WORKING PAPER 2505

The Rise of Merger and Acquisitions in the US: Consequences for Investment, Market Concentration, and Profits -An Integrated and a Macroeconomic Approach with Firm-Level Data

Ayoze Alfageme

February 2025

POST-KEYNESIAN ECONOMICS SOCIETY

The Rise of Merger and Acquisitions in the US: Consequences for Investment, Market Concentration, and Profits -An Integrated and a Macroeconomic Approach with Firm-Level Data

Ayoze Alfageme Ramirez
University of Geneva, Switzerland

Abstract

This paper establishes a connection between non-financial corporate mergers and acquisitions (M&A) and the rise of large firms, decline productive investment, concentration of markets and profits, and rising markups. First, using Refinitiv M&A deals data, I briefly recount the history of corporate M&A deal making in the last four decades in which this study focuses (1980-2020), with special attention to its sector dynamics. Second, the paper presents a literature review highlighting the gap for the type of study presented here, in terms of both methods and time scope. An articulation of the process from which M&A are linked to the new corporate environment is presented in the form of 6 hypothesis. Third, using Compustat firm-level data I present stylised evidence poiting towards the potential validation of those 6 hypothesis. I found that M&A has become an important corporate growth strategy (hypothesis 1). A steeper drop in capital expenditure among firms with the highest acquisition spending points to scrapping capex for M&A (hypothesis 2). Fed's flow of funds data suggests corporate funds are redirected to the household sector for M&A payments, potentially depleting corporate funds. A micro-macro tension arises (hypothesis 3), where individual firms grow larger in total assets through M&A to achieve corporate growth goals, while their capex declines, dampening aggregate corporate investment. M&A is also connected to the rise in market concentration (hypothesis 4) and the accumulation of intangibles that create barriers to entry (hypothesis 5). Finally, firms with the most acquisitions, account for 40% of total profits and have higher markups (hypothesis 6). In a period where efforts are aimed at curbing M&A deals, these findings highlight the implications of leaving the M&A market unrestricted.

Keywords: Mergers and Acquisitions, Market Concentration, Corporate Investment, Firm Growth

JEL Classification: G34, L11, L40, D22

1 Introduction

This paper explores the role of merger and acquisitions (M&A) in the US in contributing to explain the new characteristics of the current economic environment of the non-financial corporate sector: the rise of large firms, decline of investment rates, high concentration of markets and profits, and increased markups. The US M&A market has consistently surpassed records in recent years, reaching an unprecedented $5.8 trillion in 2021, surpassing previous peaks in 2015 and 2017, as depicted in Figure 1, illustrating four decades of rising M&A deals in volume and value. In light of the transformation of the corporate environment, the antitrust movement has experienced a revival, gaining support not only among academic scholars (L. Khan, 2018) but more broadly in the United States (Paul, Sanjukta, 2022; Posner, 2021). M&A have become a crucial concern for public policy as demonstrated by Joe Biden's intensified efforts to curb M&A and monopolies, such as the appointment of Lina Khan, an anti-monopoly advocate, as the new head of the Federal Trade Commission (FTC), and Jonathan Kanter as the new Assistant Attorney General for the Department of Justice (DoJ) Antitrust Division, both of which are responsible for implementing anti-trust regulations in the United States. Since then, the FTC and the DoJ Antitrust Division have increased their activities in challenging M&A deals (Levin, B. et al., 2023) and have issued new merger guidelines in August 2023. Here evidence is presented in support of acting against M&A as a way to unroll the new characteristics of the non-financial corporate sector.

This paper contributes to our understanding of corporate growth strategies, particularly focusing on M&A, and its impact on firm growth and its correlations with sectoral and macroeconomic trends. I argue that if firms have adopted a growth strategy, of which M&A plays a significant role, instead of relying solely on productive capital expenditure in property, plants, and equipment—i.e., as defined in national accounts as corporate investment—macroeconomic investment rates are likely to have been negatively affected. Expenditures on acquiring firms do not entail the creation of new productive capacity since M&A involves a change in the ownership of already established assets. In recent years, numerous studies have proposed various explanations for the decline in US macroeconomic investment rates, to which this study adds acquisition expenditure as a potential contributing factor.

Furthermore, this study establishes a mechanism whereby which NFCs have increased both market concentration and the concentration of profits among a few firms with large markups over the last decades. As M&A deals are completed, firms are eliminated from the market, all else being equal, leading to increased market concentration. This effect, combined with other methods of enhancing market power through M&A, such as acquiring intangible assets or engaging in killer acquisitions, can facilitate the rise of markups and the concentration of profits. While equating market power with a measure of markups illustrates some empirical trends, as seen in De Loecker et al. (2020), it lacks a micro-founded explanation of the aggregate results observed. Even when

higher productivity is suggested as the driver mechanism (Autor et al., 2020), this explanations lacks an explanation to explain about how some firms achieved higher productivity rates. The integrated framework presented herein posits M&A as one mechanism contributing to explaining the empirical trends observed in the evolving NFC sector landscape, thus enabling the integration of trends typically presented apart from each other.

The empirical analysis in this paper is primarily based on firm-level data from Compustat and descriptive statistics. One advantage of using firm-level data is that it allows us to distinguish between different types of firms, such as those that invest in acquisitions and those that do not. Specifically, we demonstrate that the top 10% of firms with the highest acquisition expenditure account for more than 95% of the total acquisition expenditure from 1980 to 2020. Another advantage of our approach is the relative importance of the firms included in the Compustat database in the overall US economy. Compustat provides information about US publicly listed firms, which includes some of the largest corporations (ibid.). Thus, the data it contains enables us to address meaningful questions regarding the most significant firms in the economy.

A final advantage of our approach contrasts with common approaches to M&A studies. Neoclassical and behavioural theories often focus disproportionately on explaining why M&A occur due to external shocks and whether they are profitable for shareholders. Moreover, these studies typically assume market efficiency, either as a permanent assumption or by allowing for market failures. In this paper, we refrain from making such assumptions, thereby filling a gap in the literature by broadening the questions we ask and establishing links between M&A as a growth strategy and the evolving corporate landscape, as well as macroeconomic trends. Given the overrespresentation in the literature of the 1960s and 1980s M&A waves, our focuse on the 1980s onwards is also a novel contribution of the present study, specially for the period of the 21st century.

This work establishes six hypotheses that relate to our research goal and presents supporting evidence. Firstly, we demonstrate that M&A has become an important corporate growth strategy (hypothesis 1), evident in a steady increase in the ratio of goodwill over total assets, exceeding 17%, which is significantly higher than other intangible assets. Concurrently, we observe a decline in property, plant, and equipment. Additionally, expenditure on acquisitions rises relative to total available funds and traditional investment, at times reaching 50% of total capital expenditure. Hypothesis 2 posits that if corporate growth goals are achieved via M&A instead of through capital expenditure, the latter should decline, especially among firms heavily engaged in acquisitions. Our descriptive data analysis reveals that 10% of all firms account for more than 90% of total acquisition expenditure, and these firms exhibit a greater-than-average decline in capital expenditure and a reduction in their share of capital expenditure. Using flow of funds data from the US Fed, we demonstrate that the transfer of corporate funds due to M&A transactions towards

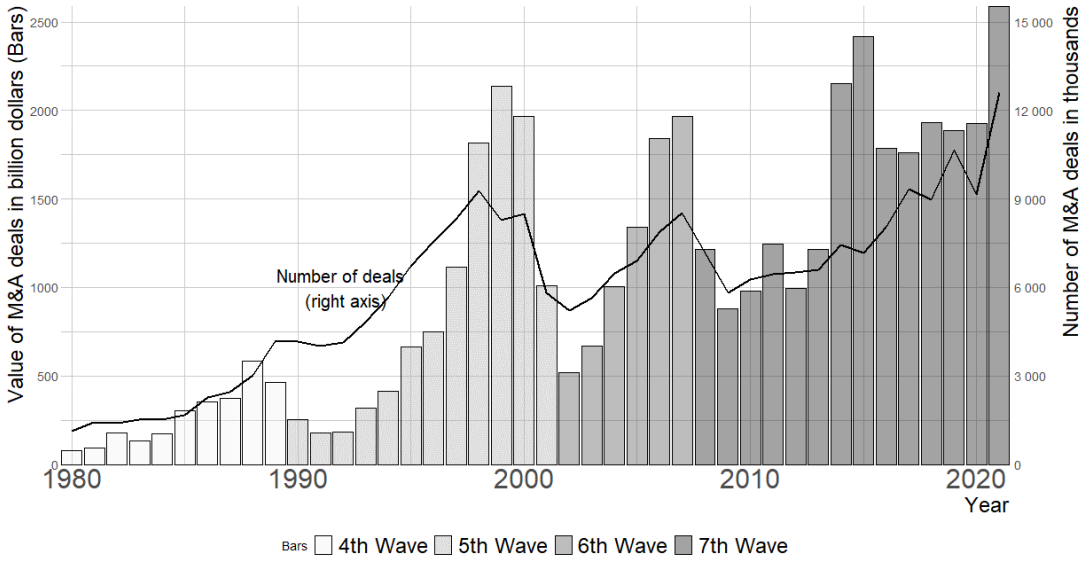
shareholders becomes significantly more important than buybacks, and as important as dividend payments in the late 1990s and early 2000s, remaining as significant as buybacks after 2010. This supports the assumption that one of the reasons for declining investment rates is due to a transfer of corporate funds to shareholders. Hypotheses 1 and 2 give rise to the paradox presented in hypothesis 3, which states the micro-macro tension between increasing firm size, especially among the 10% of firms that account for more than 90% of total acquisition expenditure, and declining capital expenditure rates at both the firm level and, consequently, the aggregate level.

Our hypothesis 4, in line with Stigler (1950), posits that M&A contributes to market concentration. Supporting this hypothesis, we present data indicating that the primary reason for market exit is M&A, with over 70% of total acquisition expenditure concentrated among the largest 20% of firms based on asset size. Additionally, there is an increase in both the share of sales and assets of the top 10% of firms responsible for 90% of total acquisition expenditure. Given the concentration of acquisition expenditure among the largest firms in terms of assets and sales, M&A can be seen as a mechanism contributing to the rise of superstar firms, which is compatible with the higher productivity hypothesis proposed by Autor et al. (2020). Furthermore, market power can be augmented not only through market concentration but also by accumulating intangible assets with monopoly sway or by undertaking killer acquisitions. Supporting hypothesis 5, we demonstrate that more than half of total intangible assets are accumulated by firms with the highest acquisition expenditures.

Finally, our last hypothesis establishes a connection between the use of M&A and increasing markups and concentration of profits. Indeed, after 2000, firms with the most acquisition expenditure experience markups well above the average, concentrating an average of 44.8% of total profits since 1980. The rise of market concentration and increasing market power, features of stagnant economies (Kalecki, Michael, 1954; Steindl, 1976), spurred by the use of M&A, can also be viewed as another mechanism through which acquisition expenditure negatively affects investment growth, as shown in Gutierrez and Philippon (2016). Overall, the results we present are consistent with the suggestion that M&A, as a corporate growth strategy, is related to declining investment rates, higher market and profit concentration, as well as higher markups.

The remainder of the paper is structured as follows: The next section provides a brief history of NFC M&A in the US since 1980, setting the stage for the subsequent analysis. Section 3 offers a theoretical review of M&A theories relevant to the issues under study, highlighting why these issues have been overlooked in previous research. Section 4 outlines an integrated approached to link M&A with the broader corporate environment and presents six hypothesis for potential validation. Section 5 presents the empirical evidence, and Section 6 offers a brief conclusion.

Figure 1: Number and value of M&A deals in the US, 1980-2021



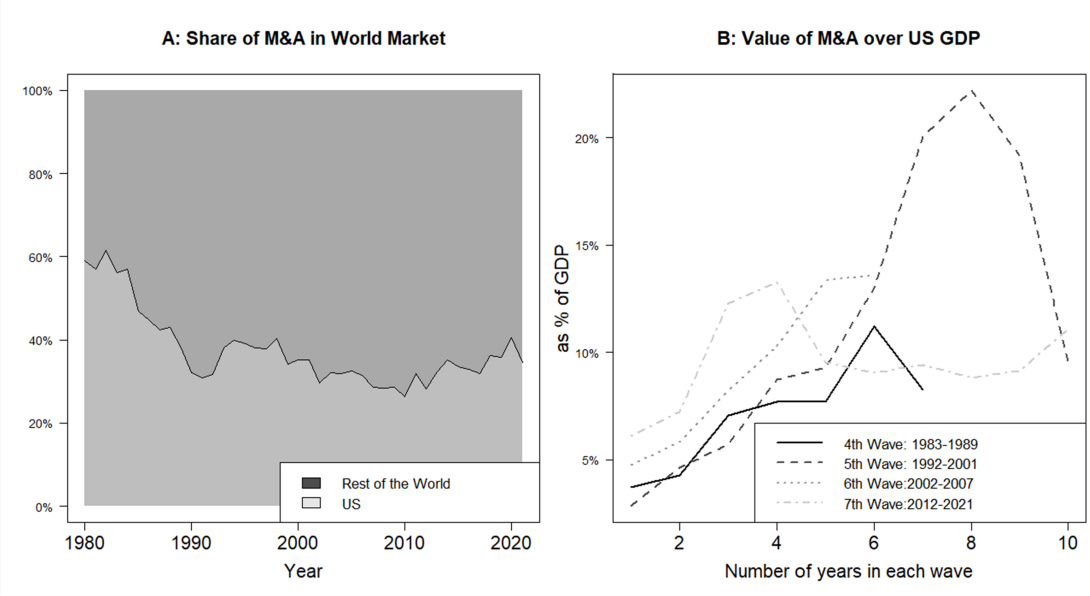
Source: Refinitiv. Author's calcaulation

2 A short history of M&A from the 1980 to 2022

Figure 2, Panel A, shows the share of M&A deals in the US and the rest of the world. While the US share shrunk from 60% in the early 1980s to around 40% in the early 1990s, the US remains the most relevant market, which is the focus of this study. In order to give a hint of the economic importance of the value of M&A deals, Figure 2, Panel B, shows the dollar value per year as percentage of the US GDP. The interpretation is that in the last M&A waves, in average, is that the value of capital assets that changed hands was in average more than 10% of US GDP.This study commences in the 1980s, a period marked by a takeover frenzy driven by hostile takeovers, often facilitated by leveraged buyout (LBO) deals. These takeovers were frequently characterised by their hostile nature, with debt imposed on the buyout firm's balance sheet to serve as a financial constraint aimed at disciplining and restructuring the organisation. In contrast to the diversification and conglomerate-building focus of the 3rd wave in the 1960s (Stigler, 1968), the 1980s witnessed the divestiture of a significant portion of acquisitions, a trend that had already begun in the 1970s (Kaplan et al., 1992; O'Sullivan, 2001; Porter, 1987; Ravenscraft et al., 1987). The takeover movement in the 1980s provided Wall Street with an opportunity to continue promoting and financing M&A deals that had originated in the previous wave of the 1960s, known as the conglomerate wave. During this earlier wave, large corporate managers sought to expand into unrelated lines of business using substantial debt, often financed by Wall Street. However, the economic turbulence of the 1970s left conglomerates in a precarious financial position. In response,

Wall Street raiders and bankers collaborated with divisional managers to acquire the business lines that conglomerates needed to divest from.

Figure 2: M&A World Market Share and Economic Importance



Source: Refinitiv. Author's calcaulation

This shift towards specialisation coincided with changes in antitrust policy, as enforcement of antitrust laws loosened under the Reagan administration (Shleifer et al., 1991; Vaheesan, 2019). As it can be seen in Figure 1 in the 6, that shows the direction of acquisition for each sector, the last four decades have seen a quest for specialisation rather than diversification like in the 1960s. Table 1 shows how M&A deals in consumer products and services and manufacturing sectors, dominated the market in the 1980s, alongside the energy sector, and have remained among the most active sectors until the end of the period under study. While the 4th merger wave was pivotal in establishing the financial industry as a driving force behind corporate control and restructuring, reinforcing the shareholder value ideology (Lazonick and O'Sullivan, 2000), it pales in comparison to the subsequent waves that unfolded over the next three decades (see Figure 1).

The M&A wave that swept through the United States in the early 1990s, reaching its peak in 2000 with a total value of $2,140 billion before being punctuated by the bursting of the dot-com bubble, was marked by an internationalisation of the deal market. This surge in M&A activity was driven by the need to catch up with the rapid advancements in information and telecommunications (I&TC) technologies (see Table 1). Consequently, a significant concentration of deals occurred in the industrial and telecommunications sectors. Prominent among the major

US deals during this period were the AT&T and Tele-Communications Inc. transactions in 1999, as well as the absorption of GTE and NYNEX by Bell Atlantic (now Verizon) in 1996 and 1998, involving two of the largest telephone companies of their time. After 1995, cross-border M&A investments accounted for approximately 20% of all deals, a substantial increase compared to the less than 7% observed in the previous fifteen years. Notably, these cross-border deals were primarily outbound investments from the US, indicating a trend towards offshoring production. It's important to highlight that the 5th wave extended across several continents, with a notable presence in the UK, continental Europe, and the nascent Asian market (Gregoriou et al., 2007). Equity swaps emerged as a dominant source of financing for these deals, driven by the overvaluation of I&TC shares. This dynamic fuelled the wave but also contributed to its decline when the dot-com bubble burst.

Table 1: Industry Shares of M&A Values: Averages for Each Period

Sectors	**1985-1990**	**1991-2000**	**2001-2007**	**2008-2020**
Consumer Products and Services	18.6%	15.0%	12.3%	12.9%
Consumer Staples	4.8%	4.4%	4.6%	4.2%
Energy and Power	16.4%	5.8%	7.9%	7.4%
Healthcare	2.3%	5.1%	9.7%	10.9%
High Technology	5.2%	10.3%	23.8%	21.7%
Manufacturing	20.3%	19.3%	19.6%	20.5%
Media and Entertaiment	16.4%	15.9%	8.5%	7.5%
Real State	3.1%	4.2%	5.3%	9.2%
Retail	5.6%	3.6%	3.9%	3.7%
Telecommunications	7.3%	16.4%	4.3%	2.1%

Source: Refinitiv[1]. Author's calculations.

The short wave between 2002 and 2007 was marked by the large availability of liquidity through credit markets and piled up cash accrued by the buoyant economic environment. It was thus cash that financed the largest portion of deals, closely followed by debt. Thanks to persistent low interest rates and the bank willingness to lend, the dormant industry of LBOs made a comeback to the market rebranded as Private Equity (PE), but their business strategy remained mostly the same as described in the 1980s . Banks involvement in M&A, became a crucial part of their business, accounting to more than 30% of their income by charging fees on their advising and financing of deals. It was also the wave in which mega deals, those of value of $5bn and more, became normal business, with more mega deals each year than the previous 2000 record. Despite the higher number of per-year deals, Alexandridis et al. (2012) reported that deals acquirers tended to overpay less than in the 1990s. As show in Table 1, during the 6th wave, deals in high technology and healthcare sector start to rise rapidly. Relaxed anti-trust enforcement

allowed for more horizontal mergers, in comparison to the 1990s.

The most recent M&A wave spans from 2012 to 2022. In 2021, this wave set new records in both volume (exceeding 25,000 deals) and value (surpassing $3,400 billion), surpassing previous highs set in 2015 and 2017. Historically low interest rates and central banks injecting liquidity into financial markets led to exceptionally inexpensive access to credit and the issuance of corporate securities, particularly corporate bonds. Consequently, a significant proportion of deals were financed through debt, indicating the continued growth of PE firms . Nevertheless, cash remained the preferred method of payment. Major corporations expanded their operations through M&A across related and unrelated lines of business. The most active sectors included healthcare, biotechnology, pharmaceuticals, and technology. Notably, tech giants like Alphabet engaged in frequent acquisitions, averaging one per month since 2001. These big-tech firms, relying on network economies to fuel growth and establish fortified market positions, diversified their business interests by acquiring smaller and potential future competitors. Mega deals continued to dominate the landscape surge (Aliaj et al., 2022), with landmark transactions such as Dow-DuPont, Heinz-Kraft, AT&T-Time Warner, and Disney-21st Century Fox exceeding $100 million per deal. However, the recent rollback of central banks' monetary stimulus measures, following the pandemic, brought this M&A wave to a halt.

3 Review of M&A and their effects

There is an extensive literature on M&A, why they happen and their effects. The interested reader in a wider review is referred to Martynova et al. (2008)..

While the literature has examined the effects of M&A on the performance of the involved firms, many of these studies do so to validate hypotheses regarding why mergers occur. The first two hypotheses, derived from neoclassical theories, aim to test whether M&A occur under the assumption that firms maximise either profits or shareholder value (Harford, 2005; Jovanovic et al., 2002). The mounting evidence against these theories has led some researchers to propose a third category, in which firms or managers are assumed to strive for goals other than profits or shareholder value, particularly growth maximization (Gugler, Dennis C. Mueller, et al., 2012; Shleifer et al., 2003). The focus on testing these hypotheses has meant studying firm-level post-merger performance rather than the effects of M&A on the wider corporate sector, which is the focus of this paper.

For example, the literature has not yet delved into the significance of external expansion via M&A as a growth strategy for the corporate sector compared to the traditional approach of internal expansion through capital expenditure. This observation is crucial as it sets the stage for examining how various corporate strategies, including M&A, might impact corporate capital

expenditure and, subsequently, influence macroeconomic investment levels.

Some scholars have explored a related question, such as the impact of M&A on a firm's growth (Weston, 1953). However, the results are not satisfactory since it is challenging to quantify the contribution of mergers, given the unaccountable potentialities for growth and uncertainties inherent in the acquisition process (Penrose, 1959). These difficulties arise from both stating the growth path of acquired assets and determining the counterfactual growth path if the acquisition had not taken place. Weston (1953) proceed with their analysis without accounting for the present value of acquired assets, while Aaronovitch et al. (1975a,b), in a similar exercise to Weston's, incorporated a growth rate of acquired assets. However, despite the explicit nature of their assumption, no economic reasoning was provided for their applied method.

Theoretical analyses of M&A overlook their impact on capital expenditure. Existing literature, rooted in investment theory, suggests that M&A activity is influenced by factors similar to traditional investment, such as high firm valuations and Q values (Jovanovic et al., 2002). However, these studies prioritize validating the q-theory of investment to predict M&A waves (Du Boff et al., 1989), neglecting to explore post-M&A capital expenditure implications. Moreover, they rely on the assumption of market efficiency, with even behavioural studies using softened versions of this assumption (Gugler, Dennis C. Mueller, et al., 2012). This gap underscores the need for further research to fully understand the broader ramifications of M&A activities. Only one study has focused on the implications of M&A for overall GDP growth, finding a negative relation. In that study, the mechanism of how M&A translates into lower GDP growth is not spelled out and considers M&A deals of financial corporations too. We think that a better approach is to take one step back from economy-wide GDP growth effects and ask whether NFC M&A can be linked to lower NFC investment in capital expenditure, which is a more traceable link.

The literature on corporate financialization attempts to explain the lower capital investment rates since the 1980s. It links the depletion of corporate financial resources, through higher shareholder payouts (O. Orhangazi, 2008; Stockhammer, 2004), or the diversion of investment towards financial markets (L. E. Davis, 2018), as reasons for the decline in accumulation rates. However, M&A has not yet been examined as a contributing factor to declining investment rates, a connection that this paper explores in the next section.

Few studies have delved into the impact of M&A on market concentration and profitability. Notably, Muller (1976) found that non-merging companies, on average, retained more of their market share than merging companies. However, studies by Dennis C Mueller (1980), Ghosh (2001), and Gugler, Dennis C Mueller, et al. (2003) failed to identify post-merger increase profitability or sales growth in M&A cases from the 1980s takeover wave. These studies primarily focused on mergers occurring in the 1960s and 1980s. The 1960s, marked by the rise of conglomerates, saw

acquisitions of companies in unrelated businesses, leaving many firms studied as quasi-independent units. Conversely, the 1980s were dominated by LBOs, with post-acquisition strategies often emphasizing downsizing rather than growth (Lazonick and O'Sullivan, 2000). Consequently, both Muller (1976) and Gugler, Dennis C Mueller, et al. (2003) examined numerous acquired firms left as autonomous entities with no business relation to the acquiring company. It is challenging to explain why, in such cases, acquisitions should lead to higher growth sales. Thus, their findings of no evidence linking M&A to increased market concentration at the industry level are less surprising. This contrasts with the high industry relatedness of M&A deals, as shown in table 2, and is consistent with Pryor (2001) for the 1990s, who also used relatedness of M&A as a proxy to infer their effect on market concentration. Although not focusing on market share, Gugler, Dennis C Mueller, et al. (2003) interpreted the simultaneous rise in profitability and decline in sales of horizontal mergers as indicative of increased market power.

Another issue with these studies is that they employ an event-study approach, and their results hinge on the measure of profitability as well as the selection sample and measure of post-merger performance (Martynova et al., 2008). If profitability is proxied by an earnings measure, the effect is usually negative, while cash-flow measures tend to show positive results. The problem with earnings measures is that they may be influenced by factors other than increased post-merger performance, such as efficiency gains or higher market power. For instance, in acquisitions, the acquiring company not only increases its balance sheet by the value of the assets of the acquired company but also by the amount of goodwill. The latter increases the assets of the acquiring company without any counterpart in productivity or efficiency, thereby dragging down profitability. Another issue with event studies is the selection of the method of measuring the counterfactual post-merger performance, for which no reliable economic reasoning method is provided. Comparing post-merger performance against a possible counterfactual in which no acquisition has occurred is the only way to test whether the theories, whether neoclassical - managers maximise profits or shareholder value - or behavioural - maximisation of growth - hold true.

A prime example of examining historical trends through hypothesis testing is Stillman's study on oligopoly effects. He suggests that competitors of firms involved in anti-competitive acquisitions should experience a rise in market valuation due to anticipated price increases from the Cournot-Nash equilibrium model. Yet, upon failing to observe this, he concludes that, on average, M&A transactions do not lead to less competitive markets. The study, however, overlooks other ways in which the market dominance of acquiring firms may adversely affect competitors, such as through intangible acquisitions and the creation of barriers to entry, a point we address further in the following section.

No M&A study has yet explored the dynamics of markups, a widely used measure of market power. Recent literature has highlighted the rising markups observed in the NFC sector,

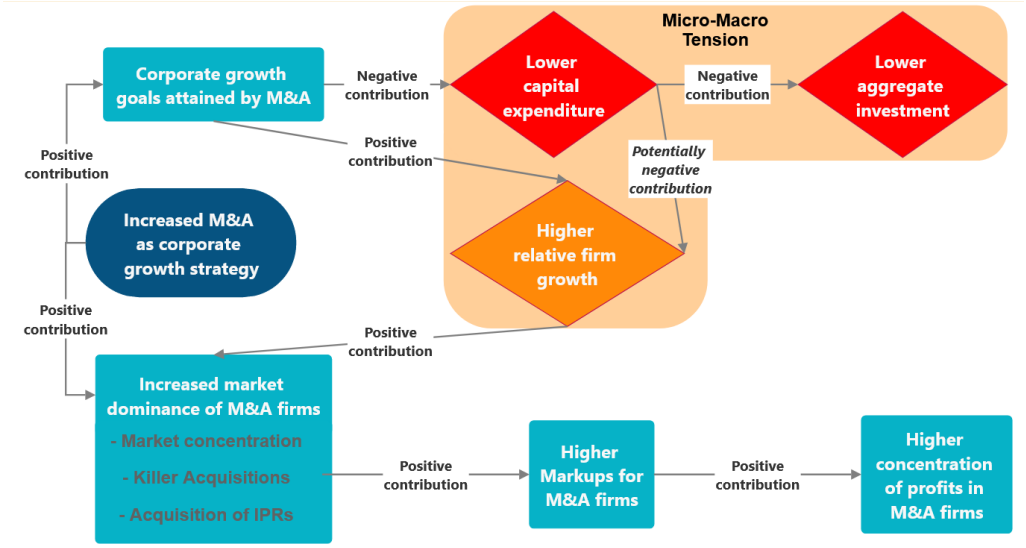
attributed to increased demand reallocation towards more productive firms and reduced antitrust enforcement (De Loecker et al., 2020; Gutiérrez et al., 2019). However, the former explanation attributes this trend to an external shock toughening market conditions by lowering the threshold for marginal costs, yet fails to explain how firms achieve greater success compared to their competitors. Additionally, Gutierrez and Philippon (2019) fail to consider the significance of the relative position of firms in the market, including factors such as firm distribution of market share, capital expenditure, and relative markups, in understanding market dominance. They do not clarify the mechanisms through which high-markup firms come to dominate the market—is it through productivity gains or M&A activity?—thus warranting antitrust scrutiny. Furthermore, lax antitrust enforcement itself acts as an external shock, exacerbating barriers to entry. We complement these findings by proposing M&A as a mechanism through which firms displace competitors by elimination or through acquisitions of intellectual property rights (IPRs), resulting in a skewed distribution of high markups and profits concentrated among firms allocating a disproportionately high share of resources to acquisitions.

4 The link between M&A growth and declining investment, alongside concentration of markets and profits in large firm with higher markups

In light of the limitations of existing literature on M&A and its effects, this section proposes an integrated approach to understanding the impacts of M&A, which synthesises various trends typically analysed in isolation. Each step of this approach is presented as a hypothesis, with supporting data provided in the subsequent section for potential validation. It is proposed that the increase in M&A activity in the non-financial corporate sector is linked to shifts in the corporate landscape in the US, characterised by larger firms, lower investment rates, market and profit concentration, and higher markups. This establishes a connection between firm-level behaviour and broader trends observed at both the corporate and macroeconomic levels. Additionally, this section outlines empirical indicators that can be examined to support the hypotheses presented here. Figure 3 provides a summary of this process.

As depicted in Figure 1, corporate M&As have surged in recent decades to historically high levels. This leads to our first hypothesis, suggesting the emergence of a new prevalent corporate growth strategy, wherein firms increasingly opt for external expansion over internal investment, i.e., capital expenditure. Numerous examples illustrate the significance of acquisitions in the growth strategies of major firms. For instance, Microsoft's inclination towards acquisitions as a growth driver, as highlighted by Economist (2021), is noteworthy, with the total value of its acquisitions far exceeding its investment expenditures. Similarly, Alphabet has maintained a consistent pace

Figure 3: Stylised articulation process



of acquiring approximately one firm per month since 2001. Furthermore, external expansion is not confined to large corporations alone, as medium-sized firms have also embraced this growth strategy in recent years (Acharya et al., 2022).

As articulated by theorists of the firm, there are compelling reasons why firms engage in acquisitions, as it enables faster growth by eliminating the need to accumulate internal growth resources, relying instead on the firm's entrepreneurial services (Marris, 1964, p. 123) (Penrose, 1959, p. 165). However, corporate growth is constrained by the firm's ability to expand within a certain period (Wood, 1975), contingent upon the availability of managerial services for integration and coordination (Penrose, 1959, p. 167). As noted by Penrose (ibid.), "the more extensive the external expansion in any given period of time, the less can existing resources be used for internal expansion in the same period" (ibid., p. 171)[2]. Consequently, if part of corporate growth is achieved through M&A, other growth strategies like capital expenditure must be curtailed. Thus, our second hypothesis posits that the decline in capital expenditure can be partly attributed to the rise in M&A as a corporate strategy. While it is plausible that a depletion of corporate funds due to acquisition expenditure negatively impacts capital expenditure, as suggested by the financialization literature, this is not a necessary condition for the mechanism proposed here. It is argued that if corporate growth objectives are achieved through M&A, the need for additional corporate investments to fulfil those objectives diminishes.

A micro-macro tension arises from M&A as a corporate growth strategy (hypothesis

[2]Best (1990, p. 125) has summarised the argument succinctly, stating, "Penrose's theory of the growth of the firm is based upon two assumptions: everything cannot happen at once, and a person cannot do everything alone".

one) and the subsequent decline in capital expenditure (hypothesis two). While firms pursuing M&A continue to grow and increase their size, they simultaneously reduce capital expenditure. This reduction in capital expenditure at the firm level may translate into a decline in aggregate macroeconomic corporate investment. The third hypothesis posits that as corporations expand through M&A, the aggregate investment rate may decrease due to the widespread adoption of external growth as a corporate strategy. However, despite this decline in aggregate investment, individual growth objectives are still achieved through M&A. From a macroeconomic perspective, firms' M&A expenditures do not contribute to the generation of new productive capacity and are therefore not recognised in national accounts as investment. This tension between firm-level growth and macroeconomic investment constitutes the third hypothesis: as firms increase in size through M&A, capital expenditure growth declines.

The fourth hypothesis establishes a connection between M&A activity and the escalating concentration of markets. This phenomenon arises from the diminishing number of firms operating within a market following each M&A transaction. With every deal, a firm is absorbed or eliminated from the market, thereby amplifying market concentration, assuming all other factors remain constant. Even in instances of acquisitions involving small firms, such as those pursued by private equity firms through rollup acquisitions, this approach can lead to the monopolisation of local markets, prompting regulatory concerns from bodies like the FTC. Furthermore, while M&A has become increasingly accessible to medium and small-sized firms in recent years, especially during periods of quantitative easing (Acharya et al., 2022), it remains a growth strategy predominantly favoured by large corporations. This propensity further solidifies market concentration within already large firms. One reason behind this trend is the substantial financial resources available to large corporations, encompassing retained earnings and external financing. M&A activities, particularly those aimed at market monopolization, have long been acknowledged for their ability to leverage current assets and anticipated monopoly profits (Du Boff et al., 1989; Hake, 1998; Stigler, 1950; Toporowski, 2000). The scale of these current assets and expected monopoly profits determines the extent to which acquiring firms can access additional financial resources through capital markets, thereby ensuring the financial feasibility of such operations. Examples include Verizon's $49 billion share sale for the acquisition of Verizon Wireless and Anheuser Busch-InBev's $46 billion raise for the purchase of SABMiller, highlighting the crucial role of capital markets in facilitating large-scale mergers (M. Khan, 2016). Notably, during the 1990s, companies with access to this strategy utilized the stock market to acquire technologies through stock-based payments (M. Carpenter et al., 2003).

IPR and technology absorption acquisitions have played a significant role and are expected to continue doing so (Annette L Ranft et al., 2000; Annette L. Ranft, 2006; Annette L. Ranft and Lord, 2002), representing yet another pathway through which M&A drives market dominance - this

constitutes the fifth hypothesis. The growing importance of IPRs as barriers to entry has spurred companies to contemplate acquiring existing incumbents, especially when certain assets confer a degree of monopoly power (Pagano, 2014). With a substantial portion of innovation now emanating from the startup ecosystem, firms increasingly opt for growth through acquisitions rather than relying solely on internal innovations, particularly in high-tech (M. Carpenter et al., 2003; Marie Carpenter et al., 2017; Lazonick, 2010) and pharmaceutical sectors (Baranes, 2020; Lazonick, Hopkins, et al., 2017; Tulum et al., 2018). This approach has long been recognized as the "entry-for-buyout" strategy, aimed at establishing barriers and assimilating intangible assets (Gilbert et al., 1982; Rasmusen, 1988). For example, in the 1970s, Eli Lilly & Co. dominated the insulin market. In 1978, Genentech patented its development for synthesizing human insulin, and the following day, Eli Lilly & Co. acquired Genentech (Barese, 1991). More recently, notable examples include Facebook's acquisitions of Whatsapp and Instagram. The term "killer acquisitions" has gained traction to describe extreme cases of entry-for-buyout, with the aim of eliminating a target firm's technology[3].

The final link in our argument is the rise of markups and the concentration of profits in firms that pursue M&A as part of their corporate growth strategy. Following the tradition of (Kalecki, Michael, 1954), it is plausible that increasing market concentration via M&A allows dominant firms to increase their markups - the sixth hypothesis. While market concentration is not the sole determinant of markups across time and sectors (L. Davis and Ö. Orhangazi, 2021), there is evidence supporting that the increasing market concentration of recent decades is associated with increasing markups (Autor et al., 2020; De Loecker et al., 2020; Grullon et al., 2019). Additionally, it is plausible that firms pursuing M&A already enjoy larger markups than other firms. A larger markup may imply more available resources to engage in acquisitions. Recent evidence on corporate trends highlights the importance of monopolizing intangible assets that act as barriers to entry (Lambert, 2020; Pagano, 2014; Rikap, 2021) for high-markup firms (Calligaris et al., 2018; Ö. Orhangazi, 2019). As explained earlier, M&A is an important method of acquiring IPRs that can reinforce barriers to entry. Moreover, higher markups can be achieved not only by raising prices due to reduced competition but also by securing dominance and control over suppliers, allowing a firm to increase markups by reducing costs. Several studies reveal reduced supplier wages (Wilmers, 2018) and input prices (Bhattacharyya et al., 2011; Fee et al., 2004) for firms involved in M&A.

If high-markup firms that pursue M&A tend to dominate the market, either through concentration or IPRs, this implies that the new price system redistributes further profits towards

[3]These often evade antitrust scrutiny due to low reporting thresholds (Wollmann, 2019) and have been found to be particularly prevalent in the pharmaceutical sector (Cunningham et al., 2021) and to have a significant impact on large tech companies despite being less frequent in this sector (Latham et al., 2020).

these high markup firms, as explained in Steindl (1976). Thus, the seventh and last hypothesis states that profits will tend to concentrate increasingly in firms with the highest acquisition activity. This is consistent with the composition effect reported by De Loecker et al. (2020), whereby the average markup increase is the result not only of increasing markups of individual firms but also of high markup firms enjoying a higher market share. This proposed articulation suggests mechanisms through which the composition effect takes place, a link missing in the study by De Loecker et al. (ibid.). High-markup firms that engage in M&A eliminate competitors, forcing a demand shift towards them that results in a higher share of gross profits relative to the total. Moreover, the M&A mechanism may also be compatible with the high-productivity mechanism suggested by Autor et al. (2020), since high-markup firms may also have access to more internal and external financial resources to finance acquisitions. In any case, while M&A may create stagnation tendencies at the macroeconomic level by reducing the need to expand through capital expenditure, at the firm level, they generate an increased accumulation of profits for acquiring firms.

5 Empirical trends of M&A as a corporate growth strategy in detriment of capital expenditure

To assess the hypotheses outlined in the previous section, Table 2 summarizes the hypotheses drawn and the expected trends in the corporate sector, indicating potential validations. Hypothesis 1 should manifest as a rise in goodwill for the NFC sector, an asset generated only through the process of acquiring firms. Additionally, the NFC sector should show an increased ratio of capital expenditure over both total capital expenditure and available funds. If M&A reduces investment in productive assets, as the second hypothesis states, firms with the highest acquisition expenditure should see the most significant decline in their ratio of capital expenditure over available funds, as well as their share of capital expenditure over the total capital expenditure of the NFC sector. Moreover, an increase in funds directed away from the corporate sector towards shareholders should result from settling M&A payments. Regarding the micro-macro tension, the third hypothesis suggests that the most acquisitive firms should increase in size while reducing capital expenditure rates. As for the potential validation of hypothesis four, which posits increased market concentration due to M&A, data is presented showing an increase in exits from the market due to M&A, high industry relatedness of both sides of M&A deals, concentration of acquisition expenditure among large firms, and an increasing share of both sales and assets over the totals of the NFC sector. If the acquisition of IPRs is related to M&A, as proposed in hypothesis five, then firms with the highest acquisition expenditure should accumulate most of the intangible assets (other than goodwill) in the NFC sector. Finally, if hypothesis six holds true, we should observe that firms with the most acquisition expenditure can charge higher markups as well as concentrate a disproportionately large amount of total profits.

Table 2: Summary of hypothesis and evidence sought for validation

Hypothesis	Evidence
1.Have MA become an important corporate growth strategy?	1. Rise in acquisition-specific accumulated assets goodwill.
	2. Rise in the ratio of acquisition expenditure over cape.
	3. Rise in the ratio of acquisition expenditure over available funds.
2.Can M&A scrap capital expenditure?	4. Capital expenditure over available funds falls the most among firms with highest acquisition expenditure.
	5. Firms with highest acquisition expenditure's share of capex declines.
	6. The NFC sector increases the funds paid to shareholders due to M&A transactions.
3.Micro-macro tension: Larger firms despite lower investment rates	7. The size of highest acquisition expenditure firms rises while investment rates decline.
4.Have MA increased market concentration?	8. Increase exit of firms from the market due to M&A.
	9. Sales share of firms with highest acquisition expenditure increases.
	10. Assets share of firms with highest acquisition expenditure increases.
	11. Concentration of acquisition expenditure among largest firms.
5.Do M&A create barriers to entry?	12. Concentration of IPR assets among firms with highest acquisition expenditure.
6.Are higher markups and higher profits related to MA?	13. Highest markups among firms with highest acquisition expenditure.
	14. Concentration of profits among firms with highest acquisition expenditure.

In implementing an empirical strategy to track the indicators and their expected trends as outlined in Table 2, the focus is on the firm-level financial database of Compustat, where the code *aqc* refers to acquisition expenditure, which encompasses cash outflows or funds used for, and/or costs related to, the acquisition of a company in the current year or effects of an acquisition in a prior year carried over to the current year. An important consideration is that solely focusing on acquisition expenditure flows may overlook the amount of M&A paid by equity, a common form of payment. However, Compustat also provides information about goodwill (code *gdwl*), which represents the excess of cost over equity of an acquired company and is independent of the payment method, reflecting the acquisition activity of the firm as long as deal prices surpass acquired booked value. The sample includes only NFCs with non-negative total assets and non-negative sales, amounting to 20,359 distinct firms. These firms are categorised by industries according to the SIC industry classification. Compustat also tracks information about sales, total assets, as well as different types of assets and cash flow information, enabling the presentation of evidence in support of the conclusions drawn from the conceptual discussion.

In contrast to the literature review in Section 3, the focus here is on tracking the acquisition expenditure flows and the firms that disburse them, without tracking the effects on acquired firms. This approach allows for monitoring the position relative to other firms of those that un-

dertake acquisitions as a growth method. Additionally, it facilitates the transition from firm-level effects to sector and macroeconomic level implications by considering the share of acquisition expenditures, market share, relative size, and other indicators of those firms that account for most acquisitions relative to the whole NFC sector. Apart from the convenience of the data variables available in Compustat, the use of this database is justified, as noted by Autor et al. (2020), as it provides a broad representation of investment and employment trends, encompassing major firms. Additionally, as emphasized by (Toporowski, 2016), these large corporations significantly influence investment growth in the broader economy. In addition to the Compustat data, the Fed enhanced flow of fund data is utilized to demonstrate the increase in corporate payments to the household sector due to M&A, and industry relatedness uses Refinitiv data.

In what follows, the expected empirical trends indicated in Table 2 are presented. The empirical analysis is divided into two subsections. Subsection 5.1 addresses hypotheses 1 to 6, which pertain to corporate growth and capital expenditure effects. Subsection 5.2 focuses on the connection between M&A activity and the concentration of markets, IPRs, and profits, as well as higher markups.

5.1 Empirical trends of M&A as a corporate growth strategy in detriment of capital expenditure

1st Hypothesis: Growing importance of M&A as a corporate growth strategy 2:

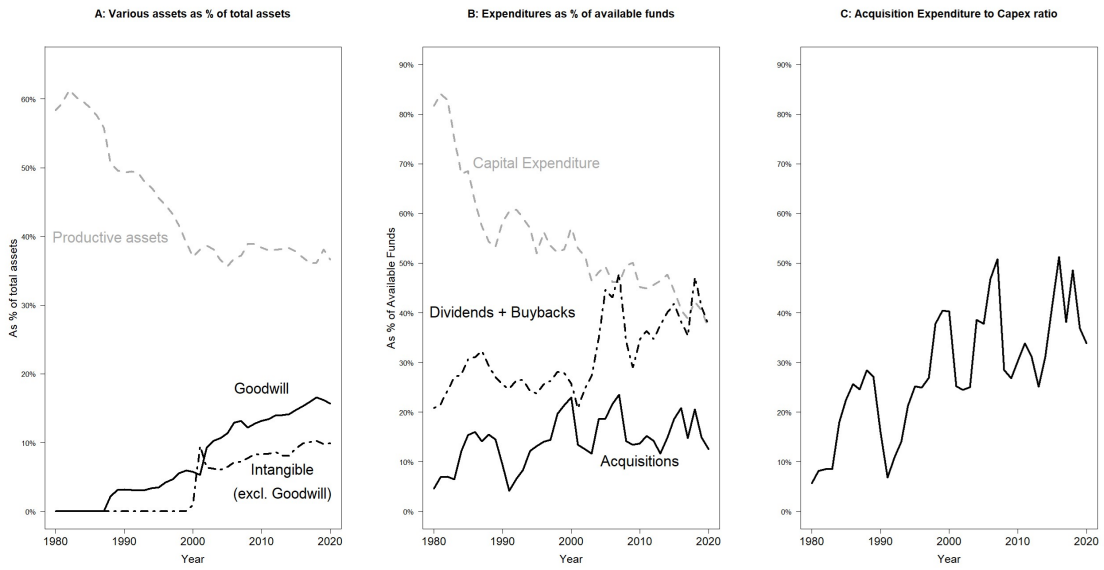
- *1. Rise in acquisition-specific accumulated assets: goodwill.*
- *2. Rise in the ratio of acquisition expenditure over capex.*
- *3. Rise in the ratio of acquisition expenditure over available funds.*

To assess the increasing significance of M&A as a growth strategy within NFCs, I examine their accumulation of goodwill and various expenditures as a percentage of available funds. Goodwill represents the premium paid by acquiring firms over the book value of their target companies and accrues as an asset.

In Figure 4, Panel A, we observe the changing asset composition as a percentage of total assets over time. Notably, the importance of productive assets consistently declines, decreasing from 60% to under 40%. Conversely, goodwill's share follows an upward trajectory, starting when Compustat began accounting for it in 1986. In 2001, goodwill experiences a sudden and substantial surge, continuing to rise faster than in the 1990s, ultimately exceeding 15% of total assets. The graph also includes other intangible assets to show that goodwill consistently outweighs other intangibles in NFCs' balance sheets. This evidence suggests that despite the clear importance of IPRs, growth through acquisitions is equally relevant in understanding corporate growth.

Examining expenditure flows in Figure 4, Panel B, reaffirms the upward trend in the

Figure 4: Increasing importance of M&A as growth strategy of NFC, 1980-2021



Source: Compustat. Author's calculations. Productive assets are property, plant, and equipment. Available funds is equal to operating income after depreciation and taxes plus the net debt flow.

significance of M&A as a strategy for corporate growth. It is crucial to note that Compustat exclusively provides data on acquisition expenditure flows. Consequently, we can quantify the resources allocated to acquisitions but lack information on the specific target firms of these expenditures. Capital expenditure, representing a substantial 80% of expenditures initially, steadily decreases to approximately 40%. Simultaneously, payouts to shareholders, encompassing dividends and buybacks, rise from 20% to a comparable 40%. Should the financialization argument that shareholder payouts drain corporate resources be taken seriously in explaining low investment rates (L. E. Davis, 2018; O. Orhangazi, 2008), acquisition expenditures should also be taken into account given its relevance as a percentage of available funds.

Expenditure on acquisitions fluctuates in tandem with M&A waves. It escalates from an average of 5% in the 1980s to approximately 10%. During the 1990s, it continues to surge, reaching around 20%, and maintains a level of about 15% after the 2000s. It is important to note that the acquisition expenditure alone underestimates the resources devoted to M&A since it only includes the part of deals paid in cash. Table A1 in Appendix A lays out the acquisition expenditure as a percentage of available funds for each industry of NFCs. In 2009, consumer durables experienced a substantial decline in available funds, artificially inflating their acquisition expenditure in relation to their funds.

What's even more striking is the aggressive increase in acquisition spending by the healthcare and high-tech sectors. Healthcare shows a consistent upward trajectory in this regard, while high-tech peaks during the early 2000s, subsequently reducing its expenditure to levels just above those seen in the 1990s. A parallel trend emerges in the manufacturing and services sectors, albeit at lower magnitudes. Consumer non-durables, on the other hand, exhibit a dip in acquisition funds during the 1990s compared to the 1980s, followed by a resurgence in the early 2000s, only to recede back to 1990s levels over the last 12 years of the period.

Figure 4, Panel C, confirms the notion that NFCs have realigned their expenditure priorities to place greater emphasis on acquisitions as a corporate growth strategy. The mounting importance of M&A as a corporate strategy reflects NFCs' increased willingness to allocate more resources to acquisitions. Instead of predominantly boosting productive investments, these firms achieve their growth objectives by intensifying their focus on acquisitions. In light of the evidence presented thus far, it appears that NFCs have shifted towards a more acquisition-intensive growth strategy while reducing their emphasis on capital expenditures.

2nd Hypothesis: M&A scrapping of investment:
- *4. Capex over available funds declines further among the most acquiring firms.*
- *5. Decline of the top-acquiring firms' share of capex over the total.*
- *6. Flow of funds away from corporate sector towards shareholders due to M&As.*

The corporate landscape is highly diverse, and as previously mentioned, acquisitions often emerge as a preferred growth strategy among the largest corporations. Moreover, if acquisition expenditure is meant to have a detrimental effect on capital expenditure, the most acquiring firms should experience a deeper drop of capital expenditure. In Figure 5, Panel A, we explore the distribution of acquisition expenditure within NFC divided into deciles based on their acquisition spending. The figure reveals a concentration of acquisition activity among the top 10% of acquirers, which collectively account for more than 90% of all acquisitions. The subsequent 10% of acquirers contribute to the remaining 10% or less. With such a skewed distribution of acquisitions, our subsequent focus will revolve around a comparative analysis of the top 10% and top 20% against the rest of the sample.

The sector composition of the Top-10% of acquirers, which account for more than 90% of acquisitions, has undergone a remarkable shift. Table A2 illustrates this transformation. In the 1980s, the dominant players in acquisition expenditure were the manufacturing, consumer non-durables, and energy sectors. However, the 1990s marked a pivotal turning point as healthcare, Hitech, and telecommunications sectors—where Telecommunications emerged as the third-largest acquirer—doubled their presence among the top acquirers. Utilities also emerged as a significant player during this period. Meanwhile, manufacturing saw its share among top acquirers' dip from 26% to 20%, remaining the leading contributor.

Moving into the 2000s, Hitech and healthcare solidified their positions, each accounting for approximately 20% of the top acquirers', while manufacturing contributed 18%. Other sectors like telecom, consumer non-durables, wholesale and retail, and energy, while still important, collectively comprised less than 10% of the top acquirers during the most recent 12 years of the sample period.

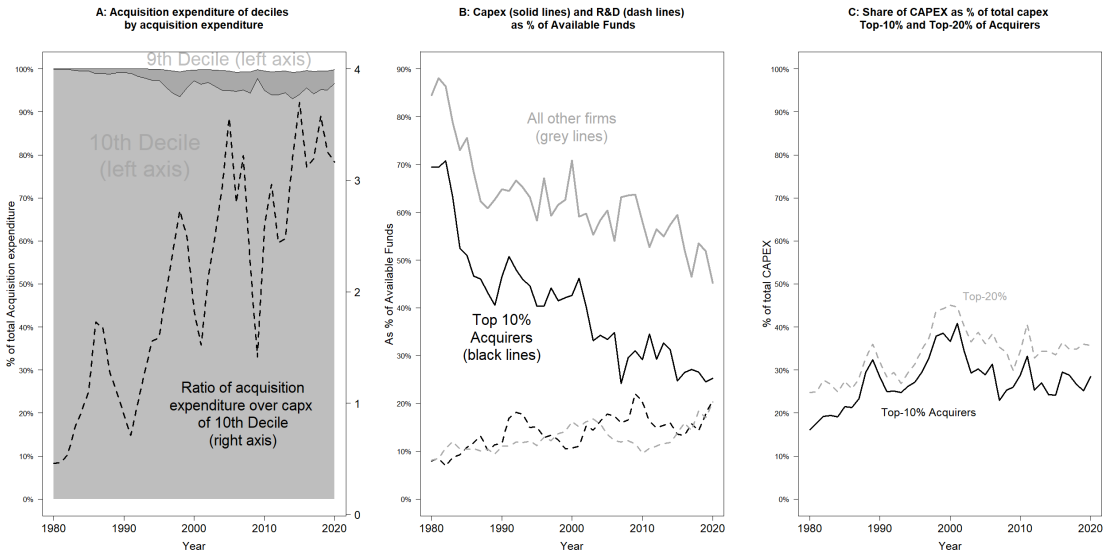
Figure 5, Panel B, shows that that the top 10% of acquirers curtail their capital expenditure as a percentage of their available funds to a greater extent, reducing it by slightly above forty percentage points from 1980 to 2020. In contrast, all other firms reduce their capital expenditure by only thirty percentage points. Given the constraints on their organisational and financial resources, it is plausible that the pursuit of acquisition-driven growth may add an additional constrain on capital expenditure.

To delve deeper into the relationship between acquisitions and capital expenditures, Figure 5, Panel B, provides insights into the share of capital expenditure within the top 10% and top 20% of acquirers. During the first half of the period, there is a discernible increase in the share of capital expenditure by the top acquirers, suggesting a simultaneous focus on productive capacity expansion and acquisitions. However, a significant shift occurs from 2001 to 2008, as these top acquirers experience a rapid decline in their share of capital expenditure. This decline levels off to figures akin to those observed in the mid-1990s. Thus, starting in the early 2000s, a dichotomy emerges between capital expenditure and acquisitions. The top 10% and top 20% of acquirers reduce their investments in productive capacity, consequently relinquishing their share in total capital expenditure. Conversely, the rest of the sample, which undertakes no acquisitions, manages to augment their capital expenditure, thereby increasing their share of the total. In combination, panels B and C in figure **??** show that firms with most acquisition expenditure have reduced their expenditure in capital expenditure more than those firms that do not engage in acquisitions.

When considering the destination of corporate acquisition expenditure in terms of institutional sectors, we can approximate the situation using the US Federal Reserve Financial Accounts. Figure 6, Panel A, provides insights into dividend payments made by the entire non-financial corporate sector. Additionally, it incorporates data from the US Fed Enhanced Financial Accounts, which begins in the last quarter of 1996. This data distinguishes retirements of shares by public non-financial corporations due to repurchases (buybacks) and M&A activity[4].It's important to note that the data for M&As only covers acquisitions paid for in cash, excluding those funded by equity. In cases where M&A is paid in cash, this equates to a transfer of funds from the corporate sector to the household sector in exchange for capital property rights. To interpret this data accurately, we should bear in mind that since the mid-1990s, approximately 70% to 80% of

[4]This graph has been shown first by Mason (2018)

Figure 5: Scrapp of Investment by acquisition-driven growth of NFC, 1980-2021



Source: Compustat. Author's calculations.

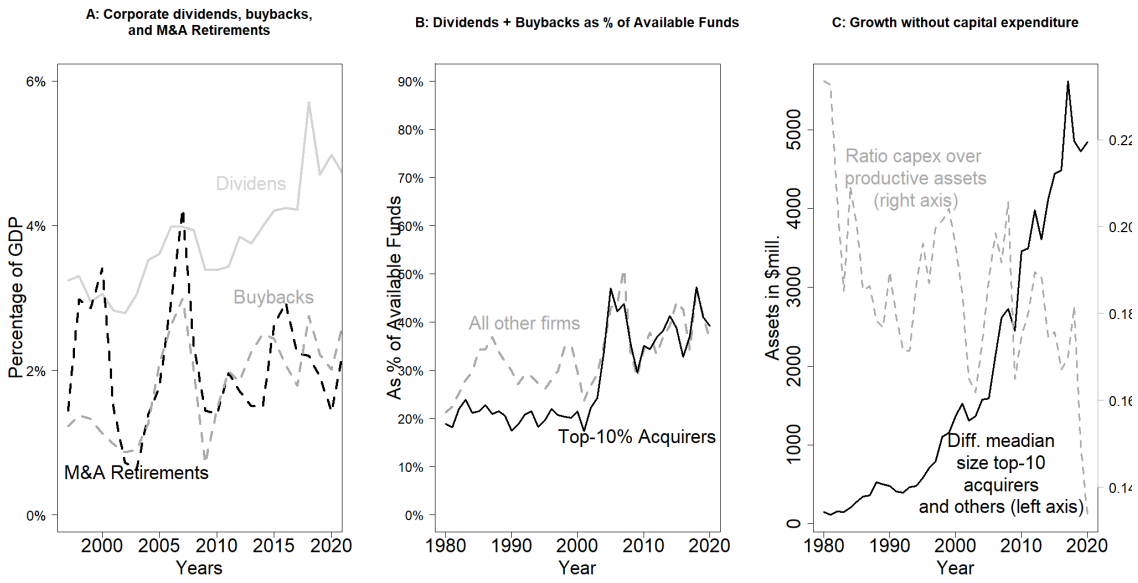
corporate equity in the US is held directly or indirectly by the US household sector, facilitated through institutional investors, mutual funds, and ETFs[5].

Figure 6, Panel A, presents a scenario where, for the most part, between 1997 and 2021, M&A retirements serve as a significant form of shareholder remuneration, comparable to buybacks and even surpassing them during the late 1990s. Although shareholder payments can technically be perceived as a transfer of corporate funds to shareholders, akin to dividends and buybacks, the "downsize and distribute" shareholder value orientation, as described by Lazonick and O'Sullivan (2000), may not fully apply here. This is because corporations that absorb others are growing through these transactions.

It might still be argued that prioritizing acquisitions as a means of corporate growth, instead of traditional productive investments, aligns with the shareholder value orientation, where companies seek to generate quicker returns for distribution to shareholders, since acquisition allows for faster growth. However, Figure 6, Panel B, challenges this notion by showing that acquiring firms do not distribute more to shareholders in the form of dividends and buybacks. In fact, during the 1980s and 1990s, firms that engaged less in acquisitions tended to distribute a larger portion of their funds to shareholders. One interpretation of these findings is that acquisitions are indeed ~~pursued as part of a long-term growth~~ strategy.

[5]Source: Federal Reserve Board Financial Accounts of the United States, Table L.223 Lines 1, 18-22, and 28.

Figure 6: Corporate funds flows to shareholders, several reasons, 1980-2021



Source: Panel A Flow of Funds and Enhanced Financial Accounts, Federal Reserve Boards. Panel B Compustat. Author's calculations.

3rd Hypothesis: Growth without capital expenditure:

- *7. High-acquisition spending firms grow faster despite investment declines.*

Finally, as tentative evidence to show the micro-macro tension arising from the spreading of M&A as a corporate growth strategy, Figure 6, Panel C, presents two data trends. On the left axis, the difference between the median asset size of the top 10% of firms with the most acquisition expenditure and the median asset size of the rest of the firms is plotted. On the right axis, the investment rate as capital expenditure over productive assets of those same firms is displayed, showing a decrease of almost ten percentage points. If the 10% of firms with the highest acquisition expenditure grow larger while at the same time cutting down on investment expenditure, given the evidence presented thus far, it seems reasonable to see acquisitions as accounting for that further growth (recall Figure 5 that R&D expenditure relative to available funds is similar across all types of firms).

5.2 Empirical trends of M&A as monopolisation of markets and profits

4rd Hypothesis: M&A as catalyst of market concentration:

- *7. Exit due to M&A.*
- *8. Increase of top-acquiring firms' share in total sales.*
- *9. Concentration of acquisitions among largest firms.*
- *10. Increase of top-acquiring firms' shares in total assets.*

As previously mentioned, M&A serves as a mechanism for removing firms from the market. Figure 7, Panel A, illustrates the evolution in the Compustat database of the total number of firms, along with the reasons for delisting from the stock market. Over the past four decades, the primary reason for delisting has been associated with M&A activity, particularly during the latter half of the 5th M&A wave. Beginning in the late 1990s, there has been a consistent decline in the number of firms in the market, with M&As playing a major role in this trend. Furthermore, as shown in Figure 1 in the Appendix using Refinitiv data, the combination of firms via M&A is done in around three-quarters of the cases with other companies from the same industry. This points to a larger effect of M&A on market concentration.

In order to establish a connection between M&A activity and the growing market concentration, particularly within large corporations, Figure 7, Panel B, reveals that more than 70% of acquisition spending in the Compustat database is attributed to the largest firms based on their assets. As previously mentioned, M&A is a viable growth strategy especially for these major players. Furthermore, if M&A is undertaken by the largest firms, it reinforces their position as market dominants. Figure 8 provides insight into the top 10% of acquirers, where it is important to recall that over 90% of all acquisition expenditure in the Compustat database is carried out by this group, as shown in Figure 5. This top 10% continuously increased their market sales share throughout the 1980s and 1990s (Figure 8, Panel A). Their market share stabilized during the 2000s but experienced growth once again toward the end of the series, coinciding with the end of the largest M&A wave in history (Figure 1). The same pattern is observed in Figure 8, Panel B, in terms of their share of total assets.

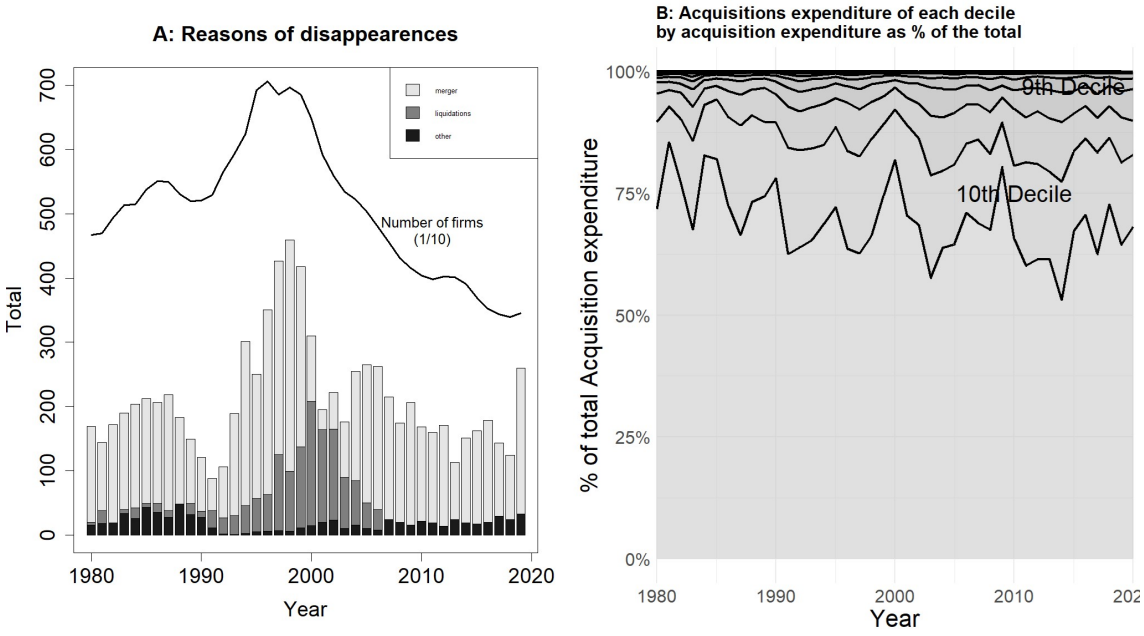
5th Hypothesis: M&A to rise barriers to entry:

- *11. Concentration of intangible assets among top acquirers.*

It is crucial to recognize that not only is acquisition tied to the growth of large firms, but it also plays a significant role in the monopolization of markets through the accumulation of intangible assets, as highlighted by Pagano (2014). Figure 8, Panel C, illustrates that the top 10% of acquirers have amassed over 50% of all intangible assets, excluding goodwill, over the past four decades. As previously discussed, it is probable that M&A activities have contributed to the absorption of intellectual property rights. They have also been used as a method to prevent potential rivals from developing new IPs that could challenge the positions of established players, as the already-mentioned "killer-acquisitions." Figure 8, Panel C, shows that during the 1990s, the concentration of intangibles among top acquirers surged to nearly 80%. In the 2000s, their share declined to levels similar to those of the 1980s around 55%, possibly due to the decrease in the number of smaller public firms in the database. Panel C in Figure 8 also shows the share of expenditure in R&D conducted by the top 10% of most acquiring firms. The lower level of their share of R&D expenditure compared to the level of their share of intangibles suggests that a

high proportion of intangibles has been acquired rather than internally generated. It is important to note that internally generated brands, mastheads, publishing titles, customer lists, and similar items are not recognised as intangible assets and only appear in the balance sheet once acquired by another company. This centralisation of intangible assets is also connected to the fact that top acquirers have managed to increase their share of total profits, as shown next.

Figure 7: M&A to monopolise markets, 1980-2021



Source: Compustat. Author's calculations.

5th Hypothesis: M&A fostering increasing profitability:
- *12. Higher markups for top acquiring firms.*
- *13. Concentration of profits among top acquiring firms.*

In Figure 9, Panel A, we can observe a comparison between the median markups of the top 10% of acquirers and of all other firms. During the first half of the period, the two series exhibit a similar pattern, characterised by a gradual increase. The primary distinction between them is marked by two spikes, one in the mid-1990s and another at the end of the 5th M&A in the late 1990s, where they briefly deviate. However, starting in the early 2000s, the markup of the top 10% of acquirers experiences a significant and sustained increase, surpassing that of the average. These results point to the fact that those firms that undertake acquisitions, starting in the early 2000s, have had a higher markup.

In Figure 9, Panel B, the underlying reason for this divergence in markup trends post-2000 is illustrated. It shows that an expanding share of the total acquisition expenditure is attributed

Figure 8: Top-Acquiring firms growing dominance, 1980-2021

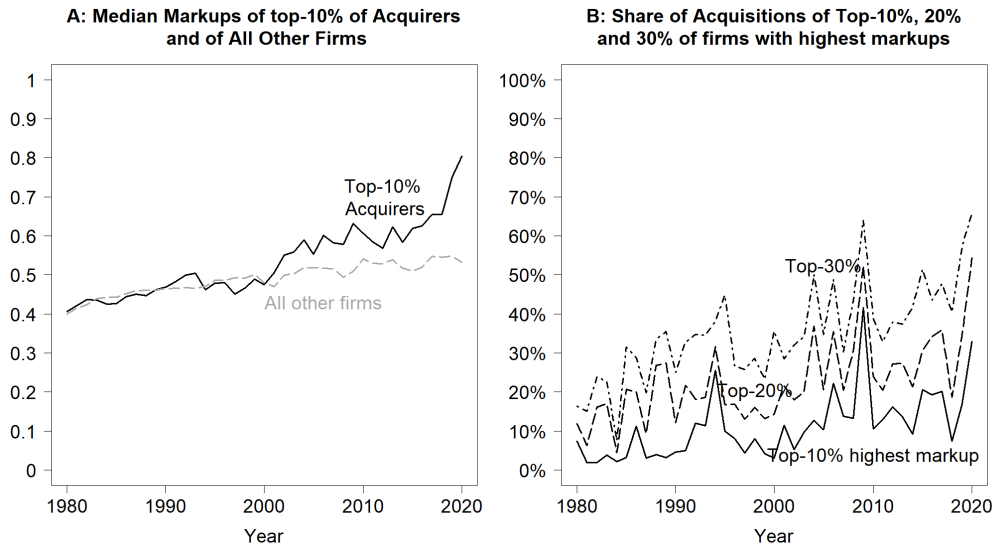
Source: Compustat. Author's calculations.

to the top 30% of firms with higher markups. While in the 1980s and 1990s, this top 30% of highest-markup firms accounted for slightly more than 30% of acquisitions, their share began to rise significantly from the 2000s onwards, eventually surpassing the 50% mark by around 2020. It is also possible that the increasing expenditure on acquisitions by these firms has allowed them to increase their markups.

In turn, the trends illustrated in Figure 9 are closely tied to the sectoral composition of the top 10% of acquirers. As shown in Table A2, around the turn of the 21st century, consumer non-durables and telecommunications relinquished their positions to the healthcare and high-tech (Hitech) sectors as the dominant acquirers. Meanwhile, the share of the manufacturing sector among top acquirers remained relatively constant. This shift implies that two sectors, healthcare and Hitech, which exhibited the highest markups (as seen in Figure 2 in the 6), ascended to dominate the composition of the top 10% of acquirers, consequently driving up the average markup of this select group.

Similarly, within each industrial sector, we observe a comparable trend where firms with the highest markups consistently exhibit a larger share of acquisitions within each sector. Table Figures 3 and 4 in the 6 provide an overview of the acquisition share for each quartile based on markups for each sector (quartile 4 represents firms with the highest markups). Across all sectors,

Figure 9: Markups of Top-Acquiring firms, 1980-2021



Source: Compustat. Author's calculations.

Note: Markups are calculated as (sale - cogs)/cogs. If instead of the median, a sales-weighted average of markups is employed in Panel A, or if markups are calculated as (sale/cogs), the same pattern still remains.

except for wholesale & retail, it is evident that acquisitions are less common for low markup firms on average over the past four decades. Acquisitions tend to be undertaken by firms in the middle and upper segments of the markup distribution. In sectors such as Hitech, telecommunications, and consumer non-durables, the 3rd and 4th quartiles are responsible for the majority of acquisitions. In the healthcare sector, the 4th quartile accounts for an overwhelming majority of the acquisitions within that sector.

The top 10% of acquirers demonstrates a remarkable concentration of total profits among NFCs. The last row in Table **??** shows the share of total profits in the sample accumulated by this top 10% of firms with most acquisition expenditure (it is important to recall that these top 10% of acquirers represent more than 95% of total acquisitions). The rows specific to each sector illustrate the proportion of total profits contributed by the firms within that sector that fall within the top-10% of acquirers in the overall sample.. The upward trajectory of this trend is staggering, nearly doubling their share from the 1980s to the second decade of the 21st century. It's worth highlighting that during the 7th M&A wave, an average of 50.9% of profits were exclusively accrued by the top 10% of acquirers. In combination with Panel A in Figure 8 and Panel A in Figure 9, the increasing concentration of profits among the top-10% of acquirers seems to be due

Table 3: 1980-2020 Share of Total Profits by Sector among Top-10% of Acquirers in Compustat

Ranked by average of whole period (last column in bold)

Sector	**1980-1990**	**1991-2001**	**2002-2007**	**2008-2020**	**Whole period Average**
Hitech	0.6%	4.0%	6.9%	13.3%	**9.2%**
Manufacturing	5.0%	8.1%	9.2%	8.8%	**8.1%**
Healthcare	1.4%	3.5%	5.7%	7.6%	**5.5%**
Telecom	2.9%	3.8%	4.2%	6.0%	**4.2%**
Wholesale & Retail	1.6%	3.9%	4.3%	4.4%	**3.9%**
Consumer Non-Durables	3.3%	4.8%	3.8%	2.4%	**3.6%**
Utilities	0.7%	3.2%	2.8%	3.4%	**3.0%**
Consumer Durables	3.4%	4.3%	1.6%	0.5%	**2.5%**
Mining	0.6%	0.8%	2.6%	1.2%	**1.5%**
Services	0.7%	1.3%	1.3%	1.2%	**1.2%**
Energy	2.9%	0.5%	0.7%	0.9%	**12%**
Transportation	0.4%	0.4%	0.6%	0.8%	**0.6%**
Construction & Real State	0.0%	0.2%	0.4%	0.3%	**0.3%**
Total	**23.7%**	**38.7%**	**44.0%**	**50.9%**	**44.8%**

Note: The appropiate interpretation of this tables is, for instance, during the period between 1980 and 1990, Hitech companies within the Top-10% of acquirers in the overall Compustat sample accumulated 0.6% of the total profits within that sample.

Source: Compustat. Author's calculations.

A consistent increase in the share of accruing profits among the top 10% is observed for sectors such as Hitech, healthcare, telecommunications, and utilities. Meanwhile, the manufacturing sector retains its position as the second-largest contributor despite a decrease in its contribution during the last 12 years of the period. Consumer non-durables experienced a peak during the 5th wave but declined significantly thereafter, signifying a shift in profitability dynamics. This data underscores the remarkable profitability of the Hitech and healthcare sectors. Even during the 1990s, these sectors were among the top contributors to the profits of the top 10%, despite their lower volume of acquisitions (as shown in Table A2).

The trends about higher markup of profits among firms with highest volume of acquisition expenditure are in line with the consensus in the recent literature about increasing markups (Autor et al., 2020; Barkai, 2020; L. Davis and Souza, 2022; De Loecker et al., 2020; Grullon et al., 2019;

Hall, 2018), which can be summarised as in that most firms have seen no increase in their markup, with the median remaining constant, while those in the upper teil of the distribution have been able to increase their markups[6]. At the same time, there is a composition effect driving most of the upwards movement of aggregate average markups due to the reallocation of economic activity towards high-markup firms. As explained above, these trends are in line with the use of M&A by large, profitable firms. Moreover, these firms have increased their power control and eliminate competitors via M&A, which potentially has contributed to the increase of their markups. Thus, to the mentioned literature about markups, this contribution adds the role of M&A as a mechanism through which the composition effect takes place -elimination of firms by high-markup firms-, and a potential explanation of the increasing markups of the high-markup firms -domination of the market through M&A-powered market concentration dynamics and accumulation of IPRs through acquisitions.

6 Conslusions

This paper has contributed to the understanding of corporate growth among NFC in the US since 1980 to 2020, focusing on the role of M&As. A historical recount of M&A deals since the 1980s reveals the rapid increase of M&A to historical record levels. With the use of Refinitiv the data, it has been shown that Manufacturing and Consumer products dominate the market for the four decades under study. While Hitech and Healthcare are among the sectors with most M&A deals after the early 2000s. Internationalisation of deals started to become relevant in the 1990s. The four M&A waves under study show high industry relatedness and while the Hightech sector is the second preferred target sector for all other sectors. The evidence presented suggests that the aim of M&A is the acquisition of technology as well as the monopolization of markets given the high industry relatedness of the deals. These trends alone warrant significant attention and further exploration, as has been done in here.

The discussing of the existing literature about M&A has shown the pertinence of the subsequent empirical analysis in terms of the time scope in which this paper is focused as well as the methods applied. Previous literature has focused on firm-level effects of both acquiring and acquired firms, blurring the potential different effects that an acquisition may have upon them. Also, the over-representation of the 1960s, the conglomerates M&A wave, and of the 1980s, the M&A wave dominated by the LBOs and tailored to dismantling those conglomerates, make the generalisation of their results inapplicable to the late 20th and early 21st century. Moreover, the

[6] Autor et al. (2020) posit that one reason for higher markups is the ability of large firms to distribute large fixed costs, including overheads, among large amounts of output. They do not provide empirical evidence to validate that and Stiel et al. (2022) find no evidence for the German case. De Loecker et al. (2020) also align to the view that overhead cost can not explain the raise in markups and thus, it should be market power what leads the increase.

M&A literature is generally geared towards testing neoclassical or behavioural theories that carry important assumption. This paper has suggested to move forward focusing on acquiring firm and their acquisition expenditure, moving away from restricting assumptions.

Making sense of the corporate growth dynamics over the past four decades likely involves considering a range of explanations that apply with varying degrees of relevance to different countries, industries, and time periods. This study has aimed to contribute to this understanding by establishing a connection between the rise of M&A and the new corporate environment that dominates the NFC sector in the US. It has been proposed that as M&A has become an important growth strategy of NFCs, corporate goals has been achieved through that method of external growth to the detriment of capital expenditure. The logic articulated is straightforward: if growth corporate goals are achieved via M&A, the need for growth via capital expenditure declines. Moreover, it is also possible that personal and organisational resources as well as financial ones are tied up to acquisitions, limiting the capabilities to be used on other uses. If M&A has contributed to the decline of investment in the NFC sector, it has do so for aggregate macroeconomic investment too. In these, sense, it is a contribution to the financialization literature in suggesting M&A as another factor reducing investment rates. But this study goes further in taking M&As as an explanation of other characteristic of the NFC sector. It points to a tension that arises and that is largely unmentioned, in which firms continue to grow larger while macroeconomic investment lags. Corporate growth through M&A explains both trends. On the other hand, the proposed articulation links M&A with the increasing domination of market by large corporations via elimination of firms as well as the acquisition of IPRs, that in the last decades have increasingly become an important resource to create barriers to entry. Finally, whether because M&A are undertaken by high-markup firms or because they allow to increase markups thanks to increasing domination of markets, those firms that grow through acquisition will put in place higher markups as well as increase their share of total profits.

Commenting on the process by which competition shapes the fate of companies, James Crotty (2002) concisely captured the essence of how large firms have come to dominate their markets: "[a]lthough technological superiority influences this sorting process, it is mainly those with deep pockets, not efficiency in design and production, who are winning this life and death struggle. Since the mid-1990s, core global industries have experienced an ongoing merger-and-alliance wave of historic proportions" (ibid, 2002). The stylised articulation discussed above and the empirical evidence presented in this paper, particularly the evidence for NFCs, aim to provide a deeper understanding of Crotty's observation.

The evidence has been divided to provide validation for six hypotheses, each representing a step in the stylized articulation process linking M&A with the new corporate environment. The first hypothesis, concerning the growth of M&A as a significant corporate growth strategy, has

been supported by the increasing accumulation of goodwill (outpacing other intangible assets), alongside the decline in productive assets, and the relative growth of acquisition expenditure compared to available funds and capital expenditure. The second hypothesis, which posits that external growth is detrimental to capital expenditure, is substantiated by the more pronounced decline in capital expenditure over available funds among the top 10% of firms with the highest acquisition expenditure (which accounts for more than 95% of all acquisition expenditure since the 1990s) compared to the rest of the firms. Furthermore, the share of capital expenditure of the top 10% of acquirers has decreased since the year 2000.

Moreover, this sample of highly acquisitive firms has increased their acquisition expenditure from less than their total value of capital expenditure to more than three times their level of capital expenditure by the late 2010s. This suggests that as firms expend more on acquisitions, they reduce their capital expenditure more than other firms.

It has been showed that despite M&A representing a faster avenue for corporate growth, it is not necessarily correlated with higher shareholder payouts, as high-acquisitive firms distribute to shareholders as much as other firms. However, the flow of financial resources away from the NFC sector towards the household sector due to M&A payments has been as significant as buybacks for the last 15 years, and as important as dividends in the final years of the 5th M&A wave. As for the third hypothesis, which stems from the first two hypotheses and manifests as a micro-macro tension wherein firms with high acquisition expenditure grow larger while reducing their investment rates, is underscored by the widening size disparity between the median size of the top 10% of firms with the highest acquisition expenditure and the median size of all other firms. Concurrently, these top firms have steadily decreased their investment ratio by about ten percentage points since the 1980s.

Regarding the linkage between M&A and market domination—the fourth hypothesis—it has been demonstrated that M&A stands as the primary cause of firm elimination in the Compustat database. Furthermore, acquisition expenditure is heavily concentrated, with around 70% of the total being attributed to the largest firms, thereby reinforcing their already substantial market presence. Additionally, the share of both sales and assets of the top 10% of firms with the highest acquisition expenditure has increased significantly, especially during the first two decades and since 2015, which coincide with periods of historically high M&A volume.

Given the increasing significance of intellectual property rights (IPRs), the fifth hypothesis posits that M&A also serves as a means to accumulate intangible assets by acquiring firms that develop them. It has been observed that the top 10% of acquirers accumulate more than 50% of intangible assets (excluding goodwill) while engaging in a disproportionately lower amount of research and development (R&D). Moreover, since many intangible assets are only recognized once

acquired by another firm, the disparity between the share of intangibles and the share of R&D expenditure of the top 10% of acquiring firms suggests the pivotal role of M&A in the process of accumulating such assets.

The final hypothesis suggests that firms with the highest volume of acquisitions should exhibit higher markups, either due to their ability to acquire other firms more easily owing to their larger resources or because their increased dominance allows them to raise markups. Evidence has indeed shown that starting in the early 2000s, the top 10% of firms with the highest acquisition activity experienced greater increases in their markups compared to other firms. Moreover, as predicted by Steindl (1976), those with higher markups are expected to capture a larger portion of total profits. This prediction has been confirmed, as it has been demonstrated that the top 10% of firms with the highest acquisition activity have, on average, accumulated almost 45% of total profits in the last four decades in the US, increasing to 50% since 2008. These findings are significant as they indicate that M&A serves as a crucial mechanism for increasing markups of NFCs, for which, apart from productivity increases, there is a lack of explanation for the observed trend according to De Loecker et al. (2020).

While this investigation has centered on the US, it's important to acknowledge that since the 1990s, the M&A market has increasingly become international. Countries such as the UK, Western Europe, Japan, and more recently, China, have all played significant roles on the global M&A stage. Chinese outbound acquisitions, in particular, have sparked concerns in both business and political spheres across the Western corporate world. It's highly probable that some of the trends observed in this paper are applicable to other countries. However, further research in these countries may uncover nuanced trends in their firms' corporate growth strategies, providing insights into their unique economic development trajectories.

Moreover, the role of acquisitions in constructing global value chains is an area that warrants deeper investigation, especially considering the significance of US FDI outflows in the form of M&A. Additionally, given the reconsideration of antitrust laws in the US, the UK, and the EU, understanding the macroeconomic effects of M&A becomes increasingly crucial. This understanding can inform well-designed economic policies that support effective antitrust enforcement in the 21st century.

References

Aaronovitch, Sam and Malcolm C. Sawyer (1975a). *Big Business*. London: Macmillan.

— (Mar. 1975b). "Mergers, Growth, and Concentration". In: *Oxford Economic Papers* 27.1, pp. 136–155. DOI: 10.1093/oxfordjournals.oep.a041304.

Alexandridis, George, Christos F. Mavrovitis, and Nickolaos G. Travlos (Sept. 2012). "How Have M&As Changed? Evidence from the Sixth Merger Wave". In: *The European Journal of Finance* 18.8, pp. 663–688. DOI: 10.1080/1351847X.2011.628401.

Aliaj, O., K. Wiggins, and A. Gara (2022). "'Megadeals Buoy Global M&A despite Pullback from Record 2021". In: *Financial Times*.

Autor, David, David Dorn, Lawrence F Katz, Christina Patterson, and John Van Reenen (May 1, 2020). "The Fall of the Labor Share and the Rise of Superstar Firms*". In: *The Quarterly Journal of Economics* 135.2, pp. 645–709. DOI: 10.1093/qje/qjaa004.

Baranes, Avraham Izhar (July 2, 2020). "Intangible Assets and the Financialized Business Enterprise: A Veblen-Commons Approach". In: *Journal of Economic Issues* 54.3, pp. 692–709. DOI: 10.1080/00213624.2020.1778973.

Barese, Paul (1991). *The Race to Develop Human Insulin*. Harvard Business School.

Barkai, Simcha (Oct. 2020). "Declining Labor and Capital Shares". In: *The Journal of Finance* 75.5, pp. 2421–2463. DOI: 10.1111/jofi.12909.

Best, Michael H. (1990). *The New Competition: Institutions of Industrial Restructuring*. Cambridge, Mass: Harvard University Press. 296 pp.

Bhattacharyya, Sugato and Amrita Nain (Jan. 1, 2011). "Horizontal Acquisitions and Buying Power: A Product Market Analysis". In: *Journal of Financial Economics* 99.1, pp. 97–115. DOI: 10.1016/j.jfineco.2010.08.007.

Calligaris, Sara, Chiara Criscuolo, and Luca Marcolin (Apr. 25, 2018). *Mark-Ups in the Digital Era*. Paris: OECD. DOI: 10.1787/4efe2d25-en.

Carpenter, M., William Lazonick, and Mary O'Sullivan (Oct. 1, 2003). "The Stock Market and Innovative Capability in the New Economy: The Optical Networking Industry". In: *Industrial and Corporate Change* 12.5, pp. 963–1034. DOI: 10.1093/icc/12.5.963.

Carpenter, Marie and William Lazonick (2017). *Innovation, Competition and Financialization in the Communications Technology Industry: 1996-2016*. URL: http://www.isigrowth.eu/wp-content/uploads/2017/06/working_paper_2017_08.pdf. preprint.

Cunningham, Colleen, Florian Ederer, and Song Ma (Mar. 1, 2021). "Killer Acquisitions". In: *Journal of Political Economy* 129.3, pp. 649–702. DOI: 10.1086/712506.

Davis, Leila and Özgür Orhangazi (Jan. 2021). "Competition and Monopoly in the U.S. Economy: What Do the Industrial Concentration Data Show?" In: *Competition & Change* 25.1, pp. 3–30. DOI: 10.1177/1024529420934011.

Davis, Leila and Joao Paulo A. Souza (2022). "Stable Profit Rates in a Time of Rising Market Power: The Role of Financial and Intangible Assets in the U.S. Corporate Sector". In: FMM Conference 2022.

Davis, Leila E. (Feb. 2018). "Financialization and the Non-Financial Corporation: An Investigation of Firm-Level Investment Behavior in the United States". In: *Metroeconomica* 69.1, pp. 270–307. DOI: 10.1111/meca.12179.

De Loecker, Jan, Jan Eeckhout, and Gabriel Unger (May 1, 2020). "The Rise of Market Power and the Macroeconomic Implications*". In: *The Quarterly Journal of Economics* 135.2, pp. 561–644. DOI: 10.1093/qje/qjz041.

Du Boff, Richard B. and Edward S. Herman (Mar. 1989). "The Promotional-Financial Dynamic of Merger Movements: A Historical Perspective". In: *Journal of Economic Issues* 23.1, pp. 107–133. DOI: 10.1080/00213624.1989.11504870.

Economist, The (2021). "Firms' Unwise Addiction to Mergers and Acquisitions". In.

Fee, C. Edward and Shawn Thomas (Dec. 1, 2004). "Sources of Gains in Horizontal Mergers: Evidence from Customer, Supplier, and Rival Firms". In: *Journal of Financial Economics* 74.3, pp. 423–460. DOI: 10.1016/j.jfineco.2003.10.002.

Ghosh, Aloke (June 2001). "Does Operating Performance Really Improve Following Corporate Acquisitions?" In: *Journal of Corporate Finance* 7.2, pp. 151–178. DOI: 10.1016/S0929-1199(01)00018-9.

Gilbert, Richard J. and David M. G. Newbery (1982). "Preemptive Patenting and the Persistence of Monopoly". In: *The American Economic Review* 72.3, pp. 514–526. JSTOR: 1831552.

Gregoriou, Greg N. and Luc Renneboog (2007). "Understanding Mergers and Acquisitions". In: *International Mergers and Acquisitions Activity Since 1990*. Elsevier, pp. 1–20. DOI: 10.1016/B978-075068289-3.50003-4.

Grullon, Gustavo, Yelena Larkin, and Roni Michaely (July 1, 2019). "Are US Industries Becoming More Concentrated?*". In: *Review of Finance* 23.4, pp. 697–743. DOI: 10.1093/rof/rfz007.

Gugler, Klaus, Dennis C Mueller, B. Burcin Yurtoglu, and Christine Zulehner (May 1, 2003). "The Effects of Mergers: An International Comparison". In: *International Journal of Industrial Organization* 21.5, pp. 625–653. DOI: 10.1016/S0167-7187(02)00107-8.

Gugler, Klaus, Dennis C. Mueller, Michael Weichselbaumer, and B. Burcin Yurtoglu (Apr. 2012). "Market Optimism and Merger Waves: MARKET OPTIMISM AND MERGER WAVES". In: *Managerial and Decision Economics* 33.3, pp. 159–175. DOI: 10.1002/mde.2542.

Gutiérrez, Germán and Thomas Philippon (2019). *The Failure of Free Entry*. URL: https://www.nber.org/system/files/working_papers/w26001/w26001.pdf. preprint.

Hake, Eric R. (Mar. 1998). "Financial Innovation as Facilitator of Merger Activity". In: *Journal of Economic Issues* 32.1, pp. 145–170. DOI: 10.1080/00213624.1998.11506015.

Hall, Robert (May 2018). *New Evidence on the Markup of Prices over Marginal Costs and the Role of Mega-Firms in the US Economy*. w24574. Cambridge, MA: National Bureau of Economic Research, w24574. DOI: 10.3386/w24574.

Harford, Jarrad (Sept. 2005). "What Drives Merger Waves?" In: *Journal of Financial Economics* 77.3, pp. 529–560. DOI: 10.1016/j.jfineco.2004.05.004.

Jovanovic, Boyan and Peter L. Rousseau (May 2002). "The Q-Theory of Mergers". In: *American Economic Review* 92.2, pp. 198–204. DOI: 10.1257/000282802320189249.

Kalecki, Michael (1954). *Thoery of Economic Dynamics*. London: Allen and Unwin.

Kaplan, Steven N. and Michael S. Weisbach (Mar. 1992). "The Success of Acquisitions: Evidence from Divestitures". In: *The Journal of Finance* 47.1, pp. 107–138. DOI: 10.1111/j.1540-6261.1992.tb03980.x.

Khan, Lina (Mar. 1, 2018). "The New Brandeis Movement: America's Antimonopoly Debate". In: *Journal of European Competition Law & Practice* 9.3, pp. 131–132. DOI: 10.1093/jeclap/lpy020.

Khan, Mehreen (2016). "Bayer Shares Rise on $65bn Monsanto Deal". In: *Financial Times*.

Lambert, Thomas E. (Jan. 2, 2020). "Monopoly Capital and Innovation: An Exploratory Assessment of R&D Effectiveness". In: *International Review of Applied Economics* 34.1, pp. 36–49. DOI: 10.1080/02692171.2019.1620703.

Latham, O., I Tecu, and N. Bagaria (2020). "Beyond Killer Acquisitions: Are There More Common Potential Competition Issues in Tech Deals and How Can These Be Assessed". In: *CPI Antitrust Chronicle* (May).

Lazonick, William (2010). "Innovative Business Models and Varieties of Capitalism: Financialization of the U.S. Corporation". In: *Business History Review* 84.4, pp. 675–702. DOI: 10.1017/S0007680500001987.

Lazonick, William, Matt Hopkins, Ken Jacobson, Mustafa Erdem Sakinc, and Oner Tulum (2017). "US Pharma's Financialized Business Model". In: *SSRN Electronic Journal*. DOI: 10.2139/ssrn.3035529.

Lazonick, William and Mary O'Sullivan (Jan. 2000). "Maximizing Shareholder Value: A New Ideology for Corporate Governance". In: *Economy and Society* 29.1, pp. 13–35. DOI: 10.1080/030851400360541.

Levin, B. and Downes, L. (2023). "Microsoft, Google, and a New Era of Antritrust". In: *Harvard Business Review* (February 17).

Marris, Robin (1964). *The Economic Theory of 'Managerial' Capitalism*. London: Palgrave Macmillan UK. DOI: 10.1007/978-1-349-81732-0.

Martynova, Marina and Luc Renneboog (Oct. 2008). "A Century of Corporate Takeovers: What Have We Learned and Where Do We Stand?" In: *Journal of Banking & Finance* 32.10, pp. 2148–2177. DOI: 10.1016/j.jbankfin.2007.12.038.

Mason, J.W. (2018). *Acquisitions as Corporate Money Hose*. URL: https://jwmason.org/slackwire/acquisitions-as-corporate-money-hose/.

Mueller, Dennis C (1980). *The Determinants and Effects of Mergers: An International Comparison*. Cambridge MA: Oelgeschlager, Gunn & Hain.

Muller, Jurgen (Dec. 1976). "The Impact of Mergers on Concentration: A Study of Eleven West German Industries". In: *The Journal of Industrial Economics* 25.2, p. 113. DOI: 10.2307/2098261. JSTOR: 2098261.

O'Sullivan, Mary (2001). *Contests for Corporate Control: Corporate Governance and Economic Performance in the United States and Germany*. Publ. new as paperback. Oxford: Oxford Univ. Press. 332 pp.

Orhangazi, O. (Apr. 9, 2008). "Financialisation and Capital Accumulation in the Non-Financial Corporate Sector:: A Theoretical and Empirical Investigation on the US Economy: 1973-2003". In: *Cambridge Journal of Economics* 32.6, pp. 863–886. DOI: 10.1093/cje/ben009.

Orhangazi, Özgür (Sept. 26, 2019). "The Role of Intangible Assets in Explaining the Investment–Profit Puzzle". In: *Cambridge Journal of Economics* 43.5, pp. 1251–1286. DOI: 10.1093/cje/bey046.

Pagano, U. (Nov. 1, 2014). "The Crisis of Intellectual Monopoly Capitalism". In: *Cambridge Journal of Economics* 38.6, pp. 1409–1429. DOI: 10.1093/cje/beu025.

Paul, Sanjukta (2022). "A Democratic Vision for Antitrust". In: *Dissent Magazine* (Winter 2022).

Penrose, Edith Tilton (1959). *The Theory of the Growth of the Firm*. 4th ed., Rev. ed. Oxford ; New York: Oxford University Press. 249 pp.

Porter, Michael E. (1987). "From Competitive Advantage to Corporate Strategy". In: *Harvard Business Review* 65.3, pp. 43–59.

Posner, Eric A. (2021). *How Antitrust Failed Workers*. New York, NY: Oxford University Press. 207 pp.

Pryor, Frederic L. (2001). "New Trens in US Industrial Concentration". In: *Review of Industrial Organization* 18.3, pp. 301–326. DOI: 10.1023/A:1007888323241.

Ranft, Annette L and Michael D Lord (Nov. 1, 2000). "Acquiring New Knowledge: The Role of Retaining Human Capital in Acquisitions of High-Tech Firms". In: *The Journal of High Technology Management Research* 11.2, pp. 295–319. DOI: 10.1016/S1047-8310(00)00034-1.

Ranft, Annette L. (Jan. 1, 2006). "Knowledge Preservation and Transfer during Post-Acquisition Integration". In: *Advances in Mergers and Acquisitions*. Ed. by Cary L. Cooper and Sydney Finkelstein. Vol. 5. Advances in Mergers and Acquisitions. Emerald Group Publishing Limited, pp. 51–67. DOI: 10.1016/S1479-361X(06)05003-4.

Ranft, Annette L. and Michael D. Lord (Aug. 2002). "Acquiring New Technologies and Capabilities: A Grounded Model of Acquisition Implementation". In: *Organization Science* 13.4, pp. 420–441. DOI: 10.1287/orsc.13.4.420.2952.

Rasmusen, Eric (1988). "Entry for Buyout". In: *The Journal of Industrial Economics* 36.3, pp. 281–299. DOI: 10.2307/2098468. JSTOR: 2098468.

Ravenscraft, David J. and F. M. Scherer (Dec. 1987). "Life After Takeover". In: *The Journal of Industrial Economics* 36.2, p. 147. DOI: 10.2307/2098409. JSTOR: 2098409.

Rikap, Cecilia (2021). *Capitalism, Power and Innovation: Intellectual Monopoly Capitalism Uncovered*. Routledge Studies in the Economics of Innovation. London: Routledge. 295 pp.

Shleifer, Andrei and Robert W. Vishny (Win. 1991). "Takeovers in the '60s and the '80s: Evidence and Implications". In: *Strategic Management Journal* 12.S2, pp. 51–59. DOI: 10.1002/smj.4250121005.

— (Dec. 2003). "Stock Market Driven Acquisitions". In: *Journal of Financial Economics* 70.3, pp. 295–311. DOI: 10.1016/S0304-405X(03)00211-3.

Steindl, Josef (1976). *Maturity and Stagnation in American Capitalism*. New York: Monthly Review Press. 248 pp.

Stiel, Caroline and Alexander Schiersch (Dec. 31, 2022). "Testing the Superstar Firm Hypothesis". In: *Journal of Applied Economics* 25.1, pp. 583–603. DOI: 10.1080/15140326.2022.2029071.

Stigler, George J. (1950). "Monopoly and Oligopoly by Merger". In: *The American Economic Review* 40 (2,), pp. 23–34. JSTOR: 1818020.

— (Jan. 1968). "Price and Non-Price Competition". In: *Journal of Political Economy* 76.1, pp. 149–154. DOI: 10.1086/259391.

Stockhammer, E. (Sept. 1, 2004). "Financialisation and the Slowdown of Accumulation". In: *Cambridge Journal of Economics* 28.5, pp. 719–741. DOI: 10.1093/cje/beh032.

Toporowski, Jan (2000). *The End of Finance: The Theory of Capital Market Inflation, Financial Derivatives, and Pension Fund Capitalism*. London: Routledge.

— (2016). "The Crisis of Finance in Marxian Political Economy". In: *Science & Society* 80.4, pp. 515–529. DOI: 10.1521/siso.2016.80.4.515.

Tulum, Öner and William Lazonick (Oct. 2, 2018). "Financialized Corporations in a National Innovation System: The U.S. Pharmaceutical Industry". In: *International Journal of Political Economy* 47.3-4, pp. 281–316. DOI: 10.1080/08911916.2018.1549842.

Vaheesan, Sandeep (Dec. 2019). "The Profound Nonsense of Consumer Welfare Antitrust". In: *The Antitrust Bulletin* 64.4, pp. 479–494. DOI: 10.1177/0003603X19875036.

Weston, J. Fred (1953). *The Role of Mergers in the Growth of Large Firms*. Westport, Conn: Greenwood Press. 159 pp.

Wilmers, Nathan (2018). "Wage Stagnation and Buyer Power: How Buyer-Supplier Relations Affect U.S. Workers' Wages, 1978 to 2014". In: *American Sociological Review* 83.2, pp. 213–242. DOI: 10.1177/0003122418762441.

Wollmann, Thomas G. (June 1, 2019). "Stealth Consolidation: Evidence from an Amendment to the Hart-Scott-Rodino Act". In: *American Economic Review: Insights* 1.1, pp. 77–94. DOI: 10.1257/aeri.20180137.

Wood, Adrian (1975). *A Theory of Profits*. Cambridge [Eng.] : New York: Cambridge University Press. 184 pp.

A Industry decomposition

Table A1: 1980-2020 Sectors' share in Top-10% of Acquirers

Ranked by average of whole period (last column in bold

Sector	**1980-1990**	**1991-2001**	**2002-2007**	**2008-2020**	**Whole period Average**
Consumer Durables	11.0%	7.5%	11.8%	69.6%	**28.7%**
Healthcare	15.5%	19.8%	23.4%	30.8%	**22.6%**
Consumer Non-Durables	28.8%	18.5%	21.4%	18.6%	**21.7%**
Hitech	10.1%	19.4%	35.1%	21.1%	**19.7%**
Manufacturing	17.7%	17.1%	22.0%	20.9%	**19.2%**
Services	13.3%	20.5%	22.7%	18.4%	**18.2%**
Construction & Real State	15.8%	20.2%	4.0%	23.1%	**17.6%**
Average	**12.6%**	**14.1%**	**16.4%**	**18.6%**	**15.5%**
Wholesale & Retail	14.4%	14.3%	18.7%	12.1%	**14.3%**
Telecommunications	4.9%	12.2%	12.0%	11.7%	**10.1%**
Mining	11.1%	12.7%	17.5%	-0.2%	**8.9%**
Energy	11.5%	6.1%	6.4%	3.8%	**6.9%**
Utilities	1.6%	10.6%	8.8%	7.0%	**6.8%**
Transportation	8.1%	4.4%	9.9%	5.0%	**6.4%**

Source: Compustat. Author's calculations. Available funds is equal to operating income after depreciation and taxes plus the net debt flow.

Figure 1: Industry relatedness: direction of M&A deals intra- and inter-industry, 1980-2021

1985-2001

Industries	Consumer Products and Services	Wholesale	Energy and Power	Healthcare	High Technology	Manufacturing	Media and Entertainment	Real Estate	Retail	Telecommunications
Consumer Products and Services	65,84	1,57	0,63	3,99	12,07	7,54	3,21	0,45	1,14	3,55
Wholesale	7,24	76,54	0,83	1,34	1,98	3,28	1,24	0,24	5,27	2,04
Energy	2,54	0,34	84,66	0,55	4,01	6,44	0,27	0,15	0,67	0,37
Healthcare	7,05	0,55	0,68	79,82	8,27	1,15	1,58	0,21	0	0,69
High Technology	4,47	0,49	0,37	2,58	75,28	6,89	5,46	0,53	0,29	3,64
Manufacturing	8,89	2,87	4,56	0,98	6,24	72,07	0,86	0,44	0,74	2,35
Media and Entertainment	3,39	0,18	0,92	0,27	9,68	1,12	75,16	0,22	0,46	8,61
Real Estate	2,25	0,94	0,32	4,56	1,16	3,39	12,43	72,3	1,14	1,51
Retail	8,11	5,96	2,67	1,03	5,91	7,46	2,27	0,78	64,96	0,85
Telecommunications	6,27	0,98	0,52	0,62	21,98	2,42	5,4	0,11	0,31	61,4

2001-2020

Industries	Consumer Products and Services	Wholesale	Energy and Power	Healthcare	High Technology	Manufacturing	Media and Entertainment	Real Estate	Retail	Telecommunications
Consumer Products and Services	58,63	1,78	1,45	4,87	14,06	6,74	4,59	0,51	2,27	1,32
Wholesale	6,16	73,46	0,92	2,33	2,78	4,09	1,1	0,26	4,36	0,31
Energy and Power	2,79	0,4	77,24	0,43	4,55	8,17	0,28	0,25	0,98	0,43
Healthcare	8,03	0,91	0,39	76,87	7,03	2,13	0,78	0,39	1,34	0,31
High Technology	8,76	0,26	0,87	1,45	74,75	3,91	3,73	0,26	1	4,12
Industrials	7,65	1,59	3,35	1,67	10,59	63,45	1,09	0,59	1,88	1,75
Media and Entertainment	8,54	0,45	0,35	0,61	15,11	0,85	70,06	0,45	1,79	1,11
Real Estate	3,25	1,22	0,52	3,74	1,52	2,92	15,79	66,31	2,88	0,74
Retail	7,61	4,09	3,42	2,95	7,66	5,09	3,57	0,62	61,58	0,72
Telecommunications	4,03	0,38	1,14	0,9	29,93	4,13	3,75	0,19	0,85	54,08

Source: Refinitiv. Author's calculations.

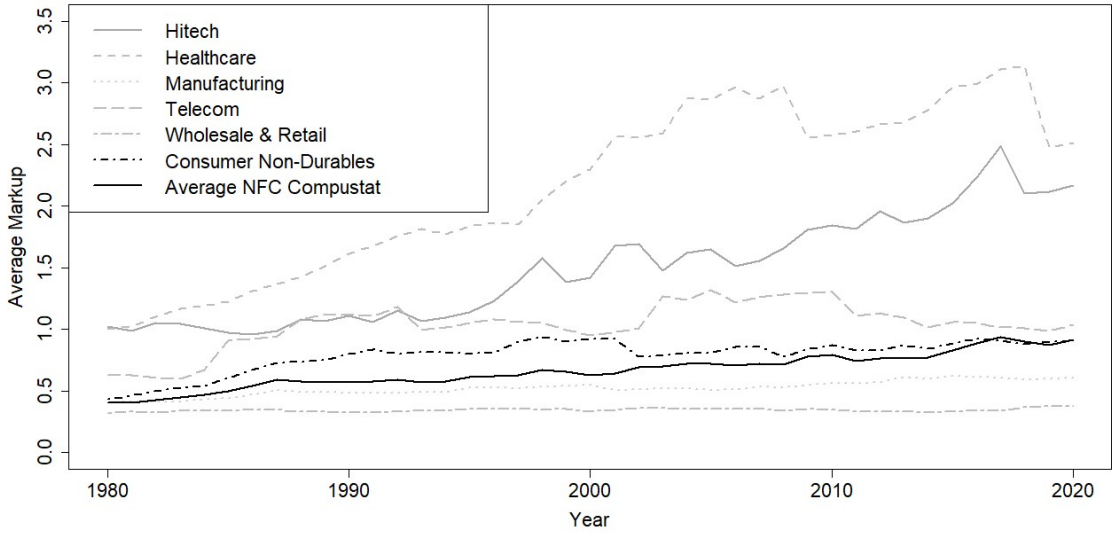
Table A2: 1980-2020 NFCs' Acquisition expenditure as % available cash flow in each sector

Ranked by average of whole period (last column in bold

Sector	**1980-1990**	**1991-2001**	**2002-2007**	**2008-2020**	**Whole period Average**
Manufacturing	26.1%	20.2%	19.1%	17.9%	**20.9%**
Hitech	3.7%	9.4%	17.5%	21.1%	**12.7%**
Healthcare	4.8%	8.9%	10.7%	19.2%	**11.1%**
Telecom	7.4%	15.8%	10.0%	8.3%	**10.4%**
Consummer Non-Durables	15.7%	9.7%	7.2%	6.9%	**10.0%**
Wholesale & Retail	9.1%	8.5%	9.7%	6.9%	**8.4%**
Utilities	2.8%	11.2%	7.0%	7.3%	**7.1%**
Mining	5.2%	3.0%	6.87%	4.4%	**4.6%**
Services	3.6%	5.4%	6.3%	3.6%	**4.5%**
Energy	12.1%	1.5%	1.5%	1.0%	**4.2%**
Consumer Durables	5.4%	4.5%	1.8%	1.3%	**3.3%**
Transportation	3.3%	1.6%	2.1%	1.6%	**2.1%**
Construction & Real State	0.8%	0.3%	0.5%	0.4%	**0.5%**

Source: Compustat. Author's calculations.

Figure 2: Markups by Sectors, 1980-2021



Source: Compustat. Author's calculations.

Figure 3

Share of Acquisition in Sectors' deciles by markup

4th Decile represents highest markups

Deciles per sector	1980-1985	1986-1990	1991-1995	1996-2001	2000-2008	2009-2020
Consumer Non-Durables						
1	9.7%	10.2%	13.2%	15.9%	8.2%	19.6%
2	14.3%	6.9%	6.7%	12.0%	18.4%	21.3%
3	28.0%	28.1%	37.8%	20.4%	32.2%	33.2%
4	48.1%	54.8%	42.3%	51.8%	41.2%	25.9%
Healthcare						
1	44.5%	8.5%	6.6%	1.2%	0.4%	0.1%
2	18.8%	35.1%	31.8%	34.5%	20.4%	17.6%
3	18.0%	17.5%	13.6%	21.4%	18.3%	16.6%
4	18.7%	39.0%	48.0%	42.9%	60.8%	65.7%
Hitech						
1	17.9%	13.7%	35.4%	29.8%	14.2%	10.0%
2	26.7%	58.8%	31.0%	26.1%	30.0%	20.9%
3	30.2%	20.2%	23.9%	29.7%	27.2%	38.8%
4	25.2%	7.3%	9.7%	14.4%	28.6%	30.3%
Manufacturing						
1	25.3%	10.4%	26.3%	19.0%	19.0%	15.4%
2	44.1%	39.0%	26.1%	35.8%	28.4%	30.6%
3	13.4%	31.8%	22.7%	31.0%	25.8%	24.8%
4	17.2%	18.7%	24.9%	14.1%	26.9%	29.1%
Telecom						
1	36.3%	30.6%	13.1%	7.6%	8.6%	24.0%
2	19.5%	17.4%	30.6%	28.8%	24.0%	18.3%
3	18.0%	29.8%	20.9%	40.6%	43.6%	38.2%
4	26.2%	22.2%	35.4%	23.1%	23.8%	19.5%
Wholesale & Retail						
1	32.5%	22.5%	21.3%	26.6%	25.4%	46.6%
2	39.1%	33.4%	33.8%	27.6%	23.2%	23.0%
3	18.4%	27.8%	23.6%	30.6%	36.1%	15.0%
4	10.0%	16.3%	21.3%	15.2%	15.3%	15.3%

Source: Compustat

Figure 4

Share of Acquisition in Sectors' Deciles by Markup

4th Decile represents highest markups

Deciles per sector	1980-1985	1986-1990	1991-1995	1996-2001	2000-2008	2009-2020
ConstructionRealState						
1	40.9%	11.3%	21.4%	29.2%	10.5%	12.8%
2	23.7%	54.1%	19.8%	15.2%	23.3%	33.7%
3	10.5%	28.8%	31.0%	18.1%	49.2%	26.8%
4	24.9%	5.8%	27.9%	37.6%	17.0%	26.6%
Energy						
1	5.6%	0.9%	23.5%	36.7%	46.0%	25.6%
2	42.0%	14.7%	53.1%	32.4%	27.5%	40.6%
3	22.6%	52.0%	8.2%	13.6%	16.5%	12.8%
4	29.8%	32.3%	15.2%	17.3%	9.9%	21.0%
Manufacturing						
1	25.3%	10.4%	26.3%	19.0%	19.0%	15.4%
2	44.1%	39.0%	26.1%	35.8%	28.4%	30.6%
3	13.4%	31.8%	22.7%	31.0%	25.8%	24.8%
4	17.2%	18.7%	24.9%	14.1%	26.9%	29.1%
Mining						
1	43.9%	19.3%	13.3%	21.1%	22.1%	13.9%
2	37.5%	46.8%	49.3%	40.7%	22.5%	32.7%
3	12.3%	15.3%	27.0%	24.7%	28.2%	31.2%
4	6.3%	18.6%	10.4%	13.5%	27.3%	22.2%
Services						
1	13.5%	9.9%	14.9%	11.5%	17.7%	20.6%
2	41.1%	38.2%	30.6%	25.5%	12.8%	18.5%
3	27.0%	23.8%	14.6%	31.1%	47.6%	27.4%
4	18.4%	28.1%	39.9%	31.9%	21.8%	33.5%
Transportation						
1	3.6%	27.8%	22.3%	19.4%	31.3%	32.5%
2	26.7%	44.0%	37.0%	15.2%	13.6%	17.9%
3	54.8%	16.7%	27.7%	40.8%	17.3%	22.1%
4	15.0%	11.6%	13.0%	24.7%	37.8%	27.5%
Utilities						