and Sealants	2891	18

Industry Name	SIC	Sub-industries
Tires and Inner Tubes	3011	6
Rubber and Plastics Footwear	3021	16
Unsupported Plastics Film and Sheet	3081	9
Plastics Foam Products	3086	8
Glass Containers	3221	13
Cement, Hydraulic	3241	1
Steel Pipe and Tubes	3317	8
Primary Production of Aluminum	3334	4
Drawing and Insulating of Nonferrous Wire	3357	14
Metal Cans	3411	13
Metal Shipping Barrels, Drums, Kegs, and Pails	3412	4
Prefabricated Metal Buildings and Components	3448	15
Screw Machine Products	3451	1
Bolts, Nuts, Screws, Rivets, and Washers	3452	16
Lawn and Garden Tractors and Home Lawn and Garden Equipment	3524	17
Oil and Gas Field Machinery and Equipment	3533	9
Pumps and Pumping Equipment	3561	7
Ball and Roller Bearings	3562	5
Industrial and Commercial Fans and Blowers and Air Purification Equipment	3564	13
Electronic Computers	3571	5
Computer Storage Devices	3572	8
Computer Terminals	3575	4
Calculating and Accounting Machines, Except Electronic Computers	3578	12

Industry Name	SIC	Sub-industries
Phonograph Records and Prerecorded Audio Tapes and Disks	3652	6
Telephone and Telegraph Apparatus	3661	20
Printed Circuit Boards	3672	4
Electronic Coils, Transformers, and Other Inductors	3677	8
Electronic Connectors	3678	1
Magnetic And Optical Recording Media	3695	6
Truck and Bus Bodies	3713	10
Truck Trailers	3715	7
Motor Homes	3716	2
Aircraft	3721	11
Aircraft Engines and Engine Parts	3724	16
Railroad Equipment	3743	19
Motorcycles, Bicycles, and Parts	3751	11
X-Ray Apparatus and Tubes and Related Irradiation Apparatus	3844	10
Ophthalmic Goods	3851	16
Watches, Clocks, Clockwork Operated Devices, and Parts	3873	11
Jewelry, Precious Metal	3911	19
Dolls and Stuffed Toys	3942	3

Table A.2. Effect of Recession on Industries Market Share Contemporaneously and Over Time (No M&A)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Bankruptcies	-0.0900 (0.186)	-0.0899 (0.186)	0.0124 (0.133)	0.0127 (0.133)	-0.408 (0.249)	-0.408 (0.249)
Days sales outstanding	-0.000431 (0.000289)	-0.000430 (0.000285)	0.000949* (0.000375)	0.000947* (0.000375)	0.00135** (0.000486)	0.00135** (0.000485)
Employees	3,640*** (830.0)	3,663*** (832.1)	1,957* (905.8)	1,962* (905.4)	835.6 (586.9)	829.7 (587.7)
Firm size	-0.0347*** (0.00439)	-0.0354*** (0.00434)	-0.0381*** (0.00488)	-0.0383*** (0.00491)	-0.0318*** (0.00480)	-0.0313*** (0.00478)
Return on equity	-0.0186 (0.0174)	-0.0190 (0.0174)	-0.00133 (0.00597)	-0.00139 (0.00596)	-0.0199 [†] (0.0118)	-0.0196 [†] (0.0118)
Industry growth	-0.0502 (0.0325)	-0.0491 (0.0324)	-0.00481 (0.0240)	-0.00448 (0.0239)	-0.0130 (0.0145)	-0.0138 (0.0144)
Change in interest rate	0.00802 (0.0241)	0.0322 (0.0283)	0.0223 (0.0228)	0.0287 (0.0262)	0.0228 (0.0239)	0.0102 (0.0275)
Crisis		0.0574 [†] (0.0313)		0.0160 (0.0309)		-0.0299 (0.0305)
Constant	0.521*** (0.109)	0.523*** (0.108)	1.159 (0.973)	1.158 (0.972)	0.576*** (0.0728)	0.575*** (0.0726)
Industry dummy	yes	yes	yes	yes	yes	yes
Observations	9,15	9,15	8,224	8,224	7,414	7,414
R-squared	0.155	0.155	0.156	0.156	0.159	0.159
Number of firms	1,02	1,016	909	909	817	817
Wald test	-	3.352 [†]	-	0.268	-	0.961

Standard error in parenthesis

[†] : $p < 0.1$, * : $p < 0.05$, ** : $p < 0.01$, *** : $p < 0.001$

Linear regressions with Panel-specific AR(1) correlation heteroskedastic.

Table A.3. Relative Value of Supply-Side and Demand-Side Mechanisms and Strategic Flexibility (No M&A)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bankruptcies	-1.242 -1.024	-1.261 -1.026	-1.297 -1.031	-1.255 -1.026	-1.256 -1.026	-1.252 -1.025	-1.252 -1.025	-1.304 -1.033
Days sales outstanding	-0.00334*** (0.000884)	-0.00339*** (0.000886)	-0.00332*** (0.000867)	-0.00346*** (0.000923)	-0.00343*** (0.000903)	-0.00338*** (0.000892)	-0.00339*** (0.000893)	-0.00354*** (0.000969)
Employees	988.1	206.6	-3,884	-706.9	1,035	489.4	721.6	-3,04
	-9,2	-9,066	-9,448	-9,341	-9,151	-9,196	-9,172	-9,146
Firm size	-0.0486 [†] (0.0262)	-0.0574* (0.0273)	-0.0533* (0.0270)	-0.0500 [†] (0.0267)	-0.0537 [†] (0.0275)	-0.0520 [†] (0.0269)	-0.0527 [†] (0.0270)	-0.0566* (0.0253)
Return on equity	0.0249 (0.0281)	0.0249 (0.0280)	0.0217 (0.0281)	0.0263 (0.0282)	0.0252 (0.0280)	0.0250 (0.0281)	0.0249 (0.0281)	0.0229 (0.0282)
Industry growth	0.0124 (0.0333)	0.0140 (0.0333)	0.00739 (0.0343)	0.0133 (0.0330)	0.00817 (0.0334)	0.0121 (0.0334)	0.0111 (0.0335)	-0.00424 (0.0397)
Change in interest rate	0.268 (0.509)	0.223 (0.509)	0.292 (0.509)	0.270 (0.509)	0.226 (0.510)	0.239 (0.509)	0.227 (0.510)	0.200 (0.515)
Nonproduction over-heads intensity		0.0670** (0.0212)						-0.0656 (0.208)
Tangible resources			0.362* (0.152)					0.346* (0.160)
Advertising intensity				-1.794* (0.908)				-1.747 -1.099
Research and development intensity					-0.331** (0.123)			-0.276 (0.483)
Financial health						0.00315*** (0.000943)		-0.0217 (0.0139)
Z-score							0.00119*** (0.000362)	0.00880 [†] (0.00517)
Constant	0.365 (0.229)	0.329 (0.229)	0.397 [†] (0.232)	0.386 [†] (0.232)	0.364 (0.229)	0.365 (0.229)	0.357 (0.228)	0.391 (0.292)
Industry dummy	yes	yes	yes	yes	yes	yes	yes	yes
Recession dummy	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1,08	1,077	1,077	1,077	1,077	1,077	1,077	1,077
R-squared	0.330	0.330	0.331	0.331	0.330	0.330	0.330	0.333
Number of firms	579	579	579	579	579	579	579	579
Wald test	-	9.966**	5.639*	3.905*	7.254**	11.165***	10.888***	11.620***

Robust standard errors in parentheses. Panel linear regression accounting for the presence of heteroskedastic.

[†] : $p < 0.1$, * : $p < 0.05$, ** : $p < 0.01$, *** : $p < 0.001$

Table A.4. Effect of Recession on Industries Market Share Contemporaneously and Over Time (No Bankruptcy)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Days sales outstanding	-0.000271 (0.000262)	-0.000260 (0.000257)	0.000794* (0.000343)	0.000793* (0.000342)	0.00138*** (0.000403)	0.00137*** (0.000402)
Employees	3,250** -1,06	3,285** -1,071	2,673** -1,026	2,673** -1,026	560.4 -1,011	548.1 -1,013
Firm size	-0.0386*** (0.00400)	-0.0390*** (0.00396)	-0.0352*** (0.00431)	-0.0352*** (0.00433)	-0.0333*** (0.00456)	-0.0329*** (0.00453)
Mergers and acquisitions	0.0110*** (0.00301)	0.0115*** (0.00302)	0.00259 (0.00293)	0.00260 (0.00293)	-0.00981** (0.00325)	-0.00999** (0.00325)
Return on equity	-0.0116 (0.00868)	-0.0120 (0.00877)	0.00319 (0.00579)	0.00319 (0.00579)	-0.00947 (0.00744)	-0.00928 (0.00744)
Industry growth	-0.0530 [†] (0.0282)	-0.0509 [†] (0.0282)	-0.00638 (0.0221)	-0.00638 (0.0221)	-0.0125 (0.0138)	-0.0133 (0.0137)
Change in interest rate	0.00223 (0.0215)	0.0310 (0.0248)	0.0131 (0.0210)	0.0135 (0.0243)	0.0226 (0.0215)	0.0117 (0.0245)
Crisis		0.0690** (0.0265)		0.000948 (0.0282)		-0.0259 (0.0270)
Constant	0.523*** (0.106)	3.193 -2.062	0.420*** (0.0553)	2.877 -1.962	3.186 -2.270	0.579*** (0.0622)
Industry dummy	yes	yes	yes	yes	yes	yes
Observations	10,2	10,204	9,229	9,229	8,328	8,328
R-squared	0.147	0.147	0.150	0.150	0.161	0.161
Number of firms	1,02	1,02	917	917	820	820
Wald test	-	6.774**	-	0.001	-	0.920

Standard error in parenthesis

[†] : $p < 0.1$, * : $p < 0.05$, ** : $p < 0.01$, *** : $p < 0.001$

Linear regressions with Panel-specific AR(1) correlation heteroskedastic.

Table A.5. Relative Value of the Supply-Side and Demand-Side Mechanisms and Strategic Flexibility (No Bankruptcy)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Days sales outstanding	-0.00313*** (0.000769)	-0.00317*** (0.000769)	-0.00308*** (0.000750)	-0.00325*** (0.000808)	-0.00321*** (0.000786)	-0.00316*** (0.000775)	-0.00317*** (0.000776)	-0.00333*** (0.000854)
Employees	5,445 -9,1	4,817 -8,942	586.1 -9,014	3,654 -9,078	5,489 -9,044	5,039 -9,055	5,263 -9,044	2,009 -8,821
Firm size	-0.0484† (0.0247)	-0.0563* (0.0258)	-0.0534* (0.0254)	-0.0499* (0.0252)	-0.0532* (0.0259)	-0.0515* (0.0253)	-0.0524* (0.0254)	-0.0546* (0.0245)
Mergers and acquisitions	0.0421*** (0.0117)	0.0428*** (0.0118)	0.0467*** (0.0121)	0.0419*** (0.0117)	0.0422*** (0.0117)	0.0424*** (0.0118)	0.0420*** (0.0117)	0.0413*** (0.0112)
Return on equity	0.0157 (0.0305)	0.0160 (0.0304)	0.0159 (0.0305)	0.0175 (0.0305)	0.0163 (0.0304)	0.0160 (0.0305)	0.0159 (0.0305)	0.0169 (0.0306)
Industry growth	0.0223 (0.0292)	0.0240 (0.0292)	0.0180 (0.0296)	0.0246 (0.0288)	0.0187 (0.0291)	0.0222 (0.0292)	0.0213 (0.0292)	0.00507 (0.0342)
Change in interest rate	-0.0207 (0.482)	-0.0593 (0.483)	0.000740 (0.481)	-0.0179 (0.481)	-0.0606 (0.485)	-0.0469 (0.483)	-0.0600 (0.484)	-0.100 (0.485)
Nonproduction overheads intensity		0.0609** (0.0202)						-0.107 (0.200)
Tangible resources			0.357** (0.135)					0.344* (0.142)
Advertising intensity				-1.845* (0.789)				-1.883* (0.960)
Research and development intensity					-0.313** (0.117)			-0.295 (0.478)
Financial health						0.00295*** (0.000878)		-0.0265* (0.0129)
Z-score							0.00118*** (0.000356)	0.0110* (0.00471)
Constant	0.209 (0.197)	0.176 (0.198)	0.239 (0.198)	0.231 (0.199)	0.207 (0.197)	0.208 (0.197)	0.200 (0.197)	0.241 (0.250)
Industry dummy	yes	yes	yes	yes	yes	yes	yes	yes
Recession dummy	yes	yes	yes	yes	yes	yes	yes	ye
Observations	1,165	1,165	1,165	1,165	1,165	1,165	1,165	1,165
R-squared	0.361	0.361	0.362	0.362	0.361	0.361	0.362	0.365
Number of firms	594	594	594	594	594	594	594	594
Wald test	-	9.093**	6.990**	5.468*	7.105**	11.292***	10.978***	13.612*

Robust standard errors in parentheses. Panel linear regression accounting for the presence of heteroskedastic.

† : $p < 0.1$, * : $p < 0.05$, ** : $p < 0.01$, *** : $p < 0.001$

Table A.6. Effect of Recession on Industries Market Share Contemporaneously and Over Time (Easing Sub-Industries Restriction)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Bankruptcies	-0.0584 (0.124)	-0.0584 (0.124)	0.0185 (0.0897)	0.0187 (0.0898)	-0.262 (0.177)	-0.262 (0.177)
Days sales outstanding	-0.000504*** (9.37e-05)	-0.000503*** (9.37e-05)	0.00101*** (0.000108)	0.00101*** (0.000108)	0.000230* (9.95e-05)	0.000230* (9.95e-05)
Employees	4,922*** (310.6)	4,922*** (310.6)	2,189*** (313.1)	2,189*** (313.0)	1,019*** (293.2)	1,019*** (293.3)
Firm size	-0.0432*** (0.00268)	-0.0433*** (0.00268)	-0.0525*** (0.00318)	-0.0526*** (0.00318)	-0.0454*** (0.00332)	-0.0452*** (0.00331)
Mergers and acquisitions	0.00919*** (0.00173)	0.00927*** (0.00173)	0.00321 [†] (0.00175)	0.00329 [†] (0.00175)	-0.00772*** (0.00172)	-0.00777*** (0.00172)
Return on equity	-0.00998 [†] (0.00562)	-0.0100 [†] (0.00563)	0.00293 (0.00562)	0.00292 (0.00562)	-0.00655 (0.00673)	-0.00658 (0.00673)
Industry growth	-0.0242 (0.0201)	-0.0244 (0.0201)	0.00329 (0.0191)	0.00319 (0.0191)	-0.00229 (0.0172)	-0.00222 (0.0172)
Change in interest rate	0.0109 (0.0111)	0.0196 [†] (0.0116)	0.0124 (0.0116)	0.0185 (0.0119)	0.0136 (0.0121)	0.00786 (0.0125)
Crisis		0.0212 [†] (0.0124)		0.0147 (0.0127)		-0.0142 (0.0128)
Constant	0.249*** (0.0207)	0.250*** (0.0201)	0.135 (0.0857)	0.470*** (0.0254)	0.798*** (0.0242)	0.797*** (0.0243)
Industry dummy	yes	yes	yes	yes	yes	yes
Observations	41,71	41,706	37,611	37,611	33,956	33,956
R-squared	0.241	0.241	0.195	0.195	0.149	0.149
Number of firms	4,112	4,112	3,68	3,68	3,313	3,313
Wald test	-	2.958 [†]	-	1.342	-	1.236

Standard error in parenthesis

[†] : $p < 0.1$, * : $p < 0.05$, ** : $p < 0.01$, *** : $p < 0.001$

Linear regressions with Panel-specific AR(1) correlation heteroskedastic.

Table A.7. Relative Value of Supply-Side and Demand-Side Mechanisms and Strategic Flexibility (Easing Sub-Industries Restriction)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bankruptcies	-0.951 (0.726)	-0.958 (0.726)	-0.953 (0.726)	-0.953 (0.726)	-0.950 (0.726)	-0.956 (0.726)	-0.956 (0.726)	-0.975 (0.726)
Days sales outstanding	-0.00172*** (0.000229)	-0.00171*** (0.000231)	-0.00172*** (0.000230)	-0.00173*** (0.000231)	-0.00172*** (0.000222)	-0.00172*** (0.000229)	-0.00171*** (0.000229)	-0.00170*** (0.000229)
Employees	2,189 -1,377	2,314 [†] -1,357	991.3 -2,075	2,152 -1,369	1,728 -1,358	2,187 -1,372	2,257 -1,374	411.7 -2,153
Firm size	-0.0175** (0.00636)	-0.0211** (0.00643)	-0.0181** (0.00646)	-0.0176** (0.00638)	-0.0142* (0.00641)	-0.0182** (0.00640)	-0.0194** (0.00645)	-0.0227*** (0.00672)
Mergers and acquisitions	0.0180*** (0.00402)	0.0182*** (0.00402)	0.0184*** (0.00396)	0.0179*** (0.00401)	0.0180*** (0.00403)	0.0181*** (0.00402)	0.0180*** (0.00400)	0.0186*** (0.00389)
Return on equity	0.0179 (0.0166)	0.0180 (0.0166)	0.0166 (0.0170)	0.0179 (0.0166)	0.0184 (0.0168)	0.0181 (0.0167)	0.0181 (0.0166)	0.0189 (0.0175)
Industry growth	-0.000814 (0.0123)	-0.000447 (0.0123)	-0.000362 (0.0124)	-0.000877 (0.0123)	-0.000409 (0.0125)	-0.000773 (0.0123)	-0.000778 (0.0122)	0.00167 (0.0128)
Change in interest rate	-0.190 (0.152)	-0.202 (0.151)	-0.180 (0.158)	-0.189 (0.152)	-0.174 (0.150)	-0.195 (0.152)	-0.207 (0.151)	-0.201 (0.153)
Nonproduction overheads intensity		0.0350 [†] (0.0187)						0.101 (0.0679)
Tangible resources			0.0420 (0.0659)					0.0376 (0.0636)
Advertising intensity				-0.402 [†] (0.208)				-0.191 (0.203)
Research and development intensity					0.218 (0.222)			0.552 (0.350)
Financial health						0.00261* (0.00105)		-0.00235 (0.00294)
Z-score							0.000956** (0.000346)	0.00168 (0.00106)
Constant	-0.115** (0.0356)	-0.136*** (0.0375)	-0.105** (0.0382)	-0.112** (0.0354)	-0.113** (0.0360)	-0.115** (0.0356)	-0.117** (0.0357)	-0.160*** (0.0479)
Industry dummy	yes	yes	yes	yes	yes	yes	yes	yes
Recession dummy	yes	yes	yes	yes	yes	yes	yes	yes
Observations	4,705	4,705	4,705	4,705	4,705	4,705	4,705	4,705
R-squared	0.273	0.273	0.274	0.273	0.274	0.273	0.273	0.277
Number of firms	2,36	2,36	2,36	2,36	2,36	2,36	2,36	2,36
Wald test	-	3.512 [†]	0.406	3.740 [†]	0.959	6.223*	7.622**	18.142**

Robust standard errors in parentheses. Panel linear regression accounting for the presence of heteroskedastic.

[†] : $p < 0.1$, * : $p < 0.05$, ** : $p < 0.01$, *** : $p < 0.001$

Table A.8. Effect of Supply-Side and Demand-Side Mechanisms and Strategic Flexibility Following a Recession

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bankruptcies	-0.0299 (0.150)	-0.0322 (0.150)	-0.0393 (0.153)	-0.0290 (0.149)	-0.0287 (0.149)	-0.0315 (0.150)	-0.0312 (0.150)	-0.0146 (0.157)
Days sales outstanding	0.00539* (0.00249)	0.00536* (0.00249)	0.00538* (0.00249)	0.00539* (0.00250)	0.00540* (0.00249)	0.00535* (0.00250)	0.00535* (0.00250)	0.00550* (0.00253)
Employees	-3,888 -6,675	-4,125 -6,649	-4,499 -6,899	-3,792 -6,645	-3,898 -6,696	-4,261 -6,536	-4,051 -6,543	-6,711 -6,258
Firm size	-0.0296* (0.0132)	-0.0319* (0.0128)	-0.0302* (0.0131)	-0.0296* (0.0132)	-0.0288* (0.0118)	-0.0323* (0.0132)	-0.0322* (0.0130)	-0.0202 (0.0134)
Mergers and acquisitions	-0.000753 (0.00782)	-0.000584 (0.00779)	-0.000218 (0.00789)	-0.000746 (0.00782)	-0.000776 (0.00784)	-0.000536 (0.00775)	-0.000851 (0.00778)	-0.000545 (0.00815)
Return on equity	-0.0133 (0.0139)	-0.0134 (0.0139)	-0.0138 (0.0140)	-0.0134 (0.0140)	-0.0133 (0.0138)	-0.0131 (0.0139)	-0.0133 (0.0139)	-0.0116 (0.0131)
Industry growth	0.0583 [†] (0.0307)	0.0586 [†] (0.0312)	0.0576 [†] (0.0307)	0.0581 [†] (0.0305)	0.0589 [†] (0.0303)	0.0580 [†] (0.0308)	0.0575 [†] (0.0308)	0.0686* (0.0322)
Change in interest rate	-0.0504 (0.229)	-0.0621 (0.228)	-0.0502 (0.229)	-0.0502 (0.229)	-0.0445 (0.228)	-0.0719 (0.229)	-0.0762 (0.229)	-0.0410 (0.230)
Nonproduction overheads intensity		0.0186 (0.0243)						-0.0936 (0.131)
Tangible resources			0.0438 (0.0962)					0.0752 (0.0967)
Advertising intensity				0.0974 (0.484)				-0.0414 (0.496)
Research and development intensity					0.0501 (0.249)			1.401 -1.057
Financial health						0.00229** (0.000815)		0.0124 (0.0144)
Z-score							0.000752** (0.000275)	0.00287 (0.00315)
Constant	-0.292 (0.191)	-0.301 (0.191)	-0.310 (0.197)	-0.296 (0.197)	-0.293 (0.190)	-0.290 (0.191)	-0.294 (0.191)	-0.314 (0.220)
Industry dummy	yes	yes	yes	yes	yes	yes	yes	yes
Recession dummy	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097
R-squared	0.205	0.205	0.205	0.205	0.205	0.207	0.207	0.228
Number of firms	555	555	555	555	555	555	555	555
Wald test	-	0.583	0.208	0.041	0.040	7.862**	7.464**	8.539

Robust standard errors in parentheses. Panel linear regression accounting for the presence of heteroskedastic.

[†] : $p < 0.1$, * : $p < 0.05$, ** : $p < 0.01$, *** : $p < 0.001$