

The Effect of Recessions on Competitive Performance

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Abstract : *We analyze 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 18 industries in the US during the period 1982-2015 strongly support our reasoning.*

Keywords : *Recessions, Isolating Mechanisms, Strategic Flexibility, Life Cycle*

I. 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 position, profitability and market share (Chakrabarti, Singh, & Mahmood, 2007; Chakrabarti, Vidal, & Mitchell, 2011; Garcia-Sanchez, Mesquita, & Vassolo, 2014; Ghemawat, 1993; Latham, 2009; Mascarenhas and Aaker, 1989). Moreover, although recessions are a transitory phenomenon, their effects on competitive advantages can be permanent (Mascarenhas and Aaker, 1989; Garcia-Sanchez, Mesquita, & Vassolo, 2014). During 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, Navarro and Sottile, 2008; Flammer and Ioannou, 2015). The goal of this manuscript is to analyze the effect of recessions on firms' strategic positioning. We propose that recessions transitorily alter the relative value of 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 18 US industries during 1982-2015, a period that includes 3 recessions. We observe that, during recessions, those companies that base their strategy in supply-side isolating mechanisms increase their market share. On the other hand, those companies that based their strategy in demand-side isolating mechanisms decrease their market share. Finally, those companies, which entered the recession in a strong financial position, turned out to increase their market share, and this effect lasted longer than the ones from the isolating mechanisms.

II. DATA AND METHODS

We analyze the manufacturing sector in the United States. To construct our sample, we begin with a list of all 220 industries whose codes in the Standard Industrial Classification (SIC) System begin with the digits 2 or 3. We then exclude any industry that does not contain an average of at least ten companies during the period of 1982-2015; smaller industries are not relevant for our analysis, since competition in such industries is minimal. Following this criterion 48 industries remain. Subsequently, we examine each industry one by one and exclude those comprised of multiple non-competing sub-industries. 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. We exclude 30 industries based on these criteria, leaving a final sample of 18 industries. Our sample includes the following industries (SIC codes in parentheses): meat packing plants (2011); malt beverages (2082); bottled and canned soft drinks and carbonated waters (2086); newspapers: publishing, or publishing and printing (2711); periodicals: publishing, or publishing and printing (2721); books: publishing, or publishing and printing (2731); perfumes, cosmetics, and other toilet preparations (2844); cement, hydraulic (3241); bolts, nuts, screws, rivets and washers (3452); construction machinery and equipment (3531); industrial and commercial fans and blowers and air purification equipment (3564); electronic computers (3571); computer storage devices (3572); telephone and telegraph apparatus (3661); radio and television broadcasting and communications equipment (3663); printed circuit boards (3672); motor vehicles and passenger car bodies (3711) and aircraft (3721). We gather data from four different databases: National Bureau of Economic Research, S&P Compustat, UCLA-LoPucki Bankruptcy Research, and Thomson One. 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. We take firm 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 since 1950. Our third data source is the UCLA-LoPucki Bankruptcy Research Database, which includes information on large U.S. public companies that have filed for bankruptcy under Chapters 7 or 11 since October 1, 1979. "Large" is defined as companies with annual assets worth \$100 million or more (measured in 1980 dollars). Our final source of information is the Thomson One SDC Platinum Database, which contains reliable information about mergers and acquisitions (M&A) transactions since 1982. 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% stake or more in the target). For the 18 industries listed above, we combine the information gathered from all four data sources and end up with a sample that covers 1982 to 2015. This period covers the 1990-1991 financial crisis, the 2001 recession and the Great Recession of 2008-2009. During the three recessionary periods, we observe eight companies enter chapter 11, no companies enter chapter 7, and 907 M&A transactions. The sample includes 1,102 different companies and 11,990 firm-year observations, reported in US dollars. This first sample is used to test H1. In order to test the remaining hypotheses, we create a sub-sample that only considers the five recession years. This sub-sample contains 823 firms and 1,661 firm-year observations.

III. EMPIRICAL FINDINGS

Table I reports the results for the panel-data model used to analyze the effect of recessions on market share. It shows GLS parameter estimation of models with Crisis as the main covariate and Absolute percentage change in market share computed at different periods as dependent variable. A positive sign in the estimated coefficient for Crisis indicates an increase in the absolute change in market share, and a

negative sign implies a decrease. We provide an R-squared and a Wald test as a measurement of goodness of fit for the model and between models, respectively.

TABLE I. TEMPORARY ALTERATION AND INCOMPLETE REVERSION OF THE MARKET SHARE

VARIABLES	(1) t, t-1	(2) t, t-1	(3) t+1, t	(4) t+1, t	(5) t+2, t+1	(6) t+2, t+1
Capital expenditures intensity	12.88*** (9.677)	12.86*** (9.632)	7.205*** (9.374)	7.032*** (9.388)	-4.971*** (9.889)	-4.864*** (9.917)
Firm Size	-1.333*** (0.0226)	-1.331*** (0.0219)	-1.352*** (0.0299)	-1.352*** (0.0344)	-1.287*** (0.0266)	-1.199*** (0.0277)
Mergers and acquisitions	0.141 (0.0876)	0.175** (0.0879)	0.348*** (0.0670)	0.351*** (0.0694)	-0.263*** (0.0464)	-0.273*** (0.0465)
Return on equity	-0.0296*** (0.00117)	-0.0293*** (0.00238)	0.108*** (0.00542)	0.108*** (0.00553)	-0.0430* (0.0255)	-0.0390 (0.0249)
Chaper 11	12.03*** (4.015)	11.06*** (4.002)	5.752 (3.768)	6.264 (3.830)	-4.138 (4.147)	-3.848 (4.162)
Herfindahl index	-0.00204*** (7.40e-05)	-0.00203*** (7.45e-05)	-0.00123*** (8.39e-05)	-0.00125*** (8.39e-05)	0.00134*** (4.36e-05)	-0.00136*** (4.61e-05)
Industry growth	0.00775*** (0.00161)	0.00877*** (0.00137)	-0.00881*** (0.00170)	-0.00881*** (0.00174)	-0.00753* (0.00388)	-0.00772* (0.00377)
Crisis		2.225*** (0.113)		-1.285*** (0.243)		-0.723*** (0.115)
Constant	26.96*** (9.620)	26.58*** (9.594)	28.56*** (9.659)	24.80*** (9.662)	24.23*** (9.534)	24.28*** (9.552)
Industry dummy	yes	yes	yes	yes	yes	yes
Observations	7,142	7,142	8,466	8,466	5,764	5,764
R-squared	0.164	0.166	0.159	0.159	0.165	0.166
Number of firms	658	658	595	595	531	531
F		385.071***		27.961***		39.911***

Dependent variable: Absolute percentage change in market share
 Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1
 GLS with Panel-specific AR(1) correlation and heteroskedastic. All firms with 5 or more observations.

Results show that economic recessions have a positive and significant effect on the contemporaneous absolute change in market share (model 2) and a negative and significant effect on the following two years (models 4 and 6). The estimated coefficients are 2.225, -1.285, and -0.725 for the current year and the subsequent two years, respectively. All of them are significant at the 1% level. The Wald test shows that 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 all three models fit

TABLE II. RELATIVE VALUE OF THE SUPPLY-SIDE AND DEMAND-SIDE MECHANISMS, AND FINANCIAL FLEXIBILITY

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital expenditures intensity	23.91 (27.47)	57.46*** (21.33)	7.817 (26.75)	31.37 (24.46)	56.33** (22.24)	20.12 (26.62)	23.79 (27.77)	31.62 (26.72)
Chaper 11	-17.86*** (2.511)	-16.58*** (2.510)	-17.31*** (2.478)	-16.31*** (2.508)	-16.93*** (2.504)	-16.85*** (2.519)		
Firm size	-0.244 (0.402)	-0.386 (0.398)	-0.194 (0.391)	-0.187 (0.405)	-0.404 (0.400)	-0.151 (0.401)	-0.414 (0.455)	-0.317 (0.448)
Mergers and acquisitions	3.050** (1.476)	2.972** (1.460)	2.974** (1.467)	2.988** (1.476)	2.956** (1.477)	3.016** (1.474)	3.234** (1.491)	3.129** (1.475)
Return on assets	-0.0188 (0.0242)	-0.00917 (0.0233)	-0.0150 (0.0240)	-0.0232 (0.0237)	-0.0110 (0.0235)	-0.0326 (0.0236)	-0.0169 (0.0244)	-0.0238 (0.0232)
Herfindahl index	0.00100 (0.00114)	0.00140 (0.00123)	0.00108 (0.00115)	0.00106 (0.00113)	0.00129 (0.00113)	0.000865 (0.00114)	0.00107 (0.00117)	0.00137 (0.00115)
Industry growth	0.0989 (0.109)	0.101 (0.109)	0.0877 (0.110)	0.0936 (0.108)	0.0956 (0.109)	0.112 (0.108)	0.0880 (0.110)	0.102 (0.110)
Gross margin		3.112*** (0.662)						5.172 (4.284)
Tangible resources		-10.00* (5.294)						8.294 (5.589)
Advertising intensity				-42.58** (18.80)				-56.57*** (18.04)
Research and development					-7.186** (2.946)			8.995 (12.15)
Financial health						7.498*** (2.745)		5.988** (2.818)
Z-score							0.154* (0.0914)	0.174* (0.105)
Constant	-16.75*** (6.044)	-20.57*** (5.973)	-0.779 (6.564)	-17.58*** (5.957)	-19.40*** (5.565)	-10.10 (6.907)	13.67 (8.952)	9.038 (9.591)
Industry dummy	yes	yes	yes	yes	yes	yes	yes	yes
Recession dummy	yes	yes	yes	yes	yes	yes	yes	yes
Observations	887	887	883	887	887	884	852	846
R-squared	0.061	0.092	0.068	0.066	0.069	0.088	0.082	0.104
Wald test		22.078***	3.571*	5.062**	5.942**	7.459***	2.810*	6.338***

Dependent variable: percentage change in market share (t, t-1)
 Robust standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

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 -42.38 and -7.186, respectively, and they are both significant at the 5% level. 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 strongly support H3.

Finally, 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 7.498 and 0.154, significant at the 1% and 10% levels, respectively. On that basis, we can conclude that firms with higher financial flexibility increase their market share during recessions. The Wald test shows that both models fit the data significantly better than model 1, providing further support for the relationship.

Furthermore, to test whether the effect of financial flexibility lasts longer than the effect of the isolating mechanisms, we run the same models presented in Table II but with one-year lead in the Percentage change in market share as the dependent variable. Results are presented in Table III and show that most of the main covariates lose their significance. However, the coefficients on both Financial health and Z-score are 14.22 and 0.440 respectively, both significant at the 1% level. In other words, the coefficients on financial flexibility proxies are larger and more significant than before. These findings provide robust evidence to strongly support H4.

the data significantly better the respective base models, which include only control variables (model 1, 3, and 5). Overall results show that recessions alter market shares in an industry and that this effect partially reverses during the following two years. These findings provide robust evidence to strongly support H1. Table II shows results for the pooled regression used to test H2, H3, and H4. We test H2 by introducing the main covariates Gross margin and Tangible resources (models 2 and 3, respectively). The regression coefficients for Gross margin and Tangible resources are 3.112 and 10.0, significant at the 1% and 10% the base model, which includes only control variables (model 1), providing further support for a relationship. These findings provide robust evidence to strongly support H2.level, respectively. These

TABLE III. GAIN IN MARKET SHARE DUE TO STRATEGIC FLEXIBILITY LASTING LONGER THAN SUPPLY AND DEMAND–SIDE MECHANISM

IV. DISCUSSION AND CONCLUSION

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital expenditures intensity	21.07 (20.72)	19.97 (20.80)	20.97 (22.88)	24.40 (23.77)	28.31 (21.24)	15.21 (20.32)	22.88 (20.78)	22.89 (23.15)
Clmptes 11	9.400 (6.586)	9.895 (6.718)	8.595 (6.785)	9.774 (6.862)	9.749 (6.649)	10.62 (6.990)	9.846 (2.823)	1.227 (2.886)
Firm size	-0.380 (0.438)	-0.390 (0.440)	-0.442 (0.443)	-0.339 (0.440)	-0.456 (0.441)	-0.155 (0.434)	-0.757* (0.438)	-0.542 (0.441)
Returns on assets	-0.0729 (0.0690)	-0.0706 (0.0599)	-0.0713 (0.0621)	-0.0680 (0.0610)	-0.0703 (0.0605)	-0.0677* (0.0578)	-0.0705 (0.0619)	-0.0666 (0.0585)
Herfindahl index	0.00252** (0.00102)	0.00256** (0.00102)	0.00253** (0.00103)	0.00254** (0.00102)	0.00253** (0.00103)	0.00245** (0.00102)	0.00254** (0.00103)	0.00253** (0.00104)
Industry growth	0.315*** (0.0945)	0.315*** (0.0946)	0.327*** (0.0947)	0.309*** (0.0948)	0.315*** (0.0945)	0.318*** (0.0939)	0.335*** (0.0958)	0.344*** (0.0963)
Gross margin		3.482 (5.225)						0.051 (5.108)
Tangible resources			3.859 (4.922)					1.602 (4.944)
Advertising intensity				-33.38* (17.85)				-27.15 (17.16)
Research and development					-8.848 (6.256)			-1.419 (6.793)
Financial health						14.22*** (3.206)		10.92*** (3.803)
Z-score							0.440*** (0.117)	0.372*** (0.125)
Constant	-5.432 (5.231)	-6.328 (5.278)	-6.890 (5.241)	-5.870 (5.260)	-6.137 (5.307)	-17.58*** (5.722)	-2.124 (6.396)	-3.629 (7.824)
Industry dummy	yes							
Recession dummy	yes							
Observations	873	875	867	873	875	870	842	854
R-squared	0.088	0.089	0.094	0.091	0.090	0.107	0.100	0.110
Wald test		0.435	0.464	3.457*	1.987	18.513***	14.563***	4.710***

Dependent variable: percentage change in market share (t+7, t)
 Robust standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Recessions affect firms’ strategic positioning in a heterogeneous way. We propose and empirically show that recessions temporarily increase the relative value of supply-side isolating mechanisms and decrease the value of demand-side mechanisms. This change temporarily alters firms’ strategic positioning. However,

to what extent firms can take advantage of these transitory events to secure long-term improvements in their strategic positioning is based 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 cause of these changes under different constructs for supply-side isolating mechanisms (i.e., Gross margin 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). These results have limitations. We focus on the years during and immediately after recessions. 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. Regarding the former, it would be worthwhile to explore the factors that determine whether a manager can navigate a recession more effectively. The latter refers to the manager's tenure as CEO and the probability that he or she will face a recession while holding this 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. Our findings have several managerial implications. On one hand, 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 this vein, our findings are consistent with Ghemawat's (1993) recommendations for making decisions during recessions: focus on long-term competitive position and avoid the risk of failing to invest during recessions. On the other hand, our 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 establish their strategic content before a recession. Firms' outcomes during a recession will be highly influenced by the conduct and decisions their managers establish before the recession begins. Not taking into account that a recession is coming, might lead managers to take suboptimal intertemporal strategies. This study has several limitations. Our focus on isolating mechanisms does not take into account firms' idiosyncratic capabilities, which could be the source of sustainable competitive advantages (Peteraf, 1993, Lavie, 2006). Several of the main covariates and dependent variables rely on accounting information from the companies' 10-Ks. We have incorporated other sources to avoid potential endogeneity issues; however, further studies that incorporate a wider degree of sources in the empirical regressions are needed. The advantage of our approach is that it allows us to conduct a long-run multi-industry analysis. Related to this issue, our measures of supply and demand-side isolating mechanisms are indirect; we are not capturing direct measures of firms' capabilities. Future research should address this shortcoming. 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. In addition, the fact that we base our analysis solely on US data imposes potential problems of generalizability to other country contexts. In particular, future research should investigate to what extent our conclusions would change in an emerging market context. In spite of these limitations, 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 and Aaker's (1989) seminal work, as well as other more recent studies to obtain a deeper understanding on the relationship between strategy and the business cycle.

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