The Corporation's Center Cannot Hold: Losses, Outside CEO Hires, and Acquisitions at Public US Corporations

By

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A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Sociology

in the

Graduate Division

of the

University of California, Berkeley

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Spring 2023

Abstract

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This dissertation examines the profitability and management of public US corporations since the 1950s. I argue that a shift in their ability to turn a profit helps us understand why today's corporations are run more as portfolios of assets than as organic wholes. Even while aggregate corporate profits have risen, public US corporations have become more likely to fail to turn a profit since the 1970s. Losses—instances of negative net income—are a signal a firm is not a good candidate for long-term organic growth. As a result, widespread losses at public US firms today encourage corporate managers and boards to focus on acquiring and divesting assets—whether business units, executives, or technologies—rather than committing locked-in investments to generate economic value in the long run. This dissertation focuses on two corporate strategies that encapsulate this view that corporations are portfolios of exchangeable assets: outside CEO succession—CEOs being hired from outside the firm rather than promoted from within—and acquisitions. I present evidence that high losses at public US corporations since the 1990s have contributed to elevated rates of outside CEO hiring and acquisitions and are therefore a material basis of the corporation-as-portfolio perspective. This suggests that understanding why losses are so high at public US corporations—the average yearly loss rate has been over 33% since 1985 and higher in recent years—is important for gauging the health of the American economy.

The dissertation centers on three empirical studies. The first two focus on outside CEO succession at large public corporations. In the first empirical chapter, I examine how losses and other measures of firm performance predict outside CEO hiring at 317 of the largest public US corporations between 1950 and 2015, defined as those ranked in the top 110 by revenue at least once based on 5-year snapshots. New CEOs hired directly from outside the firm were rare at these large firms before 1990, increased sharply in the 1990s, and have remained elevated in the 21st century. I bridge the gap between two important but disconnected lines of research on American corporations—one focused on the shareholder value movement, the other on changes in corporate profits—to trace this devaluation of inside managers to a previously undocumented rise in low-profit spells at large corporations. Despite increased median profits, large public US corporations have become much more likely to fail to turn a profit. These losses encouraged subsequent outside CEO hiring through the 1990s, and rising losses help explain 30% of the late-

20th-century increase in outside hires at these large firms. After 2000, outside CEO hires remained common and became primarily a response to low stock return. This chapter extends the well-documented effect of poor profitability on outside CEO hiring to provide one of the first estimates of how changing corporate profits have reshaped corporate governance. Rising losses in the 1980s-1990s pressed large corporations to frequently change course and increased demand for outside CEOs meant to promote this flexibility.

The second empirical chapter turns to the cultural change and stability that accompanied this rise in outside CEO hires. I analyze text from news articles announcing CEO hires at the 150 largest firms of my sample (i.e., firms ranked in the top 50 by revenue at least once based on 5-year snapshots 1950-2015). I use two supervised machine learning models commonly used for text analysis—support vector machines and random forests—to predict whether a new CEO was hired from outside or inside the firm based on words and phrases from the announcement articles. After evaluating which model and hyperparameters yielded the best predictions, I consider feature importance scores from models trained on articles from three distinct periods—1950-1989, 1990-2000, and 2001-2015—to examine the language characterizing outside CEO hires when they were rare, rising, and high at large corporations. I find that despite churn in the words and phrases used to describe outside CEOs, there is a consistent model of outside succession across the sample period: outside CEOs were hired to be strong managers of poor performing firms. Yet in the 1990s, when outside succession was rising sharply at these firms in response to increased losses, outside hire announcements became longer, more distinctive, and more focused on pressures from consumer and equity markets. Finally, after 2000 outside hire announcements became more highly rationalized, focusing less on outside CEOs' status and more on the concrete work experiences that made them qualified for the job. These results connect sociological accounts of the search for charismatic CEOs during the shareholder value revolution to financial economic explanations of executive mobility focused on transferable skills.

In the final study, I broaden my scope to all public US corporations to investigate the connection between historically high losses and acquisitions between 1973 and 2019 and how these have contributed to rising concentration within US industries since the 1990s. Research on this rising market concentration tends to focus on the strategies of high-profit star firms. Yet economic and organizational sociology have long argued that profitability crises and organizational death are key drivers of economic change, and I draw on these perspectives to analyze the flip side of rising monopoly power in the United States. To do this, I connect rising market concentration to not just high rates of losses but also a sharp decline in the number of public US corporations over the past twenty-five years. I examine how today's high losses could have contributed to rising market concentration through increased acquisitions, a primary driver of the falling number of public firms. I find evidence that losses encourage firms to be acquired and that high acquisitions rates since the mid-1990s have contributed to increases in the concentration of sales within industries. In contrast, loss rates within industries do not seem to drive concentration increases. These results demonstrate that corporate weakness and not just strength have contributed to rising market concentration. Public US corporations have routinely failed to turn a profit in past decades, and we should recognize that this has hindered stable and widespread economic growth: not only have losses encouraged outside CEO hiring, they have also contributed to high acquisition rates, and this has increased market concentration among public US firms.

CONTENTS

ACKNOWLEDGMENTS

I first want to thank my dissertation committee. Over the years spent writing this dissertation, I have gained again and again from their ideas, advice, support, and encouragement. Neil Fligstein has been a committed advisor, whose willingness to be available—and often proactively get in touch!—and to provide regular feedback on my work over all these years was vital to my progress. I also am grateful for his work organizing the Center for Culture, Organizations, and Politics and his openness providing feedback there. I learned much from witnessing his ability to succinctly summarize the core of a paper and its potential paths forward. Heather Haveman has been an attentive mentor and guide to me from the beginning, through many ups and downs. Heather was always uniquely willing to dive into the details of analyses and debate concrete aspects of papers' theoretical framings, and this engagement has been invaluable to me. Marion Fourcade has been an intellectual inspiration to me. I am especially thankful for the extra effort she made to allow me to GSI for her undergraduate theory sequence, which more than any other experience in graduate school shaped my theoretical imagination and helped me solidify my own perspective on social theory. Sameer Srivastava has been willing to offer his time and excellent advice whenever I asked. In particular, he provided thoughtful and honest feedback that helped me enormously as I was deciding what career options to pursue.

I also thank the other faculty members and fellow graduate students who shaped me and my journey towards this dissertation. Danny Schneider modeled a unique combination of vigorous intellectual engagement, terrifying work ethic, and perceptive compassion as a mentor and collaborator. Claude Fischer's ability to maintain clarity and calm in the face of complex data and conflicting perspectives on a research team were an inspiration. Ann Swidler was instrumental in launching my path into sociology, and I will always remember fondly the times I spent basking in her charisma and insight. Many fellow graduate students brightened my path through the PhD program in more ways than I can express, from long office conversations to outdoor lunches, from coffee runs to mutual tutoring sessions, from post-workshop drinks to long and evolving friendships. I want to especially thank Lindsay Bayham, Andrei Boutyline, Dani Carrillo, Jason Ferguson, Pat Hastings, Casey Homan, Katherine Hood, Joe LaBriola, Liana Prescott, Jason Scott, Shelly Stewart, William Welsh, and Jeff Weng.

Finally, my deepest gratitude is reserved for my family. They could not have known the emotional roller coaster I was dragging them on when I started graduate school many years ago, the countless rounds of excitement, stagnation, relief, disappointment, and fatigue they would experience through me. Yet throughout all of this, they have provided a life-giving positivity that I simply could not have maintained on my own. Thank you to my dad Craig, my mom Debbie, and my children, Elliot and Noelle. As for Jennifer Ying, words once again cannot touch the value of the gifts she has given me. Her deep patience provided space when I needed it. Her sharp wit roused me when I needed a change. And most of all, her insistence on having fun and finding joyful moments on a regular basis, no matter the season of life, sustained me.

1. INTRODUCTION

On August 19, 2019, almost two hundred CEOs from many of the world's largest corporations jointly released a statement arguing that corporations should pursue goals aside from maximizing shareholder value. The Business Roundtable's "Statement on the Purpose of a Corporation" in 2019 was a direct contrast to its 1997 predecessor, which stated that the sole purpose of the public corporation was to increase its value on the stock market (Fourcade and Khurana 2017). This reversal received widespread news coverage, the focus of multiple articles at *The New York Times* and *The Wall Street Journal* and the cover story at *Fortune* magazine (Benoit 2019; Gelles and Yaffe-Bellany 2019; Murray 2019; Shinder 2019; Sorkin 2019). Aside from surprise at the striking turnaround, this media attention seemed to reflect an optimism that business leaders were finally listening to the swelling criticism of shareholder primacy at today's corporations. The crises and inequality of the 21st century American economy—accounting scandals during the dot-com bust, the 2007-8 financial crisis and bank bailouts, persistently massive CEO-worker pay ratios—weakened the claim that corporations being run for the sake of shareholders would bring widespread economic benefits (Aglietta and Rebérioux 2005; Dobbin and Zorn 2005; Lazonick 2014). Many argued instead that maximizing shareholder value simply prioritized one subset of stakeholders, in particular those holding equity for relatively short periods (Stout 2012), over others like workers, long-term investors, communities, and the government (Lazonick and O'Sullivan 2000). The push for "corporate social responsibility" and the ESG investing movement—which rewards companies pursuing environmental, social, and corporate governance goals in addition to economic returns—are two prominent ways this critique of shareholder value has recently become embedded in the US economy (Aguinis and Glavas 2012; Gillan, Koch, and Starks 2021; Leins 2020).

The Business Roundtable's 2019 reversal of its position on corporate governance was clearly a response to this growing movement against shareholder primacy. The question is whether this was simply a public relations statement: has the shareholder value era really ended? Evidence suggests it has not. One systematic analysis shows that little changed at the companies whose CEOs signed the 2019 Business Roundtable statement: bylaws continued to reflect shareholder primacy; corporate governance guidelines were not revised to raise the status of other stakeholders; most proxy statements did not even mention the Business Roundtable statement; and shareholder proposals seeking implementation of the Business Roundtable statement were dismissed as unnecessary (Bebchuk and Tallarita 2022). Broader trends also suggest a continuation of shareholder primacy in recent years. A striking example is that stock buybacks—where firms use excess cash to raise their stock price rather than invest in future growth and innovation—have remained at historically high levels (Megaw 2022; S&P Global 2022). In addition, stock-based CEO compensation has continued to increase, even as some of the most perverse incentives towards short-termism have been reduced by shifting away from stock options and towards restricted stock (Lovett, Rasheed, and Hou 2022).

Given the intense and widespread criticism of the shareholder value orientation, this continued commitment to shareholder primacy at US corporations is somewhat puzzling. Most explanations for the persistent prioritization of shareholders above other stakeholders typically focus on the power of shareholders or the ideological strength of the view that a corporation's purpose is to maximize its value on the stock market. The argument about power is simply that shareholders, from equity-compensated executives to large institutional investors, continue to exercise enormous control over corporations (Davis 2009; Falato, Kim, and von Wachter 2022).

As a result, they will likely continue pushing firms to prioritize their own interests, no matter how many statements signed and policy changes promised in the name of serving other corporate stakeholders. Other accounts highlight the legitimacy of shareholder primacy. The idea that stock price is the ultimate measure of corporate success has deep roots in the field of financial economics (Jensen and Meckling 1976; Manne 1965), and the power of the shareholder value ideology and the financial economic profession have rising in tandem over the past fifty years (Fourcade and Khurana 2017). Surely a portion of shareholder primacy's strength comes from the simplicity of measuring corporate success using a single, easily identified metric (Jensen 2002). Yet the power of the shareholder value orientation first solidified when corporate raiders used it to justify their lucrative takeovers in the 1980s (Heilbron, Verheul, and Quak 2014). And the legitimacy of shareholder primacy received an enormous lift during the economic boom of the late 1990s, when commitment to raising stock price at all costs fed into enormous corporate market values during the dot-com bubble (Dobbin and Zorn 2005; Lazonick and O'Sullivan 2000). Finally, this ideological strength of shareholder primacy has encouraged policies that have enabled shareholder value strategies to further expand, from the 1993 law that capped CEO pay but not stock option compensation (Davis 2009) to the 2017 tax cuts that fed another wave of stock buybacks (Kalcheva et al. 2020).

This dissertation describes a novel explanation that complements these accounts focusing on power and ideology. Without a doubt both shareholders' control over corporate resources and the common sense legitimacy of the shareholder value ideology have contributed to the persistent prioritization of shareholders at American corporations. Still, the economy is more than power struggles and ideological debates—in the end, a capitalist economy must accumulate capital, and these economic profits must be measured (Levy 2014). How have profits changed at American corporations, and how could these changes have contributed to the persistent strength of the shareholder value orientation? Two major trends in corporate profits during the past few decades are clear. First, profits are increasingly concentrated among the most successful firms (De Loecker, Eeckhout, and Unger 2020; Kahle and Stulz 2017; Philippon 2019). Many have highlighted this trend and how concentrated profits and the shareholder value orientation are interconnected—for instance, stock buybacks funnel cash from the most profitable firms to their shareholders (Lazonick 2014), and the dominance of a small number of institutional investors reduces workers' power (Falato et al. 2022).

I will focus on a second major trend in the profits of public US corporations that has likely contributed just as strongly to the entrenchment of shareholder primacy yet has received less attention. Over the past fifty years, there has been a substantial rise in spells of *low* profits. During the 1980s and 1990s, firms became more and more likely to have negative net income—a "loss"—or negative cash flow during the year, and these rates have remained elevated during the 21st century (Kahle and Stulz 2017; Denis and McKeon 2021). The remarkable fact is that, since the mid-1980s, about one-third of public US corporations do not turn a profit each year on average. The initial rise in losses was partly due to compositional change: in the 1980s a larger number of small and less profitable firms started going public, which drove up the loss rate (Fama and French 2004). Yet I will show that the rising trend in losses is present even among the largest American corporations. Whether defined as the largest 100 firms by revenue each year or firms that were ever ranked in the top 100 between 1955 and 2010, losses at large firms were extremely rare until the 1970s, surged to historic levels in the 1990s and early 2000s, and have remained elevated since then.

How to reconcile this increase in losses with the well-documented rise in corporate profits, both in the aggregate and as a percentage of national income (Covarrubias, Gutiérrez, and Philippon 2020; Kahle and Stulz 2017)? To answer this, it is important to distinguish what happened in the 1980s and 1990s compared to after 2000. In the final decades of the 20th century, several factors weakened all public US corporations' ability to consistently generate profits. Some of these drivers of increased losses were outside of firms' control. Globalization pressures made US corporate profits less stable. Rising international competition in manufacturing led to long-run declines in the sector's profit rates relative the postwar era (Brenner 2006). Investment returns became even more uncertain thanks to technological changes, from the declining economic productivity of innovation (Gordon 2016) to the increased importance of intangible capital, which yields more volatile costs since accounting laws require that they, unlike other capital investments, be expensed immediately (Govindarajan, Rajgopal, and Srivastava 2018; Lev 2019).

Other reasons for the widespread increase in losses in the late 20th century stemmed from deliberate corporate strategies that increased profit volatility. Firms became more aggressive in exploiting accounting rules to reduce their taxes as these rules became more amenable to tax arbitrage. Allowing capital to be depreciated over shorter time periods gave corporations a tool to reduce their taxable income (Krippner 2011). More flexible accounting standards made it easier for corporations to take a so-called "big bath," exaggerating poor earnings in order to be more likely to meet or exceed investors' future profit expectations (Jordan and Clark 2004; Kirschenheiter and Melumad 2002; Zang 2008). In addition, corporations adopted riskier strategies as pressures to maximize shareholder value increased (Aglietta and Rebérioux 2005; Dobbin and Jung 2010): firms increased their interest burden as they took on debt to become less attractive targets for 1980s hostile takeovers (Davis and Stout 1992); de-diversification made corporations vulnerable to industry shocks and led to more volatile performance (Davis, Diekmann, and Tinsley 1994; Desai and Savickas 2010); and stock option compensation for CEOs incentivized risk-taking, which increased spells of poor returns (Dobbin and Jung 2010; Sanders and Hambrick 2007). It is important to note that these arguments suggest it is not just losses that encourage running corporations as portfolios of exchangeable assets, but also that the portfolio view of the firm promotes high-risk, high-reward strategies that increase the chance of losses.

However, despite these drivers of rising losses across public corporations, a new regime emerged after the dot-com boom in which the likelihood of low-profit spells became more stratified. This is when the profit share of income clearly began to increase in the US (Covarrubias et al. 2020). More generally, this is when the widespread instability among large corporations present in the 1990s gave way to increasing inequality between firms (Kahle and Stulz 2017; Philippon 2019). I find that median profits at large public US corporations showed a much sharper rise after 2000 than during the 1980s and 1990s (see Figure 2.2). In addition, while rising losses at these large firms in the 1990s were driven by increased profit volatility within firms, continued high losses since 2000 have been due to a growing gap between successful firms and those that frequently fail to turn a profit (see Appendix C). Trends in market concentration also shifted at around this time. Since the mid-1990s, fewer firms have captured increased shares of both sales and profits within industries (Autor et al. 2020; Kahle and Stulz 2017). In fact, Kahle and Stulz (2017: 77) find that in 2015 aggregate profits for public US corporations are positive only thanks to the top 200 firms—the combined earnings of the rest

were negative. Increased stratification between a small number of highly profitable corporations and the rest has made possible a combination of rising aggregate profits and increased loss rates.

I claim in this dissertation that historically high losses at public American corporations since the 1990s have contributed to the persistence of shareholder primacy. Prior research has noted links between the destigmatization of losses and the shareholder value ideology, as consistent losses has often coincided with rising stock prices, especially in the tech industry (Dobbin and Zorn 2005; Eisen 2018; Govindarajan, Rajgopal, and Srivastava 2018). Yet my argument here is more specific. I build on literature that identifies corporate "short-termism"—a focus on short-term costs, profits, stock returns, and analyst forecasts rather than long-term investment—as a core characteristic of shareholder value capitalism (Benton and Cobb 2019; Davis 2009; Fligstein 2001; Levy 2021). My basic argument is that losses are a signal, to those inside and outside the firm, that a firm is not a good candidate for long-term organic growth, that the corporation's center might not hold.

To make this argument, I situate the shareholder value orientation within a broader logic of investment that has dominated the American economy over the past fifty years. Public US corporations today are certainly seen as engines for increasing shareholder value by whatever means necessary. Yet the underlying logic of investment supporting this view is that corporations should focus on acquiring and divesting assets—whether business units, executives, or technologies—in order to increase short term rates of return. Firms are seen more as portfolios of exchangeable assets than organic wholes where locked-in investments lead to growing returns over the long run. Of course, this is part of a broader resurgence of capitalists' "liquidity preference" (Keynes 1936)—the inclination towards relatively liquid stores of value at the expense of long-term committed investments—that has reshaped the American economy since 1980 (Levy 2021). And the recent dominance of a finance sector built on relatively short-term, liquid investments makes this firm-as-portfolio perspective seem almost natural (Ho 2009; Krippner 2011). However, the corporation was originally an organizational structure designed to encourage long-term investments (Ciepley 2013; Stout 2012). Limited liability, asset lock-in, and other features of the corporate entity were a bulwark against capitalists' liquidity preference. That original purpose of the corporation is now marginal.

My main argument is that high loss rates help explain why this vision of the corporation as a vehicle for long-term investment has remained peripheral for such a long time. Difficulty generating a profit indicates a business is not on the path towards organic growth and longevity. I present evidence that rising losses in the late 20th century contributed to two trends that reinforced the corporation-as-portfolio view: rising outside CEO hires and increased acquisitions. An increase in outside CEO succession—where a CEO candidate from outside the firm is chosen rather than promoting an executive from within the firm—indicates that experience within the firm has been devalued and inside managers' judgments have lost legitimacy (Frydman 2019; Jung 2014; Khurana 2002). High levels of acquisitions signify, on the one hand, that acquiring companies are trying to grow through merger rather than organic growth and, on the other, that target firms' executives would prefer to sell than to raise capital and risk investing in the firms' long-term growth and competitiveness (Davis and Stout 1992; Doidge, Karolyi and Stulz 2017; Fama and French 2004; Kahle and Stulz 2017; Philippon 2019). Both practices prioritize bundling distinct individuals and business units into a portfolio appreciating in market value rather than long-term investments in employees or strategy to generate productivity from within the organization. I find that losses have consistently encouraged both outside CEO hires and acquisitions at public US firms.

This dissertation focuses on public US corporations since the mid-20th century. The shareholder value orientation applies most clearly to corporations with shares available for exchange on public stock markets. These firms attract the large institutional investors and activist funds that have been the focus of research on shareholder primacy. Compared to business enterprises in general, public corporations are well capitalized and employ a larger number of workers—they account for roughly one-third of total US employment (Wilmers 2018). My analysis of losses and acquisitions—and a key consequence of high acquisition rates, rising market concentration—examines the universe of publicly traded corporations since the Nasdaq was founded in the early 1970s. In examining outside CEO hiring, I focus on large US firms. This allows me to collect a consistent sample going back further into the past, and I construct a sample of full CEO histories at the largest 317 firms by revenue between 1950 and 2015. This sample helps me extend previous research about CEO succession, which tends to focus on large firms (Frydman 2019; Jung 2014; Khurana 2002; Murphy and Zabojnik 2007). Furthermore, the decline in corporate stability and long-tenured executives that I examine has been most dramatic for large firms, whose prosperity in the postwar period led them to develop firm internal labor markets (Davis 2009; Hollister 2011; Kalleberg 2009).

A key implication of this dissertation is that losses provide a useful metric both for understanding the dominant model of firms as bundles of exchangeable assets and for encouraging locked-in investments meant to generate organic growth over the long term. I argue that historically high losses at public US corporations over the past three decades are an important linkage in the economic and institutional system supporting the portfolio view of the firm. They contribute to this corporation-as-portfolio perspective directly through outside CEO hires and acquisitions but also indirectly by encouraging a divergence between profitability and stock price—a failure to generate profits can be forgiven if the firm's market valuation appreciates sufficiently. Importantly, losses are also a widely available metric. High losses, especially among firms with high R&D and other "intangible" investments, are a sign we need to rethink how to better measure the costs associated with investments (Lev 2019). In addition, diagnostic measures of trends in losses can help focus antitrust efforts by identifying industries where competition may be weakening (Philippon 2019).

The Rise of the Portfolio View of the Corporation

In this section, I trace the rise of the view that corporations should be considered portfolios of exchangeable assets since the 1950s. The overarching point is that the corporation-as-portfolio perspective had a long gestation period. This view became embedded in corporate practice during the 1960s merger wave that created diversified conglomerates, when finance-oriented managers began comparing rates of return on dissimilar businesses housed under one corporate roof (Fligstein 1990; Knafo and Dutta 2020). Yet the old economic order—both incumbent firms dominating markets and the regulatory regime governing mergers—had to be dismantled before this new corporation-as-portfolio perspective could be fully adopted. This dismantling happened in the 1980s, when stagflation and deregulation set in motion a massive hostile merger movement (Davis and Stout 1992; Fligstein 2001; Lazonick and O'Sullivan 2000). The 1990s saw the emergence of a new blueprint for corporate success centered on mergers (Philippon 2019), outside perspectives (Useem 1993), and distance between corporate valuations and accounting profits (Lazonick and O'Sullivan 2000; Levy 2021)—all of which

align more closely with seeing corporations as portfolios rather than organic wholes. High losses in the 1990s contributed to this blueprint: large firms turned to outside CEO hires as they were hit by a surge of losses in the early 1990s (Khurana 2002), and losses were normalized during the dot-com boom (Dobbin and Zorn 2005).

Here I describe the shift towards conceiving of corporations as portfolios of exchangeable assets rather than organic wholes by outlining trends in losses, outside CEO hires, and acquisitions. In broad strokes, these three key signals of the portfolio view of corporations have all trended upwards since the middle of the 20th century, with increases especially prominent in the 1980s and 1990s. But the changing size composition of the universe of public US corporations—the proportion of smaller firms rose in the 1980s and 1990s and has since declined (Fama and French 2004; Kahle and Stulz 2017)—requires breaking down these aggregate trends by firm size. For instance, large firms were acquired at a higher rate during the 1980s, but it was not until the in late 1990s that acquisitions surged for all corporations. And while losses and outside CEO hires rose in the 1980s for most firms, these increases only hit large firms starting in the early 1990s.

Postwar Era of Growth and Managerial Insulation: 1950-1980

During the postwar economic expansion of the mid-20th century, the shareholder value perspective was marginal. Managers were respected as the shepherds of American industry, whose growth was synonymous with rising standards of living and fending off the threat of communism (Khurana 2002; Levy 2021). Disruptive events like losses, outside CEO hires, and acquisitions were all relatively rare at large corporations (Frydman 2019; Kahle and Stulz 2017; Murphy and Zabojnik 2007; Stearns and Allan 1996). While shareholder primacy would not begin taking hold at public US corporations until the 1980s, the perspective that firms were portfolios of assets assembled to maximize returns began rising steadily in this period, from the sales and marketing-oriented diversification of the 1950s to the 1960s conglomerate merger wave (Fligstein 1990; Knafo and Dutta 2020).

In the 1950s, the economy was still transitioning away from wartime production. I find that outside CEO hires were somewhat more common at large firms this decade than they would be in the 1960s and 1970s, as many new executives transferred from leadership roles in the military. More broadly, corporate goals centered on using sales and marketing to try to stimulate demand (Fligstein 1990). Companies focused on developing new and diverse lines of products to encourage consumption and weather economic uncertainty as new markets developed. Managers adjusted organizational structures to encourage this sales and marketing strategy. Many firms transitioned from a functional structure to units built around particular groups of products, and this multidivisional organizational form continued to expand in subsequent decades (Fligstein 1985).

This trend towards diversification accelerated during the 1960s. Whereas sales and marketing managers had promoted wide-ranging product lines in order to develop and dominate new markets, now finance managers began comparing ever more diverse business units based on their rates of return (Fligstein 1987). This transition was driven by a merger wave that, though it would be dwarfed by the rising tide of mergers in the 1980s and 1990s (Stearns and Allan 1996), still had a lasting impact on corporate strategy. The Celler-Kefauver Act, a postwar update to the Sherman Antitrust Act, made horizontal and vertical mergers illegal, and as a result these 1960s mergers produced diversified conglomerates (Fligstein 1990). This business structure was made

possible by a financial conception of the corporation that considered firms to be internal capital markets—bundles of assets assembled through acquisitions and divestitures to maximize returns. This is clearly the beginning of the corporation-as-portfolio perspective (Knafo and Dutta 2020). What needed to happen for this perspective to fully flourish was for merger regulations to loosen to allow horizontal and vertical mergers and for incumbent firms to be forced to change.

These barriers began to fall during the 1970s in the wake of a cluster of crises (Fligstein 2001; Levy 2021). Inflation that had begun during the late-1960s economic boom increased and became entrenched. Economies in Europe and Japan recovered from World War II and increased the competitive pressures faced by US firms. The oil shocks sparked recessions that the economy never fully recovered from until the 1980s. Corporations struggled with persistently low profits and stock returns. Two responses to these crises—a loosening of corporate merger regulations that began in the late 1970s but solidified under Reagan (Khan 2017; Kovacic and Shapiro 2000) and the Federal Reserve's sharp interest rate increases under Paul Volcker starting in 1980 (Levy 2021)—initiated a new era for the American economy. In the 1980s, mergers soared, many large firms were taken over, financial profits increased, and in general corporations began making investment decisions with a shorter time horizon (Fligstein 2001; Krippner 2011; Levy 2021).

The Dismantling of the Old Corporate Order: the 1980s

A large hostile takeover movement in the 1980s forced major US corporations to focus on raising their stock price or risk getting absorbed by another company or taken private by corporate raiders (Davis and Stout 1992; Fligstein 2001). Since then, maximizing shareholder value has become a consistent mark of corporate legitimacy pursued through successive waves of different strategies (Fligstein and Goldstein 2022). From layoffs and stock-option executive pay (Jung 2015; Khurana 2002) to quarterly earnings management and stock buybacks (Dobbin and Zorn 2005; Lazonick 2014), US corporations have been flexible in using new strategies to increase their value on the stock market by whatever means necessary.

While this shareholder value ideology did not crystallize as the new common sense of capital until the dot-com boom (Fourcade and Khurana 2017), it did gain its first foothold in the economy during the 1980s. Corporate raiders like T. Boone Pickens were among the first to raise the banner of shareholder value (Heilbron et al. 2014). They justified their lucrative takeovers by arguing they increased value for all the firms' shareholders. Noting the profitability of these hostile takeovers, large institutional investors like pension fund increased their activism, demanding that firms shed assets, cut labor costs, and change executive teams in order to increase shareholder value (Useem 1993). Corporations responded to the threat of hostile takeover and investor activism with asset divestitures—plant closures, layoffs, spin offs—that reinforced the view that short-term considerations of profits and stock price should be prioritized over long-term stability and growth (Davis, Diekmann, and Tinsley 1994; Fligstein and Shin 2007). Furthermore, high interest rates increased access to financial sources of revenue, and non-financial corporations began buying stocks and bonds and offering loans to customers in order to boost profitability in the short term (Krippner 2011). In general, economic dynamics became more unpredictable (Levy 2021), and locked-in investments in workforces, plants, and strategies were a liability that threatened the existence of the firm (Davis and Stout 1992; Fligstein 2001).

Besides this shift towards shorter-term investment horizons, these economic disruptions also encouraged further adoption of the firm-as-portfolio perspective by dramatically reducing

the power of large incumbent firms. During the 1980s merger wave, almost one-third of Fortune 500 firms received takeover bids (Davis and Stout 1992). Past pillars of American industry—General Motors, Westinghouse, US Steel—were forced by sluggish profits and foreign competition to make embarrassing cuts to their productive capacity and workforces by closing plants, divesting signature business units, and revoking promised employee benefits (Davis 2009; Levy 2021; Wartzman 2017). These crises and the resulting churn among the largest US corporations was a major catalyst for changing the status quo for corporate strategy. Long-term committed corporate investments had become not simply discredited but nearly impossible.

The New Corporate Blueprint Solidifies: the 1990s

The hostile takeover wave had barely died down when disruption surged again for large public US corporations in the wake of the early-1990s recession (Davis and Thompson 1994; Khurana 2002; Useem 1993). This relatively mild economic downturn nevertheless initiated unprecedented turmoil in the executive suites of large US firms (Useem 1993). Weighed down by debt and suffering historically large losses, many firms faced a wave of shareholder activism demanding CEO dismissals and outside hires (Khurana 2002). High-profile management shake-ups at General Motors, IBM, Kodak, and Chrysler contributed to the sense that American corporations and their managers were in the midst of a sea change.

This dissertation provides systematic evidence that the early 1990s was a hinge in corporate stability and executive mobility at large US corporations. While losses rose as smaller, newer public firms in the 1980s (Fama and French 2004), loss rates at the largest corporations remained low until the early 1990s, when they spiked to nearly double their previous maximum—nearly 50% of large public firms had at least one quarterly loss in 1992—reaching heights that have not been matched since then. Outside CEO hire rates at large corporations show a similar spike in the early 1990s: about 5% of new CEOs were hired from outside the firm between 1950 and 1989, but the outside hire rate jumped to 19% in 1991 and averaged almost 20% between 1990 and 2015.

High rates of losses and outside CEO hires continued into the dot-com boom of the late 1990s, when acquisition rates surged to new heights. Interesting connections between losses and the shareholder value movement became clear during this economic expansion. Rising stock valuation frequently coincided with repeated losses at this time, especially in the tech industry where the payoffs to innovations were hard to predict (Dobbin and Zorn 2005). Between the losses that hit America's largest corporations in the early 1990s and the high loss rates during the dot-com boom, losses became somewhat normalized. More generally, by the end of the decade stock return had become the preeminent measure of corporate success rather than long-term profitability (Khurana 2002; Lazonick and O'Sullivan 2000). The Business Roundtable's 1997 "Statement on Corporate Governance" enshrined maximizing shareholder value as the most legitimate goal for public US corporations (Business Roundtable 1997; Fourcade and Khurana 2017).

My overall point is that a new blueprint for corporate success solidified during the 1990s economic boom. The trend towards treating corporations as nothing more than portfolios of assets—which appeared with 1950s product line diversification and expanded during the conglomerate merger wave of the 1960s—became free of antitrust guardrails by the 1980s, and corporations began adding and, mostly, subtracting business units in order to boost returns and avoid takeovers or disruptive shareholder activism (Davis et al. 1994). This corporate strategy of

disassembly and reassembly extended to workforces through layoffs and subcontracting (Jung 2015; Weil 2014) and to executive teams through dismissals and outside hires (Khuana 2002; Useem 1993). Yet not until the dot-com boom did a positive economic blueprint for corporate success consolidate from this collection of reactive strategies. According to this blueprint, losses are not a problem, growth must be rapid at all costs, and large firms acquire smaller firms in order to keep up with innovation (Dobbin and Zorn 2005; Philippon 2019). Another way of stating this is that big organizational changes—like the rising outside CEO hires and acquisitions examined in this dissertation—were institutionalized as central to corporate strategy, and organic growth was deemed insufficient.

Rising Corporate Stratification as the Firm-As-Portfolio Perspective Becomes Entrenched: 2000-2015

In the wake of the dot-com recession and accounting fraud scandals in the early 2000s, this 1990s blueprint was not abandoned. Yes, overheated language about shareholder value cooled somewhat and techniques like heavy-handed earnings management subsided (Fligstein 2005; Murphy and Zabojnik 2007). But the idea that corporations were portfolios of exchangeable assets remained entrenched (Levy 2021). I find that losses, acquisitions, and outside CEO hires all stayed high despite business cycle fluctuations. Importantly, the complementary strategies of small firms sacrificing profits for growth in the hopes of being acquired while large firms expand and thwart innovative challengers through acquisitions were perfected, yielding many wealthy founders and a set of increasingly profitable and dominant firms (Fligstein and Goldstein 2021; Philippon 2019).

A key indication that a new blueprint for corporate success solidified in the 1990s is that the disruption and dynamism of the decade gave way to consolidation and increased inequality between firms over the next two decades (Autor et al. 2020; Akcigit and Ates 2021; Decker et al. 2016). Prior research has found that churn among the largest US corporations peaked in the 1990s and declined thereafter (Philippon 2019). I find further evidence that the 1990s were a particularly unstable time for large corporations. Among my sample of the 317 largest firms by revenue between 1950 and 2015, profit volatility rose in the 1980s and 1990s, driving the increase in losses over that period. However, this volatility has decline subsequently, and the continued high loss rate since 2000 is due to increased polarization between high-profit firms and firms that consistently struggle to turn a profit (see Appendix C). Finally, sales and employment have become more concentrated within US industries since the 1990s (Autor et al. 2020; Grullon, Larkin, and Michaely 2019; Kahle and Stulz 2017), and evidence suggests this market concentration has shifted from productivity enhancing consolidation to more entrenched corporate stratification based on barriers to entry (Covarrubias et al. 2020).

Large tech firms might seem like an exception to the shift away from organic growth. Google, Amazon, Facebook and other all were founded in the past thirty years and grew into behemoths dominating their industries. Yet two points are worth remembering. First, these companies really are exceptions. The general decline of IPOs shows that the vast majority of firms do not manage such organic growth into industry-leading firms (Gao, Ritter and Zhu 2013). Second, many of these big tech firms grew significantly through acquiring major competitors: Google bought YouTube in 2006; Facebook bought Instagram in 2012 (Wu 2018). High acquisition rates—and an expectation that they will continue—have both encouraged

smaller firms to gear investments towards increasing their selling price in the short term and also allowed leading tech firms to increase their market dominance.

Plan of the Dissertation

Rising Losses Weakened Inside Managers

I begin my investigation of losses and the corporation-as-portfolio perspective by focusing on changes in the hiring and evaluation of CEOs at large American corporations. I constructed a dataset of CEO turnover at the largest 317 public U.S. firms by revenue between 1950 and 2015 to examine why CEOs hired directly from outside the organization have increased at these firms. A corporation's value became equated with its stock price not only because shareholders gained corporate control but also because managers' judgments lost legitimacy. This devaluation of organizational insiders undermines organic growth at a company. Outside CEO hires suggests that a firm's management team is a portfolio that can be assembled from different sources to maximize returns.

This chapter traces increased outside CEO hires at these large corporations to their decreased ability to consistently turn a profit. I first clarify how the chance of having a loss has changed at large corporations. While we know that losses have increased at all US corporations (Hayn 1995; Kahle and Stulz 2017), prior research has not examined whether *large* corporations, which are less likely to have losses in general (Hayn 1995) and have been gaining market power in recent decades (Autor et al. 2020; De Loecker et al. 2020), have also experienced an increase in losses over the past fifty years. This focus on losses allows me to contribute to research on corporate governance. Despite the well-documented link between firm performance and CEO succession (Cannella and Lubatkin 1993; Finkelstein, Hambrick, and Cannella 2009; Zhang and Rajagopalan 2004), research rarely measures how *changes* in profitability have driven trends in CEO hiring and mobility. The impact of changes in firm performance are difficult to measure because the performance thresholds that guide business decisions and shareholder pressure can shift over time (e.g., if they are based on industry benchmarks). Because losses are defined by a fixed threshold, changing rates and effects of losses are relatively straightforward to interpret.

By clarifying the trend in losses and their effect on outside CEO hires, I am able to quantify the contribution of long-run changes in large corporations' profits to the devaluation of inside managers. Firms with no losses over the past fifty years showed no increase in outside hires. In addition, both losses and outside CEO hires increased sharply at these large corporations beginning in the early 1990s. Losses encouraged firms hiring a new CEO to choose an outsider, and accounting for increased losses reduces an estimate of the late-20th-century rise in outside CEO hires by 30%. Rising losses pushed firms to frequently change course and heightened demand for outsiders meant to promote this flexibility. After 2000, perhaps because losses became more concentrated among consistently struggling firms (Denis and McKeon 2021), the effect of losses on outside CEO hires declined, and low stock return became the signal of poor performance most likely to prompt outside succession. This elevation of stock return as the dominant measure of firm performance echoes the shareholder value literature (Dobbin and Zorn 2005; Levy 2014), yet prior research on corporate governance rarely examines the shifting salience of different performance metrics.

This chapter bridges a gap between two important but disconnected literatures on American capitalism to show how rising losses drove an increase in outside CEO hires at large U.S. corporations. On the one hand, recent research has shown that shifts in corporate profits in past decades—whether increased low-profit spells for most firms or rising profits for the largest firms (Brenner 2006; De Loecker et al. 2020; Denis and McKeon 2021; Hayn 1995; Kahle and Stulz 2017)—are crucial to understanding U.S. corporations today, yet this research has not addressed the continued power of shareholder primacy. On the other hand, research on the shareholder value orientation tends to emphasize external sources of shareholders' increased corporate control—such as regulatory changes or the growth of institutional investors (Davis et al. 1994; Fligstein 2001; Useem 1993)—rather than changes in corporate profitability since 1980. The results of this chapter show that rising losses contributed to the view that corporations are portfolios of exchangeable assets rather than organic wholes by delegitimating inside managers. These losses pressed firms to become more willing to change course, and outside CEOs were useful to firms trying to demonstrate this flexibility.

Cultural Stability and Change in Explanations of Outside CEO Hires

The second chapter examines the cultural change and stability that accompanied this rise in outside CEOs at large US corporations. Did this shift in CEO succession coincide with a new ideal for good management? What justifies selecting an outside CEO who has little knowledge of the firm? Prior research has argued that rising outside CEO hires were driven in part by a shift in the characteristics that large corporations want their CEOs to possess (Khurana 2002; Murphy and Zabojnik 2007). Some have argued that "general" skills that are not specific to a firm—for example, the ability to communication well or manage relations with shareholders and analysts—have become increasingly important (Frydman 2019; Murphy and Zabojnik 2007). Other accounts of changing CEO succession—in particular, Khurana's groundbreaking study of "charismatic CEOs"—focus less on a secular change in skill demands and more on the abrupt emergence of new management discourse centered on charismatic leadership and shareholder value (Jung 2014; Khurana 2002; Shin 2019).

In order to systematically examine these accounts of cultural changes accompanying increased outside CEO hires, I use an automated text analysis of news articles announcing new CEOs at my sample of large corporations. By comparing the language used to describe new outside and inside CEOs, I can measure how explanations for outside CEO hires have changed since the 1950s. I first train supervised machine learning models that use text describing new CEOs to predict whether the new CEO was an outside or inside hire. Next I examine feature importance scores from these models to see which words and phrases characterize outside CEOs most strongly. I focus on comparisons within distinct time periods in my sample in order to track changing justifications for outside CEO hires over time and to help reduce the impact of changes in business media coverage (Khurana 2002). I divide the sample into three periods: the first period aggregates CEO hires prior to 1990, when outside CEO succession rates were low, in order to obtain a sufficient number of outside hires to train the machine learning models; the second period extends from 1990 through 2000, when outside CEO hiring surged at large public US corporations during the dot-com boom; and the third period includes CEO hires between 2001 and 2015, when outside succession leveled off during a period of relatively low growth that included two recessions.

Despite the fact that prior accounts of rising outside CEO hires emphasize cultural change, I actually found substantial consistency in language used to describe outside CEO hires. Across the sample period, despite some terminological churn, news articles often described outside CEOs as strong managers brought in to guide poorly performing firms. Because of this stable cultural model, the sharp increase in losses at these firms in the early 1990s created a crisis for which outside CEO hiring seemed a solution. The language of CEO hire announcements reflected excitement about this seeming fit between outside succession and the needs of US corporations—descriptions of outside CEO hires were longer, more distinctive, and more focused on pressures from consumer and equity markets in the 1990s. After 2000, announcement articles suggest that outside CEO hires became more routine. Descriptions focused less on the status and general reputation of outside CEOs and more on details of their work background and the specific business units they had led in the past. These results connect Khurana's account of the 1990s charismatic "corporate savior" to financial economic explanations of executive mobility focused on transferable skills.

These results demonstrate cultural linkages between rising outside CEO hires and the corporation-as-portfolio perspective. A value for outside CEO hires and a conception of firms as portfolios of exchangeable assets are cut from a similar discursive cloth, one that emphasizes the importance of outside perspectives on firms, especially for firms struggling to change directions and improve performance. The judgments of inside managers were devalued, relative both to outside stakeholders like investors and customers and to high-status outside executives. This delegitimation of firm-specific expertise likely made organic growth more difficult for US corporations.

The Flip Side of Monopoly

In the third empirical chapter of the dissertation, I shift attention to the full universe of public US corporations in order to examine the connection between historically high losses and acquisitions and how these have contributed to rising concentration within US industries since the 1990s. A large and growing literature highlights the negative consequences of increased market concentration, yet this research tends to focus on the growing power of large firms (Andrews, Criscuolo, and Gal 2016; Autor et al. 2020; De Loecker et al. 2020; Philippon 2019; Wilmers 2018). In contrast, I focus on corporate weakness rather than strength. How has poor firm performance and spells of low profits contributed to rising market concentration among public US corporations?

I connect high losses to increased market concentration by examining a key driver and indicator of the corporation-as-portfolio perspective that has been historically elevated in recent decades: corporate acquisitions. I present evidence that today's high losses have contributed to high rates of acquisitions, which in turn have driven increases in market concentration. This intervention extends a thread running through economic sociology, heterodox economics, and organizational theory that emphasizes the importance of low profits and organizational death for understanding economic change. Corporate profit crises can reshape both conceptions of legitimate corporate strategies (Dobbin and Zorn 2005; Fligstein 2001) and broader institutional configurations of labor relations, welfare provision, credit availability, and other sources of economic stability (Aglietta 1979; Boyer 2000; Gordon, Edwards and Reich 1982; Grant 1995; Kotz 1994). Vital events like births and deaths of organizations are key drivers of industry trajectories (Carroll and Hannan 2000; Hannan and Freeman 1984). Yet these sociological

perspectives on profit problems and organizational endings have rarely been applied to the recent rise in market concentration. This chapter bridges this gap to ask how economic and organizational sociology can illuminate this key characteristic of the American economy today.

I analyze data on all US corporations listed on a major stock exchange between 1973 and 2019—from Nasdaq's founding until the COVID-19 pandemic—using Standard and Poor's Compustat and the Center for Research in Security Prices (CRSP) databases. Focusing on public corporations allows me to examine rich data on firm performance and strategy that is unavailable for private companies. In addition, prior research has found that trends and consequences of market concentration are similar for public corporations and for the universe of US firms since the mid-1990s (Covarrubias et al. 2020; Grullon et al. 2019). Although my investigation of losses and acquisitions draws on data going back to the 1970s, my analysis of rising market concentration focuses on the past 25 years when its rise and influence among public and private firms align.

Results show that losses make firms more attractive candidates for acquisition and that acquisitions within an industry drive increases in market concentration. I first use firm-level analyses to show that public corporations with a prior-year loss were more likely to be acquired than similar firms with no loss. My analysis allows me to separate this result from the general nonlinear relationship between firm performance and acquisition risk, since both very low and very high performers are least likely to be acquired. These results clarify ambiguous results in prior literature, which has argued both that acquisitions tend to target undervalued, poorly-run firms and that in general higher performance is associated with increased risk of being acquired (Davis and Stout 1992; Doidge et al. 2017; Jovanovic and Rousseau 2002; Shleifer and Vishny 2003; Wheelock and Wilson 2000). Next, I turn to industry-level analyses to show a key consequence of this link between losses and acquisitions. I find that high acquisitions within an industry increase market concentration. In contrast, losses have no such effect. Altogether, these findings suggest that today's high losses have contributed to market concentration among public US corporations primarily by encouraging acquisitions.

This chapter draws on economic and organizational sociology to provide a fuller picture of rising market concentration among public US corporations today. I connect rising market concentration to two other concerning corporate trends that tend to be analyzed separately: historically high rates of losses and a sharp decline in the number of public US corporations over the past twenty-five years (Davis 2016; Doidge et al. 2017; Kahle and Stulz 2017). Prior research has argued rising market concentration in the US economy signals a deeper problem of dampened competition and restricted choices for customers, workers, and suppliers (Naidu, Posner, and Weyl 2018; Philippon 2019). Extending research on rising market concentration beyond large, successful firms helps clarify this connection between concentration and competition. Losses encourage acquisitions, and while being acquired may benefit a company's shareholders, high acquisition rates are a sign of fragility for the US economy as a whole, which depends more and more on a small number of large firms.

Losses and the Corporation-As-Portfolio Perspective

Public firms now routinely fail to turn a profit (Kahle and Stulz 2017; Lev 2019), and we should recognize that this likely hinders stable and widespread economic growth. A key takeaway from this dissertation is that if we are concerned about corporations being seen as

collections of exchangeable assets rather than organic wholes (Lazonick and O'Sullivan 2000; Davis 2016; Levy 2021), then widespread losses at public US corporations deserve research and policy attention. Losses have contributed to increased executive mobility and acquisitions, two important trends that naturalize the perspective that corporations should be run as a portfolio of assets rather than engines of long-term returns through organic growth. Ultimately, a loss is a sign that long term locked-in investments in a firm are not worthwhile. Managers at firms struggling to turn a profit face shareholder pressures—particularly when interest rates rise, as has been demonstrated during 2022—that force them to focus on short-term costs and uncertainty at the expense of long-term plans. Other firms are more likely to acquire loss firms because they are relatively cheap. In general, losses indicate a firm is not on the path to long-term organic growth. Closer attention to losses—whether by examining where in the economy losses are high or rising to examine industry-level competitive fragility, or by revisiting accounting rules that increase loss rates at firms with high intangible investments by treating R&D as an expense rather than a capital investment (Lev 2019)—can help us better gauge the health of the economy.

2. RISING LOSSES WEAKENED INSIDE MANAGERS: THE CASE OF INCREASED OUTSIDE CEO HIRING AT LARGE US CORPORATIONS

The choice of a new CEO reveals the relative power of different corporate stakeholders (Fligstein 1987). Over the past fifty years, changes in CEO succession at large American corporations illustrate managers' declining control over their firms at the hands of organizational outsiders. Incumbent CEOs used to dominate the succession process, but boards—composed increasingly of outsiders who never worked at the firm (Gordon 2007)—have taken a stronger role in selecting new CEOs in past decades (Finkelstein, Hambrick, and Cannella 2009; Vancil 1987). This chapter focuses on a stark example of the declining power of organizational insiders: boards have become more likely to pass over the firm's own executives when choosing a new CEO, instead opting to hire someone from outside the organization (Jung 2014; Khurana 2002).

In this chapter, I develop a novel account of this devaluation of inside managers by tracing rising outside CEO hires to changes in large corporations' generation of profits. This requires bridging a gap between two important but disconnected streams of research on contemporary American corporations. On the one hand, scholarship from a range of theoretical and disciplinary perspectives has shown that shifts in corporate profits in past decades—whether increased low-profit spells for most firms or rising profits for the largest firms (Brenner 2006; De Loecker, Eeckhout, and Unger 2020; Denis and McKeon 2021; Hayn 1995; Kahle and Stulz 2017)—are crucial to understanding contemporary U.S. corporations. Yet little attempt has been made to extend this focus on corporate profits to investigate one of most crucial changes at large corporations over the past fifty years: the equivalence of corporate value with stock price, which has reduced the power of inside managers (Davis 2009; Dobbin and Jung 2010). On the other hand, research on this shareholder value ideology tends to emphasize external sources of shareholders' increased corporate control, such as the deregulation and junk bond financing that allowed corporate raiders to acquire large firms in the 1980s (Davis, Diekmann, and Tinsley 1994; Fligstein 2001) or the growing pensions and 401k accounts that increased the clout of institutional investors (Dobbin and Zorn 2005; Useem 1993). Aside from recognizing 1970s' stagflation as a crucial spark of the shareholder value movement, this literature rarely examines how changes in corporate profitability since 1980 contributed to declining managerial power. This chapter aims to bridge these two key literatures—one focused on changes in corporate profits, the other on the shareholder value conception of the firm—to better understand the rise in outside CEO hires at large U.S. corporations.

To accomplish this goal, I focus on losses, or instances of negative net income. The boundary between profit and loss is heavy with symbolism for a for-profit organization, and managers try avoid reporting losses in marginal cases where profits are close to zero (Burgstahler and Chuk 2017; Degeorge, Patel, and Zeckhauser1999; Hayn 1995). Prior research has shown that losses encourage CEO dismissals (Ghosh and Wang 2019), and I extend this work by investigating how losses shape outside CEO hiring.

By examining losses, this chapter adds to prior research on corporate governance by providing a historical perspective on the impact of poor profitability on CEO succession changes. Despite the well-documented link between firm performance and CEO succession (Cannella and Lubatkin 1993; Finkelstein, Hambrick, and Cannella 2009; Zhang and Rajagopalan 2004), research rarely measures how *changes* in profitability have driven trends in CEO hiring and mobility. The impact of changes in firm performance are difficult to measure because the

performance thresholds that guide business decisions and shareholder pressure can shift over time (e.g., if they are based on industry benchmarks). Because losses are defined by a fixed threshold, changing rates and effects of losses are relatively straightforward to interpret. This makes losses a useful tool for beginning to document how changing corporate profits have shaped executive mobility and managerial power.

To understand how losses might have contributed to rising outside CEO hires, I must also clarify how the chance of having a loss has changed at large corporations. An underappreciated finding from research in accounting and economics is that, during the 1980s and 1990s, at the same time the shareholder value movement was pressuring firms to focus on increasing short-term profits, U.S. corporations actually became more likely to fail to turn a profit (Hayn 1995; Kahle and Stulz 2017). Yet prior research has not examined whether *large* corporations, which are less likely to have losses in general (Hayn 1995) and have been gaining market power in recent decades (Autor et al. 2020; De Loecker, Eeckhout, and Unger 2020), have also experienced an increase in losses over the past fifty years. By clarifying the trend in losses and their effect on outside CEO hires, I am able to quantify the contribution of long-run changes in large corporations' profits to the devaluation of inside managers.

The explanation investigated in this chapter—that outside CEO hires rose at large U.S. corporations because these firms became more likely to have a loss—differs from prior accounts of increased outside CEO hires. These prior accounts argue that powerful shareholders pushed boards to monitor executives more closely and hence more often judge it necessary to break from past management (Hermalin 2005; Khurana 2002). Like previous research on the shareholder value movement, these accounts emphasize how corporate goals were *redefined* to focus on maximizing short-term profits and stock price. Yet as prior research suggests (Hayn 1995)—and I will confirm—losses have long been considered a sign of serious problems at a firm. In this chapter, rather than focusing on corporations' reorientation towards more aggressive performance goals, I examine the consequences of the increased prevalence of a relatively consistent signal of managerial failure.

To measure how profit changes at large corporations have shaped outside CEO hiring, I use complete CEO succession histories from the largest 317 public American corporations by revenue between 1950 and 2015, a dataset with particularly broad coverage compared to past research on CEO succession (Frydman 2019; Huson, Parrino, and Starks 2001; Jung 2014; Khurana 2002). I find that outside CEO hires were rare at these large firms until the early 1990s, when they rose sharply, and reached a peak in the early 2000s. I also show that losses rose at these firms over the past fifty years, even as median profit levels increased—another sign that high-risk, high-reward strategies became more common at large corporations during the shareholder value era (Aglietta and Riberioux 2005; Dobbin and Jung 2010). Furthermore, this loss trend aligns chronologically with the initial rise in outside CEOs: losses spiked in the early 1990s, reaching almost double the maximum in the previous four decades.

Results suggest that rising losses in the 1980s and 1990s helped make outside CEO hires a routine practice for managing shareholder value at large U.S. corporations. By measuring how losses are associated with outside CEO hiring in different time periods, I find evidence that losses encouraged outside succession during the second half of the 20th century. As a result, accounting for increased losses reduces an estimate of the late-20th-century rise in outside CEO succession by 30%. After 2000, perhaps because losses became more concentrated among consistently struggling firms (Denis and McKeon 2021), the association between losses and outside CEO hires declined, and low stock return became the signal of poor performance most

likely to predict outside succession. This elevation of stock return as the dominant measure of firm performance echoes the shareholder value literature (Dobbin and Zorn 2005; Levy 2014), yet prior research on corporate governance rarely examines the shifting salience of different performance metrics.

This chapter brings together three separate literatures—on the shareholder value movement, on changes in corporate profitability, and on corporate governance—to show how rising losses drove the devaluation of inside managers at large U.S. corporations. These losses pressed firms to become more willing to change course, and outside CEOs were useful to firms trying to demonstrate this flexibility. Rising losses delegitimated inside managers' judgments and their status as the default CEO candidate at large corporations. More broadly, these results also shed light on the labor market inequality and instability that characterize the shareholder value era (Bidwell et al. 2013; Fligstein and Shin 2004). Outside CEOs are paid more than inside hires (Murphy and Zabojnik 2007), and outside succession both encourages the cross-firm comparisons of executives that help these pay premiums spread (Kim, Kogut, and Yang 2015) and also prompts managerial turnover by blocking promotion opportunities (Friedman and Saul 1991; Kesner and Dalton 1994). This chapter connects the rising inequality driven by increased rewards for mobile, "flexible" managers (Boltanski and Chiapello 2005) to rising losses at large U.S. corporations.

Outside CEOs and the Shareholder Value Movement

Corporations often hire a new CEO from outside the firm when they are struggling and need to change course (Cannella and Lubatkin 1993; Finkelstein, Hambrick, and Cannella 2009; Khurana 2002). Internal CEO candidates have accumulated firm-specific human and social capital, and this investment in the firm's current strategies and management hinders attempts to introduce change (Finkelstein, Hambrick, and Cannella 2009). Outside CEOs, on the other hand, lack these ties to the firm's status quo. By implying that lessons learned at one firm could be solutions at another, outside CEO candidates also seem to embody the flexibility demanded of poorly performing firms (Khurana 2002). This suggests a connection between rising outside CEO hires and the shareholder value movement, which held that late-20th-century American corporations had to become more responsive to changing pressures from competitors and customers, and hence more willing to break from the past (Davis 2009; Dobbin and Jung 2010; Fligstein and Shin 2007). Outside CEO hires were an attempt to produce such flexible firms.

Figure 1, which shows the trend in outside CEO hiring at the 317 largest U.S. public corporations by revenue since the 1950s, suggests the link between outside CEOs and the shareholder value movement was not only conceptual but also chronological. (I describe this sample in greater detail in the data and methods section.) Defined as those who were hired directly from outside the firm, outside CEOs were rare prior to 1990. Outside hires rose after the early-1990s recession, spiking to 19% of new CEOs in 1991 and 25% in 1993. While the outside CEO hire rate has fluctuated since then, it has remained substantially higher than pre-1990 levels. Outside CEOs were roughly 5% of new CEOs hired prior to 1990 and 19% of new CEOs hired between 1990 and 2015. Although they are still far from the majority of CEO transitions (Jung 2014), outside CEO hires are now a normal business practice at large American corporations (Khurana 2002).

[Insert Figure 2.1 about here (see pp.30-36)]

These results suggest that large corporations used CEO succession to break from the past more and more starting in the 1990s. Past accounts of the shareholder value movement's impact on executives have highlighted the wave of shareholder activism that hit large American corporations after the recession of the early 1990s (Khurana 2002; Useem 1993). This prior research focuses on the role of institutional investors, whose growing size and activism during the 1980s allowed them to start demanding corporations generate higher returns. In this chapter, I emphasize a different factor pressing firms to change course in the late 20th century: an increase in losses, which had long been recognized as a sign of poor performance (Hayn 1995). I show in the next section that such a rise in losses, while at odds with the conventional narrative of increased returns during the shareholder value era (Lazonick and O'Sullivan 2000), is compatible with a range of literature on contemporary corporate change.

Low-Profit Spells at Large U.S. Corporations

The shareholder value movement began as a response to low corporate profits in the 1970s. In addition to spurring a wave of hostile takeovers, poor corporate performance justified agency theorists' claims that executives were mismanaging American firms (Davis 2009; Dobbin and Jung 2010; Fligstein 2001). The shareholder value literature has paid less attention to spells of low profitability after the 1970s. Yet there is evidence that U.S. firms have become more likely to struggle with poor performance over the past forty years, and this could have justified the shareholder value orientation by continuing to delegitimize inside managers.

This lack of empirical attention to low-profit spells since 1980 is surprising given that prior shareholder value research itself has identified risky strategies that could have weakened firms' ability to consistently generate profits (Aglietta and Rebérioux 2005; Dobbin and Jung 2010). Firms took on debt in the 1980s to become less attractive targets for hostile takeovers (Davis and Stout 1992), and the interest burden from this debt spiked as inflation was brought under control but interest rates remained high (Bernanke and Campbell 1988). Hostile takeovers and pressure from industry-focused analysts encouraged firms to become less diversified (Davis, Diekmann, and Tinsley 1994; Zuckerman 1999), which makes firms vulnerable to industry shocks and leads to more volatile performance (Desai and Savickas 2010). Stock option compensation for CEOs incentivized risk-taking by rewarding CEOs for stock price growth without penalizing them for declines (Dobbin and Jung 2010), and research has found that CEO option pay increases performance volatility, especially spells of poor returns (Sanders and Hambrick 2007).

There are other reasons low-profit spells might have become more common at American corporations in the late 20th century. The globalization pressures that helped start the shareholder value movement by weakening profits in the 1970s only continued to grow in the 1980s and 1990s. Rising international competition in manufacturing has led to long-run declines in the sector's profit rates relative the postwar era (Brenner 2006). Investment returns became even more uncertain thanks to technological changes, from the declining economic productivity of innovation (Gordon 2016) to the increased importance of intangible capital that contributes to winner-take-all market dynamics (Autor et al. 2020). A different but equally important reason for increased low-profit spells centers on more aggressive tax avoidance and flexible accounting standards. Allowing capital to be depreciated over shorter time periods gave corporations a tool to reduce their taxable income (Krippner 2011). Giving managers more flexibility in how they

can recognize losses encouraged exaggerating poor earnings in order to be more likely to meet or exceed investors' future profit expectations (Jordan and Clark 2004; Kirschenheiter and Melumad 2002; Zang 2008).

Consistent with these different literatures, prior research has shown that one important sign of poor performance—failing to turn a profit—has increased at U.S. public corporations since the 1970s (Hayn 1995; Kahle and Stulz 2017). Yet whether losses have risen for the *largest* U.S. corporations is an open question. Research documenting increased losses typically looks at the full universe of public corporations (Denis and McKeon 2021; Hayn 1995; Kahle and Stulz 2017). Yet the number of public U.S. firms has varied substantially over time, with an increase in the number of small firms—which are more likely in general to have losses (Hayn 1995)—during the 1980s and 1990s. Furthermore, losses at the largest corporations may have declined as their market power and share of total profits increased in past decades (Autor et al. 2020; De Loecker, Eeckhout, and Unger 2020; Kahle and Stulz 2017). Still, I argue rising profits can coexist with rising losses and that the increase in outside CEO hires are a sign that losses have become more common at large firms.

> *Hypothesis 1*: Despite generating an increased share of aggregate profits, large U.S. corporations have become more likely to fail to turn a profit over the past fifty years.

Rising Losses, Rising Outside CEO Hires

Losses are a sign that firms have not met the basic imperative to accumulate capital, and managers try to avoid reporting losses when possible (Burgstahler and Chuk 2017; Ghosh and Wang 2019; Hayn 1995). Given that one of the most consistent findings on outside CEO hires is that they tend to follow poor performance spells (Cannella and Lubatkin 1993; Finkelstein, Hambrick, and Cannella 2009; Zhang and Rajagopalan 2004), this stigma of losses as a sign of crisis suggests that losses promote outside CEO succession. Prior research has found that losses disrupt management continuity by encouraging CEO exits (Ghosh and Wang 2019), but the effect of losses on outside CEO hires has received less attention. If losses do encourage outside CEO succession, this would imply a straightforward explanation for increased outside succession that prior research has largely ignored: outside CEOs could have become more common because firms more frequently failed to turn a profit. The analytic goal of this chapter is to examine this explanation by quantifying the contribution of rising losses to the increase in outside CEO hires.

In order for rising losses to have contributed to the increase in outside CEO hires, losses must consistently encourage firms hiring a new CEO to choose an outsider. Despite substantial evidence that low profitability predicts outside CEO hiring (see the review in Finkelstein, Hambrick, and Cannella 2009), little research has investigated how the effect of poor performance on outside hires has changed since the mid-20th century in a consistent sample. Prior shareholder value literature has highlighted reasons why this performance effect on outside CEO succession might have changed: profits could have declined in relevance compared to stock return as attention shifted from return on assets to return on equity (Dobbin and Zorn 2005; Lazonick and O'Sullivan 2000; Levy 2014); and the hostile takeover wave of the 1980s could have weakened the performance effect on outside hires as struggling firms were more likely to be acquired than to replace their CEO with an outsider during this decade (Davis, Diekmann, and

Tinsley 1994; Useem 1993). However, given the effect of poor performance on outside CEO succession (Finkelstein, Hambrick, and Cannella 2009) and the stigma of losses as a sign of poor performance (Ghosh and Wang 2019), I expect losses to predict subsequent outside CEO hiring throughout much of my sample period.

> *Hypothesis 2*: Since the 1950s, losses are consistently associated with firms choosing an outsider (rather than promoting an internal candidate) when hiring a new CEO.

To further investigate the symbolic weight of the profit-loss boundary, I analyze how the accumulation of quarterly losses within a year shapes the selection of outside CEOs. Because a loss is a clear signal of poor performance, firms with a single quarterly loss during a calendar year are likely facing significantly greater pressure to break from past management than firms with no losses. In contrast, further losses, whether additional quarterly losses within a year or negative profits for the full year, might provoke less additional pressure for a board to replace the CEO with an outsider. I examine whether the association between losses and outside CEO hiring might demonstrate this symbolic boundary between profit and loss.

> *Hypothesis 3*: A single quarterly loss is associated with firms choosing an outsider when hiring a new CEO. Neither additional quarterly losses within the year nor a yearly loss predicts further increases in outside CEO succession rates.

If losses do encourage the selection of an outside CEO throughout a period when outside CEO succession has become more common, then part of this rise in outside succession could be due to increased losses. This suggests that controlling for losses in a regression predicting outside CEO hires would reduce estimates of the rising trend in outside succession.

> *Hypothesis 4*: Rising losses contributed to increased outside CEOs at large U.S. corporations; more precisely, controlling for losses reduces regression estimates of the rising trend in outside CEO hires.

Data and Methods

I constructed a data set of all CEO transitions at 317 of the largest public American corporations from 1950 to 2015. Using data from Standard and Poor's Compustat and the Center for Research in Security Prices (CRSP), I created a list of U.S. corporations listed on major exchanges with the highest revenue every five years from 1955 to 2010.[1] Firms ranked 110th or

[1] Because Compustat data is less complete before the 1970s, I cross-checked my list of firms in the 1950s-1970s against both Fortune 500 lists and the sample of large firms compiled by Fligstein (1990). By obtaining data on profits and CEO turnover from ten firms missing from Compustat, I confirmed that trends in profitability and outside CEO succession were not biased by restricting to firm-year observations with complete data for the regression analyses. See the Appendix A for a list of firms in the sample.

higher on at least one of these lists entered the sample.[2] My data set consists of CEO transitions at these firms between 1950 and 2015 while they were operating, independent, and publicly-traded.[3,4] Data on CEO succession events—the year of the transition; the CEO's prior organizational tenure; whether the CEO was a rehire, interim, or co-CEO; and whether the CEO transition was due to a larger organizational change (e.g., a merger or spin-off) or an external intervention (e.g., a takeover or government bailout)—were collected with the help of a team of research assistants. Because CEO succession data was collected at the calendar year level, I use quarterly data to construct calendar-year firm-level predictors, which narrows and standardizes the gap between the measurement periods for firm and CEO characteristics.[5]

I focus on large corporations for two reasons. Prior research on long-term trends in CEO succession focuses on large firms (Frydman 2019; Jung 2014; Khurana 2002; Murphy and Zabojnik 2007). More substantively, rising outside CEO hires are part of broader declines in corporate insulation and long-term employment relations that have been most dramatic for the largest U.S. firms, whose prosperity and stability during the postwar economic expansion encouraged the development of internal labor markets (Davis 2009; Kalleberg 2009).

This data set has particularly wide scope compared with past research on long-term trends in CEO succession, which is either restricted to a narrower time period (Huson, Parrino, and Starks 2001; Khurana 2002; Murphy and Zabojnik 2007; Jung 2014) or a smaller range of firms (Frydman 2019). This data set allows me to examine how the effect of firm performance on outside CEO succession might have changed since the 1950s at a wide range of large firms and to measure how profit changes at these firms shaped the rise of outside hiring.

Defining Outside CEO Hires

I define outside CEOs as those with no prior tenure at the firm before becoming CEO. Other definitions are frequently used in the literature, motivated by the fact that many outside CEOs are brought to the firm a year or more before they ascend to the CEO position (Cannella and Lubatkin 1993; Jung 2014; Ocasio 1999; Vancil 1987). However, I find that nearly all of the increase in new CEOs with little prior organizational tenure has been driven by CEOs hired

[2] This sampling method does not appear to bias estimates of profitability changes by overweighting firms that have declined in size since the postwar period. The trend of rising losses is similar if I restrict the sample to firms that were ranked in the top 110 by revenue in the most recent 5-year snapshot (see Appendix C).

[3] Following Frydman and Saks (2010), I track firms across mergers and spin-offs if the CRSP permanent company identifier was unchanged or if the new firm retained most of the original name and its industry did not change drastically.

[4] In the 1950s and 1960s many American corporations did not use the title of "chief executive officer." I used annual reports and news articles to determine who was the company head before firms begun designating a CEO—typically, it was the president (Fligstein 1987; Frydman 2019), but it occasionally was the chairman. There are a total of 102 succession events where the CEO title was not used, and only 15 of these non-CEO transitions are in my regression sample; results are similar if I exclude these observations.

[5] Quarters are assigned to the calendar year in which they end. Quarterly data is available on Compustat beginning in 1961 and is sparse until the mid-1970s. Prior to 1961, and in firm-years where quarterly data is not available, I replace these missing values with fiscal-year data assigned to the calendar year in which the fiscal year ends; results are similar if these replacements are not made. Data on the number of employees is not generally available on quarterly reports, so I use fiscal-year employment data to construct the employment-change measure.

directly from outside the firm (see Appendix C); to investigate the rise in outside CEO hires, it makes sense to define them as CEOs with no prior organizational tenure. An additional benefit of this definition over alternatives that use prior-tenure thresholds of one or two years is that the timing of the event is clearer. For example, an outside executive hired by a struggling firm to become CEO in the following year might push for poor performance to be recognized on financial statements prior to their ascent to the CEO position. Defining outside CEOs as those with no prior organizational tenure reduces this concern about reverse causality.

Losses and Other Performance Measures

I use a dichotomous measure indicating whether a firm had at least one quarterly loss in the calendar year. A quarterly loss provides a strong signal of profitability problems at a firm: research has shown that managers make efforts to avoid reporting quarterly losses in marginal situations where their earnings are close to zero (Degeorge, Patel, and Zeckhauser 1999; Burgstahler and Chuk 2017). I also examine two firm performance measures commonly used in literature on CEO succession: operating profit rate and stock return, both measured relative to industry benchmarks (Finkelstein, Hambrick, and Cannella 2009; Huson, Parrino, and Starks 2001; Jung 2014). Operating return-on-assets (ROA) are measured using operating income before depreciation divided by prior-year assets.[6] Stock return is defined as the percentage change from the end of the prior calendar year to the end of the current year. Both of these performance measures are industry-adjusted by subtracting the median from the corresponding 2-digit Standard Industrial Classification (SIC) code in the same year. Because Compustat data is skewed towards large firms in the 1950-70s, I restrict the broader sample used to construct these industry-year benchmarks to firms that were in the top 500 by revenue at least once between 1950 and 2015. This parallels the construction of main sample and ensures that industry performance measures do not decline over time simply because smaller firms were added to the Compustat database. Profits and stock prices, as with all firm financial data used in these analyses, are inflation-adjusted to 2015 dollars.

Additional Variables

In an attempt to distinguish coherent time periods that contain sufficient variation in the outcome, I separate the post-WWII decades from three phases of the shareholder value era. I define the first period to be 1950-1980; the second period, from 1981 to 1989, covers the merger movement encouraged by Reagan's accelerated deregulation; the third time period extends from the start of the recession in 1990 through the end of the dot-com bubble in 2000; and the final period covers 2001-2015, a period marked by relatively weak economic growth and stock returns. Inspection of changes in performance-outside hire association across 5-year periods shows similar patterns to what I find using this periodization.

I measure three incumbent CEO characteristics that would likely influence CEO transitions: the incumbent's prior organizational tenure at the time they became CEO; whether the incumbent CEO was a founder of the firm or had ties to the founding family; and the incumbent's tenure as CEO at the time of the transition. These measures indicate not only how the incumbent might directly shape the CEO transition but also important differences between

[6] I use operating income rather than earnings before interest and taxes (EBIT) because EBIT is not available on quarterly reports; results are similar if I use fiscal-year EBIT measures.

firms, like whether a firm has a history of hiring outside CEOs (Ocasio 1999) or is still partially controlled by the founding family. Because I only collected data on CEOs hired during the sample period of 1950-2015, these incumbent CEO variables are not available for the first CEO transition for each firm. Yet results are similar if I exclude incumbent CEO variables and retain these CEO transitions in the analysis.

I include measures of two common responses to shareholder value pressures: asset divestiture and employment declines (Jung 2015; Lin 2016; Shin 2019). These are measured as percentage changes from the prior year. Firms' willingness to appease shareholders might contribute both to profit volatility through increased risk taking (Dobbin and Jung 2010) and to outside CEO hires (Khurana 2002). I also include two measures of firm size, since large firms tend to have both fewer losses (Hayn 1995) and fewer outside CEO hires (Dalton and Kesner 1983): logged yearly revenue, and an indicator of whether a firm was ranked in the top 110 on the most recent 5-year revenue list used to define the sample.

I also control for measures of the economic and institutional context of the CEO succession. I use a 12-category industry scheme developed by Fama and French commonly used in CEO research (Custódio, Ferreira, and Matos 2013; Malmendier and Tate 2005). Industry fixed effects control for unobserved industry characteristics that do not change over time; this could be consequential if the composition of the sample shifted towards industries where both losses and outside CEO hires were more common. I include a measure of the yearly percentage change in national GDP to account for the broader economic context, which might influence both firm performance and expectations about the economy that could shape CEO succession decisions. Finally, outside CEO hires might have diffused through a mimetic process as boards felt pressure to follow industry norms. To address this possibility, I also control for the proportion of CEO transitions that were outside hires in the prior year within a firm's industry (Jung 2014).

There are additional characteristics of the CEO succession context that do not appear in the main analyses. First, I do not measure CEO dismissals. There is evidence that many CEO exits labeled "unforced" by traditional methods may actually be dismissals (Kaplan and Minton 2012; Jenter and Lewellen 2019). Furthermore, CEO dismissals could be considered part of the mechanism linking poor performance to outside CEO hires. Still, I find that replacing the incumbent CEO tenure variable with a categorical measure of short-tenured exits, a rough proxy for forced exits (Vancil 1987), produces similar results. Second, I also do not measure corporate board interlocks, which past research has found predicts outside CEO hires (Khurana 2002) but is less likely to help explain the rise in outside hires because the corporate interlock network has fragmented in recent decades (Chu and Davis 2016).

Third, past research has identified contextual factors that moderate the effect of poor performance on outside CEO succession—for example, outside pressure on the board heightens the effect of poor performance (Boeker and Goodstein 1993; Finkelstein, Hambrick, and Cannella 2009; Shin 2019). This suggests that increases in outside board membership or shareholder pressures might have made firms more likely to respond to poor performance by hiring an outside CEO. While I do not directly measure these factors, I *do* examine whether the association between poor performance and outside CEO hiring has increased over time, as this research suggests. I also run a robustness check controlling for institutional investor holdings obtained from the Thomson-Reuters 13f database, which is first available in 1980. Whether measured by percentage of stock owned by any institutional investor or by blockholders with

more than 5% of outstanding shares, I find no evidence that shareholder pressure is driving the effect of losses on outside CEO hiring.

Method

I begin by investigating trends in corporate profitability for all years sample firms were independent and publicly-traded with profit data available. I then focus on what I will call *standard* CEO transitions at these firms (Huson, Parrino, and Starks 2001; Khurana 2002)—when a new permanent CEO is selected by the board, not due to an external intervention (e.g., a takeover or a government bailout) or the direct result of a major organization change (e.g., a merger or spin-off). Between 1950 and 2015, the 317 corporations in the sample contributed 1,445 CEO transitions, more than 93% of which were standard CEO transitions. I restrict the sample to observations after firms' first CEO transition to include incumbent CEO variables, and this reduces the sample to 1,070 CEO transitions. Excluding missing data on firm-level variables yields the final analytic sample of 1,004 CEO transitions. Descriptive statistics for key variables on this sample are presented in Table 1.

[Insert Table 2.1 about here (see pp.30-36)]

The logistic regressions I use derive from the following basic model:

$$\ln\left(\frac{p_{it}}{1-p_{it}}\right) = \alpha + \beta P_{i,t-1} + \gamma T_t + \mu I_{it} + \lambda F_{i,t-1} + \eta C_{i,t-1} \qquad (1)$$

where p_{it} is the probability that firm *i* hiring a new CEO in year *t* selects an outsider rather than an internal candidate. P indicates the three performance measures—losses, ROA, and stock return—which I include jointly in one model but generally examine separately as alternate measures of firm performance. The model also includes the time period variable (T); the three incumbent CEO variables (I); measures of firm size and change in assets and employment (F); and contextual measures (C) of GDP change, industry (which is time-varying for the more diversified firms in my sample), and within-industry outside CEO hires. Firm characteristics are lagged one year to reduce concern about reverse causality. Because my data consists of CEO transitions nested within firms, I use standard errors clustered at the level of the firm. Another way to utilize this hierarchical data is to include firm fixed-effects; while this requires reducing the sample by 70% to firms with variation in the outcome, I include a fixed-effects model below to show the robustness of the association between losses and outside CEO hires.[7]

To examine whether losses are a consistent predictor of outside CEO hires, I interact the three performance measures with time period in three separate models. This allows me to compare trends in the association between losses and outside succession to other performance-coefficient trends. Because interaction effects lack a clear interpretation in nonlinear probability models (Breen, Karlson, and Holm 2018; Mood 2010), I also use a set of linear probability models to examine changing performance-outside hiring associations. Results are similar for the logistic and linear probability models.

[7] An alternative strategy would use multinomial logistic regressions to analyze the competing risks of outside and inside CEO hires relative to years with no CEO transitions (Jung 2014; Ocasio 1999). However, I use linear probability models on transition-level data to make interactions between performance measures and time period interpretable (Breen, Karlson, and Holm 2018; Mood 2010). Running all regression analysis on transition-level data simplifies the presentation of results. In addition, my substantive interest is whether a board decides to hire an outside CEO rather than an insider given the firm needs a new CEO. Still, I ran robustness checks using the alternative strategy of multinomial logistic regressions on firm-year data, and results are similar (see Appendix C).

To quantify the contribution of increased quarterly losses to the rise in outside CEO hires, I use the method developed by Karlson, Holm, and Breen (2012) that enables mediation analyses to be conducted with nonlinear probability models. Instead of comparing the equation 1 regression model to a model with the loss variable simply removed, this method instead uses a reduced model that includes a "residualized" version of the loss variable that is orthogonal to the time period variable—this method holds constant the residual variance across the two regression models being compared. This estimates how the trend in outside CEO hires would have differed if losses had been constant over time.

Results

Rising Losses during the Shareholder Value Era

I find that rising losses have coincided with increased profits for large American corporations since 1980. Figure 2 plots the median and 10th percentile of yearly net income between 1950 and 2015. Despite business cycle fluctuations, the black line shows that median profits have increased over recent decades, beginning during the 1990s and accelerating after 2000. Prior to the 1980s, the 10th percentile—indicated by the dotted line—never dropped below zero. This means that more than 90% of large firms turned a profit each year in the first half of the sample period. Since the mid-1980s, however, the 10th percentile line has regularly dipped below zero. During the height of each of the final three recessions in the sample period—the early-1990s recession, the dot-com recession, and the Great Recession—the bottom 10% of large corporations lost at least $1 billion. Central tendency measures of the profit distribution (e.g., median or average) mask this rise in low-profit spells at large corporations.

[Insert Figure 2.2 about here (see pp.30-36)]

Figure 3, which plots the proportion of firms each year that had at least one quarterly loss, confirms that losses have become more common at large corporations since the mid 20th century. Rates of quarterly losses spiked in 1991 and especially 1992, nearly doubling the prior maximum and reaching a peak that has not since been exceeded. This confirms Hypothesis 1, that losses have increased at large U.S. corporations even as these firms' median profits, and share of total aggregate profits (Kahle and Stulz 2017), have risen. It is worth pausing to note the alignment between the time series of losses shown here and that of outside CEO hires (see Figure 1), which both spiked in the early 1990s. The rest of the results focus on quantifying the contribution of this rising trend in losses to the increase in outside CEO hires at large U.S. corporations.

[Insert Figure 2.3 about here (see pp.30-36)]

Changes in Firm Performance Relationship with Outside CEO Hiring Over Time

Table 2 shows how the three performance measures' association with outside CEO hiring changed since the 1950s. I find evidence that losses encouraged outside CEO succession during most of the second half of the 20th century. In both the logistic and the linear probability models, losses strongly predicted subsequent outside succession during the postwar decades prior to 1980 and also during the 1990s, the decade in which outside CEO hires began rising at these large corporations. The increase between the 1980s and the 1990s was the only statistically significant

difference in loss coefficients across time periods in the linear probability models. Supplementary analyses show that firms with losses were acquired or otherwise removed from the sample at higher rates during the 1980s takeover wave, which likely contributed to that decade's weak loss coefficient. Below I show the loss-outside hire association remains strong when pooling data across the 1950-2000 period, which suggests that increased losses could have helped drive the initial rise in outside CEO hires during the 1990s. Yet the drop in the loss coefficient after 2000 shows that losses did not directly contribute to the continued elevated rate of outside succession in the early 21st century.

[Insert Table 2.2 about here (see pp.30-36)]

The lower panels show how this trend in loss coefficients compares to those of two conventional performance measures. The middle panel of Table 2 shows that the trend in the association between operating profit rate (ROA) and outside CEO hires is roughly similar in shape to the loss coefficient trend but noticeably weaker. Results at the bottom of Table 2 show signs of a strengthening relationship between low stock return and outside CEO hires. Yet none of the coefficient differences across time period are statistically significant, and supplemental analyses using a linear year variable also show no statistically significant interaction effects. Still, stock return is the only firm performance measure that has a significant coefficient predicting outside CEO hires after 2000.

Table 3 focuses on the pre-2000 period to clarify the 1950-2000 association between losses and outside CEO hiring and check its robustness. The first model will be used in the next section to quantify the contribution of increases losses to the 1990s' rise in outside CEO hires. This model shows that the odds a firm with a prior year quarterly loss will hire an outsider rather than an insider when selecting a new CEO is more than four times higher than the odds of a similar firm with no recent quarterly loss doing so (exp(1.475)=4.37).[8] Models 2 and 3 investigate how firms with a single quarterly loss in the prior year compare with firms facing more serious profitability crises. Firms with just one prior year quarterly loss were as likely to hire an outside CEO as firms with more than one quarterly loss or with an annual loss; the key threshold appears to be having at least one quarterly loss. This confirms Hypothesis 3.

[Insert Table 2.3 about here (see pp.30-36)]

Next, Model 4 includes operating ROA and stock return and shows that losses are not a proxy for these conventional performance measures. Finally, in Model 5 I use a fixed effects model to control for unobserved time-invariant firm characteristics and find that the loss coefficient remains strong and statistically significant; firms inclined towards both losses and outside CEO hires are not driving the results. In sum, Tables 2 and 3 provide *conditional* support for Hypothesis 2: losses strongly encouraged subsequent outside CEO hires during most of the second half of the 20th century, including when outside CEO hires began rising in the 1990s.

[8] Though the Model 1 loss coefficient in Table 3 is about 10% higher than the 1990s' loss coefficient in Table 2, this does not appear to cause significant bias in my estimates of adjusted outside CEO hire trends in the final set of analyses. Robustness checks using linear probability models show a pooled 1950-2000 loss coefficient that is lower than the 1990s' loss coefficient, yet these models estimate that accounting for losses reduces an estimate of the 1990s' outside CEO hire rise by a similar amount as the main analyses presented in Table 4.

Explaining the 1990s' Increase in Outside CEO Hires

In Table 4, I estimate the contribution of increased losses to the 1990s' increase in outside CEO succession. The left hand column of Table 4 shows coefficients on the time period variable predicting outside CEO hires in a regression that does not account for losses. These results show that the odds of an outside CEO hire relative to an inside hire was almost three-and-a-half times (exp(1.224)) higher in the 1990s compared to the 1950s-70s. (This is comparable to the raw outside CEO hire trend shown in Figure 1.) The second column of Table 4 shows the time period coefficients after adding the loss variable to the regression model. After controlling for losses, the 1990s coefficient is substantially reduced—the odds of outside CEO succession are now less than two-and-a-half times higher in the 1990s than the post-WWII period. The right hand column shows that this attenuation itself is statistically significant: controlling for losses reduces the 1990s coefficient by about 30%.[9] In support of Hypothesis 4, I find evidence that increasing losses at large American corporations drove a substantial portion of the late-20th-century rise in outside CEO hires at these firms.

[Insert Table 2.4 about here (see pp.30-36)]

Discussion

The results center on an important finding about the profits of large U.S. corporations over the past fifty years: turning a profit was a near certainty for these firms during the decades after World War II, yet since the 1970s, even as median profit levels rose, losses became much more common. I find evidence that these losses encouraged the selection of an outside CEO in the second half of the 20th century: the association between losses and subsequent outside CEO hiring was strong prior to 1980, declined in the 1980s as takeovers and business failures surged, and then strengthened again in the 1990s. As a result, rising losses over the course of the late 20th century help explain the initial rise of outside CEO hires. I find that accounting for losses reduces an estimate of the increase in outside hires in the 1990s compared to the 1950s-70s by 30%.

The association between losses and outside CEO hiring declines after 2000, yet the coefficient on poor stock return remains strong—outside CEO succession has become a routine strategy for increasing shareholder value. Supplementary analyses show this weakened post-2000 loss coefficient could partly be the result of polarized profits among large firms since the 1990s. Similar to Denis and McKeon (2021), I find that losses became concentrated among fewer firms facing more acute crises, which likely made losses a less useful signal of poor performance.[10] More generally, this decline in the association of outside CEO hiring with losses relative low stock return is consistent with the wider shift from return-on-assets to return-on-

[9] While the attenuation of both time-period coefficients are statistically significant, this is less interesting for the 1981-1989 period because there was no predicted increase in outside CEOs hires for this decade in the baseline model—the coefficient for this period in the left-hand column is not statistically significant (and in fact is negative).

[10] During the 1990s, 215 sample firms contributed 734 years with at least one quarterly loss; yet 2000-2015 contained nearly the same number of quarterly-loss years (707) originating in only 167 firms. Further analyses show that the post-1980 variance in profits shown in Figure 2 was first driven by increased within-firm profit volatility, but after 2000 this volatility declined and large corporations became more stratified between consistently profitable firms and those with recurrent profit issues. (See the Appendix C.)

equity as the dominant conception of profitability, a key element of the shareholder value ideology (Dobbin and Zorn 2005; Lazonick and O'Sullivan 2000; Levy 2014).

These results highlight how the corporate governance literature gains from engagement with research on historical shifts at U.S. corporations—both the shareholder value literature and research on changing corporate profits. One of the most well-documented findings on CEO succession is that poor firm performance encourages CEO turnover and outside hiring (see review in Finkelstein, Hambrick, and Cannella 2009). Yet research rarely examines how changes in corporate performance might have shaped trends in CEO succession, despite evidence of key shifts in U.S. corporations' profits over the past fifty years (Brenner 2006; De Loecker, Eeckhout, and Unger 2020; Denis and McKeon 2021; Kahle and Stulz 2017). Estimating the contribution of profit changes requires documenting how the salience of different measures of profitability has changed over time. While the shifting definitions of firm performance is a focus of the shareholder value literature (Dobbin and Zorn 2005; Lazonick and O'Sullivan 2000), it is rarely addressed in research on CEO succession. This paper presents evidence that rising losses in the 1980s and 1990s delegitimized inside managers as the default CEO candidate at large U.S. corporations.

These results demonstrate the payoff to empirical examinations of corporate profitability that extend beyond central tendency measures of the profit distribution. Trends in means and medians can mask consequential changes in low-profit spells. Losses rose at large U.S. corporations since the 1970s despite an increase in average profits. The boundary between profit and loss has symbolic weight (Burgstahler and Chuk 2017; Hayn 1995; Ghosh and Wang 2019), and this study shows how the stigma of a quarterly loss translated increased low-profit spells into increased outside CEO hiring in the late 20th century. Documenting how rising losses drove other corporate strategies prioritizing short-term stakeholders could shed further light on the enduring power of the shareholder value orientation and the long-term devaluation of organizational insiders.

The finding that losses rose amidst increased profit levels at large corporations suggests that high-risk, high-reward strategies during the shareholder value era could have been self-reinforcing. Risk-taking likely contributed to higher but less stable returns (Aglietta and Rebérioux 2005; Dobbin and Jung 2010), which justified prior high-risk strategies while increasing performance crises that motivated further risk-taking to raise profits. This chapter shows that low-profit spells undermined insiders' expertise and commitment, and so this risk-taking could have further empowered the short-term investors that prioritize quick returns over long-term stability (Dobbin and Zorn 2005; Dobbin and Jung 2010). In other words, high-risk, high-reward strategies could have created the conditions that encouraged their further adoption, reinforcing the instability of the shareholder value era. Future work could examine this hypothesis by showing how high-risk strategies—like debt, de-diversification, or CEO stock-option pay (Dobbin and Jung 2010)—contributed to the rising losses documented in this chapter.

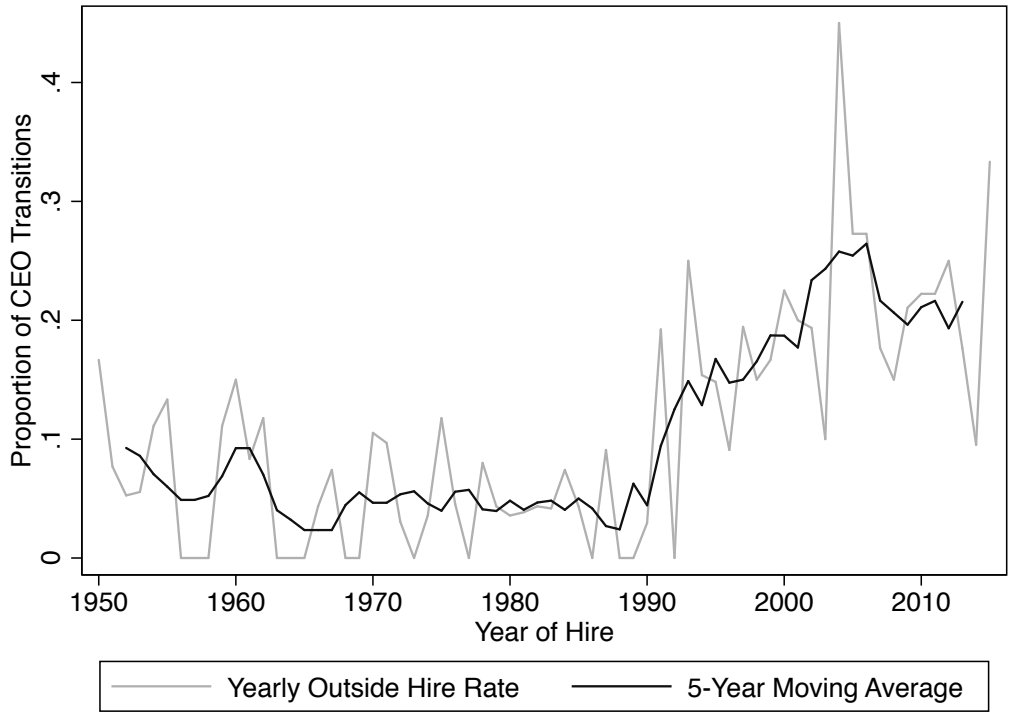
This study sheds new light on the labor market consequences of the shareholder value movement by connecting changes in corporate profits to new conceptions of valuable workers (Boltanski and Chiapello 2005; Custódio, Ferreira, and Matos 2013). Prior research has shown that firms try to increase profits by weakening ties to their employees through layoffs, mergers, and outsourcing (Bidwell et al. 2013; Fligstein and Shin 2007; Jung 2015; Lin 2016). Yet profit pressures encouraged firms to pull in new types of workers as well as push more workers away, and this is most visible at the top of the labor market. A literature in financial economics argues that rewards for mobile executives are due to increased demand for general human capital that is

economically useful to many different firms (Custódio, Ferreira, and Matos 2013; Frydman 2019; Murphy and Zabojnik 2007). However, this research has not examined how this rising demand for outside executives connects to important changes in the goals, strategies, and profits of U.S. corporations over past decades.

One study that has connected the shareholder value movement to a demand for mobile managers is Khurana's (2002) influential account of the rise of the charismatic CEO. However, while Khurana clarifies the fraught process by which struggling firms facing shareholder pressures bring in CEOs from outside the firm, he does not try to connect rising outside CEO succession to changes in corporate profits. He focuses instead on changes in external pressures—increased institutional investor ownership, greater media and analyst scrutiny, and the growth of executive search firms—that could have made boards more vigilant about poor managerial performance and more willing to hire an outside CEO. I add to Khurana's account by quantifying how increased failure to turn a profit contributed to the rising demand for outside CEOs as corporate saviors.

Rising outside CEO hires contribute to labor market inequality by increasing rewards to mobile managers (Boltanski and Chiapello 2005). Outside hires drive up CEO compensation: outside CEOs are paid more than insider hires (Murphy and Zabojnik 2007), and an external CEO market promotes the cross-firm comparisons of executives that allow these pay premiums to diffuse through peer groups for benchmarking (De Vaan, Elbers, and DiPrete 2019) and social networks of directors (Kim, Kogut, and Yang 2015). Outside CEO hires also disrupt internal labor markets by blocking promotion opportunities, reducing morale, and increasing turnover among managers (Friedman and Saul 1991; Kesner and Dalton 1994). Previous research has traced income inequality and employment instability to corporations' focus on increasing shareholder value (Bidwell et al. 2013; Fligstein and Shin 2004). This chapter adds to these accounts by showing that rewards for mobile managers, an important feature of contemporary labor market inequality and exploitation (Boltanski and Chiapello 2005), have roots in rising losses at large U.S. corporations at the end of the 20th century.

Figure 2.1. Outside CEO Hires at Large American Corporations.



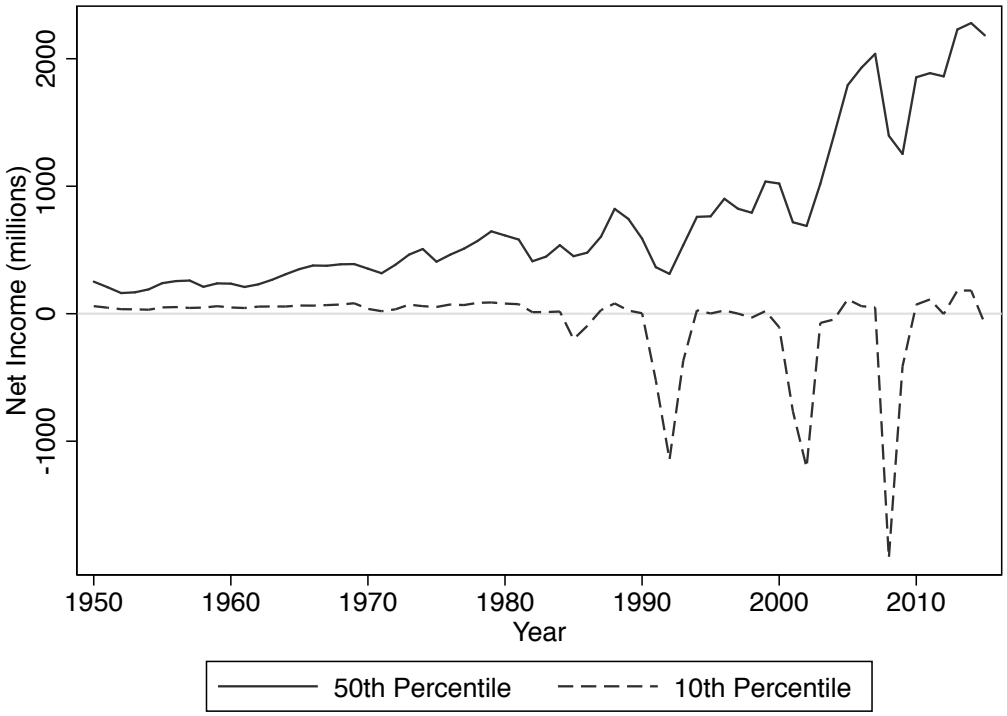
Note: N=1,445 CEO transitions at 317 large American corporations 1950-2015. Outside hires defined as CEOs hired directly from outside the firm with no prior organizational tenure.

Table 2.1. Descriptive Statistics for the Regression Sample.

	Mean	SD	Min	Max
Outside CEO Hires	0.11	0.31	0.00	1.00
Losses (At Least One Quarterly Loss in Calendar Year)	0.23	0.42	0.00	1.00
Operating Return on Assets (industry-adjusted)	0.01	0.08	-0.30	0.69
Stock Return (industry-adjusted)	0.00	0.31	-1.05	4.10
Time Period				
1950-1980	0.36			
1981-1989	0.17			
1990-2000	0.22			
2001-2015	0.25			
Logged Revenue (millions)	9.70	1.05	4.39	13.10
Top 110 by Revenue	0.62	0.49	0.00	1.00
Percentage Change in Assets	0.04	0.18	-0.85	2.85
Percentage Change in Employees	0.01	0.15	-0.64	1.35
Incumbent Tenure at Firm Prior to Becoming CEO	21.68	12.81	0.00	52.00
Incumbent Tie to Founding Family	0.06	0.23	0.00	1.00
Incumbent Tenure as CEO	7.90	4.99	0.00	30.00
Percentage Change in GDP	0.03	0.03	-0.03	0.11
Proportion Firms Within Industry with Outside CEO Hire	0.09	0.20	0.00	1.00

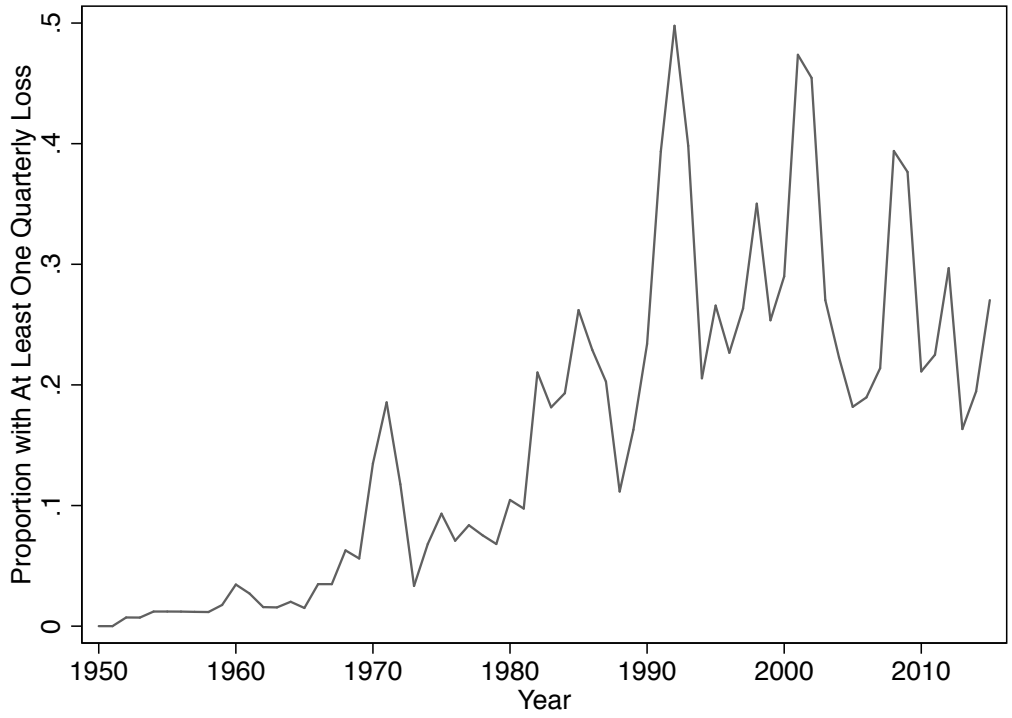
Note: N=1,004 standard CEO transitions. Descriptive statistics shown for all covariates of regression models except for the industry indicator variable.

Figure 2.2. Median and 10th Percentile of Profits Since 1950.



Note: N=13,031 firm-year observations at 317 corporations. Based on calendar-year measures of net income, expressed in 2015 dollars.

Figure 2.3. Proportion of Firms with At Least One Quarterly Loss in Calendar Year



Note: N=13,031 firm-year observations at 317 corporations.

Table 2.2. Logistic and Linear Probability Models Using Performance Measures To Predict Outside CEO Hires by Time Period.

	Logistic Models	Linear Probability Models
A. Loss Coefficient Changes:		
Losses * 1950-1980	2.247 ***	0.196 *
	(0.624)	(0.093)
Losses * 1981-1989	0.617	0.009
	(0.737)	(0.041)
Losses * 1990-2000	1.321 **	0.167 **
	(0.429)	(0.054)
Losses * 2001-2015	-0.132	0.016
	(0.361)	(0.054)
B. Operating Profits (ROA) Coefficient Changes:		
ROA * 1950-1980	-10.965 **	-0.424
	(3.409)	(0.232)
ROA * 1981-1989	-0.664	0.085
	(4.923)	(0.288)
ROA * 1990-2000	-2.639	-0.317
	(2.920)	(0.294)
ROA * 2001-2015	1.897	0.036
	(2.314)	(0.290)
C. Stock Return Coefficient Changes:		
Stock Return * 1950-1980	-1.606	-0.086
	(1.267)	(0.056)
Stock Return * 1981-1989	-1.769	-0.069
	(1.751)	(0.040)
Stock Return * 1990-2000	-2.347 *	-0.234 *
	(1.146)	(0.097)
Stock Return * 2001-2015	-1.075 *	-0.113 **
	(0.507)	(0.038)

Note: N=1,004 standard CEO transitions. Six separate logistic and linear probability models using each of the three performance measures to predict outside CEO hires relative to inside hires. All regressions control for time period, firm size, asset and employment change, incumbent CEO characteristics, GDP change, within-industry outside CEO hire rate, and industry indicator variables. See Appendix C for full regression table with all coefficients. Performance measures (along with other firm characteristics) are lagged one year. Interaction effects show the performance-outside hire association in each time period rather than showing a reference association and deviations from this. Standard errors, clustered at the level of the firm, are in parentheses.
* $p<0.05$; ** $p<0.01$; *** $p<0.001$ (two-tailed tests)

Table 2.3. Logistic Regressions Modeling Losses Predicting Outside CEO Hires, 1950-2000.

	Main Model	Quarterly Loss Count	Yearly Losses	ROA and Stock Return	Firm Fixed Effects
	(M1)	(M2)	(M3)	(M4)	(M5)
Losses (At Least One Quarterly Loss)	1.475 ***			1.208 **	2.082 ***
	(0.350)			(0.387)	(0.508)
Quarterly Loss Count					
(0)		-			
1		1.610 ***			
		(0.402)			
2+		1.271 **			
		(0.440)			
Quarterly and Yearly Losses					
(No Quarterly Loss)			-		
1+ Quarterly Loss, No Yearly Loss			1.635 ***		
			(0.416)		
Yearly loss			1.263 **		
			(0.427)		
Operating Profits (ROA)				-1.901	
				(2.454)	
Stock Return				-1.242	
				(0.731)	
Time Period					
(1950-1980)	-	-	-	-	-
1981-1989	-0.538	-0.531	-0.522	-0.483	0.036
	(0.555)	(0.558)	(0.558)	(0.551)	(0.638)
1990-2000	0.836 *	0.825	0.838 *	0.955 *	0.380
	(0.417)	(0.421)	(0.418)	(0.411)	(0.612)
Number of observations	749	749	749	749	205

Note: N=749 standard CEO transitions, 1950-2000. Logistic regressions predicting outside CEO hires relative to inside hires. Regressions control for firm size, asset and employment change, incumbent CEO characteristics, GDP change, and within-industry outside CEO hire rate. Industry indicator variables are included in Models 1-4. Performance measures (along with other firm characteristics) are lagged one year. Model 5 restricts the sample to firms with variation on the outcome in order to run the logistic regression models with firm fixed-effects. Standard errors are in parentheses. Standard errors for models 1-4 are clustered at the level of the firm.
* $p<0.05$; ** $p<0.01$; *** $p<0.001$ (two-tailed tests)

Table 2.4. Adjusted Trend in Outside CEO Hires After Accounting for Rising Losses, 1950-2000.

	Trend in Outside CEO Hires	Adjusted Trend (Controlling for Losses)	Difference
Time Period Coefficients			
(1950-1980)	-	-	-
1981-1989	-0.318	-0.538	0.220 *
	(0.542)	(0.555)	(0.099)
1990-2000	1.224 **	0.836 *	0.387 **
	(0.379)	(0.417)	(0.124)
Percentage	*100%*	*68%*	*32%*

Note: N=749 standard CEO transitions, 1950-2000. Karlson et al. (2012) method using logistic regressions predicting outside CEO hires relative to inside hires (based on Model 1 of Table 3). All regressions control for firm size, asset and employment change, incumbent CEO characteristics, GDP change, within-industry outside CEO hire rate, and industry indicator variables. Standard errors, clustered at the level of the firm, are in parentheses. Percentages indicate how statistically significant baseline trends change after controlling for losses.
* $p<0.05$; ** $p<0.01$; *** $p<0.001$ (two-tailed tests)

3. CULTURAL STABILITY AND CHANGE: NEWS ACCOUNTS OF OUTSIDE CEO HIRES

Does social and economic change require major shifts in cultural understandings? Prior research has laid out several ways cultural and historical changes can be linked. A new constellation of social practices might emerge as the result of a cultural transformation, a fundamental reconsideration of key actors and their purpose (Davis 2009; Fligstein 1990, 2001). Alternatively, social change can be driven by a gradual cultural shift over a long period of time (Brown 2015; Frydman 2019). Finally, cultural *stability* can form the basis of social change, if the composition of a population shifts, or if forces that suppress some consistent cultural ideal or preference change (Fischer 2010; Levy 2021). Yet research rarely examines how these different linkages between cultural and historical change might overlap in a particular case.

In this chapter, I examine how both cultural stability and change accompanied the increase in CEOs hired from outside the firm rather than promoted from within at large US corporations between 1950 and 2015 (Jung 2014; Khurana 2002; Murphy and Zabojnik 2007). During the postwar boom, large US corporations were successful and stable enough to develop systems of internal promotion and pools of qualified internal candidates for top executive positions (Davis 2009; Hollister 2011; Kalleberg 2009). Yet by the 1990s boards of large firms more and more felt the need to select new CEOs from outside the firm, often under pressure from shareholders to improve the firm's performance (Khurana 2002). Outside CEO hires at large corporations are a useful case for examining linkages between cultural and historical change. First, the 1990s rise in outside hires was a prominent issue in the business media that encapsulated that decade's economic disruption and shifting power between corporate stakeholders (Khurana 2002). Second, this change in corporate governance was extensively documented by news articles providing detailed descriptions of both outside and inside CEOs at large firms not just in the 1990s but in the decades before and after. Finally, CEO hire announcements have a clear target—the new CEO—which enables the systematic examination of the language used to generate explanations for an emerging corporate strategy.

Prior research has developed two possible accounts of how cultural changes contributed to the rise in outside CEO succession at US corporations. One prominent account focuses on an abrupt cultural shift tied to the shareholder value movement (Khurana 2002). Maximizing shareholder value emerged as justification for 1980s takeovers and flourished during the early 1990s recession when many large US corporations suffered heavy losses (Heilbron, Verheul, and Quak 2014; Useem 1993). In response, institutional investors pushed boards to make drastic executive changes, and forced CEO exits and outside CEO hires rose steeply. Whereas CEO succession at large firms used to be led by the outgoing CEO, now boards were expected to carefully monitor the firm's performance and change executive teams if returns were weak (Khurana 2002). According to this account, the increase in outside CEO hires in the late 20th century was driven by the sudden emergence of this new imperative to monitor and increase shareholder value.

Another theory about why outside CEO succession has increased over the past fifty years highlights a gradual cultural shift. A literature in financial economics has focused on theorizing and measuring a rising demand for "general" managerial skill (Custódio, Ferreira, and Matos 2013; Frydman 2019; Murphy and Zabojnik 2007). As opposed to firm-specific knowledge and expertise, these general managerial skills apply to leading a range of different firms—for

instance, managing investor relations, communicating with employees, or developing executive teams. External CEO candidates have stronger general skills than firm-specific skills compared to internal candidates. As a result, the long-term rise in demand for general managerial skills has led to a gradual increase in outside CEO succession at US corporations over the past fifty years (Murphy and Zabojnik 2007).

In order to compare these accounts of the cultural changes that might have contributed to rising outside CEO hires, and also the possibility of that cultural stability formed the basis for this change in CEO succession, I draw on data on the full CEO histories of the largest 150 public US corporations by revenue from 1950 to 2015. I selected firms ranked in the top 50 by revenue at least once between 1955 and 2010 based on 5-year snapshots, and all CEOs hired at these firms while they were independent and trading on a large stock exchange during the sample period were included in the sample. To measure how cultural understandings of good management and what firms need from their CEOs have changed, I examine articles in major newspapers announcing these CEO hires. I use two supervised machine learning models commonly used for text analysis—support vector machines and random forests—to predict whether a new CEO was hired from outside or inside the firm based on words and phrases (n-grams) from the announcement articles. After evaluating which model and hyperparameters yielded the best predictions, I used feature importance weights from models trained on articles from three distinct periods—1950-1989, 1990-2000, and 2001-2015—to examine which words and phrases characterized outside CEO hires in different periods. This allowed me to measure how descriptions of outside CEO succession changed as outside hiring rose at this sample of large firms, from 4% of CEO hires prior to 1990 to 14% in the 1990s and 19% post-2000. (See Table 3.1 below.)

Results show that cultural stability and change both accompanied the rise in outside CEO hires at these large US corporations. I found substantial consistency in language used to describe outside CEO hires. Across the sample period, despite some terminological churn, news articles generally described outside CEOs as strong managers brought in to guide poorly performing firms. Because of this cultural model, the sharp increase in losses at these firms in the early 1990s (see Appendix B) created a crisis for which outside CEO hiring seemed a solution, as I argued in the previous chapter (also see Khurana 2002; Useem 1993). The language of outside hire announcements reflected this abrupt change in corporate strategy—descriptions of outside CEO hires were longer, more distinctive, and more focused on pressures from consumer and equity markets in the 1990s. After 2000, announcement articles suggest that outside CEO hires became more routine. Descriptions focused less on the status and general reputation of outside CEOs and more on details of their work background and the specific business units they had led in the past.

These results, from one of the first systematic examinations of the changing justifications for outside CEO hiring at US corporations across a several-decade period, highlight the heterogenous linkages between cultural and historical change that can coincide in a particular case. A stable cultural model can serve as the basis for abrupt cultural change in response to radical change in the institutional environment—in this case rising losses at large corporations in the 1990s. And gradual cultural change—like the rationalization of outside CEO succession through identifying concrete experiences that qualify particular outside CEOs—can follow in the wake of this type of cultural transformation. More specifically, this study provides an empirical window into the rising value for mobile managers, and the increased economic inequality and

economic instability that has followed (Boltanski and Chiapello 2005; Custódio et al 2013; Frydman 2019; Khurana 2002; Murphy and Zabojnik 2007).

Cultural Transformation

What are the different ways prior research has conceptualized the relationship between cultural change and historical change? One account of how cultural and historical change might be linked focuses on cultural transformation. Here an abrupt change in conceptions of dominant actors and their strategies and goals encourages the emergence of a new institutional regime (Fligstein and McAdam 2011).

Most accounts of the emergence of the contemporary economic order—defined by a preference for short-term investments and a corporate commitment to shareholder value—argue it was the result of a cultural transformation in response to the stagflation crisis of the 1970s (Davis 2009; Fligstein 2001). In the face of profitable opportunities to buy cheap firms and sell off their expensive assets, corporate raiders began drawing on the idea that corporations should maximize shareholder value to justify their takeovers as beneficial to all the corporation's equity investors (Heilbron et al. 2014). This was a major cultural transformation—as Davis and Stout (1992) noted, most of the firm-level characteristics 1980s organizational theory held to be a sign of strength actually made corporations more at risk of being taken over during the merger wave that decade. The economic transformations of centered on large corporations in the late 20th century were driven by the adoption of a new conception of what corporations were and how they should be managed to generate returns (Fligstein 2001).

This argument translates naturally to an explanation for the rise of outside CEO hires (Khurana 2002). Managers had far more control of public corporations in the middle of the 20th century than investors. This extended to the CEO succession process, which was dominated by the incumbent CEO. However, the shareholder value movement gave boards of directors and activist shareholders much greater power in selecting new CEOs. Boards had become much more likely to fire the firm's CEO if a firm was performing badly in the 1990s (Useem 1993). Forced CEO exits create chaotic succession processes where outside candidates are more competitive (Finkelstein, Hambrick, and Cannella 2009). According to this account, outside CEO hires increased because a new view of corporations that put heightened pressure on boards to monitor firm performance had emerged in the 1990s.

Gradual Cultural Change

The second way prior research has argued cultural and historical change can be linked is that gradual shifts in attitudes, values, and interpretations can contribute to broader social transformations. One of the most common examples of this type of argument within sociology are rationalization accounts, which focus on increased instrumental rationality—more developed bureaucracy, more systematic rules, more value placed on rational optimization—as a driver of social change. A prominent example on the margins of economic sociology that relates to shareholder value capitalism is the account of neoliberalism initiated by Foucault (2008) and developed by Brown (2015). This research argues that over the past half century the ideology of the economics discipline has come to dominate not just government policies but also norms and

our sense of self. This perspective has expanded, from academic research viewing workers as bundles of human capital to self-employed workers today optimizing their investments in education and work in order to build up their brand most profitably. Brown (2015) traces a range of social changes—from the decline of education in the humanities to the *Citizen's United* Supreme Court case that granted corporations the right of free speech—to the deepening cultural imperative that we are everywhere *homo economicus*.

A prominent explanation of rising outside CEO hires among economists relies on a similarly gradual, long-term cultural change centered on human capital. A literature in financial economics argues that rewards for mobile executives are due to an increasing demand for general human capital that is economically useful to many different firms (Custódio et al. 2013; Frydman 2019; Murphy and Zabojnik 2007). For instance, CEOs must now be able to manage complex organizations and communicate well with analysts and shareholders. These skills are developed and, more importantly, demonstrated by running another company, and this privileges outside CEO candidates. More generally, the devaluation of firm-specific experience and expertise makes internal candidates less competitive. Here, rising outside CEO hires reflect a gradual shift in skills demanded by corporations of their managers.

Superficial Changes and Underlying Cultural Stability

A third possible relationship between cultural and historical change is easily overlooked. Cultural stability can be the basis for social change. This may happen in a few different ways. Stable mechanisms can produce change if the composition of the population changes. For example, losses rose at public US corporations in the 1980s as a growing number of small, less profitable firms went public (Fama and French 2004).

Another possibility is that a stable cultural ideal or preference can be a center of gravity whose social reach expands or contracts as countervailing forces change. Fischer (2010) argues this has been the case with the American value for voluntarism—that people actively participate in groups, organizations, or relationships based on their own individual preferences. The peculiar blend of autonomy, equality, and status-seeking that voluntarism encourages has consistently lay at the core of American culture. Yet groups that had been previously excluded from associating with other Americans as free individuals—women, Blacks, other people of color, and so on—have been increasingly able to participate in this voluntarist culture, though progress has been hard-won, halting, and incomplete (Fischer 2010). Similarly, Levy (2021) argues that US economic history has been driven by a stable cultural preference: in this case, capitalists' general inclination towards short-term, liquid investments. Yet in contrast to Fischer's account, Levy emphasizes a cyclical process as different political and social forces have impeded or amplified this inclination. He draws on Keynes's notion of *liquidity preference*: capitalists' attraction to relatively liquid stores of value, whether through hoarding or speculation, at the expense of long-term committed investments. Levy argues that the salience of this liquidity preference to dominant models of investment has ebbed and flowed over time, swayed by crises like wars and depressions, government policies, and even the psychological inclinations of prominent industrialists. Since 1980, liquidity has become particularly important for investment decisions, as capitalists have reacted to economic uncertainty by trying to assemble portfolios of appreciating assets at the expense of long-term locked-in investments.

I made a version of this cultural stability argument in the previous chapter, where I showed that the early rise of outside CEO hires at large US corporations in the 1990s was due to an increase in losses. Throughout the late 20th century, losses were a consistent signal of poor firm performance encouraging drastic management change through outside CEO succession. As a result, increased losses at large firms in the early 1990s drove a rise in outside hiring. A stable interpretation of losses was the foundation of a major change in CEO succession at large corporations. In this chapter, I examine the extent to which poor firm performance (and other factors) were consistently used to justify outside CEO hires since the 1950s.

Consistency, Rupture, Adaptation

These three models of the relationship between cultural and historical change are not mutually exclusive. Some stable cultural elements can be a foundation for social change while other preferences, attitudes, or conceptions of key actors and strategies can shift and promote similar social changes through other mechanisms.

In this chapter, I argue all three cultural-historical linkages described above played a role in outside CEO hiring becoming a routine strategy at large US corporations. Poor profitability was a consistent justification for outside succession. When low-profit spells surged at large corporations in the early 1990s, this stable cultural link between poor performance and executive turnover created a tumultuous period for corporate America (Khurana 2002; Useem 1993). This turmoil created a rupture in common sense ideas about the management of large corporations in general and the necessity and importance of outside CEOs in particular. In the aftermath of this disruption to American corporate management—and the broader economic changes of the dot-com boom and bust (Brenner 2006), increased market concentration (Autor et al. 2020), and the "fissuring" of the American workforce due to outsourcing and subcontracting (Weil 2014)—boards and investors adapted their notions of what makes a good CEO. The diverse work histories of outside CEOs became more central to justifications of their hire, and specifics about the particular business units they led highlighted the importance of industry-specific skills to lead corporations that are increasingly seen as portfolios of exchangeable assets.

Data and Methods

To measure changing descriptions of outside CEO hires since the 1950s, I examine news articles announcing CEO hires at large US corporations. I use two classical supervised machine learning models—support vector machines and random forests—to predict whether a CEO is hired from outside or promoted from within the firm using the texts of articles announcing the CEO transition. I then examine feature importance scores from these models to identify words and phrases that characterize outside CEO hires. By running separate models on CEO hires in different time periods, I can examine how language used to justify outside CEO hires has changed as outside succession shifted from marginal practice to routine strategy at large US corporations over the past fifty years.

Sample

I focus on CEOs hired at the largest 150 firms by revenue between 1950 and 2015. To construct this sample, I draw on Standard & Poor's Compustat and Center for Research on Security Prices (CRSP) databases to identify public US corporations ranked in the top 50 based on revenue every five years between 1955 and 2010. Firms large enough to appear on one of these ranked lists enter the sample.[11] I collected data on all standard CEO hires—where the firm selected a permanent new CEO, and the CEO succession was not directly related to an external intervention (e.g., a takeover or government bailout) or organizational change (e.g., a merger or spin-off)—at these firms while they were independent and listed on a major exchange. Prior to the 1970s, many firms did not use the term "chief executive"; I used news articles and annual reports to determine who led the company prior to adopting the CEO title—generally it was the president (Fligstein 1987; Frydman 2019), but occasionally it the chairman. This process yielded a sample of 745 CEO hires.

I follow prior research on changes in CEO succession in focusing on large corporations (Frydman 2019; Jung 2014; Khurana 2002; Murphy and Zabojnik 2007). In addition to allowing me to examine the cultural changes that complement past findings on CEO succession, my decision to focus on large firms helps me obtain a more consistent sample of texts justifying outside CEO hires over time. I chose to focus on news articles announcing CEO hires in *The Wall Street Journal* (WSJ) and *The New York Times* (NYT). Because of the size and status of these newspapers, they provide distinct perspectives on CEO hires at large corporations across my entire sample period. In contrast, other newspapers are often more selective—covering mid-20th century hires more than recent ones or limiting their coverage to companies headquartered nearby—or provide less distinct information—often by referring to WSJ or NYT articles. My focus on large US corporations makes it more likely their CEO hires since 1950 received substantive coverage by these major national newspapers.

I attempted to select one WSJ and one NYT article for each CEO transition in the sample. If I could not find a WSJ or NYT announcement article, then I looked for an announcement from another source, beginning with articles in *The Washington Post*, *Los Angeles Times*, and *Chicago Tribune* before moving to other sources. I tried to obtain at least two separate announcement articles, but sometimes this was not possible: about 14% of the CEO hires in the sample have only one announcement article. Occasionally, more than one WSJ or NYT article covered the hiring of a new CEO. In these cases, I selected the article that spent more time discussing the incoming CEO (rather than the outgoing CEO or the company's current situation, which were the two most common alternate themes for an article announcing a CEO transition).

Text Preprocessing and Key Variables

News articles announcing these CEO hires were available as image-only PDFs. In order to analyze the text of the articles, I used an optical character recognition (OCR) software developed by Google called Tesseract (Hoffstaetter 2022). I was forced to address misspelled words due to OCR errors manually. More specifically, I corrected misspelled words that were particularly characteristic of inside or outside hires—that is, they ranked high based on feature

[11] For the 1950s-1970s, when Compustat is less complete, I cross-checked my sample against Fortune 500 lists and samples of large firms constructed by prior research (Fligstein 1990; Frydman and Saks 2010) to ensure I did not exclude large firms that declined in size by the 1970s.

importance scores from the machine learning models predicting outside versus inside CEO hires (described below). While this is not ideal, there was no alternative in this case. I found that spell check software like TextBlob (Loria 2020) did not generally improve text accuracy, in part because many spelling errors were due to words incorrectly broken into two parts.

News articles announcing a CEO hire at a large company often discuss topics aside from the incoming CEO. To avoid picking up words and phrases addressing other topics like broader industry trends or the outgoing CEO, I restrict attention to sentences likely to be discussing the incoming CEO. To do this, I first use a sentence tokenizer from the NLTK library to divide the text into sentences. I then identify sentences that either: (1) mention the incoming CEO's name or (2) contain a "he" or "she" and follow a sentence mentioning the incoming CEO by name. This procedure suggests that about 38% of CEO announcement articles are spent describing the new CEO. I restrict my analyses to these sentences discussing the incoming CEO.

My strategy for generating tokens—that is, breaking the texts into distinct words and phrases that the machine learning models will use to generate predictions—attempts to balance two goals. On the one hand, I want to preserve distinctions that are important in in my specialized corpus of CEO hire announcements. On the other hand, I hope to eliminate tokens that are less conceptually relevant to CEO hiring decisions in order to minimize overfitting—that is, having the machine learning models learn idiosyncratic characteristics of my data that are unlikely to signify explanatory factors that generalize to other CEO hiring decisions. The large number of variables (or *features*) used in text classification to predict outcomes heightens this risk of overfitting. In addition, my analysis will focus on feature importance scores to understand which words and phrases are most indicative of outside CEO hire announcements. This emphasis on interpretation rather than prediction makes it even more important to exclude features that seem unlikely to reveal a conceptual linkage with the selection of an outside CEO rather than promoting an insider.

I opted for a simple tokenization process that split words based on white space, removed punctuation (as well as *'s*, to ignore possessives), and did not use stemming or lemmatization. I found that stemming collapsed words commonly found in CEO announcements that have distinct meanings, such as "international" and "internal," or "business" and "businesses." Lemmatization, which requires part of speech tagging and attempts to combine words based on semantic similarity, processed the text too heavily given my goal of conducting an exploratory analysis of a specialized corpus. Based on my close readings of subset of the corpus texts, I identified a few corpus-specific lemmas that I constructed manually. For instance, these articles often discuss the need for a "turnaround" at a struggling firm. Initial machine learning results identified "turn" as a token characteristic of outside CEO hires, and I found that most instances of "turn" were paired with "around"—I converted "turn around," "turned around" and similar wordings to "turnaround" to combine some of these conceptually similar phrases into a single token. Similarly, I combined "leader" with "leadership" and "led" with "lead," since prior research suggested that outside CEOs were often valued as charismatic leaders (Khurana 2002).

I defined tokens as n-grams with n=1-4: unigrams, bigrams (two consecutive words), trigrams, and quadgrams. Using n-grams requires careful attention to stop word removal, since many common stop words (e.g., "and" or "of") are important to the meaning of phrases. I remove N-grams that *begin* or *end* with a common stop word—based on the standard list of English stop words from the spaCy library (spaCy 2022). To this list of basic stop words I added words likely to appear in announcement articles that are less conceptually relevant to the

selection of an outside or inside CEO: the names of both the firms in my sample[12] and the CEOs hired at these firms during my sample period, numeric tokens such as years, and months or days of the week. I excluded n-grams containing these additional stop words. In a further attempt to minimize overfitting, I removed tokens that were especially rare in the corpus—tokens that occurred in fewer than 25 documents (about 2% of the corpus) were excluded. This process yielded 926 tokens in my sample.

These n-grams must be converted to numeric data to be used in models predicting outside or inside CEO hires. The "bag of words" method, which simply counts the number of times each word occurs in each document, overemphasizes words that are common throughout the corpus. Instead, I use "term frequency – inverse document frequency" (TFIDF) scores to measure words and phrases that are particularly important in any given document. In broad strokes, this normalizes token counts by dividing by the number of documents containing the token. I use TFIDF scores of the 926 n-gram tokens to predict whether a new CEO discussing in an announcement article is an outsider or an insider.

I define outside CEOs as those with no prior tenure at the firm before becoming CEO. Other definitions are frequently used in the literature, motivated by the fact that many outside CEOs are brought to the firm a year or more before they ascend to the CEO position (Cannella and Lubatkin 1993; Jung 2014; Ocasio 1999; Vancil 1987). However, I find that nearly all of the increase in new CEOs with little prior organizational tenure has been driven by CEOs hired directly from outside the firm (see Appendix C); to investigate the rise in outside CEO hires, it makes sense to define them as CEOs with no prior organizational tenure. An additional benefit of this definition over alternatives that use prior-tenure thresholds of one or two years is that the timing of the event is clearer. See the prior chapter for further discussion of this measurement strategy.

I focus on comparisons within time periods to help reduce the impact of changes in business media coverage (Khurana 2002). In an attempt to distinguish coherent time periods that contain sufficient variation in the outcome, I divide the sample into three periods. The first period aggregates CEO hires from 1950 to 1990, when outside CEO succession rates were low, in order to obtain a sufficient number of outside hires to train the machine learning models. The second period used in this analysis extends from 1990 through 2000, when outside CEO hiring surged at large public US corporations during the dot-com boom. Finally, the third period includes CEO hires between 2001 and 2015, when outside succession leveled off during a period of relatively low growth that contained two recessions.

Table 3.1 summarizes basic information about the sample.

[Table 3.1 about here (see pp.54-59)]

Method

Because my goal was to use supervised machine learning to examine text characterizing outside CEOs, my choice of model was guided by two criteria. First, the model should be designed to handle high-dimensional data—recall that my sample has almost as many features (926 tokens) as observations (1,384 articles). This made traditional classification models like logistic regression less appropriate. Second, the model should produce interpretable feature

[12] As a check, I removed from the list of excluded stop words parts of company names that might have appeared generically in CEO announcement articles (e.g., "bank," "business," and "company"). Yet this does not change the results; I find that these words do not characterize outside CEO hires.

importance scores so that I could inspect which words and phrases were most likely to predict outside CEO hires in different periods. This ruled out more complex classification models like neural networks. I decided to compare the performance of two types of models: support vector machines and random forests.

Support vector machines (SVM) classifiers find a hyperplane in the feature space—defined by the variables used to generate predictions—that best separates the two outcome classes (James et al. 2013). SVM models are commonly used in text classification (Albrecht, Ramachandran, and Winkler 2020). In high-dimensional feature spaces such as that generated by tokens in text classification, a linear boundary is can usually be found to separate the outcome classes. (In general, this decision boundary can be non-linear—this involves using a "kernel" function to project the data into a higher dimensional space where the outcome classes are linearly separable.) I will use a linear kernel, which has the additional benefit of assigning weights to features that can be interpreted as feature importance scores. These weights are defined as the dot-product of feature vectors with the vector orthogonal to the hyperplane used to separate the outcome classes.

Random Forests (RF) are an ensemble model based on decision trees (James et al. 2013). Decision trees construct a non-linear boundary in the feature space the best separates the outcome classes: the first split is made based on a single feature, then each resulting region is divided based on a second feature, and so on. An RF classifier is an aggregation of decision-tree classifiers: by using a different subset of features for each decision tree and aggregating results, RF models maintain the flexibility of decision trees while reducing their tendency to overfit. The main reason I examine RF in addition to SVM models is the fact that an RF classifier uses a non-linear decision boundary. In addition, RF models provide feature importance scores, which summarize the average amount that tree-nodes based on a given feature help separate outcome classes (Géron 2022).

Before describing my comparison of SVM and RF classifiers, I must discuss my strategy for addressing the "class imbalance" that exists in this sample. There are almost ten times more inside hires than outside hires (see Table 3.1). This class imbalance requires two important modifications of the standard procedure for building a classifier. First, training data has to be rebalanced so that the model learns as much about outside as inside CEO hires. This rebalancing can be done by *undersampling*—selecting a random subsample of insider hires to match the number of outside hires—or *oversampling*—constructing a bootstrapped sample of outside hires by sampling with replacement until the number of outside hires and inside hires are the same.[13] Second, class imbalance makes accuracy, the standard evaluation metric that simply counts the percentage of observations misclassified, an unsuitable measure. The problem is that an unhelpful classification model that simply predicts that every observation is in the majority class—in this case, an inside CEO hire—still yields a high accuracy rate of over 90%. Instead, I evaluate models using the "F1 score," which is the harmonic mean of *precision*—the percentage of positive predictions that are true positives—and *recall*—the percentage of true positives that the model predicts to be positive (F1 = (2 * precision * recall) / (precision + recall)). Essentially, the F1 score is high if both precision and recall are high (Géron 2022).

[13] Another technique for addressing class imbalance generates a synthetic oversample by creating new data points that are random perturbations along lines connecting existing observations in the minority outcome class. (One popular example is called SMOTE [Chawla et al. 2002].) However, this technique does not work well for sparse data like the high dimensional features space generated by texts.

Table 3.2 summarizes my comparison of SVM and RF models for text classification of outside CEO hire announcements. I use 5-fold cross-validation on the full sample period for this evaluation. I compare models that vary along three dimensions: oversampling versus undersampling to address class balance; SVM versus RF models; and comparing different combinations of "hyperparameters" that define how each model is run—for the SVM classifiers I examine different values of the regularization parameter, and for the RF classifiers I compare different numbers of estimators, tree-depth maximums, and functions for subsampling features. Because oversampling and undersampling both depend on random sampling, I use five different randomizations of each in order to compare the sensitivity of evaluation metrics to sampling variability. Table 3.2 shows that F1 scores for SVM and RF models are similar, yet the average F1 scores are slightly higher for RFs. However, the hyperparameters for the best RF model vary across the five random oversamples. (F1 scores show that oversampling is preferred to undersampling for addressing class imbalance on this sample.) In contrast, the SVM hyperparameter is consistent across random samples; SVM classifiers allow me to choose one set of hyperparameters to consistently obtain a high-performing model. As a result, I use SVM models for the main results presented below.[14]

[Table 3.2 about here (see pp.54-59)]

The main results are based on feature importance weights from SVM classifiers trained on all data—without holding out a test set, as I did for the above evaluation exercise—in each of the three time periods. In order to average out the sampling variability due to oversampling, I produce 100 different balanced data sets and train an SVM classifier on each of them. I then average the feature importance weights across all 100 models. This essentially yields feature importance weights from an SVM model with a separating hyperplane defined as the average of all hyperplanes from the 100 trained SVM classifiers. In order to compare these feature importance weights across time periods with the fewest assumptions possible, I simply present the top 25 words based on feature importance weights for each time period. I define feature importance ranks based on weights and then highlight words each period that have relatively low ranks in the other two periods. This draws attention to tokens that characterize outside CEO hires much more strongly in one period compared to the others.

Results

Examination of the top words and phrases characterizing outside CEO hire announcements in each period yields three main findings. First, language justifying outside hires showed substantial continuity since the 1950s: articles consistently tend to describe outside CEOs as strong managers hired to guide poorly performing firms. Yet there have been important changes in descriptions of outside CEO hires. The second result is that the 1990s were an unusual period when outside hire announcements were longer and more distinctive and when outside succession was strongly associated with pressures from consumer and investor markets. Third, in the early 21st century CEO announcements suggest outside hires became more routine, with descriptions focusing less on outside CEOs' general status and reputation and more on details about their career history and experience leading specific business.

[14] I find that feature importances for SVM and RF models are similar in my sample. When trained on the total sample, the correlation of feature importance weights across the 926 features for SVM and RF models is 0.69.

Continuity in Explanations of Outside CEO Hires

Table 3.3 shows top-ranked tokens based on SVM feature importance weights for each of the three time periods. Highlights indicate words or phrases that are ranked high in one period but low (>100) for the other two periods. Among tokens that are not highlighted, a number are ranked highly across all three periods: *outsider*, *search*, *president and chief executive*, *experience*, *job*, *million*. Most of these, especially the first three, are easy to interpret. Outside hire announcements often discuss the new CEO's *experience* that makes them suitable for the *job* (i.e., the position of CEO). *Million* typically refers to the new CEO's pay, either the size of base salary or bonuses or the number of stock options granted. Compensation is consistently a salient component of outside CEO hire descriptions.

[Table 3.3 about here (see pp.54-59)]

A quick glance at the large number of highlighted tokens suggests that language characterizing outside CEO hires is often period-specific. In the pre-1990 period, 16 out of 25 top tokens were ranked below 100 in the other two periods; in the 1990s there were 12 such period-specific tokens; after 2000 there were 17. Yet terminological churn often masks conceptual stability. There are many instances of different terms used to describe the same concept in different periods. One example is the set of words used to indicate quotations from company spokespeople, outgoing CEOs, analysts, and others about the incoming CEO. In the pre-1990 period, companies sometimes made a *statement* or an important individual gave an *interview* discussing the new outside CEO; after 1990, it was much more common to simply quote what someone *said* (and quotations often included the phrase "I *think*"). Other examples include the transition from *director* pre-1990 to *board member* in the 1990s; the shift from *naming* a new CEO in the 1990s to a new hire being *announced* after 2000; and a new CEO's *appointment* in the 1990s being replaced by mentions of a new CEO being *hired* post-2000.

Most significant are the various terms used to describe the core characteristic of outside CEO hires at large firms: they are intended to be strong managers who can guide a poorly performing company. There are two components here. First, articles are more likely to describe outside CEOs as strong, effective executives. Before 1990, outside CEOs were more likely to be labeled the *head* of a company, whether referring to the firm that just hired the CEO or one the CEO had run previously. This language suggests the CEO embodies the organization and exercises complete control of it. After 1990, and especially after 2000, articles were more likely to describe outside CEOs as *lead[ing]* a company or business unit. Prior studies have found that "leadership"—supposedly more intuitive and based on social networks than "management"—lies at the heart of modern business ideals and education (Boltanski and Chiapello 2005; Khurana 2002, 2007). My findings support this research, although I find that the verb *lead* is more characteristic of outside CEO hires than the noun *leader*, even if the latter still ranked in the top 100 in both the 1990s and post-2000.

The second component of this core, consistent description of outside CEOs is that they are hired to address poor firm performance. Prior to 1990, this was most clearly expressed by mentioning *losses* (or a *loss*, ranked 49 in this period) at the company hiring the outside CEO. In the 1990s, the salience of a large *loss* remains (it is ranked 15), which aligns with findings from the last chapter about the association between losses and outside CEO hires in the late 20th century. More significant during the 1990s is concern with a firm's *performance*. This was not only a concern with poor performance—mentions of *performance* in outside hire announcements this decade focus on poor performance only half of the time. Sometimes these articles discussed

performance pay, the CEO's good performance at past companies, or the need to monitor a firm's performance. After 2000, concerns turned to longer-term performance challenges. *Face* was often used in this sense: CEOs *face* challenges at their new firm, companies *face* competitive pressures, "in the *face*" of a difficult situation, and so on. Another token that characterized outside hires post-2000 but was not in the top 25 was *turnaround*; after ranking higher than 500 in both prior periods, it was ranked 34 post-2000. This term referred to situations where a new CEO would have to turn a company around, changing directions drastically in order to improve performance.

The Exceptional 1990s

Despite this consistency in the concepts used to justify outside CEO hires since 1950, results show that articles announcing outside succession during the 1990s stand out from those before and after. Outside hire announcements from this period stand out in two main ways. First, their length and distinctive vocabulary shows that outside CEO hires during this period were especially newsworthy, a finding that echoes past research on CEO succession (Khurana 2002). As the results in Table 3.1 indicate, articles about outside CEO hires were longer during the 1990s than other time periods, both absolutely and relative to inside hire announcements during the same period. Outside hires announcements in the 1990s had 476 words devoted to the incoming CEO on average, 73% more than the average inside CEO hire announcement from the same period.

Articles about outside CEO hires in the 1990s also had more distinctive vocabulary compared to other periods. Tables 3.4-3.6 provide additional information about the average TFIDF scores and sub-corpus coverage of the top 25 tokens in each period. The coverage percentages are helpful for providing context about what percentage of articles included at least one mention of each token. I will focus on TFIDF scores since these were the features used by the SVM models, but results are similar for coverage percentages. TFIDF scores for outside-hire articles were highest in the 1990s, whether based on absolute averages (0.036 vs. 0.28 or 0.23), differences between average TFIDF scores for outside and inside hires (0.026 vs. 0.20 or 0.16), or ratios between outside-hire and inside-hire scores (3.652 vs. 3.377 or 3.194). Recall that TFIDF scores are a measure of how important a given token is to each document. These results suggest that top-25 tokens were more helpful for identifying outside CEO hires in the 1990s than before or after.

[Insert Tables 3.4-3.6 about here (see pp.54-59)]

The second way that outside-hire announcements stood out in the 1990s was their attention to two major outside corporate stakeholders: consumers and investors. *Customer* and *customers* were both ranked in the top 25 for 1990s outside hires. Most appearances of these tokens suggested a sales-and-marketing approach—customer service, customer relations, serving customers, customer needs, having a "customer orientation." These phrases suggest that firms turned to outside CEOs in the 1990s in response to pressures from consumer markets, or pressures to appear sensitive to these markets. This claim is also supported by the high ranking of *investors* in this period. As much prior literature has argued (Davis 2009; Dobbin and Jung 2010; Fligstein and Shin 2007), institutional investors pressed large corporations in the late 20th century to become more responsive to changing consumer demand and increase profits and stock returns. More generally, mentions of *investors*—for example, that investors were unhappy or

pushed for a change—align with research on shareholder activism during the 1990s (Lazonick and O'Sullivan; Useem 1993).

It is worth noting that the sales-and-marketing emphasis suggested by the high rankings of *customer(s)* during the 1990s is also reflected by high-ranking tokens that focus more explicitly on the retail industry. *Retailing* was the token most characteristic of outside hires during this period, and *merchandising* was also ranked in the top 25. Mentions of these tokens concentrated in articles about the woes of various retailers struggling to adapt to consolidation in discount retailing (e.g., Kmart, Woolworth), groceries (e.g., Fleming), or department stores (e.g., JC Penney) during the 1990s. In these case, grandiose language indicates the difficulty these firms were facing. Allen Questrom, in an article announcing his hire as JC Penney's CEO, was described as "retailing's restless merchant prince and turnaround artist." Roger Farah's hire at Woolworth involved "matching one of retailing's hottest executives with one of its most daunting assignments." Concern about poor firm performance within a consolidating retail industry was a microcosm of the broader shareholder value pressures on large corporations that decade.

The Routinization of Outside CEO Hiring After 2000

After 2000, the language of outside hire announcements suggests this form of CEO succession had become more routine. One reason is that descriptions of outside CEOs became less generic and status-oriented and more focused on details of the CEOs' background. One of the top-25 tokens in the 1990s was *nation*, which almost always (in 12 of 13 mentions) referred to the dominance within its industry of the company hiring the outside CEO or the firm they worked for previously (often "the *nation's* largest"). This language played up the stakes and newsworthiness of 1990s outside CEO hires by highlighting the size of the firms involved. Similarly, the token *known*, while not ranked within the top 25, strongly characterized outside hires prior to 2000. (It was ranked 38 prior to 1990, 49 in the 1990s, and 777 post-2000.) This typically referred to the good, or at least widely-held, reputation of the new CEO. Sometimes they were *known* for something in particular—an "iron will" (Louis Gerstner at IBM), or being "hard-driving, demanding and even fiery at times" (Robert Nardelli at GE)—and other times they were just "well-known." After 2000, both of these tokens describing the status of outside CEOs and the firms hiring them became much less strongly associated with outside hires.

Instead, post-2000 outside hire announcements focused on more concrete aspects of a new CEO's background and experience. An important word characterizing outside succession in this period was *recently*, which was generally used to describe the company and position the newly hired CEO had held previously. Significantly, it was almost always (in 8 out of 10 outside hire announcements from this period) preceded by "most" or "more," suggesting that the article had gone in depth about the new CEO's career history by describing at least two of the their prior positions. *Spent* is another high ranking token in this period used to describe the new CEO's background—for example, the CEO "spent their career at" some other firm. The fact that *recently* and *spent* both ranked in the top 10 during the post-2000 period but much lower in prior periods suggests that recent outside CEO hire announcements provided relatively more detail about the work experience of outside CEOs.

Another way that post-2000 outside hire announcements went into greater detail about the CEOs' backgrounds is by describing the specific business units new CEOs had previously run. Articles often noted the industry-specific experience of outside CEO hires by noting the

businesses they had been *responsible* for at their previous firms. This attention to industry-specific businesses fits within a broader trend in this corpus of describing corporations more and more as portfolios of business units that could be bought or sold to maximize returns. The various *businesses* at the hiring company were often invoked to describe the complex task faced by the incoming CEO, either to manage a range of businesses or to decide how to determine a core set of businesses to focus on. (This theme was also present in 1990s outside CEO hire announcements, which were more likely to mention decisions about whether to *sell* assets or business units.)

To appreciate this more detailed focus CEOs' background, it is worth comparing the above tokens to one of the most common words characterizing outside CEO hire announcements across the entire sample period: *experience*. Ranked in the top 20 in all three periods, this word was used to describe the new CEO's skills. Yet the skills described using this token were fairly generic, especially in the pre-2000 periods: for example, *experience* running a large public company, retailing *experience*, international *experience*, *experience* in merchandising and manufacturing, oil and gas *experience*. Even when industry-specific experience is discussed, it is at a broad level and disassociated from concrete contexts within particular business units. Descriptions of prior managerial experience became more specific in outside hire announcements after 2000.

Finally, one *lower-ranking* token in this period suggests that outside CEO succession became a less disruptive event after 2000. *Resigned* was ranked 6th prior to 1990 and 2nd in the 1990s, yet in the post-2000 period it was not associated with outside CEO hire announcements. Clearly this data cannot speak to whether outside CEO hires became less likely to follow the resignation of the incumbent CEO, but these results show that outside hires were less likely to be described as the reactive response to a resignation after 2000. This provides evidence that outside CEO hires have become a more routine process at large corporations in the 21st century.

Conclusion

In the decades after World War II, many large US corporations were successful enough to develop internal labor markets—predictable career paths for employees through internal promotion opportunities—that further insulated them from instability (Davis 2009; Hollister 2011; Kalleberg 2009). As a result, CEO succession at these firms was predictable and typically involved the incumbent selecting their successor from a pool of qualified internal candidates (Finkelstein et al. 2009; Vancil 1987). This changed by the end of the century, as boards of large corporations increasingly chose new CEOs from outside the firm in order to help firms change course or adapt to changing pressures from consumers and competitors (Khurana 2002).

To better understand this devaluation of organizational insiders and expertise, I examined news articles announcing CEO hires at the largest 150 public US corporations by revenue between 1950 and 2015. I trained a text classification model using support vector machines and examined feature importance weights to identify words and phrases characterizing outside CEO hires in three periods—1950-1989, 1990-2000, and 2001-2015. This analysis of news accounts of CEO hire announcements at large corporations provide a rare glimpse into the cultural changes, or lack thereof, that might contribute to this type of long-term shift in corporate strategy. CEO hires at the large firms have received consistent news coverage from the largest national newspapers—here I focus on *The New York Times* and *The Wall Street Journal*—across

the entire sample period. Furthermore, compared to accounts of other corporate strategies, CEO hire announcements have a relatively clear target in their explanations—the description of a person, the new CEO. This makes it easier to systematically examine changes in the linguistic material used to generate explanations for an emerging corporate strategy.

My investigation of CEO hire announcements at large US corporations yields three main findings about the cultural change that accompanied the rise of outside CEOs at these firms. First, while the words and phrases that characterize outside CEOs largely change across the three time periods, a consistent picture of the purpose of outside CEO succession is present throughout. Outside CEOs were strong managers hired to help poor performing firms. Second, this cultural stability was the foundation of drastic cultural change when large corporations began facing more low-profit spells in the early 1990s. During the 1990s, when outside succession was rising sharply at these firms, outside hire announcements became longer, more distinctive, and more focused on two primary outside constituents: customers and investors. Finally, the novelty of outside CEO hiring seemed to wear off after 2000, and outside hire announcement focused less on outside CEOs' status and more on their concrete work experiences. Altogether, I find stability, transformation, and rationalization in the language used to describe outside CEO hires as they shifted from rare event to routine strategy at large US corporations.

These results extend the findings of the most comprehensive previous studies of outside CEO hiring at US corporations, Khurana's (2002) account of the 1990s rise of the charismatic CEO. Khurana argued that increased external pressures, especially from larger and more activist institutional investors but also from a growing business media focused on corporate celebrities, forced boards—especially boards of poorly performing firms—to devalue internal candidates and to take control of the CEO succession process away from the incumbent in the 1990s. This entailed an sharp cultural shift, as the model of a good CEO shifted from one centered on firm-specific knowledge and experience to one focused on dynamic, disruptive, network-building "leadership" (Khurana 2002). Using a more systematic examination of changing descriptions of CEO hires before, during, and after this crucial decade, I find support for parts of Khurana's argument. Investor pressures did often shape outside CEO hires this decade—mentions of *investors*, typically unhappy, distinguished outside and inside hire announcements in the 1990s. Furthermore, outside CEO hires were more of a business media event in the 1990s than they had been previously—compared to before and after, 1990s outside hire announcements used more words, and words that more strongly characterized outside CEOs, relative inside hire announcements. However, my results contrast with Khurana's account by noting important elements of cultural continuity in outside CEO hire descriptions from the 1950s through the 1990s. Outside hire announcements in the 1990s were long in part because they were full of quotations from incumbents, board members, and analysts (hence the high rank of *said*), yet high ranking tokens like *statement* and *interview* before 1990 show that quotations, albeit more formal, also characterized earlier outside hire announcements. Similarly, connections to the board were significant for outside CEO hires across the late-20th century, yet mentions of *board member* simply replaced *director*. Most interesting is the fact that pre-1990 outside CEOs were also described as particularly strong managers. They were not charismatic "leaders," but instead were the *head* of their firm, language that indicates the symbolic and practical power of outside CEO hires prior to their 1990s increase. Conceptions of outside CEOs showed more continuity before and after 1990 than Khurana's account suggests.

In addition to highlighting threads of cultural stability between 1990s outside CEO hires announcements and those of previous periods, this study also extends Khurana's study by showing how the demand for outside CEO hires became more rationalized after 2000. In doing so, I draw connections to a separate literature on outside CEO succession from financial economics. This line of research argues executives have become more mobile as the demand for general managerial skills—e.g., communicating and managing relations with different stakeholders—has grown relative firm-specific skills at US corporations (Custódio et al. 2013; Frydman 2019; Murphy and Zabojnik 2007). These studies generally lack any in-depth historical analysis and hence portray this shift towards general skill demand as a gradual and almost uniform trend over the past several decades. In contrast, my systematic examination of CEO announcements since the 1950s allows me to show that detailed attention to outside CEOs' transferable skills emerged in response to dramatic events at large corporations in the 1980s and 1990s (Dobbin and Zorn 2005; Khurana 2002; Useem 1993). Outside CEOs became more common as losses increased at large firms in the early 1990s (see Appendix B), and after an initial expansion in the 1990s of language focused on the status of outside CEOs and the external pressures they faced, descriptions of outside hires became rationalized, more attentive to concrete experiences that make an outside CEO qualified for the job. This argument connects Khurana's account of the 1990s charismatic "corporate savior" to financial economic explanations of executive mobility focused on transferable skills.

While my methodological approach of using feature importance scores from text classification models has yielded systematic and interesting findings about the cultural changes that accompanied rising outside CEO hires, there are limitations to this approach. Most notably, a number of highly-ranked words characterizing outside hires in different periods seem to result from idiosyncratic features of the sample and are hard to interpret. Two examples from the pre-1990 period were *detroit*—which might seem to suggest that outside CEO hires were common in the auto industry but actually was only present in two articles about the same CEO hire—and *early*—which was common in outside hire announcements pre-1990 and post-2000 but not in the 1990s and had so many different meanings that a general theme is hard to identify. These examples show signs of overfitting and indicate that tokens features for prediction in text classification models are not always helpful for identifying interpretable, generalizable themes in textual data. An additional weakness that came up during close readings of particular articles is that my procedure for restricting attention to sentences addressing the incoming CEO eliminated some useful information about outside CEO hires, for instance extended quotations addressing the firm's situation and the new CEO's qualifications. Future research might consider other methods for identifying both the text focused on outside CEOs within articles announcing their hiring and the themes present within this text.[15]

This chapter takes a first step towards understanding changes in the language used to explain a major shift in corporate governance at large US corporations over the past half century. CEO succession at large firms changed from an incumbent-driven event to a board-driven event as firm-specific experience was devalued relative prior corporate leadership experience and reputation. I find that a relatively consistent model of the ideal outside CEO contributed to this change. Outside CEOs were often hired to be strong managers of struggling firms, and when

[15] A common method for identifying themes within texts is topic modelling. This unsupervised machine learning technique is better suited for large and more general corpuses. When I tried applying topic modelling to my CEO hire announcement articles, the topics showed little coherence—topics lumped so many different tokens together they were hard to interpret, and different topics had many similar tokens in common.

large corporations began to face more low-profit spells in the early 1990s, outside succession increased and the linguistic tools for describing outside CEOs proliferated. Yet after 2000, descriptions of CEO succession suggest that outside hires, and evaluations of good outside CEO candidates, had grown more routine. These results show that both major prior accounts of cultural change that drove rising outside hires are important but partial—complementary, actually—explanations. The shareholder value movement led to a radical change in how corporations and their managers were conceptualized, yet higher rates of outside CEO succession persisted and justifications of outside hires became more rationalized, focusing on concrete experiences that would yield transferable, "general" skills. More generally, this chapter shows that different linkages between cultural and historical change can overlap in a given case. Feature importance scores from text classification models provide a method for systematically investigating the cultural stability and change that underlie important shifts in corporate strategy and economic valuation.

Table 3.1. Sample Sizes and Outside CEO Hire Rates.

	Pre-1990 (1950-1989)	1990s (1990-2000)	Post-2000 (2001-2015)	Total
Inside CEO Hires				
Number of CEO Hires	421	130	127	678
Number of Articles	787	241	226	1254
Avg. Word Count	195.50	275.07	313.52	232.06
Outside CEO Hires				
Number of CEO Hires	18	21	31	70
Number of Articles	36	39	55	130
Avg. Word Count	310.78	476.36	363.33	382.68
Total				
Number of CEO Hires	439	151	158	748
Number of Articles	823	280	281	1384
Avg. Word Count	200.54	303.11	323.27	246.21
Outside CEO Hire Rates	0.041	0.139	0.196	0.094

Note: Average word count refers only to text related to incoming CEO, which is same text as used in analyses. (See methods section for description of procedure for identifying article text related to incoming CEO.)

Table 3.2. Evaluating Error Metrics (F1 Scores) For Different Models and Hyperparameters.

Support Vector Machines Classifiers

	F1 Score		Hyperparameters
Randomization		Over / Undersample	Regulatization Parameter (C)
1	0.471	oversample	1
2	0.472	oversample	1
3	0.471	oversample	1
4	0.459	oversample	1
5	0.475	oversample	1
Average	0.469		

Random Forests Classifiers

	F1 Score		Hyperparameters		
Randomization		Over / Undersample	Number of Estimators	Maximum Tree Depth	Feature Subset Function
1	0.472	oversample	200	10	sqrt
2	0.495	oversample	200	10	log2
3	0.471	oversample	200	10	log2
4	0.468	oversample	100	10	log2
5	0.459	oversample	100	10	log2
Average	0.473				

Note: Use 5-fold cross validation for all error estimates. SVM regularization parameter C as defined in sklearn; I considered C = [0.01, 0.1, 1, 10, 100] (higher means less regularization, i.e., a harder margin; 1 is the default). Number of estimators is the number of decision trees aggregated for RF model; I considered 50, 100, and 200 estimators (100 is the default). Maximum tree depth is how large each component decision tree can be; I considered 3, 5, 10 and None, i.e., no maximum imposed (None is the default). Feature subset function determines what proportion of features can be used each iteration: sqrt = the square root of the number of features; log2 = the base-2 logarithm of the number of features; (sqrt is the default).

Table 3.3. Period-specific ranks based on Feature Importance Weights from SVM Models.

1950-1989				1990-2000				2001-2015			
Words	Pre-1990 Rank	1990s Rank	Post-2000 Rank	Words	Pre-1990 Rank	1990s Rank	Post-2000 Rank	Words	Pre-1990 Rank	1990s Rank	Post-2000 Rank
director	1	55	41	retailing	602	1	49	refining	919	447	1
experience	2	18	6	resigned	6	2	599	recently	243	572	2
lawyer	3	828	782	search	7	3	5	exchange	152	178	3
outside	4	127	349	outsider	9	4	9	manufacturer	141	468	4
associates	5	609	407	package	302	5	111	search	7	3	5
resigned	6	2	599	board member	519	6	441	experience	2	18	6
search	7	3	5	ms	284	7	734	spent	99	534	7
partner	8	228	719	maker	74	8	778	computer	199	188	8
outsider	9	4	9	performance	503	9	190	outsider	9	4	9
jobs	10	333	764	job	23	10	57	took	908	193	10
head	11	324	220	naming	53	11	460	responsible	106	170	11
statement	12	481	882	sell	318	12	157	businesses	852	916	12
interview	13	871	487	appointment	90	13	192	hired	21	110	13
university	14	638	464	merchandising	91	14	417	think	189	44	14
success	15	522	315	loss	49	15	755	face	349	743	15
losses	16	272	691	hard	643	16	840	million	25	28	16
detroit	17	715	424	dr	859	17	838	engineering	754	109	17
hired	18	110	13	experience	2	18	6	fast	609	130	18
early	19	437	65	said	246	19	43	adding	689	492	19
job	20	10	57	customer	426	20	611	food	712	904	20
elected chairman	21	446	377	help	207	21	355	earned	746	374	21
million	22	28	16	customers	756	22	862	independent	632	597	22
years	23	216	924	nation	237	23	358	lead	579	87	23
bringing	24	163	327	president and chief executive	29	24	44	direction	135	850	24
administrative	25	263	379	investors	479	25	875	short	735	259	25

Table 3.4. TFIDF Scores and Coverage Estimates for Top-Ranked Words for Pre-1990 Period.

	Period-Specific Ranks			Pre-1990 Corpus			
				TFIDF Scores (avg)		Coverage (% articles containing word)	
	Pre-1990	1990s	Post-2000				
Top Words (Pre-1990)	Rank	Rank	Rank	Outside Hires	Inside Hires	Outside Hires	Inside Hires
director	1	55	41	0.072	0.030	0.472	0.236
experience	2	18	6	0.038	0.006	0.278	0.061
lawyer	3	828	782	0.031	0.003	0.083	0.020
outside	4	127	349	0.035	0.006	0.250	0.047
associates	5	609	407	0.038	0.004	0.111	0.030
resigned	6	2	599	0.045	0.005	0.222	0.032
search	7	3	5	0.017	0.000	0.139	0.005
partner	8	228	719	0.021	0.002	0.111	0.011
outsider	9	4	9	0.012	0.000	0.083	0.003
jobs	10	333	764	0.018	0.005	0.167	0.036
head	11	324	220	0.035	0.013	0.222	0.127
statement	12	481	882	0.024	0.005	0.167	0.030
interview	13	871	487	0.018	0.005	0.139	0.062
university	14	638	464	0.032	0.017	0.278	0.147
success	15	522	315	0.013	0.001	0.083	0.013
losses	16	272	691	0.012	0.002	0.056	0.011
detroit	17	715	424	0.026	0.004	0.056	0.020
hired	18	110	13	0.012	0.001	0.083	0.005
early	19	437	65	0.027	0.008	0.222	0.074
job	20	10	57	0.031	0.012	0.278	0.131
elected chairman	21	446	377	0.028	0.014	0.139	0.075
million	22	28	16	0.031	0.009	0.222	0.061
years	23	216	924	0.057	0.049	0.639	0.582
bringing	24	163	327	0.014	0.001	0.111	0.010
administrative	25	263	379	0.021	0.007	0.083	0.034
			Average	0.028	0.008	0.188	0.075
			Difference (Outs vs Ins)	0.020		0.113	
			Ratio (Outs / Ins)	3.377		2.517	

Table 3.5. TFIDF Scores and Coverage Estimates for Top-Ranked Words for the 1990s.

	Period-Specific Ranks			1990s Corpus			
				TFIDF Scores (avg)		Coverage (% articles containing word)	
Top Words (1990s)	Pre-1990 Rank	1990s Rank	Post-2000 Rank	Outside Hires	Inside Hires	Outside Hires	Inside Hires
retailing	602	1	49	0.057	0.004	0.231	0.012
resigned	6	2	599	0.027	0.000	0.205	0.004
search	7	3	5	0.040	0.004	0.410	0.037
outsider	9	4	9	0.030	0.002	0.256	0.017
package	302	5	111	0.030	0.002	0.256	0.012
board member	519	6	441	0.027	0.003	0.154	0.021
ms	284	7	734	0.041	0.002	0.103	0.025
maker	74	8	778	0.028	0.007	0.231	0.066
performance	503	9	190	0.029	0.004	0.308	0.029
job	23	10	57	0.040	0.020	0.487	0.220
naming	53	11	460	0.018	0.003	0.128	0.017
sell	318	12	157	0.020	0.004	0.179	0.037
appointment	90	13	192	0.032	0.011	0.385	0.108
merchandising	91	14	417	0.016	0.001	0.077	0.004
loss	49	15	755	0.017	0.001	0.128	0.012
hard	643	16	840	0.023	0.003	0.231	0.033
dr	859	17	838	0.055	0.012	0.103	0.017
experience	2	18	6	0.034	0.010	0.410	0.087
said	246	19	43	0.159	0.107	0.923	0.759
customer	426	20	611	0.024	0.002	0.231	0.012
help	207	21	355	0.020	0.004	0.256	0.033
customers	756	22	862	0.027	0.006	0.256	0.046
nation	237	23	358	0.024	0.007	0.333	0.075
president and chief executive	29	24	44	0.033	0.019	0.385	0.112
investors	479	25	875	0.037	0.006	0.308	0.062
			Average	0.036	0.010	0.279	0.074
			Difference (Outs vs Ins)	0.026		0.205	
			Ratio (Outs / Ins)	3.652		3.752	

Table 3.6. TFIDF Scores and Coverage Estimates for Top-Ranked Words for Post-2000 Period.

	Period-Specific Ranks			Post-2000 Corpus			
	Pre-1990	1990s	Post-2000	TFIDF Scores (avg)		Coverage (% articles containing word)	
Top Words (Post-2000)	Rank	Rank	Rank	Outside Hires	Inside Hires	Outside Hires	Inside Hires
refining	919	447	1	0.024	0.002	0.073	0.009
recently	243	572	2	0.029	0.010	0.182	0.102
exchange	152	178	3	0.025	0.001	0.109	0.018
manufacturer	141	468	4	0.016	0.002	0.073	0.018
search	7	3	5	0.034	0.007	0.273	0.075
experience	2	18	6	0.048	0.013	0.364	0.155
spent	99	534	7	0.024	0.010	0.182	0.106
computer	199	188	8	0.017	0.004	0.091	0.035
outsider	9	4	9	0.016	0.003	0.164	0.027
took	908	193	10	0.025	0.011	0.273	0.142
responsible	106	170	11	0.018	0.005	0.109	0.031
businesses	852	916	12	0.030	0.016	0.255	0.146
hired	21	110	13	0.019	0.007	0.091	0.049
think	189	44	14	0.020	0.008	0.182	0.093
face	349	743	15	0.017	0.004	0.182	0.040
million	25	28	16	0.033	0.013	0.218	0.111
engineering	754	109	17	0.013	0.005	0.091	0.044
adding	689	492	18	0.013	0.003	0.109	0.031
food	712	904	19	0.017	0.001	0.091	0.013
earned	746	374	20	0.013	0.005	0.073	0.058
independent	632	597	21	0.014	0.004	0.073	0.031
lead	579	87	22	0.046	0.030	0.455	0.274
direction	135	850	23	0.016	0.004	0.091	0.035
short	735	259	24	0.019	0.003	0.109	0.035
products	226	692	25	0.018	0.008	0.164	0.097
			Average	0.023	0.007	0.163	0.071
			Difference (Outs vs Ins)	0.016		0.092	
			Ratio (Outs / Ins)	3.194		2.295	

4. THE FLIP SIDE OF MONOPOLY: LOSSES, ACQUISITIONS, AND MARKET CONCENTRATION AT PUBLIC US CORPORATIONS

Rising market concentration is a defining trait of the 21st century American economy (Autor et al. 2020; Grullon, Larkin, and Michaely 2019; Kahle and Stulz 2017; Philippon 2019; Wilmers 2018). The increased concentration of industry sales among a declining number of firms has had wide-ranging and generally negative economic consequences, suppressing workers' bargaining power (Naidu, Posner, and Weyl 2018), squeezing small suppliers and their workers (Wilmers 2018), and reducing customers' options (Philippon 2019). Most research examining this increase in market concentration has focused on large firms and their increased profits, productivity, and power (Andrews, Criscuolo, and Gal 2016; Autor et al. 2020; De Loecker, Eeckhout, and Unger 2020; Philippon 2019). This chapter takes a different approach. I examine how poor firm performance and organizational death through acquisition have contributed to increased market concentration among public US corporations. By focusing on instances of corporate weakness in addition to strength, I argue we can better understand why the market power of large firms has risen sharply in the United States over the past twenty five years.

Turning away from star firms allows me to connect rising market concentration to two other concerning trends in corporate America that have remained disconnected in prior research. First, low-profit spells—and losses, instances of negative net income, in particular—have increased over the past fifty years at public US firms (Denis and McKeon 2021; Hayn 1995; Kahle and Stulz 2017). Losses are remarkably common at US corporations today, especially those recently listed on a major stock exchange (Eisen 2018; Gao, Ritter and Zhu 2013; Lev 2019). Second, the number of public US corporations has declined by almost 50% since the late 1990s (Davis 2016; Doidge, Karolyi and Stulz 2017; Kahle and Stulz 2017). High acquisition rates are one of the most important drivers of this drop in public firms (Doidge et al. 2017). The goal of this chapter is to jointly examine these three characteristics of the 21st century US economy—high losses, high acquisitions, and rising sales concentration within industries—that are usually considered separately in order to better understand the increased market power of large US corporations. I present evidence that today's high losses have contributed to high rates of acquisitions and that acquisitions have in turn driven increases in market concentration.

This intervention extends a thread running through economic sociology, heterodox economics, and organizational theory that emphasizes the importance of low profits and organizational death for understanding economic change. Research at the boundary between sociology and economics has argued that corporate profit crises can reshape both conceptions of legitimate corporate strategies (Dobbin and Zorn 2005; Fligstein 2001) and broader institutional arrangements between capital, labor, financial markets, and the government (Aglietta 1979; Boyer 2000; Gordon, Edwards and Reich 1982; Grant 1995; Kotz 1994). Organizational theory also draws attention to the full range of firm experiences beyond growth and success (Haveman and Wetts 2019): organizational ecology, for example, argues that vital events like births and deaths of organizations are key drivers of industry trajectories (Carroll and Hannan 2000; Hannan and Freeman 1984). However, these sociological perspectives on profit problems and organizational endings have rarely been applied to the recent rise in market concentration. This chapter bridges this gap to ask how economic and organizational sociology can illuminate this key characteristic of the American economy today.

To examine the contribution of losses and acquisitions to rising market concentration, I analyze data on all US corporations listed on a major stock exchange between 1973 and 2019 using Standard and Poor's Compustat and the Center for Research in Security Prices (CRSP) databases. Focusing on public corporations allows me to examine rich data on firm performance and strategy that is unavailable for private companies. In addition, prior research has found that trends and consequences of market concentration are similar for public corporations and for the universe of US firms since the mid-1990s (Covarubias et al. 2020; Grullon et al. 2019); this is unsurprising given increases in market concentration have been driven by a small number of large firms in each industry (Autor et al. 2020; Kahle and Stulz 2017). Although my investigation of losses and acquisitions draws on data going back to the 1970s, my analysis of rising market concentration focuses on the past 25 years when its rise and influence among public and private firms align.

I find evidence that losses make firms more attractive candidates for acquisition and that acquisitions within an industry drive increases in market concentration. First, I use firm-level analyses to show that firms with very high or very low performance are less likely to be acquired, and that firms with modest negative profits are acquired at the highest rate. Further analysis show that firms with losses are more likely to be acquired compared to similarly-performing firms (based on stock return and operating profits) with no losses. These results help make sense of an ambiguity in prior research on the determinants of acquisitions, some of which has argued that acquisitions target poorly-run (and hence undervalued) firms (Davis and Stout 1992; Jovanovic and Rousseau 2002; Shleifer and Vishny 2003), while other studies have found that *better* performing firms are more likely to be acquired (Doidge et al. 2017; Wheelock and Wilson 2000). After this I turn to industry-level analyses to examine how loss and acquisition rates shape changes in market concentration. I find that high industry-level acquisitions are associated with increased market concentration, but high losses are not. These results suggest that losses have contributed to the increased market power of large US corporations primarily by encouraging acquisitions.

This chapter draws on economic and organizational sociology to provide a fuller picture of rising market concentration among public US corporations today. Public firms now routinely fail to turn a profit (Kahle and Stulz 2017; Lev 2019), and we should recognize how this has hindered stable and widespread economic growth. Losses encourage acquisitions, and while being acquired may benefit a company's shareholders, high acquisition rates are a sign of fragility for the US economy as a whole, which depends more and more on a small number of large firms. Prior research has argued rising market concentration in the US economy signals a deeper problem of dampened competition and restricted choices for customers, workers, and suppliers (Naidu, Posner, and Weyl 2018; Philippon 2019). Extending research on rising market concentration beyond large, successful firms helps clarify this connection between concentration and competition. Greater attention to losses can also be a useful tool for understanding where concentration is at risk of rising and trying to reverse this trend in the US economy. This chapter shows we cannot ignore losses, and other signs that corporate growth is outweighed by the costs of achieving that growth, when assessing the health of the economy.

Market Concentration Within US Industries

A striking characteristic of the 21st-century US economy is the growing gap between large and small corporations. Whether measured by workers' wages, labor productivity, profits, or payouts to shareholders, inequality between US firms has increased (Andrews, Criscuolo, and Gal 2016; Kahle and Stulz 2017; Song et al. 2019). The late 20th century was a relatively tumultuous time for large corporations: during the merger wave of the 1980s, almost one-third of Fortune 500 firms received takeover bids (Davis and Stout 1992); and churn among the largest firms reached a peak during the 1990s (Philippon 2019). However, the business dynamism and competition that created volatility for large firms seems to have declined during the 21st century (Akcigit and Ates 2021; Covarrubias, Gutiérrez, and Philippon 2020; Decker et al. 2016). One well-documented example of increased between-firm inequality in the US is that industries have become more concentrated as large firms' share of sales and employment has increased (Autor et al. 2020; Grullon et al. 2019; Kahle and Stulz 2017).

Most research on the recent rise in market concentration focuses on the strategies of large, successful firms. This is understandable in many ways. Increases in market concentration have been driven by a small number of large firms in each industry (Autor et al. 2020; Kahle and Stulz 2017). Research has also shown that mark-ups—firms' ability to price their goods above marginal cost—and profitability have increased in recent decades and that these increases are greatest among large firms (De Loecker et al. 2020; Philippon 2019). The most prominent explanation of this rise in large firms' market power is that these firms are "superstars" that have efficiently adapted to new economic realities to become particularly productive (Andrews, Criscuolo, and Gal 2016; Autor et al. 2020). Yet even accounts that highlight a contrasting explanation—that large firms have used their power to erect barriers against competition—still focus on the strategies of large firms (Philippon 2019). In research on increased between-firm inequality, large firms are the primary agent—whether positive or negative—and hence the primary object of analysis.

However, our understanding of rising market concentration in the US economy is limited by this focus on the strategies of successful firms. The overwhelming success of large US corporations is clearly dampening the bargaining power of workers and customers (Naidu, Posner, and Weyl 2018; Philippon 2019; Wilmers 2018), but *explanations* for this rising market power cannot be limited to large, profitable firms. How have low-profit spells and other organizational struggles contributed to increased market concentration? This question suggests fruitful connections between rising market concentration and two other major trends among American corporations over past decades: increased losses and a declining number of public corporations. The next two sections will address each of these in turn.

Low-Profit Spells at Public Corporations

The focus on high-profit firms has drawn research attention away from the importance of profit failures in understanding market concentration in the US economy today. To correct this imbalance in the literature, I build on research showing that consistent profitability has become increasingly difficult to sustain for many U.S. corporations over the past few decades (Brenner 2006; Denis and McKeon 2021; Hayn 1995; Kahle and Stulz 2017). Spells of low profits, whether defined as losses (Hayn 1995; Kahle and Stulz 2017) or negative cash flows (Denis and

McKeon 2021) rose at public US corporations in the 1980s and 1990s and have remained elevated since 2000. This chapter focuses on losses, an important sign of poor performance at a for-profit corporation. Prior research has demonstrated the symbolic weight of the profit-loss boundary (Ghosh and Wang 2019), showing for instance that managers try to avoid reporting a loss in marginal situations where profits are close to zero (Burgstahler and Chuk 2017; Degeorge, Patel, and Zeckhauser 1999; Hayn 1995).

How might today's historically high losses have contributed to the rising market power of large US firms? Research in heterodox economics and economic sociology argues that low-profit spells are an important driver of economic change. Marx argued that profit crises are intrinsic to capitalism (Marx 1992, 1993), and a stream of research in economics and sociology has extended this insight to understand transitions between different phases of American capitalism. Difficulties generating profits can lead to a reconfiguration of the economy's institutional supports, from labor relations and financial strategies to consumption and credit (Aglietta 1979; Boyer 2000; Gordon et al. 1982; Grant 1995; Kotz 1994). A separate literature on the shareholder value revolution has made a similar point about the importance of low-profit spells. Since the 1980s, a steady procession of new strategies for maximizing shareholder value—plant closures and other asset divestitures, layoffs, CEO stock-option pay, stock buybacks—have risen and fallen as spells of poor profits spur shareholder activism (Dobbin and Zorn 2005; Fligstein and Shin 2007; Useem 1993). Yet these insights about the importance of profit problems have not been extended to examine rising market concentration in the 21st century US economy.

Similarly, research in economics and accounting on rising low-profit spells at US corporations has not investigated their contribution to increased market concentration. A prominent explanation for today's high losses holds that they are the result of increased investments in research and development (R&D) and other "intangibles" that accounting rules require to be expensed rather than treated as an asset (Govindarajan, Rajgopal, and Srivastava 2018; Lev 2019). However, this research does not examine how this investment burden might fall particularly hard on smaller firms and hence contribute to between-firm inequality. Other research also connects rising low-profit spells to broad corporate changes without considering the recent rise in market concentration: Denis and McKeon (2021) show rising spells of negative cash flow have driven increased cash reserves; Fama and French (2004) argue that surging IPOs in the 1980s and 1990s—which have since subsided (Gao et al. 2013)—increased loss rates at newly public corporations in the late 20th century. Studies that do theorize about the connection between rising low-profit spells and declining competition do not examine empirically how profit problems have contributed to rising market concentration across US industries (Gao et al. 2013; Kahle and Stulz 2017).

This chapter attempts to bridge this gap by examining one direct pathway between today's high losses and rising market concentration. Losses could have driven acquisitions that increase the market power of industry incumbents. To do this, I connect increased market concentration and rising losses to a third major corporate trend: the declining number of public US corporations.

Acquisitions, Losses, and Rising Market Concentration

Over the past twenty-five years, the number of public U.S. corporations has fallen sharply from over 7,000 to under 4,000 firms (Davis 2016; Kahle and Stulz 2017). This was not simply

driven by a drop in the number of IPOs (Gao et al. 2013): the dramatic decline in the number of public corporations is due in roughly equal parts to fewer new listings and to more delists from stock exchanges. Furthermore, these delists are driven primarily by acquisitions (Doidge et al. 2017). In this paper, I argue these high acquisition rates are a mechanism connecting today's prevalent losses with recent increases in market concentration. I focus here not on star firms' acquisitions but instead on acquisition *targets* and how they are more likely to have had losses prior to getting acquired.

I motivate this argument by extending insights from organizational ecology to provide a demographic corrective to the overemphasis on high-profit firms in research on rising concentration within US industries (Autor et al. 2020; Philippon 2019). Organizational ecology identifies processes inside and outside of organizations that hinder change (Hannan and Freeman 1984), and this inertia implies that corporate deaths are a key driver of change within industries (Carrol and Hannan 2000). This suggests a natural question about today's rising market concentration is how organizational death, especially the acquisitions that have played a major role in the declining number of public corporations (Doidge et al. 2017), have contributed to this declining competition in US industries. Yet little research has applied this demographic perspective to examine the sharp rise in concentration within US industries in past decades.

To investigate how high losses might contribute to rising market concentration by driving high acquisitions, I examine two sets of relationships that remain unclear in prior research. First, the relationship between firm performance and acquisition risk is ambiguous. On the one hand, research in financial economics argues that undervalued firms are more likely to be acquired; more specifically, firms with high Tobin's *Q*—those with high market valuations relative the accounting (or "book") value of their assets—tend to acquire those with low Tobin's *Q* (Jovanovic and Rousseau 2002; Shleifer and Vishny 2003). This research emphasizes that acquisitions are a tool for actors outside of the firm's board to discipline poor management (Davis and Stout 1992). On the other hand, empirical research often finds the association between profitability and acquisition risk is positive. Doidge, Karolyi, and Stulz (2017) examine all public US corporations between 1975 and 2012 and find that more profitable firms are more likely to be acquired. Wheelock and Wilson (2000) find a similar positive relationship between earnings and acquisition risk in a large sample of banks in the 1980s and 1990s.

This tension in prior literature implies the association between a firm's performance and its chance of getting acquired could be nonlinear. Particularly high performing firms might be overvalued, but particularly low performing firms might have deep problems that acquiring firms would struggle to resolve.

> *Hypothesis 1*: The relationship between firm performance and the chance of being acquired is nonlinear for public US corporations over the past fifty years: firms with very high and very low profitability are less likely to be acquired than firms with moderate profitability.

This suggests losses might be an important factor contributing to acquisitions. If firms with weak but not terrible performance are most likely to be acquired, then the pool of most likely acquisition targets is precisely the subpopulation where firms with and without losses are most comparable. Losses are a stigma for for-profit firms: managers often use the flexibility of accounting rules to avoid losses when possible (Burgstahler and Chuk 2017; DeGeorge et al. 1999; Hayn 1995), and managerial turnover is more likely following a loss (Ghosh and Wang 2019). Among moderately profitable firms, the stigma of a loss likely makes a firm cheaper and hence a more desirable acquisition target. This chapter will examine whether losses might

encourage acquisitions at public US corporations. However, because firms tend to avoid losses in situations where profits are close to zero, this selection makes it difficult to identify a causal effect of losses. Still, by comparing loss firms to similarly performing firms with no loss—both by comparing firms with small positive profits to those with small negative profits and by controlling for other measures of performance—I can investigate whether losses are a sign that a firm is likely to be acquired.

> *Hypothesis 2*: Public US corporations with a recent loss are more likely than similar firms with no recent loss to be acquired.

The second relationship I clarify is between industry-level acquisition rates and changes in market concentration. There are many reasons the relationship might be more complex than a mechanical process of acquisitions leading to fewer companies, which in turn lead to higher market concentration (Davis 2019). For example, acquisition targets might be too small for their disappearance to have much of an impact on market concentration. In addition, acquisitions might be correlated with new listings—say in a dynamic industry—whose effect on market concentration offsets the acquisition effect (Fama and French 2004; Gao et al. 2013). Finally, it is possible that high industry-level acquisition rates might indicate weak competition within the industry. Because loss rates might be a better measure of competition, controlling for industry losses could reduce the association between acquisition rates and changes in market concentration. In this paper, I investigate the effect of industry-level acquisitions, net of correlates like high losses and new entrants, on changes in market concentration.

> *Hypothesis 3*: Since the mid-1990s, during a period when market concentration has been rising, high industry-level acquisition rates correlate with increases in market concentration among public US corporations.

By addressing these gaps in prior research to examine the effect of losses on acquisitions and the effects of industry-level acquisitions and losses on changes in market concentration, this chapter investigates the link between historically high losses, declining number of public corporations, and rising market power in the US today.

Data and Methods

Sample

To examine how rising losses and acquisitions have contributed to the concentration of sales within industries, I draw on harmonized data from the Center for Research in Security Prices (CRSP) and from Standard & Poor's Compustat. This includes data on all U.S. firms listed on major stock exchanges—the New York Stock Exchange (NYSE), NYSE American (AMEX), and Nasdaq—since the early 1970s. I begin the sample in 1973 because Nasdaq firms were only added to the sample in 1972, and I end the sample in 2019 to avoid having results skewed by the unusual economic environment caused by the COVID-19 pandemic.

I focus on public U.S. corporations for three main reasons. First, this allows me to use more information about firms' performance and strategy in order to examine the relationship between losses, acquisitions, and market concentration. The U.S. Economic Census, which provides information on the full universe of business enterprises every five years, only has firm-level data on value added for the manufacturing sector (Autor et al. 2020). In contrast, Compustat provides data on operating and net income for all firms. In addition, because these are

public corporations, stock return provides a holistic assessment of changes in a firm's value. Finally, losses are strongly influenced by a firm's investment strategy—in particular, whether it might be prioritizing uncertain investments like research and development (R&D) that both reduce current profits in the hopes of future payoffs and also make a firm a more desirable acquisition target. Unlike census data, Compustat has measures of investment in R&D and in more tangible assets like factories, property, and equipment.

The second reason I focus on public corporations is that prior research has found that trends in market concentration, and the consequences of this concentration on increased markups and profits, are similar for the public corporations in the Compustat database and for the full universe of firms described by the U.S. Economic Census since the mid-1990s (Covarrubias et al. 2020; Grullon et al. 2019). Third, and most broadly, restricting attention to public firms allows me to explicitly address how an important finding about contemporary American capitalism—that the number of public US corporations has declined precipitously over the past two decades (Davis 2016; Kahle and Stulz 2017)—provides a link between rising low-profit spells and rising market concentration.

Variables

Whether a firm had a loss—an instance of negative net income—is a primary independent variable in both the firm-level analysis of acquisition risk and the industry-level analysis of changes in market concentration. I examine yearly losses and quarterly losses, which both have been found by prior research to be a strong signal of profitability problems at a firm (Burgstahler and Chuk 2017; Degeorge et al. 1999; Hayn 1995). Because of the stigma of reporting a loss, firms with a quarterly loss are likely facing significantly greater profitability issues than firms with no losses; additional quarterly losses within a year might be less information-rich. Below I find that using a quarterly-loss count measure confirms this nonlinear pattern.

Because prior research has found mixed results about the relationship between firm performance and acquisition risk (Davis and Stout 1992; Doidge, Karolyi and Stulz 2017; Jovanovic and Rousseau 2002; Wheelock and Wilson 2000), I also examine a range of other performance measures. I consider return on assets (ROA), first using a categorical measure of ROA based on net income to estimate how acquisition risk changes at different levels of profitability without requiring the relationship to be linear, and later using operating profits—adjusted by industry median to measure how a firm is likely to be evaluated relative to its peers—as a control when estimating the effect of losses on acquisition risk. In addition, I control for stock return, also industry-adjusted, measured as the percentage increase in stock price during the fiscal year. Finally, because losses may be the result of a high-growth, high-investment strategy, I also control for revenue growth.

The outcome for the firm-level analysis is whether a firm is acquired; this is also a primary independent variable in industry-level regressions predicting change in market concentration. I follow Doidge, Karolyi, and Stulz (2017) in defining acquisitions as events where both (1) a firm drops out of the CRSP-Compustat dataset and (2) the CRSP delist code indicates this delist was due to merger (rather than for cause or voluntary). In line with prior research (Doidge et al. 2017; Fama and French 2004), I categorize delist codes 200-399 as mergers. Because I am interested in examining acquisitions rather than delisting from major

stock exchanges in general, I exclude observations where a firm delists for cause or voluntarily; results are similar if I use competing-risk models that examine all three types of delists.

The outcome for industry-level analyses is changes in the concentration of sales within industries based on NAICS three-digit codes. There are different ways to measure market concentration. Prior research (Autor et al. 2020; Covarrubias et al. 2020; Grullon et al. 2019) has shown that a simple measure that specifies the proportion of industry sales generated by the largest firms in the industry (generally called concentration ratios) generates similar results to the standard alternative measure based on the Herfindahl-Hirschman Index (HHI). Because many NAICS 3-digit industries have 10 or fewer firms in a given year (almost 30% of industry-years in my sample), I measure market concentration as the proportion of industry sales generated by the four largest firms (what I will call the top-4 concentration ratio or CR4); this is a common concentration ratios used by prior research (Autor et al. 2020; Covarrubias et al. 2020; Grullon et al. 2019) and the economic census. This measure requires that I drop industry-year observations (and the associated firm-year observations, which amount to less than 1% of the sample) that contain four or fewer firms. The regression analyses use the change in top-4 concentration ratios from one year to the next as the outcome. I show that trends using HHI are similar to those using top-4 concentration ratios, and I find in sensitivity analyses that results are substantively similar if I use HHI instead of CR4 to measure market concentration.

To ensure results are not skewed by the assignment of multi-segment firms to a single industry, I ran robustness checks excluding multi-segment firms from the sample. Following Grullon et al. (2019), I define a multi-segment firm as one with more than 30% of revenue from non-core industries. Excluding these firms reduces the sample size substantially, by 47%, and excludes an even higher proportion (52%) of firms ranked in the top four by revenue within their industry. As a result, I use HHI rather than the top-4 concentration ratio to measure market concentration in this supplementary analysis. Excluding multi-segment firms does not substantively change the results.

Following past research on rising market concentration (Autor et al. 2020), I split the sample into six broad sectors. This division is based on two-digit NAICS codes as follows: primary, utilities, and construction (NAICS 2-digit: 11, 21-23); manufacturing (31-33); wholesale, transportation, and warehousing (42, 48-49); information and professional services (51, 54, 56); FIRE—finance, insurance, and real estate (52-53); and retail, social and other services (44-45, 61-62, 71-72, 81).

I use logged number of employees to control for firm size because large firms are less likely both to have losses (Hayn 1995) and to be acquired (Doidge et al. 2017). Similarly, young firms might be more likely to have losses and be acquired (Doidge et al. 2017; Fama and French 2004), yet data on founding dates are not available, and a simple measure of how long a firm has been public is unreliable early in the sample period because Nasdaq firms were added in 1972. Still, supplementary analyses show that restricting the sample to begin in 1980 and controlling for age does not change the results.

The more a firm invests in R&D, the more it prioritizes future growth and performance over current profitability. As a result, R&D expenditure could induce an association between losses and acquisition risk. In addition to logged R&D expense, I also control for logged fixed capital (plant, property and equipment) to identify firms with high capital investments in tangible assets.

In models predicting market concentration, I also control for the rate of new lists in each industry, since new firms are more likely to have losses and get acquired (Doidge et al. 2017;

Fama and French 2004) and because new entrants in an industry should reduce its concentration of sales.

Table 4.1 presents descriptive statistics on these firm and industry characteristics.

[Insert Table 4.1 about here (see pp.74-84)]

Models

The first set of analyses model firms' acquisition risk as a function of their performance and other characteristics. Because fiscal-year firm characteristics are pooled based on the calendar year in which they end, I use discrete-time event history models of the following form:

$$\ln\left(\frac{p_{it}}{1-p_{it}}\right) = \beta L_{i,t-1} + \mu P_{i,t-1} + \gamma X_{i,t-1} + \theta C_{i,t-1} + I_i + Y_t \qquad (1)$$

where p_{it} is the probability that firm *i* gets acquired in year *t*. *L* indicates whether a firm had a loss. I control for other measures of performance (*P*)—operating ROA, stock return, and revenue growth—and other firm characteristics (*X*)—size and capital investment strategy. In addition, I include top-4 sales concentration ratio (C_{it}) as a control to examine whether star firms are using their increased market power to acquire more firms within the industry. Finally, I include industry and year indicator variables. Firm characteristics are lagged one year to reduce concern about reverse causality, and I cluster standard errors at the level of the firm.

Acquisitions and losses are events that may change the level of concentration within an industry. As a result, I model how rates of acquisitions and losses within an industry encourage changes in sales concentration. I use ordinary least squares regressions of the following form:

$$CC_{jt} = \lambda A_{jt} + \beta L_{jt} + \mu P_{jt} + \gamma X_{jt} + \eta N_{j,t-1} + Y_t + \varepsilon_{jt} \qquad (2)$$

where CC_{jt} is the *change* in the top-4 sales concentration ratio from the prior year in industry *j* and year *t*. *A* and *L* indicate the acquisition and loss rates within an industry each year, respectively. Measures of performance and other firm characteristics are also averaged to produce industry-year covariates. In addition, I add a measure of the rate of new firms listed within an industry (N), lagged by one year to allow stock return and revenue growth measures to be defined. Finally, I include year indicator variables. I cluster standard errors at the level of the industry, and I weight results based on each industry's yearly sales to better estimate the impact of acquisitions and losses on economy-wide trends in market concentration. Because these are time-varying weights, I do not include industry fixed effects, but results are similar if I do not include these weights and add industry fixed effects.

Results

Trends in Losses, Acquisitions, and Market Concentration

Results show that loss and acquisition rates have shown broadly similar trends over the past fifty years at public US corporations. Figures 4.1 and 4.2 show trends in yearly losses and acquisitions split by sector. I use five-year centered averages to make sectoral differences more legible. (Figures 4.3 and 4.4 show the yearly trends for the full sample.) Leaving aside differences across sectors, a comparison of these two figures highlights a general similarity between trends in losses and acquisitions. Both losses and acquisitions were low in the 1970s, rose during the 1980s and 1990s and aside from fluctuations have remained at roughly the same level for the past two decades. There are important differences: losses rose more sharply in the

1980s, and acquisitions fell in the early 1990s following the end of the 1980s takeover wave (Useem 1993; Zorn et al. 2004) before rising fastest during the dot-com boom. Yet both loss and acquisition rates rose in the late 20th century and have stabilized at levels that exceed their 1970s baseline.

[Insert Figures 4.1-4.4 about here (see pp.74-84)]

Turning to industry differences, the information and professional services sector stands out as showing the sharpest increase in both losses and acquisitions. This sector has had the highest rates of losses and acquisitions since the 1990s, and this exceptionalism was starkest during the height of the dot-com boom. The only sector that does not show an increase in losses is the finance, insurance and real estate (FIRE) sector, which, aside from the 2007-8 financial crisis, has had much lower rates of losses than other sectors since the late 1980s. The wholesale, transportation and warehousing sector has also shown only modest increases in loss and acquisition rates as both have been trending down in the past twenty years.

The market concentration trends in Figure 4.5 show that, on average, the top four firms in each industry (NAICS 3-digit) generate over half of the sales of public firms within the industry. Among publicly-traded US corporations, market concentration based on sales declined from the 1970s to the 1990s, when it reached a low point. Since then, sales have become more concentrated within industries, and since the mid-2000s market concentration has been higher than it ever was in the past fifty years. The general trend is the same whether concentration ratios or the Herfindahl-Hirschmann Index (HHI) are used to define market concentration. These trends align with previous research on market concentration among public US corporations (Kahle and Stulz 2017; Grullon et al. 2019). However, Autor et al. (2020) uses economic census data to show that concentration levels for all business enterprises were relatively stable in the 1980s and early 1990s. Because measures of market concentration since the mid-1990s are similar for public corporations and for the universe of US firms (Covarubias et al. 2020; Grullon et al. 2019), I focus on the 1995-2019 period for the remaining analyses of market concentration.

[Insert Figure 4.5 about here (see pp.74-84)]

Figure 4.6, which splits market concentration trends by sector, shows that concentration has increased sharply in almost every sector. The top panel of Figure 4.6 highlights that overall levels of concentration differ greatly across sectors: concentration is highest in the retail, social, and other services sector and lowest in the primary, utilities, and construction sector throughout the past 25 years. On the other hand, the bottom panel, which shows the cumulative percentage change in concentration for each industry since 1995, highlights that most sectors had a similarly large increase in concentration over this period. Concentration increased by at least 20% for all sectors except for manufacturing. And even manufacturing had an average concentration increase of more than 10% from 1995 to the early 2010s—a result that matches research using US census data (Autor et al. 2020)—before declining over the past few years.

[Insert Figure 4.6 here (see pp.74-84)]

These results provide suggestive evidence that increases in concentration over the past few decades years could have been driven by the relatively high levels of acquisitions and losses after 1995. The following two sections will provide a more careful examination of whether losses contributed to market concentration through acquisitions. Are firms with a recent loss more likely to get acquired? Do high rates of acquisitions and losses within industries drive market concentration to rise?

Do Losses Increase Acquisition Risk?

To begin analyzing the relationship between firm performance and acquisition risk, I estimate a logistic regression using a categorical profitability measure—return on assets using net income. Figure 4.7 shows the predicted probability of acquisition for each level of profitability. This analysis reveals two main findings. First, firms with very low or very high profits are least likely to get acquired. Acquisition rates for the top and bottom category of net-income ROA are approximately equal (about 3.3% of these firms are acquired) and lower compared to the other profit categories. Second, firms with small negative profits are the most likely to disappear through a merger: more than 5% of these firms get acquired. Furthermore, this acquisition rate is significantly higher than it is for firms with small positive profits. These results are similar if I use a finer-grained division of profitability into 20 bins. However, because firms on average tend to avoid losses in marginal situations where profits are close to zero (Burgstahler and Chuk 2017; Degeorge et al. 1999; Hayn 1995), this result cannot be interpreted as a regression-discontinuity estimate of the causal effect of losses (Caughy and Sekhon 2011). Still, this does provide initial evidence suggesting losses are a sign that a firm is a good candidate for being acquired.

[Insert Figure 4.7 here (see pp.74-84)]

Next, I model the effect of losses on acquisition risk using a series of logistic regressions that also control for additional measures of firm performance. Results presented in Table 4.2 give further evidence that losses increase the chance firms will be acquired. The first two models use a simple dichotomous measure of whether or not a firm had a yearly loss. In both models, the loss coefficient is strong and significant. (Note that coefficient differences cannot be easily interpreted across logistic regression models (Breen, Karlson, and Holm 2018; Mood 2010).) The odds a firm with a loss will be acquired is 17% (=exp(0.158)) higher than a similar firm with no loss. At the mean acquisition rate (4%), this translates into a 15% increase in the probability of being acquired. In supplementary analyses (see Figure 4.8), I find that this effect has strengthened somewhat over time. In particular, evidence remains strong that losses have encouraged acquisitions during the period when market concentration rose sharply.

[Insert Table 4.2 and Figure 4.8 here (see pp.74-84)]

Note that an alternative explanation for the high rates of acquisition in recent years is that market concentration has increased and the profitable firms that now dominate markets have the cash to buy more firms. Because I do not have data on the firms making these acquisitions, I cannot fully examine this alternate account. Yet I find that high concentration in a firm's primary industry does not make it more likely to be acquired; in fact, acquisitions are more rare in highly concentrated markets.

Model 3 considers an alternate measure of losses based on the count of quarterly losses in the fiscal year. Firms with at least one quarterly loss are more likely to be acquired than those with no losses in the prior year. Yet acquisition rates are similar for firms with only one quarterly losses compared to those with two or more, suggesting that a single loss sends a particularly strong signal that a firm is a good candidate for being acquired. Finally, Model 4 shows that a single quarterly loss without a yearly loss is enough to increase the chance a firm is acquired, but a yearly loss gives an additional boost to this acquisition risk. (The coefficient for the difference between a quarterly loss and a yearly loss is statistically significant at the $p<0.05$ level.)

In supplementary analyses, I analyze how these results differ across sectors. (See Table 4.3.) By interacting sector with the loss variable in a linear probability model that mimics Model

4 but allows for interpretable interaction terms (Breen, Karlson, and Holm 2018; Mood 2010), I find that all sectors had a relatively similar loss effect, but the information and professional services sector had a slightly higher effect than other sectors. In particular, I found that (1) all sectors except wholesale, transportation and warehousing have significant loss effects and (2) the only significant difference between sectors is that the yearly-loss coefficient for the information and professional services sector is higher than it is for the manufacturing sector.

[Insert Table 4.3 here (see pp.74-84)]

Do Acquisitions and Losses Drive Changes in Market Concentration?

Finally, I turn to the industry-level dataset to examine how acquisition and loss rates have shaped the increase in market concentration since the mid-1990s. Results in Table 4.3 show that acquisitions within an industry are associated with increased sales concentration, but losses are not. Models 1 and 2 examine changes in market concentration for the full sample period, and Model 3 restricts attention to the post-1995 period of increased concentration. All three models show similar results. High acquisition rates in an industry predict an increase in market concentration: a ten percentage point increase in an industry's acquisition rates is associated with a three percentage points rise in the year-to-year change in the share of sales produced by the industry's four largest firms. In contrast, loss rates do not have a significant effect on changes in market concentration. While removing the acquisition variable from models does increase the loss coefficient, this coefficient remains not statistically significant in regressions focused on the post-1995 period (results not shown). These results are consistent with the argument that today's high losses have contributed to increased market concentration primarily by encouraging acquisitions.

[Insert Table 4.3 here (see pp.74-84)]

Table 4.4 also shows how these results differ across sectors. Again, the main finding is that the effects are roughly similar across sectors but the information and professional services sector is a high outlier. By interacting sector with the acquisition variable in Model 3, I find that (1) all sectors except FIRE have significant acquisition effects and (2) the only significant difference between sectors is that the acquisition coefficient for the information and professional services sector is higher than it is for the retail, social and other services sector.

[Insert Table 4.4 here (see pp.74-84)]

Discussion

The increased concentration of sales within fewer and fewer firms has received intense scholarly attention over the past few years (Autor et al. 2020; Grullon et al. 2019; Kahle and Stulz 2017; Naidu, Posner and Weyl 2018; Philippon 2019), and the public and political will to restrict the market power of large corporations seems to be rising, as recent antitrust cases against big technology companies showing rare bipartisan support demonstrate (Kang 2021; Levin and Downes 2023; McKinnon 2020). However, our understanding of the sources of this rising market concentration has been hampered by an overemphasis on the strategies of large, profitable firms. While a focus on star firms provides a good *description* of rising market power, a full *explanation* of this problem requires looking at corporate weakness in addition to strength.

This chapter asks how the low-profit spells common at a wide swathe of public US corporations have contributed to rising market concentration among these firms.

By examining public US corporations since the early 1970s, I find evidence that losses contribute to increased market concentration by encouraging acquisitions. The first major finding of this chapter is that firms with a prior-year loss were more likely to be acquired than similar firms with no loss. My analysis allows me to separate this result from the general nonlinear relationship between firm performance and acquisition risk, since both very low and very high performers are least likely to be acquired. These results clarify ambiguous results in prior literature, which has argued both that acquisitions tend to target undervalued, poorly-run firms and that in general higher performance is associated with increased risk of being acquired (Davis and Stout 1992; Doidge, Karolyi and Stulz 2017; Jovanovic and Rousseau 2002; Shleifer and Vishny 2003; Wheelock and Wilson 2000). Losses indicate firms that are good candidates to be acquisition targets.

The second main result clarifies the significance of this link between losses and acquisitions for rising market concentration. I find that high acquisitions within an industry are associated with increases in market concentration. In contrast, I find no evidence that losses drive increased sales concentration within industries. These results hold both for the full sample period and for the post-1995 period when market concentration was rising similarly for public and private firms, both for HHI and top-4 ratio measures of concentration, and whether or not I exclude multi-segment firms from the sample. Altogether, these findings suggest that today's high losses have increased market concentration among public US corporations by encouraging acquisitions.

This chapter contributes to our understanding of rising market concentration by examining the flip side of monopoly. It is one of the first to connect rising market concentration to two signs of distress at public US corporations: high losses and a declining number of public firms. Losses began rising in the 1980s, peaked around the turn of the century, and have remained high despite fluctuations during the 21st century. A conventional narrative about these losses is that they are the result of US corporations adapting to an economy where high investment (especially in intangible assets) and growth are paramount for public firms, and that investors are willing to be patient about profit generation (Eisen 2018; Govindarajan et al. 2018). Successful firms like Amazon, Facebook and Tesla, which in their early phases grew rapidly without turning a profit, have reinforced this benign view that today's high losses are a sign of potential dynamism rather than a cause for concern.

While high loss rates might have been a sign of this type of economic dynamism during the 1990s (Covarrubias et al. 2020; Philippon 2019), continued high losses after 2000 have likely contributed to increased stratification among public corporations (Kahle and Stulz 2017). This chapter undermines the benign interpretation of high loss rates by connecting them to the declining number of public US corporations. Aside from falling IPOs, the other major driver of this disappearance of public firms is increased acquisitions. This chapter's finding that losses encourage these acquisitions suggests that widespread losses among public corporations might be weakening competition in the United States.

More than any other industry, this transition from 1990s dynamism to recent monopolization is most obvious in the technology sector. This is reflected in the results presented in this chapter, which show information and technology firms to be an outlier with particularly high levels of losses and acquisitions and tight linkages among losses, acquisitions, and rising market concentration within the industry. While successful technology firms like

Amazon and Facebook managed to convert years of losses into market dominance, the modal consequence of losses in this industry (as in others) is an increased chance of being acquired. Again, this might not be seen as a failure by the shareholders who reap enormous economic benefits from getting bought out, but the overall effect of these patterns is an industry that is less dynamic. At a time of growing concern about the technology sector—not only about the growing market power of large tech firms (Kang 2021; McKinnon 2020; Wu 2018) but also about the negative effects of their products on individuals and society (Burrell and Fourcade 2021)—this chapter's results provides further evidence that this scrutiny is reasonable. Yet this scrutiny should extend beyond the most powerful firms to include monitoring the prevalence of firms consistently struggling to turn a profit.

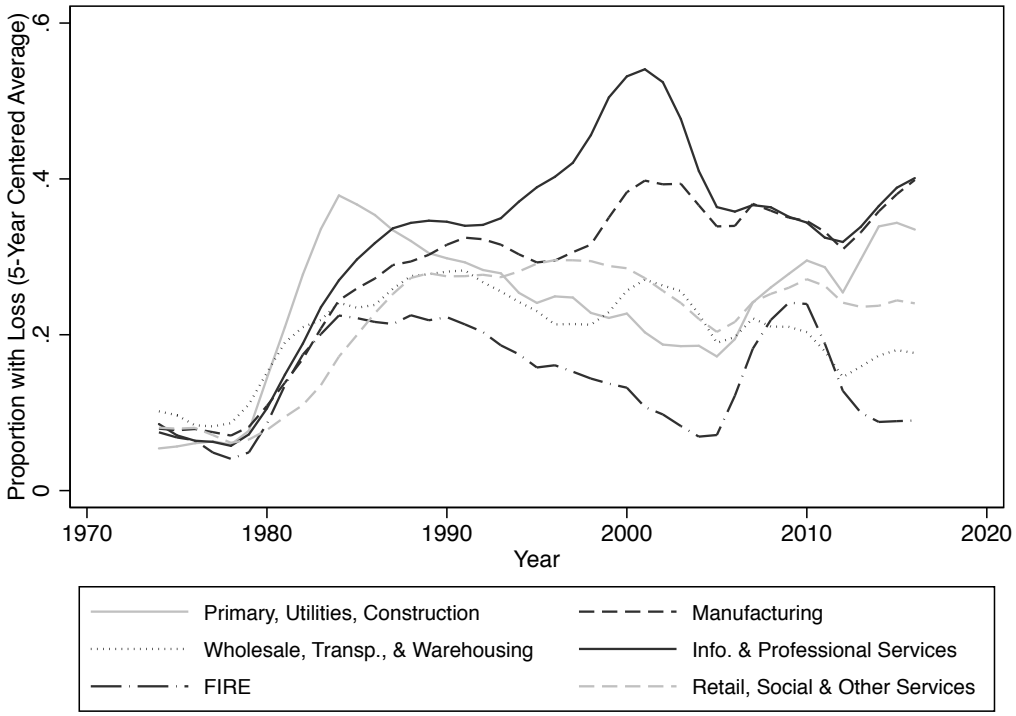
By shifting the focus from the profitable firms that dominate industries to the more prevalent profitability struggles that fuel star firms' dominance, this chapter sheds light on the configuration of structural supports for elevated market power in the US economy today. A general implication of this chapter is that more research and policy attention should be directed towards low-profit spells and how to best measure firm performance. Diagnostic measures of trends in losses or negative cash flows can identify industries where competition is weakening and thereby help focus antitrust efforts. Another promising path forward is revisiting accounting rules that treat intangible investments in R&D as expenses rather than assets, which distorts accounting profit measures for firms that prioritize important but less concrete investments in future growth (Lev 2019). Careful attention to the costs of capitalism, particularly to cases where the costs of generating economic output seems to outweigh the gains, is required for gauging the true strength of the economy.

Table 4.1. Firm and Industry Characteristics.

	Mean	SD	Min	Max
Firm characteristics (N = 149,412 firm-year observations)				
Firm is Acquired	0.04	0.20	0.00	1.00
Yearly Loss	0.27	0.44	0.00	1.00
Quarterly Loss	0.44	0.50	0.00	1.00
Operating Return on Assets (industry-adjusted)	-0.01	0.17	-0.77	0.42
Stock Return (industry-adjusted)	0.10	0.54	-0.83	2.68
Revenue Percentage Change	0.14	0.48	-0.76	3.45
Number of Employees (Logged)	1.18	1.18	0.00	7.74
Property, Plant and Equipment (Logged)	4.35	2.33	0.00	12.89
R&D Expense (Logged)	1.21	1.82	0.00	10.32
Sectors (defined using two-digit NAICS codes as follows):				
Primary, Utilities and Construction (11, 21-23)	0.09			
Manufacturing (31-33)	0.46			
Wholesale, Transportation and Warehousing (42, 48-49)	0.06			
Information and Professional Services (51, 54, 56)	0.14			
FIRE - Finance, Insurance and Real Estate (52-53)	0.13			
Retail, Social and Other Services (44-45, 61-62, 71-72, 81)	0.11			
Industry characteristics (N = 3,151 industry-year observations)				
Change in Top-4 Concentration Ratio	0.00	0.04	-0.49	0.48
New lists in Prior Year	0.05	0.05	0.00	0.50

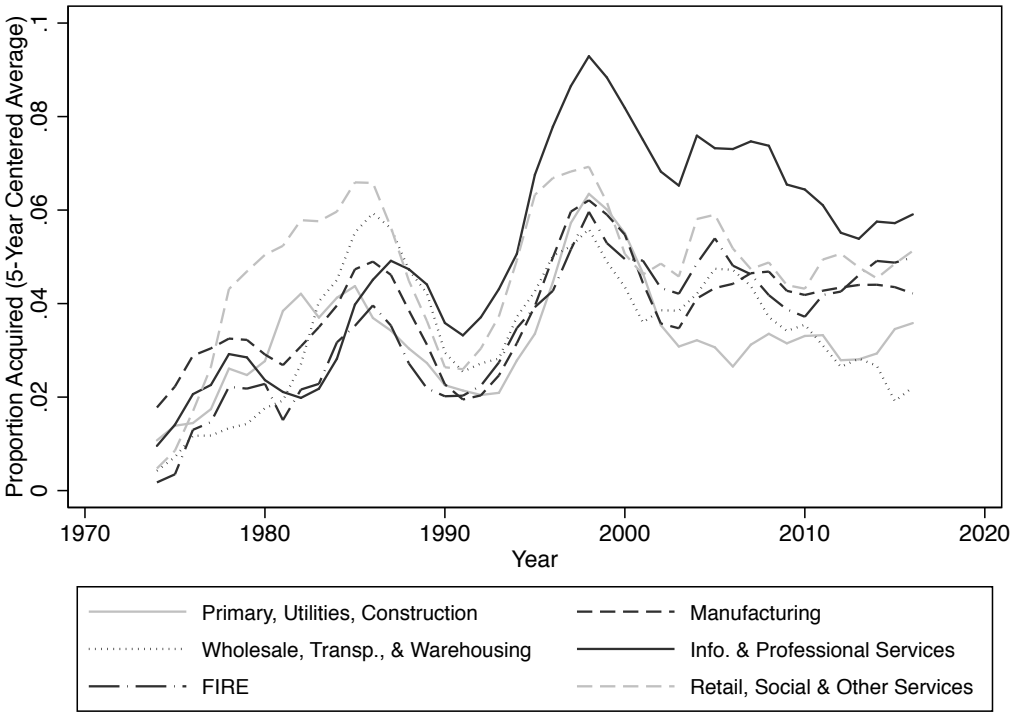
Note: Publicly-traded US corporations, 1973-2019. (Source: Compustat-CRSP merged file.) Stock return, operating ROA, and revenue change are winsorized at 1st and 99th percentiles; results are similar without this change. Industries are defined using NAICS three-digit codes. Industry characteristics are weighted by each industry's yearly sales. Industry-level regressions also include averages of firm characteristics.

Figure 4.1. Trends in Yearly Losses, Split by Sector.



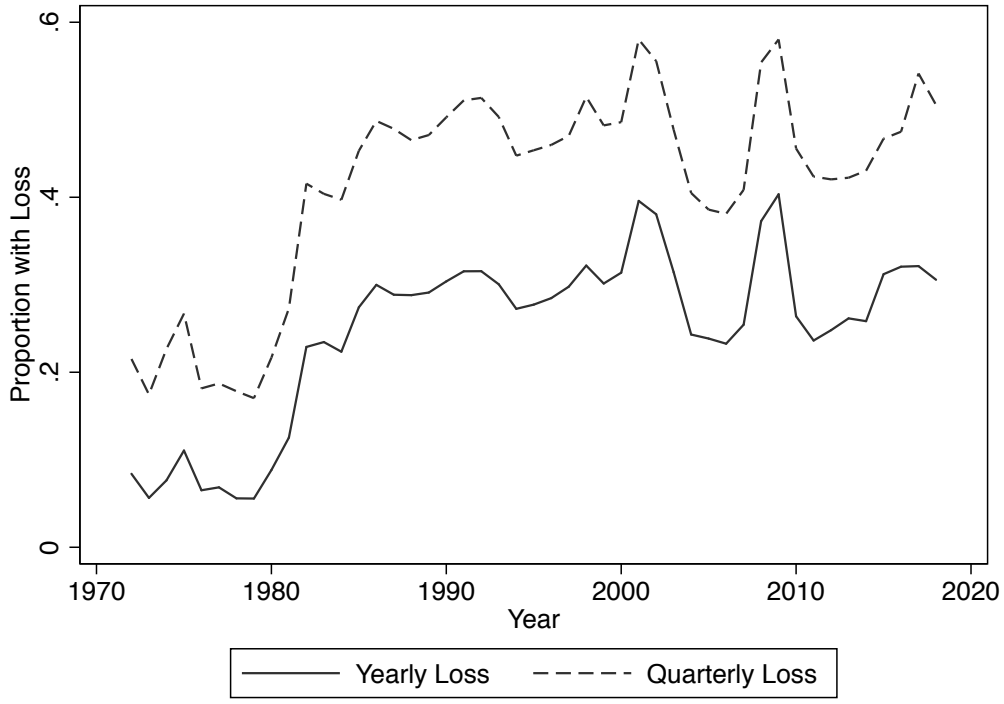
Note: N = 149,412 firm-year observations. Publicly-traded US corporations, 1973-2019. Five-year centered averages of sectoral trends.

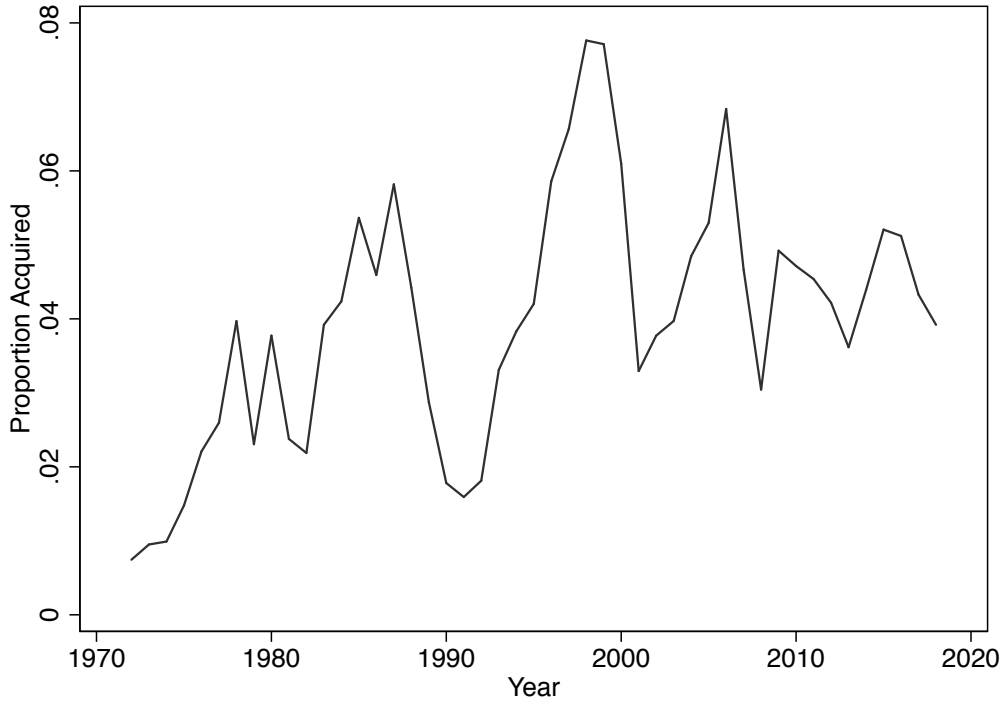
Figure 4.2. Trends in Acquisitions, Split by Sector.



Note: N = 149,412 firm-year observations. Publicly-traded US corporations, 1973-2019. Five-year centered averages of sectoral trends.

Figures 4.3 and 4.4. Yearly Trends in Losses and Acquisitions for Full Sample.



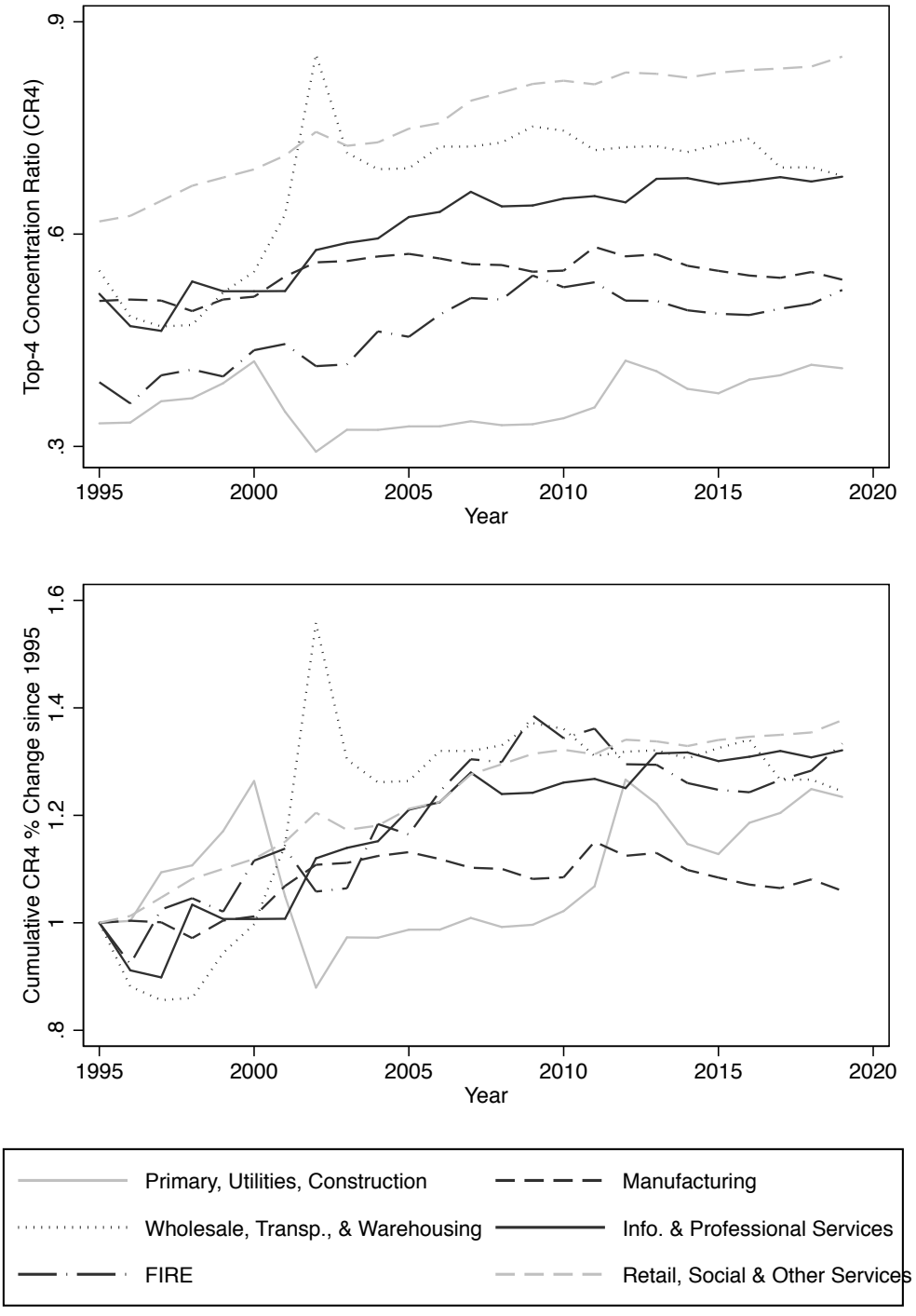


Note: N = 149,412 firm-year observations. Publicly-traded US corporations, 1973-2019.

Figure 4.5. Trends in Sales Concentration Within Industries.

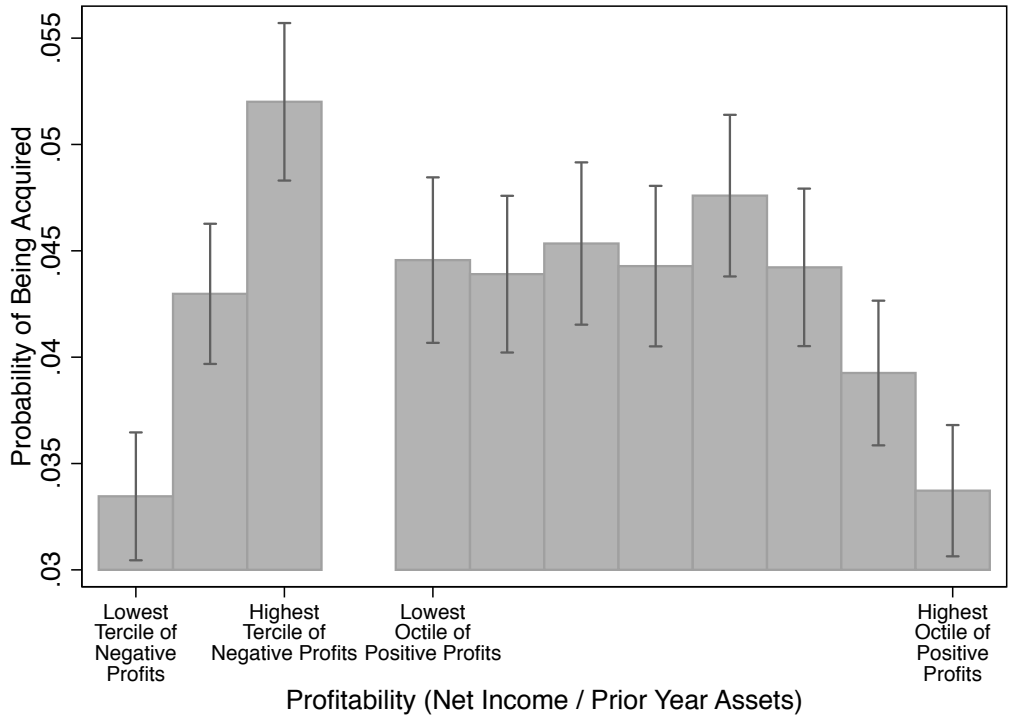
Note: N = 3,151 industry-year observations. Publicly-traded US corporations grouped by three-digit NAICS codes, 1973-2019. Both measures of market concentration are based on sales. Results weighted by an industry's share of sales each year.

Figure 4.6. Industry-Level Trends in Market Concentration, Split by Sector.



Note: N = 3,151 industry-year observations. Publicly-traded US corporations grouped by three-digit NAICS codes, 1973-2019. Both measures of market concentration are based on sales. Results weighted by an industry's share of yearly sales within each sector.

Figure 4.7. Predicted Probabilities of Being Acquired for Different Levels of Profitability.



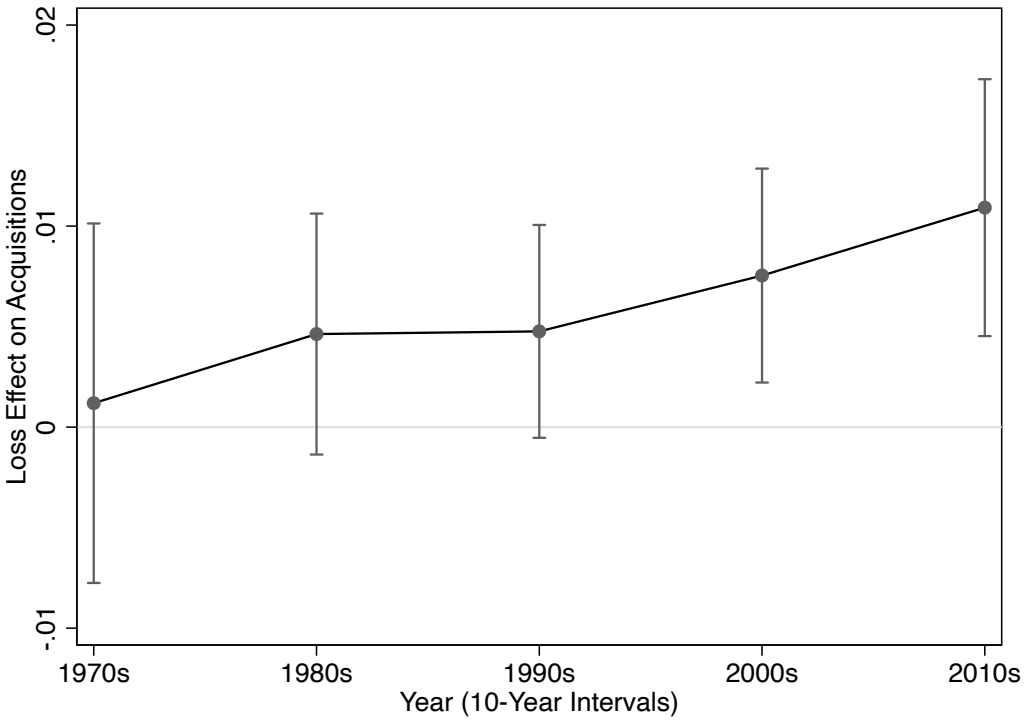
Note: N = 149,412 firm-year observations. Publicly-traded US corporations, 1973-2019. Predicted probabilities from logistic regression modeling acquisition risk. Terciles of negative profits and octiles of positive profits were chosen to make categories of approximately equal size. The regression controls for number of employees (logged), percent change in revenue, fixed capital (logged property, plant and equipment), R&D expense (logged), industry-level market concentration (top-4 concentration ratio), and indicator variables for industry (NAICS 3-digit) and year. Confidence intervals (95%) are based on standard errors clustered at the level of the firm.

Table 4.2. Logistic Regressions Modeling Losses Predicting Acquisition Risk.

	M1	M2	M3	M4
Yearly Loss	0.184***	0.158***		
	(0.041)	(0.041)		
Quarterly Losses				
(0)			-	
1			0.165***	
			(0.039)	
2+			0.138**	
			(0.043)	
Quarterly and Yearly Losses				
(No loss)				-
Quarterly loss only				0.119**
				(0.039)
Yearly loss				0.214***
				(0.045)
Operating Return on Assets				
(Lowest Quintile)	-	-	-	-
2nd Quintile	0.304***	0.373***	0.324***	0.369***
	(0.046)	(0.047)	(0.046)	(0.047)
3rd Quintile	0.176**	0.284***	0.240***	0.299***
	(0.055)	(0.057)	(0.055)	(0.056)
4th Quintile	0.215***	0.346***	0.311***	0.372***
	(0.053)	(0.054)	(0.053)	(0.054)
Highest Quintile	0.082	0.204***	0.178**	0.241***
	(0.055)	(0.056)	(0.056)	(0.057)
Stock Return	0.001	0.002	0.002	0.005
	(0.023)	(0.023)	(0.023)	(0.023)
Revenue Percentage Change		-0.221***	-0.223***	-0.222***
		(0.030)	(0.030)	(0.030)
Number of Employees (Logged)		-0.296***	-0.295***	-0.295***
		(0.025)	(0.025)	(0.025)
Property, Plant and Equipment (Logged)		0.048***	0.049***	0.049***
		(0.013)	(0.013)	(0.013)
R&D Expense (Logged)		0.048***	0.049***	0.048***
		(0.011)	(0.011)	(0.011)
Industry-level Sales Concentration		-0.477**	-0.477**	-0.484**
		(0.149)	(0.150)	(0.149)
Industry Fixed Effects	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y
Number of Observations	149,412	149,412	149,412	149,412

Note: Publicly-traded US corporations, 1973-2019. Logistic regressions predicting whether firm is acquired. Industry-level market concentration is defined as the proportion of revenue produced by the top 4 firms. Regressions also control for industry (NAICS 3-digit) and year indicator variables. Market concentration is defined as the proportion of revenue produced by the top four firms in an industry. Standard errors, clustered at the level of the firm, are in parentheses.
* p<0.05; ** p<0.01; *** p<0.001 (two-tailed tests)

Figure 4.8. Regression Coefficients of Losses Predicting Acquisition Risk over Time.



Note: Publicly-traded US corporations grouped by three-digit NAICS codes, 1973-2019. Figure shows loss coefficients from a linear probability model predicting acquisitions on firm-level data. This regression is identical to Model 2 of Table 4.2, except (1) it is a linear probability model rather than a logistic regression model and (2) a 10-year period indicator variable is interacted with losses. Confidence intervals (95%) are based on standard errors clustered at the level of the firm

Table 4.3. Losses Predicting Acquisition Risk and Industry Acquisition Rates Predicting Changes in Market Concentration, Split by Sector.

	Primary, Utilities, & Construction	Manufacturing	Wholesale, Transportation, & Warehousing	Information & Prof. Services	FIRE	Retail, Social & Other Services
Panel A: Linear Probability Models Predicting Acquisitions (N=149,412)						
Quarterly and Yearly Losses						
(No loss)	-	-	-	-	-	-
Quarterly loss only	-0.002	0.005*	0.009	0.008	0.006	0.004
	(0.004)	(0.002)	(0.005)	(0.005)	(0.005)	(0.004)
Yearly loss	0.015***	0.006**	0.009	0.018***	0.012*	0.013**
	(0.004)	(0.002)	(0.005)	(0.004)	(0.005)	(0.005)
Panel B: OLS Models Predicting Change in Concentration (N = 1,724)						
Acquisition Rate	0.390***	0.406**	0.288*	0.467***	0.235	0.195***
	(0.090)	(0.150)	(0.119)	(0.084)	(0.197)	(0.046)

Note: Publicly-traded US corporations grouped by three-digit NAICS codes, 1973-2019. Panel A shows the loss coefficient of a linear probability model predicting acquisitions on firm-level data. This regression is identical to Model 4 of Table 4.2, except (1) it is a linear probability model rather than a logistic regression model and (2) a sector indicator variable is interacted with losses. Panel B shows the acquisition coefficient of an ordinary least squares regressions predicting change in market concentration from prior year. This regression is identical to Model 3 of Table 4.4 (which is restricted to the post-1995 period), except a sector indicator variable is interacted with acquisitions. Standard errors, clustered at the level of the firm (Panel A) or industry (Panel B), are in parentheses. * p<0.05; ** p<0.01; *** p<0.001 (two-tailed tests)

Table 4.4. Industry-Level OLS Regressions Modeling Acquisitions and Losses Predicting Changes in Market Concentration.

	M1	M2	M3
Acquisition Rate	0.303***	0.314***	0.313***
	(0.062)	(0.062)	(0.074)
Yearly Loss Rate		0.01	0.006
		(0.006)	(0.005)
Avg. Operating Return on Assets		0.05	0.018
		(0.037)	(0.036)
Avg. Stock Return		0.019*	0.026*
		(0.009)	(0.011)
Avg. Revenue Percentage Change		-0.004	-0.009
		(0.010)	(0.011)
Avg. Number of Employees (Logged)		0.002	0.001
		(0.001)	(0.001)
Avg. Property, Plant and Equipment (Logged)		-0.001	0.000
		(0.001)	(0.001)
Avg. R&D Expense (Logged)		0.001	-0.001
		(0.001)	(0.001)
Prior Year New List Rate		-0.098**	-0.139***
		(0.034)	(0.040)
Year Fixed Effects	Y	Y	Y
Restrict Post-1995	N	N	Y
Number of Observations	3,160	3,160	1,724

Note: Ordinary least squares regressions predicting change in market concentration from prior year for US industries, 1973-2019, defined using three-digit NAICS codes for publicly traded US corporations. Industry-year variables are averaged from firm-level data. Concentration is defined as the proportion of revenue produced by the top four firms in an industry. Model 3 restricts attention to the 1995-2019 period when concentration trends at public firms align with those for all US businesses. Results weighted by an industry's share of sales each year. Regressions also control for year indicator variables. Standard errors, clustered at the level of the industry, are in parentheses. * p<0.05; ** p<0.01; *** p<0.001 (two-tailed tests).

5. CONCLUSION

In this dissertation, I have argued that historically high losses—instances of negative net income—at public US corporations since the 1990s are a problem that deserve closer scholarly and policy attention. I presented evidence that rising losses in the late 20th century and high loss rates since then at public US corporations have contributed to increases in outside CEO hiring and acquisitions, two important signs and drivers of what I have called the corporation-as-portfolio perspective. Both hiring CEOs from outside the firm rather than promoting from within and a willingness to buy or sell firms suggest that corporations are better conceptualized as portfolios of exchangeable assets rather than organic wholes meant to generate value in the long run. Losses signal that a firm is not a strong candidate for long-term locked-in investments, that a corporation's center might not hold. This means that understanding why losses are so high at public US corporations—the average yearly loss rate has been over 33% since 1985 and higher in recent years—and which industries have particularly high loss rates is important for gauging the health of the American economy.

Recent economic developments in the Unites States since my analyses ended have only strengthened this argument. First, outside CEO succession and acquisition rates remain historically elevated. Outside CEO hiring increased at US companies between 2015 and 2019 (Stoll 2019). Merger activity in the US, after a steep increase during the COVID-19 pandemic and a fall in response to high inflation and rising interest rates during 2022, is still historically high; for example, deal volume is now at roughly the same level as any pre-pandemic peak (PwC 2022). The fact that corporate strategies based on the corporation-as-portfolio perspective—not just outside CEO hires and acquisitions, but also stock buybacks and other commitments to shareholder primacy (Bebchuk and Tallarita 2022; Megaw 2022; S&P Global 2022)—show no signs of decline suggests that asset value appreciation rather than the long-term production of economic value continues to be the focus of corporate boards and managers.

Furthermore, interest rates increases beginning in 2022 in response to high inflation have placed renewed attention on corporate profits and made investors less tolerant of low-profit spells. When interest rates are low, investors searching for yield are willing to make risky bets on firms with high growth but low profits. But today's higher interest rates encourage investors to put more pressure on firms to generate profits in the near-term in order to compete with relatively safe securities that now have higher yields. This high hurdle rate has already hurt the stock prices of tech firms, which are more likely in general to prioritize growth over profitability and have had higher loss rates (see Chapter 4).

My point is that high interest rates today make the widespread losses at public US corporations seem like a bigger problem. The question is how this will translate into improved monitoring and measurement of losses, and in turn whether this attention to losses will encourage boards, managers, regulators, and other powerful corporate stakeholders to push firms towards organic growth and long-term value generation rather than the addition and subtraction of assets to maximize short-term returns. On the first question of monitoring and measuring losses better, there are a couple of different options. Simply measuring and publicizing where in the economy loss rates are high or increasing would be relatively simple improvement. This would allow policy makers, academics, journalists, and others to easily assess which industries are more fragile or less competitive—recall that Chapter 4 showed evidence that losses can contribute to increased market concentration through acquisitions. Another potential avenue for

scrutinizing losses more closely involves reassessing accounting rules for measuring the costs of corporate investments. A major inconsistency in current accounting rules is that spending on less tangible assets like R&D are expensed rather than treated as a capital asset whose cost is amortized across its expected lifetime. This increases the volatility of costs, and hence profits, for firms with high intangible assets (Govindarajan, Rajgopal, and Srivastava 2018; Lev 2019).

The second question focuses on the consequences of increased attention to losses. Potential answers here are more speculative of course because they are more hypothetical. It is possible that better accounting for the costs of intangible investments could both make losses less common and also reverse the de-stigmatization of losses that began during the 1990s dot-com boom (Dobbin and Zorn 2005). Increased scholarly and media attention to losses could also potentially increase the stigma of losses directly by drawing attention to the underlying problems and negative consequences faced by firms failing to turn a profit. Finally, identifying industries with high or rising losses might help direct the government's limited resources for antitrust enforcement towards parts of the economy where market concentration might be most likely to increase.

This point about market concentration highlights that widespread corporate losses not only weaken the American economy by reducing incentives to make locked-in investments aimed at long-term value generation, but they also hurt economic dynamism and competition by increasing inequality between US corporations. The easiest way to reconcile how losses are historically high in a period where aggregate corporate profits are rising, both in absolute terms and relative to overall national income, is to understand that elevated loss rates since 2000 have been increasingly driven by firms facing persistent losses. Today's high losses are another sign of rising corporate stratification. While rising losses at large corporations in the 1980s and 1990s were due to increased profit volatility within all firms, continued high loss rates after 2000 were due to increased polarization between successful firms and firms that consistently struggled to turn a profit (see Appendix C). This finding aligns with research showing that competition among the largest corporations was sharpest in the 1990s (Covarrubias and Philippon; Philippon), but in the 21st century profits have concentrated more and more among a small number of firms (Kahle and Stulz).

Having discussed the current relevance of the broad concerns of this dissertation—the corporation-as-portfolio perspective, strategies like outside CEO hires and acquisitions that promote this conception of corporations, and how these strategies are encouraged by high rates of losses at public US corporations—I turn now to a more detailed summary of the findings and implications of each chapter.

Chapters 2 and 3 focused on outside CEO succession at large public corporations. In Chapter 2, I examine how losses and other measures of firm performance predict outside CEO hiring at 317 of the largest public US corporations, defined as those ranked in the top 110 by revenue at least once between 1955 and 2010 based on 5-year snapshots. A corporation's value became equated with its stock price not only because shareholders gained corporate control but also because managers' judgments lost legitimacy, and outside CEO succession is a stark example of the declining power of organizational insiders. Defined as those who were hired directly from outside the firm, I find that outside CEOs were rare at large corporations prior to 1990. Outside hires rose after the early-1990s recession, spiking to 19% of new CEOs in 1991 and 25% in 1993. While the outside CEO hire rate has fluctuated since then, it has remained substantially higher than pre-1990 levels. Outside CEOs were roughly 5% of new CEOs hired prior to 1990 and 19% of new CEOs hired between 1990 and 2015. Although they are still far

from the majority of CEO transitions (Jung 2014), outside CEO hires are now a normal business practice at large American corporations (Khurana 2002).

Why did organizational insiders lose power in the late 20th century? The goal of the chapter was to bridge the gap between two important but disconnected lines of research on American corporations—one focused on the shareholder value movement, the other on changes in corporate profits—to trace rising outside CEO hires to a previously undocumented rise in low-profit spells at large corporations. I find that, despite increased median profits, these corporations have become more likely to fail to turn a profit since the 1970s. These losses encouraged subsequent outside CEO hiring through the 1990s, and rising losses help explain 30% of the late-20th-century increase in outside hires. After 2000, outside CEO hires remained common and became primarily a response to low stock return, another example of the wider shift towards shareholder primacy (Dobbin and Frank 2005; Fligstein and Goldstein 2022). Rising losses in the 1980s-1990s pressed large corporations to frequently change course and increased demand for outsiders meant to promote this flexibility (Boltanski and Chiapello 2005).

These results extend the well-documented effect of poor profitability on outside CEO hiring to provide one of the first estimates of how changing corporate profits have reshaped corporate governance. I find that it is not enough to examine changing central tendency measures of corporate profitability; losses rose at large U.S. corporations since the 1970s despite an increase in average profits. The boundary between profit and loss has symbolic weight (Burgstahler and Chuk 2017; Hayn 1995; Ghosh and Wang 2019). Documenting how rising losses drove other corporate strategies prioritizing short-term stakeholders could shed further light on the enduring power of the shareholder value orientation and the long-term devaluation of organizational insiders. Another potential avenue for future research relates to the self-reinforcing character of high-risk, high-reward corporate strategies during the shareholder value era. Another potential avenue for future research relates to the self-reinforcing character of high-risk, high-reward corporate strategies during the shareholder value era. This chapter shows that low-profit spells undermined insiders' expertise and commitment and therefore empowered shorter-term corporate stakeholders with higher appetite for risk (Dobbin and Zorn 2005; Dobbin and Jung 2010). Future work could turn further upstream to examine how high-risk strategies—like debt, de-diversification, or CEO stock-option pay (Dobbin and Jung 2010)—encouraged these losses in the first place.

Chapter 3 turns to the cultural understandings and justifications that accompanied this rise in outside CEO hires at large US corporations. How did the business media explain a company passing on its own executives to select a new CEO with no prior experience at the firm, and how did these explanations change as outside CEO succession shifted from rare event to routine practice at large US corporations? To better understand this devaluation of organizational insiders and expertise, I examined news articles announcing CEO hires at 150 of the largest public US corporations by revenue between 1950 and 2015 (here defined as those ranked in the top 50 by revenue at least once based on 5-year snapshots 1955-2010). I used two supervised machine learning models commonly used for text analysis—support vector machines and random forests—to predict whether a new CEO was hired from outside or inside the firm based on words and phrases (n-grams) from the announcement articles. After evaluating which model and hyperparameters yielded the best predictions, I used feature importance weights from models trained on articles from three distinct periods—1950-1989, 1990-2000, and 2001-2015—to examine which words and phrases characterized outside CEO hires in different periods. This

allowed me to measure how descriptions of outside CEO succession changed as outside hiring rose at this sample of large firms.

My investigation of CEO hire announcements at large US corporations yields three main findings about the cultural change that accompanied the rise of outside CEOs at these firms. First, while turnover is high in the words and phrases that characterize outside CEOs in the three time periods, the purpose of outside CEO succession presented in these articles is conceptually consistent. Outside CEOs were hired to be strong managers and help improve poor performing firms. Second, this cultural stability was the foundation for abrupt cultural change when large corporations began facing more low-profit spells in the early 1990s. During the 1990s, when outside succession was rising sharply at these firms, outside hire announcements became longer, more distinctive, and more focused on two primary outside constituents: customers and investors. Finally, the novelty of outside CEO hiring seemed to wear off after 2000, and outside hire announcement focused less on outside CEOs' status and more on their concrete work experiences. Altogether, I find stability, transformation, and rationalization in the language used to describe outside CEO hires as they shifted from rare event to routine strategy at large US corporations.

These results help connects two different accounts of the cultural change that contributed to the devaluation of organizational insiders. On the one hand is research emphasizing the rise of the shareholder value conception of the firm and the search for charismatic CEOs during the 1990s (Dobbin and Zorn 2005; Fligstein 2001; Khurana 2002; Useem 1993). On the other hand is a literature in financial economics that attributes increased executive mobility to a rising demand for transferable rather than firm-specific skills. My systematic examination of CEO announcements since the 1950s allows me to show that detailed attention to outside CEOs' transferable skills emerged in response to dramatic events at large corporations in the 1980s and 1990s (Dobbin and Zorn 2005; Khurana 2002; Useem 1993). Outside CEOs became more common as losses increased at large firms in the early 1990s (see Appendix B), and after an initial expansion in the 1990s of language focused on the status of outside CEOs and the external pressures they faced, descriptions of outside hires became rationalized and more attentive to the concrete experiences that make an outside CEO qualified for the job.

Together, Chapters 2 and 3 build in several important ways on one of the most comprehensive and insightful sociological studies of changing CEO succession and corporate governance at US corporations, Khurana's (2002) account of the 1990s rise of the charismatic CEO. Khurana argued that external pressures—increased institutional investor ownership, greater media and analyst scrutiny, and the growth of executive search firms—made boards more vigilant about poor managerial performance and more willing to hire an outside CEO. Yet he does not try to connect rising outside CEO succession to long-tern shifts in corporate profits. I add to Khurana's account by quantifying how increased failure to turn a profit contributed to the rising demand for outside CEOs as corporate saviors. Khurana also emphasizes a sharp cultural shift, as the model of a good CEO shifted from one centered on firm-specific knowledge and experience to one focused on dynamic, disruptive, network-building "leadership" (Khurana 2002). Yet my examination of changing descriptions of CEO hires before, during, and after this crucial decade shows important points of cultural continuity in outside CEO hire descriptions from the 1950s through the 1990s. Throughout this period, outside CEO hires were described as strong leaders connected to the board whose hire was relatively newsworthy. Broadly, this dissertation shows that, while conceptions of corporations, their purpose, and how to best manage them did change significantly at the end of the 20th century, the devaluation of

organizational insiders was also driven by a stable cultural ideal—the outside executive who can take a strong hand in guiding a struggling firm—that became more salient as corporations struggled with more and more low-profit spells.

In Chapter 4, I broaden my scope to all public US corporations to investigate how rising losses contributed to another sign of the corporation-as-portfolio perspective: high rates of acquisitions since the late 1990s. These acquisitions have also been a major contributor to increased sales concentration in US industries over this period (Doidge, Karolyi and Stulz 2017). Research on this rising market concentration tends to focus on the strategies of high-profit star firms (Andrews, Criscuolo, and Gal 2016; Autor et al. 2020; De Loecker, Eeckhout, and Unger 2020; Philippon 2019). Yet economic and organizational sociology have long argued that profitability crises and organizational death are key drivers of economic change (Carroll and Hannan 2000; Fligstein 2001; Gordon, Edwards and Reich 1982; Grant 1995), and I draw on these perspectives to analyze the flip side of rising monopoly power in the United States. To do this, I connect rising market concentration to not just historically high rates of losses but also a nearly 50% decline in the number of public US corporations over the past twenty-five years (Davis 2016; Kahle and Stulz 2017). I examine how today's high losses could have contributed to rising market concentration through increased acquisitions, a primary driver of the falling number of public firms.

Using data on the universe of publicly-traded US corporations between 1973 and 2019, I show that losses contribute to increased market concentration by encouraging acquisitions. The first major finding of this chapter is that firms with a prior-year loss were more likely to be acquired than similar firms with no loss. My analysis allows me to separate this result from the general nonlinear relationship between firm performance and acquisition risk, since both very low and very high performers are least likely to be acquired. These results clarify ambiguous results in prior literature, which has argued both that acquisitions tend to target poorly-run firms and that in general higher performance is associated with increased acquisition risk (Davis and Stout 1992; Doidge, Karolyi and Stulz 2017; Jovanovic and Rousseau 2002; Shleifer and Vishny 2003; Wheelock and Wilson 2000). Losses indicate firms that are likely candidates for being acquired. The second main result clarifies the significance of this link between losses and acquisitions for rising market concentration. I find that high acquisitions within an industry increase market concentration, but losses have no such effect. These results hold both for the full sample period and for the post-1995 period when market concentration was rising similarly for public and private firms. These findings suggest that today's high losses have contributed to market concentration among public US corporations primarily by encouraging acquisitions.

These results demonstrate that corporate weakness and not just strength have contributed to rising market concentration. Public US corporations have routinely failed to turn a profit in past decades, and we should be clear about the negative consequences of this: they encourage firms to be acquired, and this has increased market concentration among public US firms. More than any other industry, this transition from 1990s dynamism to recent monopolization is most obvious in the technology sector. This is reflected in the results presented in this chapter, which show information and technology firms to be an outlier with particularly high levels of losses and acquisitions and tight linkages among losses, acquisitions, and rising market concentration within the industry. While successful technology firms like Amazon and Facebook managed to convert years of losses into market dominance, the modal consequence of losses in this industry (as in others) is an increased chance of being acquired. Again, this might not be seen as a failure by the shareholders who reap enormous economic benefits from getting bought out, but the

overall effect of these patterns is an industry that is less dynamic. At a time of growing concern about the technology sector—not only about the growing market power of large tech firms (Kang 2021; McKinnon 2020; Wu 2018) but also about the negative effects of their products on individuals and society (Burrell and Fourcade 2021)—this chapter' results provides further evidence that this scrutiny is reasonable. Yet attention should extend beyond the most powerful firms to include monitoring the prevalence of firms consistently struggling to turn a profit.

Overall, this dissertation draws on economic sociology, organizational theory, and literature on changes in corporate governance and profitability to highlight a underappreciated driver of the contemporary view that corporations are best run as a portfolio of exchangeable assets assembled to maximize returns. I have argued that historically high losses at public US firms since the last decades of the 20th century have contributed to elevated rates of outside CEO hires and acquisitions relative fifty years ago. If we are concerned about the corporation-as-portfolio perspective discouraging locked-in corporate investments that produce organic organizational growth and long-term generation of economic value, it is important to devote more scholarly and policy attention to losses or to low-profit spells more generally. Better understanding the costs of capitalism, particularly cases where the costs of generating economic output seem to outweigh the gains, is necessary for gauging the true strength of the American economy.

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APPENDIX A: SAMPLE OF LARGE US CORPORATIONS USED IN CHAPTERS 2-3

The following table, spread over five pages, lists all the corporations in the sample of large public US firms used to investigate outside CEO succession in Chapters 2 and 3. For each firm, I provide information about different names adopted as it was reorganized or merged with other companies, when it entered and exited the sample, and its lowest revenue ranking on the 5-year snapshot lists I used to construct the sample. Analyses in Chapter 2 uses the full sample of 317 corporations. Analyses in Chapter 3 are restricted to the 150 largest firms, whose "lowest rank" is equal to 50 or lower.

Table A.1. Sample of Large US Corporations (Part 1).

Company Name(s)	Start Year	End Year	Lowest Rank
GENERAL MOTORS CORP / GENERAL MOTORS CO	1950	2015	1
STANDARD OIL CO N J / EXXON CORP / EXXON MOBIL CORP	1950	2015	1
WAL MART STORES INC	1972	2015	1
AMERICAN TELEPHONE & TELEG CO / A T & T CORP	1950	2004	2
FORD MOTOR CO / FORD MOTOR CO DEL	1956	2015	2
SOCONY MOBIL OIL INC / MOBIL OIL CORP / MOBIL CORP	1950	1999	2
STANDARD OIL CO CALIFORNIA / CHEVRON CORP	1950	2015	3
INTERNATIONAL BUSINESS MACHS COR	1950	2015	4
PHILLIPS PETROLEUM CO / CONOCOPHILLIPS	1950	2015	4
TEXAS CO / TEXACO INC	1950	2000	4
UNITED STATES STEEL CORP / U S X CORP / U S X MARATHON GROUP / MARATHON OIL CORP	1950	2015	4
CHRYSLER CORP	1950	1997	5
GENERAL ELECTRIC CO	1950	2015	5
GREAT ATLANTIC & PAC TEA INC	1958	1979	5
SEARS ROEBUCK & CO	1950	2004	5
COMMERCIAL CR CO / PRIMERICA CORP / TRAVELERS GROUP INC / CITIGROUP INC	1986	2015	6
BERKSHIRE HATHAWAY INC DEL	1976	2015	7
NORTHERN NAT GAS CO / INTERNORTH INC / ENRON CORP	1950	2001	7
ENGELHARD MINERALS & CHEMS CORP / PHIBRO SALOMON INC / SALOMON INC	1960	1990	8
N C N B CORPTIONSBANK CORP / BANK OF AMERICA CORP	1972	2015	8
AMERICAN INTERNATIONAL GROUP INC	1972	2015	9
GULF OIL CORP	1950	1983	9
PHILIP MORRIS COS INC / ALTRIA GROUP INC	1950	2015	9
SWIFT & CO / ESMARK INC	1950	1983	9
BELL ATLANTIC CORP / VERIZON COMMUNICATIONS INC	1984	2015	10
BETHLEHEM STEEL CORP	1950	2001	10
DU PONT E I DE NEMOURS & CO	1950	2015	10
HEWLETT PACKARD CO	1961	2015	10
INTERNATIONAL TEL & TELEG CORP / I T T CORP	1950	2015	10
ARMOUR & CO	1950	1969	11
SOUTHWESTERN BELL CORP / S B C COMMUNICATIONS INC / A T & T INC	1984	2015	11
STANDARD OIL CO IND / AMOCO CORP	1950	1997	11
CHEMICAL BANKING CORP / CHASE MANHATTAN CORP / JPMORGAN CHASE & CO	1969	2015	12
ATLANTIC REFNG CO / ATLANTIC RICHFIELD CO	1950	1999	13
FIRST NATIONAL CITY CORP / CITICORP	1968	1997	13
SAFEWAY STORES INC / SAFEWAY INC	1950	2014	13
FOREMOST MC KESSON INC / MCKESSON CORP / MCKESSON H B O C INC	1967	2015	14
KRESGE S S CO / K MART CORP / SEARS HOLDINGS CORP	1950	2007	14
VALERO ENERGY CORP	1980	2015	14
BOEING AIRPLANE CO / BOEING CO	1950	2015	15
CONTINENTAL OIL CO / CONOCO INC / CONOCO INC	1950	2001	15
PROCTER & GAMBLE CO	1950	2015	15
WESTINGHOUSE ELECTRIC CORP	1950	1999	16
CARDINAL HEALTH INC	1983	2015	17
DUKE POWER CO / DUKE ENERGY CORP	1961	2015	17
GENERAL DYNAMICS CORP	1950	2015	18
GOODYEAR TIRE & RUBBER CO	1950	2015	18
KROGER COMPANY	1950	2015	18
MELVILLE SHOE CORP / MELVILLE CORP / C V S CORP / C V S CAREMARK CORP	1950	2015	18
PENNEY J C INC / PENNEY J C CO INC	1950	2015	18
AETNA LIFE & CASUALTY CO / AETNA INC	1968	2015	19
HOME DEPOT INC	1981	2015	19
PEPSI COLA CO / PEPSICO INC	1950	2015	19
UNITED HEALTHCARE CORP / UNITEDHEALTH GROUP INC	1984	2015	19
AMERICAN EXPRESS CO	1972	2015	20
NATIONAL DAIRY PRODS CORP / KRAFTCO CORP / DART & KRAFT INC	1950	1988	20
NORTHWEST BANCORPORATION / NORWEST CORP / WELLS FARGO & CO	1962	2015	20
MORGAN STANLEY GROUP INC / MORGAN STANLEY DEAN WITTER & CO	1986	2015	21
MOTOROLA INC	1950	2015	21
TENNESSEE GAS TRANSMISSION CO / TENNECO INC / TENNECO AUTOMOTIVE INC / TENNECO INC DE	1958	2015	21
CONNECTICUT GENERAL INS CORP / C I G N A CORP	1972	2015	22
INTERNATIONAL HARVESTER CO / NAVISTAR INTERNATIONAL CORP	1950	2015	22
REPUBLIC STEEL CORP	1950	1983	22
SKAGGS COS INC / AMERICAN STORES CO	1967	1998	22
TEMCO AIRCRAFT CORP / LING TEMCO ELECTRS INC / LING TEMCO VOUGHT INC / L T V CORP	1955	2000	22

Table A.1. Sample of Large US Corporations (Part 2).

Company Name(s)	Start Year	End Year	Lowest Rank
AMERISOURCEBERGEN CORP	1995	2015	23
GENERAL TEL CORP / GENERAL TEL & ELECTRS CORP / G T E CORP	1950	1999	23
MERRILL LYNCH & CO INC	1971	2008	23
OCCIDENTAL PETROLEUM CORP	1962	2015	23
SUN OIL CO / SUN INC / SUNOCO INC	1950	2011	23
UNION CARBIDE & CARBON CORP / UNION CARBIDE CORP / UNION CARBIDE CORP HOLDING CO	1950	2000	23
COMPAQ COMPUTER CORP	1983	2001	24
CONAGRA INC	1972	2015	24
COSTCO WHOLESALE CORP / PRICE COSTCO INC / COSTCO WHOLESALE CORP	1985	2015	24
UNITED AIRCRAFT CORP / UNITED TECHNOLOGIES CORP	1950	2015	24
FIRESTONE TIRE & RUBBER CO	1950	1987	25
ALLSTATE CORP	1993	2015	26
MERCK & CO INC	1950	2015	26
RADIO CORP AMER / R C A CORP	1950	1985	26
SINCLAIR OIL CORP	1950	1968	26
DOW CHEMICAL CO	1950	2015	27
LOCKHEED AIRCRAFT CORP / LOCKHEED CORP / LOCKHEED MARTIN CORP	1950	2015	27
PFIZER CHAS & CO INC / PFIZER INC	1950	2015	27
BANKAMERICA CORP	1972	1997	28
TRAVELERS CORP	1968	1992	28
WALGREEN CO	1950	2015	28
WORLDCOM INC GA	1991	2001	28
JOHNSON & JOHNSON	1950	2015	29
DELL COMPUTER CORP / DELL INC	1988	2012	30
EASTMAN KODAK CO	1950	2015	30
MEDCO CONTAINMENT SVCS INC / MEDCO HEALTH SOLUTIONS INC	1984	2011	30
STANDARD OIL CO OH	1950	1986	30
UNITED STATES RUBBER CO / UNIROYAL INC	1950	1984	30
ALBERTSONS INC	1970	2005	31
CITIES SERVICE CO	1951	1982	31
DAYTON HUDSON CORP / TARGET CORP	1969	2015	31
NORTH AMERICAN AVIATION INC / ROCKWELL INTERNATIONAL CORP / ROCKWELL AUTOMATION INC	1950	2015	32
APPLE COMPUTER INC / APPLE INC	1980	2015	33
METLIFE INC	2000	2015	33
MONTGOMERY WARD & CO / MARCOR INC	1950	1974	33
DOUGLAS AIRCRAFT INC	1950	1966	34
PACIFIC WESTN OIL CORP / GETTY OIL CO	1950	1983	34
REYNOLDS R J TOBACCO CO / REYNOLDS R J INDUSTRIES INC / R J R NABISCO HOLDINGS CORP	1950	1999	34
GREYHOUND CORP / DIAL CORP DEL / VIAD CORP	1950	2003	35
INTERNATIONAL PAPER CO	1950	2015	35
MICROSOFT CORP	1986	2015	35
XEROX CORP	1961	2015	35
ALUMINUM COMPANY AMER / ALCOA INC	1951	2015	36
ANTHEM INC / WELLPOINT INC / ANTHEM INC	2001	2015	36
ARCHER DANIELS MIDLAND CO	1950	2015	36
LUCENT TECHNOLOGIES INC	1996	2006	36
UNION OIL CO CALIF / UNOCAL CORP	1950	2004	36
BEATRICE FOODS CO / BEATRICE COMPANY	1950	1985	37
GENERAL FOODS CORP	1950	1984	37
INTEL CORP	1972	2015	37
MCDONNELL AIRCRAFT CORP / MCDONNELL DOUGLAS CORP	1959	1996	37
AMERICA ONLINE INC DEL / TIME WARNER INC	1992	2015	38
CATERPILLAR TRACTOR INC / CATERPILLAR INC	1950	2015	38
BORDEN CO / BORDEN INC	1950	1994	39
GOLDMAN SACHS GROUP INC	1999	2015	39
MONSANTO CHEMICAL CO / MONSANTO CO / PHARMACIA CORP	1950	2002	39
SOUTHLAND CORP	1972	1987	39
SPERRY RAND CORP / SPERRY CORP	1950	1985	39
CONTINENTAL CAN INC / CONTINENTAL GROUP INC	1950	1983	40
LOEWS THEATRES INC / LOEWS CORP	1959	2015	40
BELLSOUTH CORP	1984	2005	41
SOUTHERN PACIFIC CO	1950	1983	41
UNITED PARCEL SERVICE INC	1999	2015	41
WOOLWORTH F W CO / WOOLWORTH CORP / VENATOR GROUP INC / FOOT LOCKER INC	1950	2015	41
AMERICAN CAN CO	1950	1988	42

Table A.1. Sample of Large US Corporations (Part 3).

Company Name(s)	Start Year	End Year	Lowest Rank
CHASE MANHATTAN BANK NY / CHASE MANHATTAN CORP	1965	1995	42
AMERICAN MOTORS CORP	1950	1983	43
COCA COLA CO	1950	2015	43
GOODRICH B F CO / GOODRICH CORP	1950	2011	43
ANDERSON CLAYTON & CO	1950	1985	44
BEST BUY COMPANY INC	1985	2015	44
LITTON INDUSTRIES INC	1957	2000	44
CONSOLIDATED FOODS CORP / SARA LEE CORP	1950	2013	45
INGRAM MICRO INC	1996	2015	45
NYNEX CORP	1984	1996	45
COLUMBIA HOSPITAL CORP / H C A HEALTHCARE CO / H C A INC	1990	2005	46
KRAFT FOODS INC	2007	2015	46
FLEMING COMPANIES INC	1968	2002	47
HALLIBURTON OIL WELL CEMENTING / HALLIBURTON COMPANY	1950	2015	47
LOWES COMPANIES INC	1972	2015	47
BURLINGTON INDUSTRIES INC	1950	1986	48
INTERNATIONAL ASSETS HLDG CORP / INTL FCSTONE INC	1995	2015	48
JONES & LAUGHLIN STL CORP	1950	1967	48
MINNESOTA MINING & MFG CO / 3M CO	1950	2015	48
AMERICAN AIRLS INC / A M R CORP DEL	1950	2015	49
N G C CORP / DYNEGY INC	1995	2015	49
ARMCO STL CORP / ARMCO INC	1950	1998	50
DIGITAL EQUIPMENT CORP	1966	1997	50
HOUSTON LIGHTING & POWER CO / RELIANT ENERGY INC TX / CENTERPOINT ENERGY INC	1950	2015	50
OHIO OIL CO / MARATHON OIL CO	1950	1981	50
ASHLAND OIL & REFNG CO / ASHLAND OIL INC / ASHLAND INC	1950	2015	51
DELPHI AUTOMOTIVE SYSTEMS CORP / DELPHI CORP	1999	2004	52
EXPRESS SCRIPTS INC	1992	2015	52
GEORGIA PACIFIC CORP	1950	2004	52
SINGER MANUFACTURING CO / SINGER CO	1960	1987	52
FEDERATED DEPARTMENT STORES INC / MACYS INC	1950	2015	53
SUPER VALU STORES INC / SUPERVALU INC	1967	2015	53
MISSOURI PUBLIC SERVICE CO / UTILICORP UNITED INC	1958	2007	54
FIRST UNION CORP / WACHOVIA CORP	1972	2007	55
HESS OIL & CHEM CORP / AMERADA HESS CORP / HESS CORP	1962	2015	55
ALLIED CHEMICAL CORP / ALLIED SIGNAL INC / HONEYWELL INTERNATIONAL INC	1950	2015	56
AMERICAN METAL LTD / AMERICAN METAL CLIMAX INC / AMAX INC	1950	1992	56
AMERICAN STORES CO / ACME MKTS INC	1950	1978	56
LUCKY STORES INC	1964	1987	56
CISCO SYSTEMS INC	1990	2015	57
INLAND STEEL CO / INLAND STEEL INDUSTRIES INC	1950	2006	57
UNITED UTILITIES INC / UNITED TELECOMMUNICATIONS INC / SPRINT CORP / SPRINT NEXTEL CORP	1963	2012	57
CAREMARK RX INC	1995	2006	58
PRUDENTIAL FINANCIAL INC	2001	2015	58
WILSON & CO INC	1950	1966	58
AMERICAN INFORMATION TECHS CORP / AMERITECH CORP	1984	1998	59
ANACONDA CO	1950	1976	59
BANC ONE CORP / BANK ONE CORP	1972	2003	59
DISNEY WALT PRODUCTIONS / DISNEY WALT CO	1957	2015	59
M C I COMMUNICATIONS CORP	1972	1997	59
MINNEAPOLIS HONEYWELL REGULATOR / HONEYWELL INC	1950	1999	59
BENDIX AVIATION CORP / BENDIX CORP	1950	1982	60
COMCAST CORP	1972	2015	60
GRACE W R & CO	1953	2015	60
LEHMAN BROTHERS HOLDINGS INC	1994	2007	61
UNITED AIR LINES INC / U A L INC / U A L CORP / UNITED CONTINENTAL HOLDINGS INC	1950	2015	61
NATIONAL STEEL CORP / NATIONAL INTERGROUP INC / FOXMEYER HEALTH CORP / AVATEX CORP	1950	1998	62
PACIFIC GAS & ELEC CO / P G & E CORP	1950	2015	62
SYSCO CORP	1971	2015	62
ABBOTT LABORATORIES	1950	2015	63
AMERICAN TOB CO / AMERICAN BRANDS INC / FORTUNE BRANDS INC	1950	2013	63
BURLINGTON NORTHERN INC / BURLINGTON NORTHERN SANTA FE CP	1970	2009	63
FOOD FAIR STORES INC	1950	1977	63
TIME INC / TIME WARNER INC	1964	1999	63
NORTHROP AIRCRAFT INC / NORTHROP CORP / NORTHROP GRUMMAN CORP	1951	2015	64

Table A.1. Sample of Large US Corporations (Part 4).

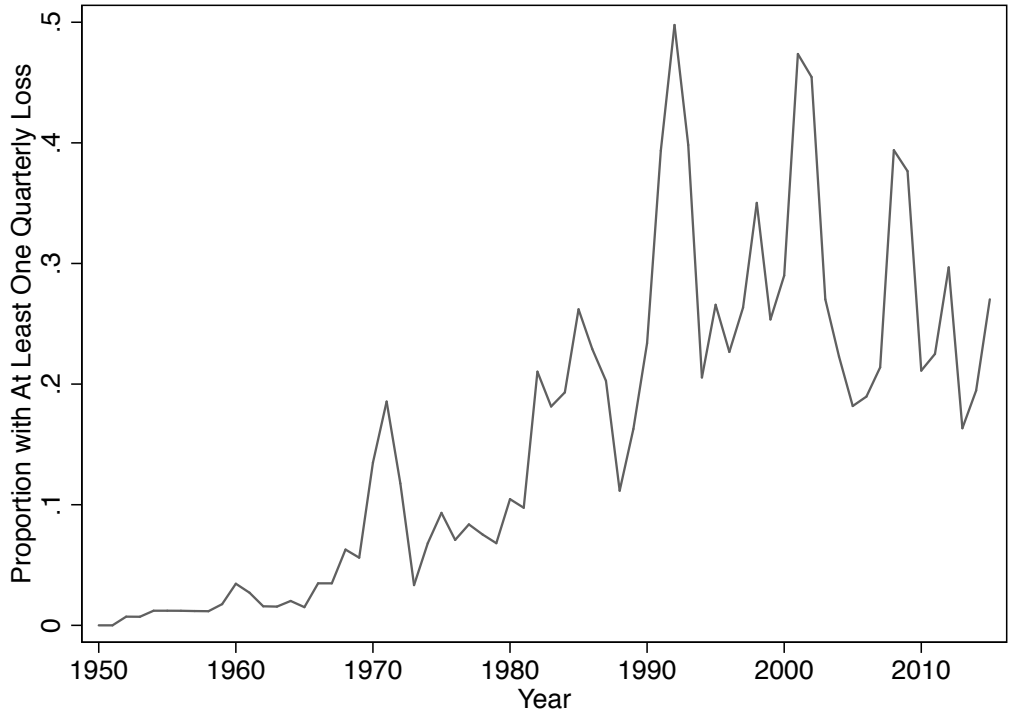
Company Name(s)	Start Year	End Year	Lowest Rank
PACIFIC TELESIS GROUP	1984	1996	64
PITTSBURGH PLATE GLASS CO / P P G INDUSTRIES INC	1950	2015	64
RAPID ELECTROTYPE / RAPID AMERICAN CORP OH / RAPID AMERICAN CORP DE	1962	1980	65
FEDERAL EXPRESS CORP / FEDEX CORP	1978	2015	66
MANUFACTURERS HANOVER CORP	1969	1990	66
MORGAN J P & CO INC	1969	1999	66
OLIN MATHIESON CHEM CORP / OLIN CORP	1950	2015	67
BORG WARNER CORP	1950	1986	68
GENERAL TIRE & RUBR CO / GENCORP INC	1950	2015	68
KIMBERLY CLARK CORP	1950	2015	68
BRISTOL MYERS CO / BRISTOL MYERS SQUIBB CO	1950	2015	69
JOHNSON CONTROLS INC	1965	2015	69
KENNECOTT COPPER CORP / KENNECOTT CORP	1950	1980	69
OIL SHALE CORP / TOSCO CORP	1972	2000	70
RALSTON PURINA CO	1962	2000	70
REPUBLIC AVIATION CORP / R A C CORP	1950	1964	70
ALLIED STORES CORP	1950	1986	71
AMAZON COM INC	1997	2015	71
ANHEUSER BUSCH INC / ANHEUSER BUSCH COS INC	1980	2007	71
AMERICAN SMLT & REFNG CO / ASARCO INC	1950	1998	72
BOISE CASCADE CORP	1965	2012	72
EXTENDICARE INC / HUMANA INC	1969	2015	72
I T T HARTFORD GROUP INC / HARTFORD FINANCIAL SVCS GRP INC	1995	2015	72
ALLIS CHALMERS CORP / ALLIS CHALMERS MFG CO	1950	2010	73
WINN DIXIE STORES INC	1952	2011	73
BERGEN BRUNSWIG CORP	1965	2000	74
NATIONAL LEAD CO / N L INDUSTRIES INC	1950	1986	74
TYSON FOODS INC	1972	2015	74
AMERICAN HOME PRODUCTS CORP / WYETH	1950	2008	75
CORN PRODUCTS REFINING CO / CORN PRODUCTS CO / C P C INTERNATIONAL INC	1950	1999	75
DEERE & CO IL / DEERE & CO DEL / DEERE & CO	1950	2015	75
NEWS CORP LTD / NEWS CORP	2005	2015	75
SECURITY PACIFIC CORP	1972	1991	76
U S WEST INC	1984	1999	76
UNION PACIFIC RAILROAD CO / UNION PACIFIC CORP	1950	2015	77
CITY INVESTING CO	1950	1984	78
GENERAL MILLS INC	1950	2015	78
GULF & WESTERN INDS INC / PARAMOUNT COMMUNICATIONS INC	1962	1993	78
MAY DEPARTMENT STORES CO	1950	2004	78
ST PAUL COS INC / ST PAUL TRAVELERS COS INC / TRAVELERS COMPANIES INC	1972	2015	78
TEXAS UTILITIES CO / T X U CORP	1951	2006	78
DELTA AIR LINES INC	1957	2015	79
EL PASO NATURAL GAS CO / EL PASO CO / EL PASO ENERGY CORP DEL / EL PASO CORP	1950	2011	79
FOOD MACHY & CHEM CORP / F M C CORP	1950	2015	79
I B P INC / IOWA BEEF PROCESSORS INC	1968	2000	79
TEXTRON AMERICAN INC / TEXTRON INC	1950	2015	79
C S X CORP	1980	2015	80
FLEET NORSTAR FINANCIAL GRP INC / FLEETBOSTON FINANCIAL CORP	1968	2003	80
TEXAS INSTRUMENTS INC	1953	2015	80
BURROUGHS CORP / UNISYS CORP	1950	2015	81
COASTAL STS GAS PRODUCING CO / COASTAL CORP	1963	2000	81
CURTISS WRIGHT CORP	1950	2015	81
CONSOLIDATED EDISON CO NY INC / CONSOLIDATED EDISON INC	1950	2015	82
GOOGLE INC	2004	2015	82
THOMPSON PRODS INC / THOMPSON RAMO WOOLRIDGE INC / T R W INC	1950	2001	82
COLGATE PALMOLIVE CO	1950	2015	83
INSURANCE CO NORTH AMER / I N A CORP	1962	1981	83
MARTIN GLENN L CO / MARTIN CO / MARTIN MARIETTA CORP	1950	1994	83
WEYERHAEUSER CO	1963	2009	83
PHILIP MORRIS INTERNATIONAL INC	2008	2015	84
PURE OIL CO	1950	1964	85
REPUBLIC WASTE INDUSTRIES INC / REPUBLIC INDUSTRIES INC / AUTONATION INC DEL	1990	2015	85
SOUTHERN CO	1950	2015	85
ORACLE CORP	1986	2015	86
STUDEBAKER PACKARD CORP / STUDEBAKER CORP	1950	1966	86

Table A.1. Sample of Large US Corporations (Part 5).

Company Name(s)	Start Year	End Year	Lowest Rank
CELANESE CORP AMER / CELANESE CORP	1950	1986	87
GRAND UNION CO	1950	1999	87
FIRST NATIONAL STORES INC	1950	1973	88
RAYTHEON MANUFACTURING CO / RAYTHEON CO	1952	2015	88
RITE AID CORP	1968	2015	88
TRANS WORLD AIRLINES INC / TRANS WORLD CORP / TRANSWORLD CORP DEL	1967	1986	89
TRANSAMERICA CORP	1950	1998	89
AMERICAN CYANAMID CO	1950	1993	90
WASHINGTON MUTUAL INC	1983	2007	90
JEWEL TEA INC / JEWEL COMPANIES INC	1950	1983	91
AMERICAN RADIATOR & STD SAN CORP / AMERICAN STANDARD INC / TRANE INC	1950	2007	92
LYKES BROTHERS SS CO / LYKES YOUNGSTOWN CORP	1958	1977	92
GRUMMAN AIRCRAFT ENGR CORP / GRUMMAN CORP	1950	1993	93
OWENS ILLINOIS GLASS CO / OWENS ILLINOIS INC / OWENS ILL INC	1950	2015	93
STAPLES INC	1989	2015	93
VISTEON CORP	2000	2015	93
DIRECTV GROUP INC / DIRECTV	2009	2014	94
NATIONAL CASH REGISTER CO / N C R CORP	1950	1990	94
SANTA FE INDS INC / SANTA FE SOUTHN PAC CORP / SANTA FE PAC CORP	1968	1994	94
MCDONALDS CORP	1966	2015	95
ELECTRONIC DATA SYS CORP	1971	2007	96
LINCOLN NATIONAL CORP	1969	2015	96
CROWN ZELLERBACH CORP	1950	1985	97
MURPHY OIL CORP	1961	2015	97
SIGNAL OIL & GAS CO / SIGNAL COMPANIES INC	1962	1984	97
TECH DATA CORP	1986	2015	97
LILLY ELI & CO	1970	2015	99
NATIONAL BISCUIT COBISCO INC	1950	1980	99
CHESAPEAKE & OHIO RAILWAY CO / CHESSIE SYSTEM INC	1950	1979	100
UNITED FRUIT CO / UNITED BRANDS CO / CHIQUITA BRANDS INTL INC	1950	2014	100
N B D BANCORP INC / FIRST CHICAGO N B D CORP	1972	1997	101
REYNOLDS METALS CO	1950	1999	101
BAXTER LABS INC / BAXTER TRAVENOL LABS INC / BAXTER INTERNATIONAL INC	1961	2015	102
CAMPBELL SOUP CO	1954	2015	102
FLUOR LTD / FLUOR CORP	1957	2015	102
ST REGIS PAPER CO	1950	1983	102
MACY R H & CO INC	1950	1985	103
MERRITT CHAPMAN & SCOTT CORP	1950	1969	104
UNITED STATES PLYWOOD CORP / CHAMPION INTERNATIONAL CORP	1950	1999	104
BANKERS TRUST NY CORP	1969	1998	105
EMERSON ELECTRIC CO	1950	2015	105
GRANT W T CO	1950	1974	105
PHILCO CORP	1950	1961	105
LYONDELL PETROCHEMICAL CO / LYONDELL CHEMICAL CO	1988	2006	106
AMERICAN GENERAL INS CO / AMERICAN GENERAL CORP	1969	2000	107
AMERICAN FAMILY CORP / AFLAC INC	1973	2015	108
C U C INTERNATIONAL INC / CENDANT CORP / AVIS BUDGET GROUP INC	1983	2015	108
CONTINENTAL ILL CORP / CONTINENTAL BANK CORP	1973	1993	108
STEVENS J P & CO INC	1950	1987	108
WASTE MANAGEMENT INC / W M X TECHNOLOGIES INC	1972	1997	108
DOMINION RESOURCES INC VA	1983	2015	109
GAMBLE SKOGMO INC	1950	1979	109
MORRELL JOHN & CO INC	1950	1966	109
ZAYRE CORP / T J X COMPANIES INC	1964	2015	109
COUNTRYWIDE CREDIT INDS INC / COUNTRYWIDE FINANCIAL CORP	1980	2007	110
NIKE INC	1981	2015	110
WARNER LAMBERT CO / WARNER LAMBERT PHARMACEUTICAL CO	1951	1999	110

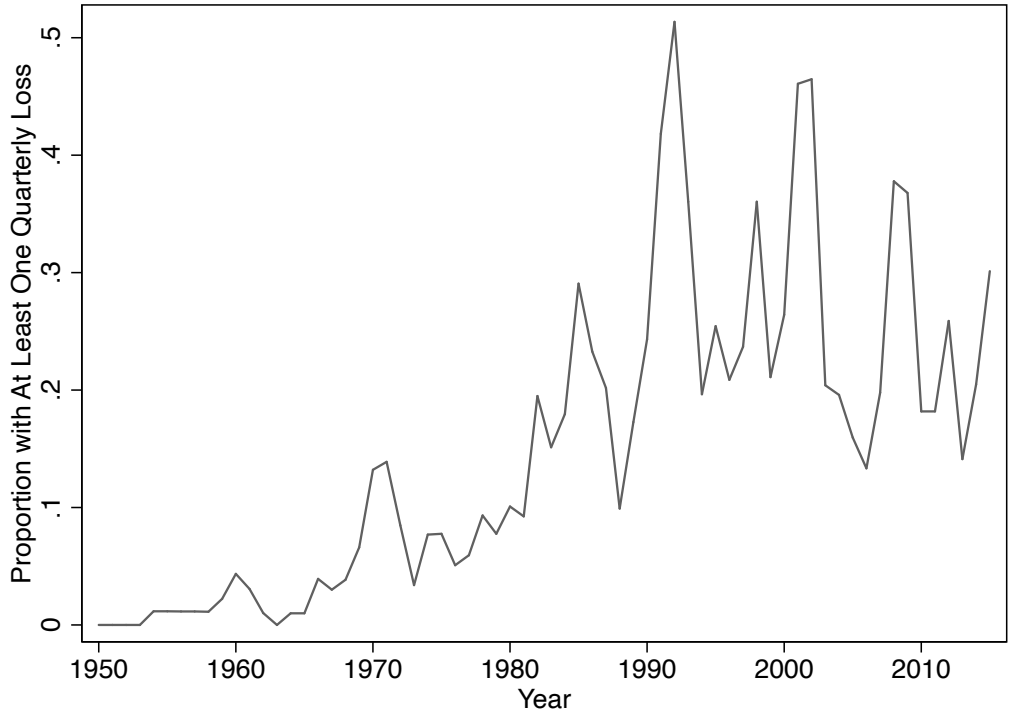
APPENDIX B: LOSS TRENDS FOR THE THREE SAMPLES

Figure B.1. Proportion of Firms with At Least One Quarterly Loss in Calendar Year – Firms Ranked Top 110 By Revenue (Chapter 2 Sample).



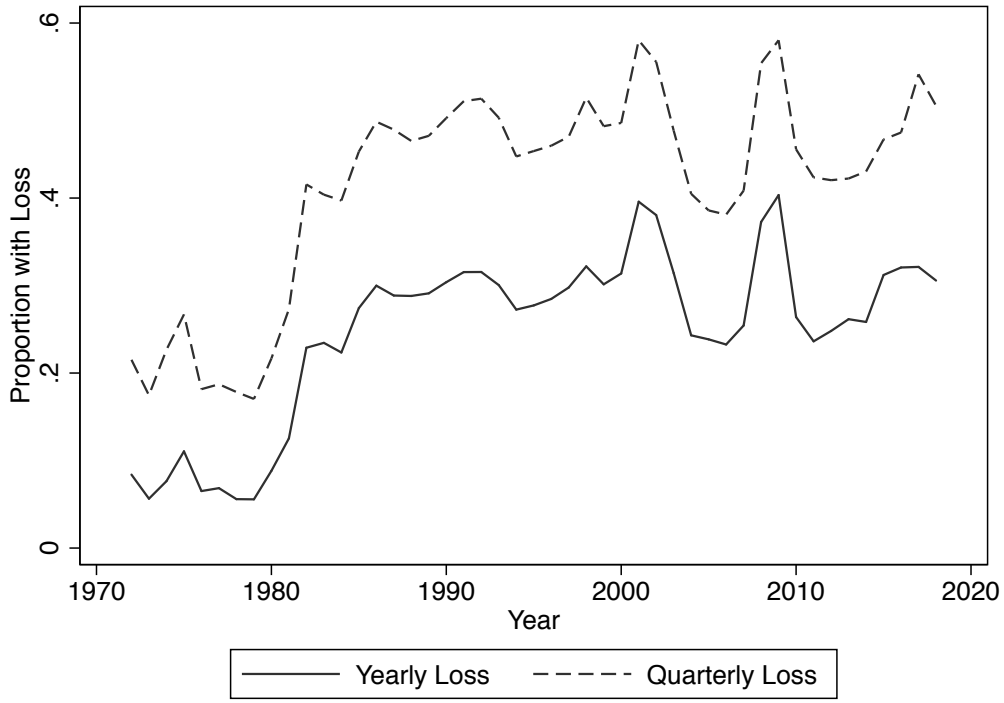
Note: N=13,031 firm-year observations at 317 corporations.

Figure B.2. Proportion of Firms with At Least One Quarterly Loss in Calendar Year – Firms Ranked Top 50 By Revenue (Chapter 3 Sample).



Note: N= 6,725 firm-year observations at 154 corporations (4 of which had no CEO hires while public and independent).

Figure B.3. Proportions of Firms with Yearly and Quarterly Losses in Calendar Year – All Public US Corporations (Chapter 4 Sample).



Note: N = 149,412 firm-year observations. Publicly-traded US corporations, 1973-2019

APPENDIX C: SUPPLEMENTAL ANALYSES FOR CHAPTER 2

This appendix presents supplemental analyses for Chapter 2. I first provide a more detailed picture of how CEOs' prior organizational tenure has changed. Next I show results from an analysis of the increasingly dispersed post-1980 profit distribution shown in Figure 2.2. Finally, I present two sets of robustness checks: one provides evidence that rising losses are not driven by formerly large firms that have declined in size; the other shows results are similar if I use multinomial logistic regressions on firm-year data.

Figure C.1 shows how the full distribution CEOs' prior organizational tenure has changed since the 1950s. I examine trends in quintiles of CEOs' prior organizational tenure, with further subdivision within the lowest quintile to see how trends in outside CEO hires might depend on how they are defined. Time spent at a separate firm that eventually merged into the sample firm counts towards a CEO's organizational tenure; the same rule applies for time previously spent at a subsidiary.

[Insert Figure C.1 about here (see pp.115-124)]

The two main trends in CEOs' prior organizational tenure are a decline in long-term employees becoming CEO and a rise in CEOs hired directly from outside the firm. Between 1950 and 2015, 80% of new CEOs had prior organizational tenure of either more than 18 years or fewer than 5 years. Yet CEOs with long prior tenure at the firm have become increasingly rare. CEOs with more than 32 years of prior tenure (the highest quintile) have declined from more 25% of new CEOs in the postwar decades to less than 10% after 2000. Figure C.1 splits the lowest quintile of prior organizational tenure into four groups: CEOs with 3-4 years of prior tenure, those with 2 years of prior tenure, those with nonzero prior tenure of a year or less, and those who were hired as CEO directly from outside the firm. The largest of these groups with the most substantial increase over this period is CEOs with no prior tenure, indicated by the solid black line. Nearly all of the increase in new CEOs with little prior organizational tenure has been driven by CEOs hired directly from outside the firm.

Next, I investigate whether the increased dispersion in the lower half of the profit distribution shown in Figure 2.2 in Chapter 2 is due to increased profit volatility within corporations or increased polarization between profitable and unprofitable firms. In Figure C.2, I plot the average yearly change in net income percentile, with percentile increases and decreases plotted separately; this essentially shows how firms were moving across the widening profit distribution shown in Figure 2.2. Results demonstrate that churn in relative profit rankings among large firms began increasing in the mid-1960s, reached a peak in the early 1990s, and has declined since then. This is true for both net income percentile increases and decreases. Profit volatility in the 1980s and 1990s has given way to polarization among large corporations since 2000, with the most profitable firms becoming more likely to remain at the top of the profit distribution and the least profitable at the bottom. In separate analyses, I find that trends in the *percentage change* in net income—a relatively noisy measure due to years when a firm's profits are close to zero—show very similar patterns (results not shown).

[Insert Figure C.2 about here (see pp.115-124)]

I now turn to robustness checks for results presented in Chapter 2. In Figures C.3 and C.4, I show profit trends on a subsample restricted to firms that were ranked in the top 110 by revenue in the most recent of the 5-year snapshots that I used to construct the sample. The trends in profits (Figure C.3) and losses (Figure C.4) both look quite similar in shape to the main results

presented in Figures 2.2 and 2.3. The trends here are more volatile, with peaks and troughs that are larger in magnitude, compared to the main results. These results suggest that the method I used to select firms into the sample does not bias estimates of profitability changes by overweighting firms that have declined in size since the postwar period.

[Insert Figures C.3 and C.4 about here (see pp.115-124)]

I next present results from a set of multinomial logistic regressions analyzing the competing risks of outside and inside CEO succession relative to years with no CEO turnover. The 317 sample firms contributed 13,337 firm-year pairs between 1950 and 2015. Similar to the main analyses, including measures of incumbent CEO characteristics requires that I restrict the sample to observations after the first CEO transition for each firm; this narrows the data set to 10,211 firm-years. Excluding missing data on firm-level variables yields an analytic sample of 9,544 firm-years. Table C.1 shows how different CEO transitions were allocated to firm-years in this regression sample. Results in the top row indicate that CEO turnover has increased in the sample over time. (The CEO turnover rate reached its maximum in 2000.) Descriptive statistics for regression covariates are presented in Table C.2.

[Insert Tables C.1-C.2 about here (see pp.115-124)]

Analogous to Tables 2.2-2.4 in Chapter 2, Tables C.3-C.5 show multinomial logistic regressions predicting the CEO succession outcome variable shown in Table C.1. For ease of presentation, I only show coefficients comparing firm-years with an outside CEO transition to those with no CEO succession and coefficients comparing firm-years with an inside CEO transition (but no outside hire) to those with no CEO succession. (I do not present coefficients comparing firm-years with only non-standard CEO transitions.)

Generally, the results are very similar to those presented in Chapter 2. Results in Table C.3 show that losses predict outside CEO hires in the pre-1980 period and during the 1990s (both relative to years with no CEO transition and relative to years with inside CEO transitions), as was the case in the main results. One minor difference is that the post-2000 loss coefficient is significant here (though the coefficient comparing outside- and inside-hire years is not). However, recall we cannot make cross-period comparisons of the coefficients presented in Table C.3 because interaction terms in nonlinear probability models lack a clear interpretation (Karlson, Holm, and Breen 2012; Mood 2010). Turning to the ROA results, we can see that the pre-1980 coefficient on outside CEO hires is still significant. In contrast to the main results, these competing risk results also show a statistically significant ROA coefficient in the 1990s. Finally, the stock return coefficients also show similar patterns to the main results: both pre-1990 coefficients predicting outside CEO hires are not statistically significant, while both post-1990 coefficients are significant.

[Insert Table C.3 about here (see pp.115-124)]

Turning next to the examination of the pooled 1950-2000 loss effect in Table C.4, we again see similar results compared to those presented in the main text. The estimates of the loss effect on outside CEO hires are strong and statistically significant in each model. Models 2 and 3 show again that the key threshold for predicting subsequent outside CEO hiring appears to be having at least one quarterly loss in the prior year compared with having none.

[Insert Table C.4 about here (see pp.115-124)]

Finally, Table C.5 shows the results from Karlson et al.'s (2012) mediation method to model how accounting for losses changes estimates of the outside CEO hire trend during the 1950-2000 period. These results show that whether we compare outside CEO transition years to years with no CEO transition or years with inside CEO transitions, results are similar to those

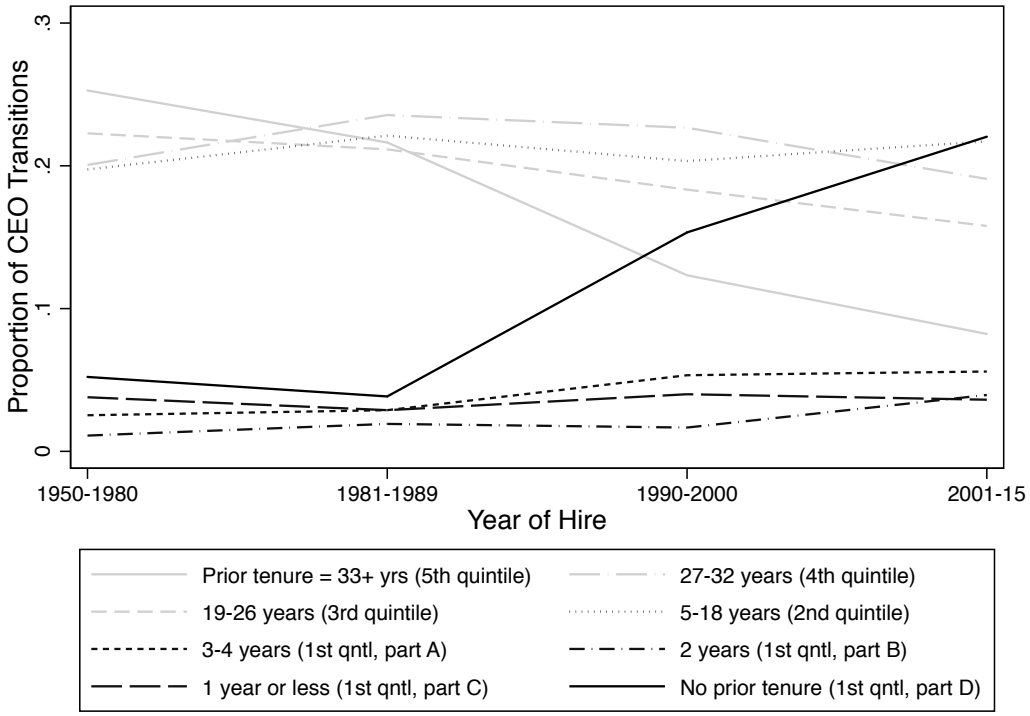
presented in Chapter 2. Accounting for rising losses attenuates the outside CEO hire trend by about 30%, a statistically significant margin.

[Insert Table C.5 about here (see pp.115-124)]

Turning back to CEO-transition-level data, Table C.6 shows all coefficients for the regressions presented in Table 2.2.

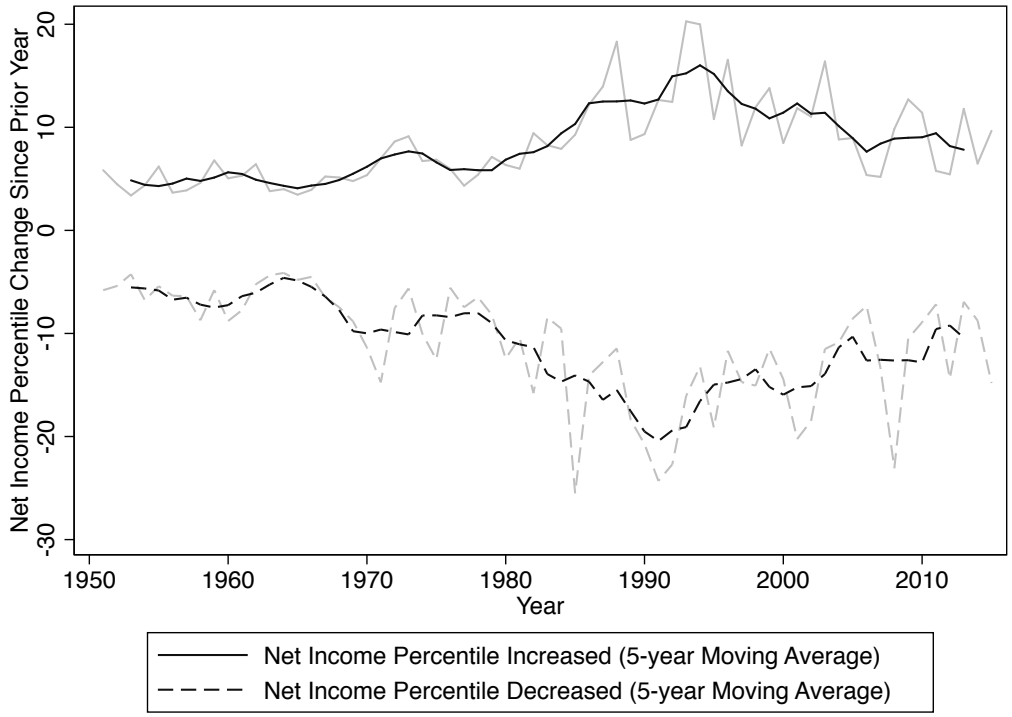
[Insert Table C.6 about here (see pp.115-124)]

Figure C.1. New CEOs' Prior Organizational Tenure.



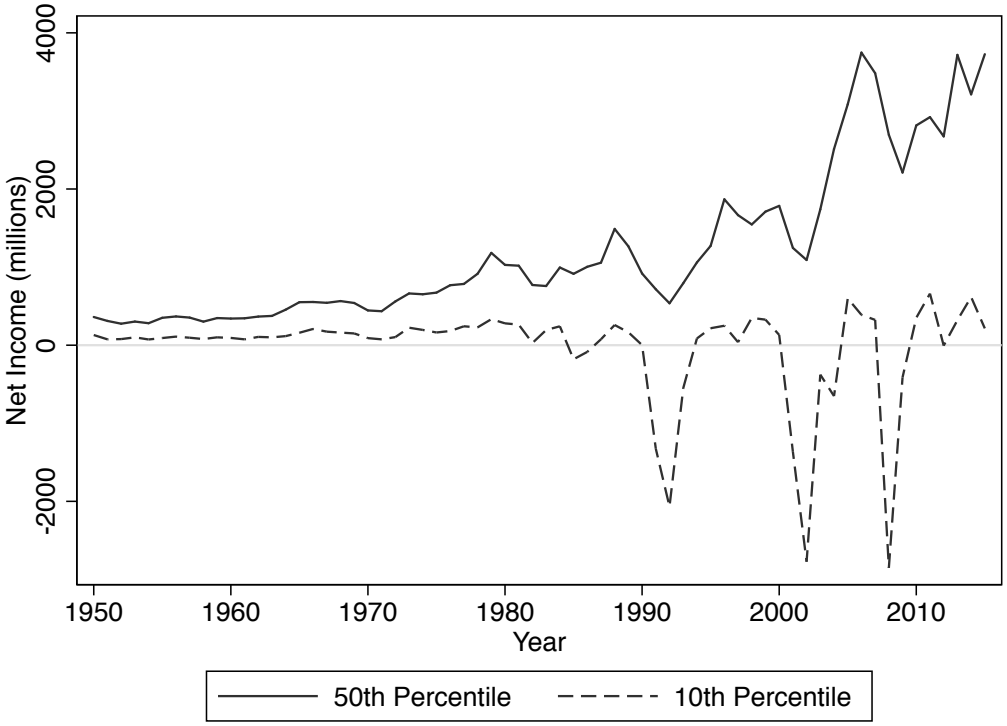
Note: N=1,445 CEO transitions at 317 corporations. Each line represents the trend in the proportion of new CEOs with a given quintile of prior organizational tenure (except for the lowest quintile, which is split into four groups). Time spent at a subsidiary or at a separate firm that eventually merged into the sample firm counts towards a CEO's prior organizational tenure.

Figure C.2. Average Yearly Change in Net Income Percentile.



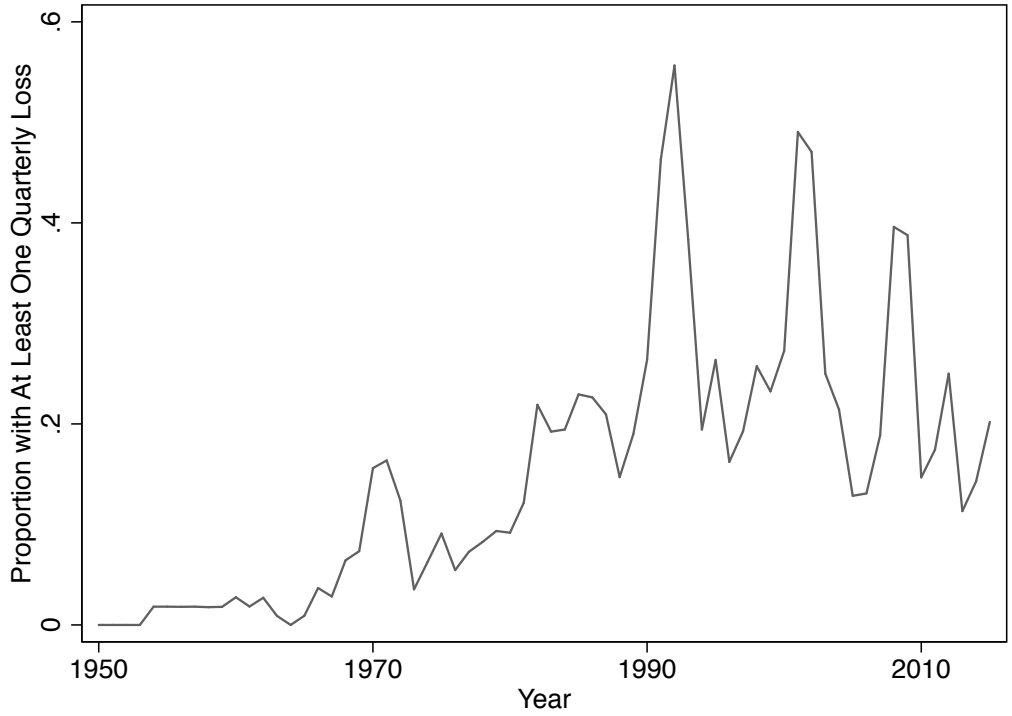
Note: N=13,031 firm-year observations at 317 corporations. Based on calendar-year measures of net income.

Figure C.3. Median and 10th Percentile of Profits Since 1950 (Subsample of Currently Large Firms).



Note: N=7,011 firm-year observations at firms that were ranked in the top 110 in the most recent 5-year revenue snapshot. Based on calendar-year measures of net income, expressed in 2015 dollars.

Figure C.4. Proportion of Firms with At Least One Quarterly Loss In Calendar Year (Subsample of Currently Large Firms).



Note: N=7,011 firm-year observations at firms that were ranked in the top 110 in the most recent 5-year revenue snapshot.

Table C.1. Allocation of CEO Succession Events to Firm-Years in Regression Sample.

	1950-1980	1981-1989	1990-2000	2001-2015	Total
No CEO Succession					
N	3,242	1,511	1,730	2,004	8,487
%	*89.9%*	*89.7%*	*87.5%*	*88.2%*	*88.9%*
At Least One Non-standard CEO Transition (No Standard CEO Transition)					
N	9	8	22	10	49
%	*0.2%*	*0.5%*	*1.1%*	*0.4%*	*0.5%*
At Least One Inside CEO Transition (No Outside CEO Hires)					
N	336	158	190	202	886
%	*9.3%*	*9.4%*	*9.6%*	*8.9%*	*9.3%*
At Least One Outside CEO Hire					
N	21	8	36	57	122
%	*0.6%*	*0.5%*	*1.8%*	*2.5%*	*1.3%*
Total	3,608	1,685	1,978	2,273	9,544

Table C.2. Descriptive Statistics for Regression Sample.

	Mean	SD	Min	Max
Losses (At Least One Quarterly Loss in Calendar Year)	0.18	0.39	0.00	1.00
Operating Return on Assets (industry-adjusted)	0.01	0.07	-0.42	0.83
Stock Return (industry-adjusted)	0.03	0.30	-1.23	7.98
Time Period				
1950-1980	0.38			
1981-1989	0.18			
1990-2000	0.21			
2001-2015	0.24			
Logged Revenue (millions)	9.58	1.05	2.89	13.11
Top 110 by Revenue	0.56	0.50	0.00	1.00
Percentage Change in Assets	0.06	0.25	-0.89	10.97
Percentage Change in Employees	0.04	0.88	-0.98	83.00
Incumbent Tenure at Firm Prior to Becoming CEO	19.44	11.87	0.00	52.00
Incumbent Tie to Founding Family	0.08	0.27	0.00	1.00
Incumbent Tenure as CEO	5.96	4.74	1.00	33.00
Percentage Change in GDP	0.03	0.03	-0.03	0.11
Proportion Firms Within Industry with Outside CEO Hire	0.01	0.03	0.00	0.50

Note: N=9,544 firm-year observations.

Table C.3. Multinomial Logistic Models Using Performance Measures To Predict Outside and Inside CEO Transitions by Time Period.

	Outside CEO Hires (vs. no CEO transition)	Inside CEO Hires (vs. no CEO transition)
A. Loss Coefficient Changes:		
Losses * 1950-1980	2.032 ***	0.353
	(0.497)	(0.209)
Losses * 1981-1989	0.950	0.430 *
	(0.714)	(0.197)
Losses * 1990-2000	1.388 ***	0.130
	(0.389)	(0.179)
Losses * 2001-2015	0.652 *	0.552 ***
	(0.307)	(0.165)
B. Operating Profits (ROA) Coefficient Changes:		
ROA * 1950-1980	-12.660 ***	-0.799
	(3.163)	(0.848)
ROA * 1981-1989	-2.458	-1.331
	(11.140)	(1.505)
ROA * 1990-2000	-6.216 **	-1.465
	(2.116)	(1.399)
ROA * 2001-2015	-3.169	-2.487
	(2.182)	(1.596)
C. Stock Return Coefficient Changes:		
Stock Return * 1950-1980	-1.194	-0.321
	(1.325)	(0.280)
Stock Return * 1981-1989	-2.946	-0.216
	(1.769)	(0.517)
Stock Return * 1990-2000	-1.644 *	0.305
	(0.757)	(0.269)
Stock Return * 2001-2015	-2.138 ***	-0.069
	(0.428)	(0.373)

Note: N=9,544 firm-year observations. All regressions control for time period, firm size, asset and employment change, incumbent CEO characteristics, GDP change, within-industry outside CEO hire rate, and industry indicator variables. Performance measures (along with other firm characteristics) are lagged one year. Standard errors, clustered at the level of the firm, are in parentheses. Coefficients comparing years with only non-standard CEO transitions are not displayed.
* $p<0.05$; ** $p<0.01$; *** $p<0.001$ (two-tailed tests)
Underlines indicate significant differences between coefficients predicting outside and inside CEO hires ($p<0.05$).

Table C.4. Logistic Regressions Modeling Losses Predicting Outside and Inside CEO Transitions, 1950-2000.

	Main Model (M1)		Quarterly Loss Count (M2)		Yearly Losses (M3)		ROA and Stock Return (M4)	
	Outside CEO Hires (vs. no transition)	Inside CEO Hires (vs. no transition)	Outside CEO Hires (vs. no transition)	Inside CEO Hires (vs. no transition)	Outside CEO Hires (vs. no transition)	Inside CEO Hires (vs. no transition)	Outside CEO Hires (vs. no transition)	Inside CEO Hires (vs. no transition)
Losses (At Least One Quarterly Loss)	1.447 ***	0.276 *					1.139 **	0.255 *
	(0.330)	(0.117)					(0.347)	(0.122)
Quarterly Loss Count								
(0)			-	-				
1			1.457 ***	0.135				
			(0.362)	(0.142)				
2+			1.436 ***	0.524 **				
			(0.397)	(0.177)				
Quarterly and Yearly Losses								
(No Quarterly Loss)					-	-		
1+ Quarterly Loss, No Yearly Loss					1.458 ***	0.208		
					(0.354)	(0.144)		
Yearly loss					1.433 ***	0.375 *		
					(0.391)	(0.174)		
Operating Profits (ROA)							-4.856 *	-0.610
							(2.384)	(0.687)
Stock Return							-0.918	0.024
							(0.587)	(0.183)
Time Period								
(1950-1980)	-	-	-	-	-	-	-	-
1981-1989	-0.598	-0.152	-0.599	-0.152	-0.598	-0.153	-0.543	-0.152
	(0.501)	(0.110)	(0.501)	(0.109)	(0.503)	(0.110)	(0.487)	(0.110)
1990-2000	0.626	-0.141	0.627	-0.143	0.629	-0.144	0.675	-0.144
	(0.390)	(0.117)	(0.389)	(0.117)	(0.392)	(0.117)	(0.376)	(0.116)
Number of observations	7,255		7,255		7,255		7,255	

Note: N=7,255 firm-year observations, 1950-2000. Multinomial logistic regressions predicting outside and inside CEO transitions. All regressions control for firm size, asset and employment change, incumbent CEO characteristics, GDP change, within-industry outside CEO hire rate, and industry indicator variables. Performance measures (along with other firm characteristics) are lagged one year. Standard errors, clustered at the level of the firm, are in parentheses. Coefficients comparing years with only non-standard CEO transitions are not displayed.
* p<0.05; ** p<0.01; *** p<0.001 (two-tailed tests)
Underlines indicate significant differences between coefficients predicting outside and inside CEO hires (p<0.05).

Table C.5. Adjusted Trend in Outside CEO Hires After Accounting for Rising Losses using Multinomial Logistic Models, 1950-2000.

	Trend in Outside CEO Hires	Adjusted Trend (Controlling for Losses)	Difference
Outside CEO Hires vs No CEO Succession			
(1950-1980)	-	-	-
1981-1989	-0.384	-0.598	0.214 ***
	(0.492)	(0.501)	(0.060)
1990-2000	1.014 **	0.626	0.388 ***
	(0.365)	(0.390)	(0.095)
Percentage	*100%*	*62%*	*38%*
Outside CEO Hires vs Inside CEO Succession			
(1950-1980)	-	-	-
1981-1989	-0.273	-0.446	0.173 **
	(0.504)	(0.514)	(0.059)
1990-2000	1.080 **	0.766	0.314 **
	(0.377)	(0.408)	(0.099)
Percentage	*100%*	*71%*	*29%*

Note: N=7,255 firm-year observations, 1950-2000. Karlson et al. (2012) method using multinomial logistic regressions predicting outside CEO hires (Model 1 of Table S5). All regressions control for firm size, asset and employment change, incumbent CEO characteristics, GDP change, within-industry outside CEO hire rate, and industry indicator variables. Standard errors, clustered at the level of the firm, are in parentheses. Percentages indicate how statistically significant baseline trends change after controlling for losses.
* $p<0.05$; ** $p<0.01$; *** $p<0.001$ (two-tailed tests)

Table C.6. Full Set of Coefficients from Regressions Presented in Table 2.2.

	Logistic Models			Linear Probability Models		
	Losses	ROA	Stock Return	Losses	ROA	Stock Return
Losses * 1950-1980	2.247 ***			0.196 *		
	(0.624)			(0.093)		
Losses * 1981-1989	0.617			0.009		
	(0.737)			(0.041)		
Losses * 1990-2000	1.321 **			0.167 **		
	(0.429)			(0.054)		
Losses * 2001-2015	-0.132			0.016		
	(0.361)			(0.054)		
ROA * 1950-1980		-10.965 **			-0.424	
		(3.409)			(0.232)	
ROA * 1981-1989		-0.664			0.085	
		(4.923)			(0.288)	
ROA * 1990-2000		-2.639			-0.317	
		(2.920)			(0.294)	
ROA * 2001-2015		1.897			0.036	
		(2.314)			(0.290)	
Stock Return * 1950-1980			-1.606			-0.086
			(1.267)			(0.056)
Stock Return * 1981-1989			-1.769			-0.069
			(1.751)			(0.040)
Stock Return * 1990-2000			-2.347 *			-0.234 *
			(1.146)			(0.097)
Stock Return * 2001-2015			-1.075 *			-0.113 **
			(0.507)			(0.038)
Time Period						
(1950-1980)	-	-	-	-	-	-
1981-1989	0.196	0.129	-0.120	0.027	0.007	0.012
	(0.575)	(0.490)	(0.537)	(0.021)	(0.024)	(0.023)
1990-2000	1.336 **	1.627 ***	1.450 ***	0.082 **	0.117 ***	0.129 ***
	(0.447)	(0.369)	(0.385)	(0.027)	(0.030)	(0.029)
2001-2015	2.141 ***	1.794 ***	1.574 ***	0.164 ***	0.144 ***	0.148 ***
	(0.435)	(0.411)	(0.413)	(0.036)	(0.036)	(0.034)
Logged Revenue (millions)	-0.391 *	-0.326 *	-0.360 *	-0.038 *	-0.033 *	-0.036 *
	(0.167)	(0.161)	(0.163)	(0.015)	(0.016)	(0.015)
Top 110 by Revenue	0.100	-0.013	0.044	0.011	0.001	0.002
	(0.304)	(0.287)	(0.296)	(0.025)	(0.025)	(0.026)
Percentage Change in Assets	-0.416	-0.828	-0.579	-0.041	-0.056	-0.058
	(0.675)	(0.717)	(0.747)	(0.061)	(0.068)	(0.058)
Percentage Change in Employees	-0.598	-0.110	-0.466	-0.090	-0.048	-0.069
	(0.889)	(0.911)	(1.006)	(0.089)	(0.092)	(0.086)
Incumbent Tenure at Firm Prior to Becoming CEO	-0.024 **	-0.024 **	-0.026 **	-0.003 **	-0.003 **	-0.003 **
	(0.009)	(0.009)	(0.009)	(0.001)	(0.001)	(0.001)
Incumbent Tie to Founding Family	0.713	0.759	0.842	0.050	0.057	0.060
	(0.460)	(0.446)	(0.449)	(0.046)	(0.045)	(0.045)
Incumbent Tenure as CEO	-0.120 ***	-0.121 ***	-0.115 ***	-0.010 ***	-0.010 ***	-0.010 ***
	(0.027)	(0.027)	(0.026)	(0.002)	(0.002)	(0.002)
Percentage Change in GDP	-3.636	-4.686	-4.868	-0.157	-0.220	-0.241
	(5.572)	(5.224)	(5.332)	(0.366)	(0.367)	(0.367)
Proportion Firms Within Industry with Outside CEO Hire	0.256	0.188	0.223	0.054	0.051	0.049
	(0.456)	(0.450)	(0.465)	(0.060)	(0.060)	(0.060)
Number of observations	1,004	1,004	1,004	1,004	1,004	1,004

Note: N=1,004 standard CEO transitions. Logistic and linear probability models predicting outside CEO hires relative to inside hires. Regressions also control for industry indicator variables. Performance measures (along with other firm characteristics) are lagged one year. Interaction effects show the performance-outside hire association in each time period rather than showing a reference association and deviations from this. Standard errors, clustered at the level of the firm, are in parentheses.
* p<0.05; ** p<0.01; *** p<0.001 (two-tailed tests)