ecgi

The Great Pyramids of America: A Revised History of US Business Groups, Corporate Ownership and Regulation, 1930-1950

Finance Working Paper N° 449/2015
April 2015

Eugene Kandel
Hebrew University of Jerusalem, CEPR and ECGI

Konstantin Kosenko
Bank of Israel

Randall Morck
University of Alberta, NBER and Bank of Canada

Yishay Yafeh
Hebrew University of Jerusalem, CEPR and ECGI

ECGI Working Paper Series in Finance

The Great Pyramids of America: A Revised History of US Business Groups, Corporate Ownership and Regulation, 1930-1950

Working Paper N°. 449/2015

April 2015

Eugene Kandel
Konstantin Kosenko
Randall Morck
Yishay Yafeh

We are grateful to Gur Aminadav, Yonatan Bar, Rachel Cooper, Jae Cornelssen, Ori Eisenberg, Yosi Haddas, Ron Klein, Ari Kutai, Noam Michelson, Binh Minh Pham, Anna Popov, Itamar Shimonovitz, Noa Shukrun, Erez Walter, Tom Zuckerberg and, especially, Joseph Kalmenovitz, for outstanding research assistance. Kandel and Kosenko acknowledge financial support provided by the Falk Institute for Economic Research; Kosenko is grateful also for support from the Bank of Israel; Morck gratefully acknowledges financial support from the SSHRC and the Bank of Canada; Kandel and Yafeh received financial support for this project from the Krueger Center at the Jerusalem School of Business Administration. Yafeh also acknowledges generous support from the Center for Empirical Studies of Decision Making and the Law at the Hebrew University. We also thank Assaf Hamdani, Eric Hilt, Shiki Levy, Amir Licht, Paul Joskow, Eyal Zamir and seminar participants at Ben Gurion University, Duke, Harvard University, the Hebrew University, the National University of Singapore, Northwestern, the University of Alberta, the University of Manitoba, the WHU Business School (Koblenz), York University (Toronto) the 10th CSEF-IGIER Symposium on Economics and Institutions (Capri) and the World Finance Conference (Venice) for helpful comments and suggestions.

Abstract

Most listed firms are freestanding in the U.S, while listed firms in other countries often belong to business groups: lasting structures in which listed firms control other listed firms. Hand-collected historical data illuminate how the present ownership structure of the United States arose: (1) Until the mid-20th century, US corporate ownership was unexceptional: large pyramidal groups dominated many industries; (2) About half of these resembled groups elsewhere today in being industrially diversified and family controlled; but the others were tightly focused and had widely held apex firms; (3) US business groups disappeared gradually, primarily in the 1940s, and by 1950 were largely gone; Their demise took place against growing concerns that they posed a threat to competition and even to society; (4) The data link the disappearance of business groups to reforms that targeted them explicitly – the Public Utility Holding Company Act (1935) and rising intercorporate dividend taxation (after 1935), or indirectly – enhanced investor protection (after 1934), the Investment Company Act (1940) and escalating estate taxes. Banking reforms and rejuvenated antitrust enforcement may have indirectly contributed too. These reforms, sustained in a lasting anti-big business climate, promoted the dissolution of existing groups and discouraged the formation of new ones. Thus, a multi-pronged reform agenda, sustained by a supportive political climate, created an economy of freestanding firms.

Keywords: Corporate Groups; Corporate Ownership; US Financial History; New Deal

JEL Classifications: G3, G34, G38, N22

Eugene Kandel*
Professor of Economics
Hebrew University of Jerusalem - Department of Economics
Mount Scopus
Jerusalem, Israel
phone: +972 2 588 3137, fax: +972 2 581 6071
e-mail: mskandel@mscc.huji.ac.il

Konstantin Kosenko
Economist
Bank of Israel
P.O. Box 780
Jerusalem, Israel
e-mail: konstantin.kosenko@boi.org.il

Randall Morck
Professor of Finance
University of Alberta - Department of Finance and Statistical Analysis
2-32C Business Building
Edmonton, Canada
phone: +780-492-5683 , fax: +780-492-3325
e-mail: randall.morck@ualberta.ca

Yishay Yafeh
Senior Lecturer
Hebrew University of Jerusalem - School of Business Administration
Mount Scopus
Jerusalem, Israel
phone: +972 2 588 3081 , fax: +972 2 588 134
e-mail: msyafeh@mscc.huji.ac.il

*Corresponding Author

The Great Pyramids of America: A Revised History of US Business Groups, Corporate Ownership and Regulation, 1930-1950

Eugene Kandel, Konstantin Kosenko, Randall Morck and Yishay Yafeh*

April 2015

Abstract

Most listed firms are freestanding in the U.S, while listed firms in other countries often belong to business groups: lasting structures in which listed firms control other listed firms. Hand-collected historical data illuminate how the present ownership structure of the United States arose: (1) Until the mid-20th century, US corporate ownership was unexceptional: large pyramidal groups dominated many industries; (2) About half of these resembled groups elsewhere today in being industrially diversified and family controlled; but the others were tightly focused and had widely held apex firms; (3) US business groups disappeared gradually, primarily in the 1940s, and by 1950 were largely gone; Their demise took place against growing concerns that they posed a threat to competition and even to society; (4) The data link the disappearance of business groups to reforms that targeted them explicitly ï the Public Utility Holding Company Act (1935) and rising intercorporate dividend taxation (after 1935), or indirectly ï enhanced investor protection (after 1934), the Investment Company Act (1940) and escalating estate taxes. Banking reforms and rejuvenated antitrust enforcement may have indirectly contributed too. These reforms, sustained in a lasting anti-big business climate, promoted the dissolution of existing groups and discouraged the formation of new ones. Thus, a multi-pronged reform agenda, sustained by a supportive political climate, created an economy of freestanding firms.

JEL Codes: G3, G34, G38, N22

Key Words: Corporate Groups; Corporate Ownership; US Financial History; New Deal

* An earlier version of this paper appeared under the title ñBusiness Groups in the United States: A Revised History of Corporate Ownership, Pyramids and Regulation, 1930-1950.ò Kandel is with the Hebrew University of Jerusalem, CEPR and ECGI, mskandel@mscc.huji.ac.il; Kosenko is with the Bank of Israel, konstantin.kosenko@boi.org.il; Morck is with the University of Alberta School of Business, NBER, and is also a Research Fellow with the Bank of Canada, rmorck@ualberta.ca; Yafeh is from the Hebrew University of Jerusalem, CEPR and ECGI, yishay.yafeh@huji.ac.il. We are grateful to Gur Aminadav, Yonatan Bar, Rachel Cooper, Jae Cornelssen, Ori Eisenberg, Yosi Haddas, Ron Klein, Ari Kutai, Noam Michelson, Binh Minh Pham, Anna Popov, Itamar Shimonovitz, Noa Shukrun, Erez Walter, Tom Zuckerberg and, especially, Joseph Kalmenovitz, for outstanding research assistance. Kandel and Kosenko acknowledge financial support provided by the Falk Institute for Economic Research; Kosenko is grateful also for support from the Bank of Israel; Morck gratefully acknowledges financial support from the SSHRC and the Bank of Canada; Kandel and Yafeh received financial support for this project from the Krueger Center at the Jerusalem School of Business Administration. Yafeh also acknowledges generous support from the Center for Empirical Studies of Decision Making and the Law at the Hebrew University. We also thank Assaf Hamdani, Eric Hilt, Shiki Levy, Amir Licht, Paul Joskow, Eyal Zamir and seminar participants at Ben Gurion University, Duke, Harvard University, the Hebrew University, the National University of Singapore, Northwestern, the University of Alberta, the University of Manitoba, the WHU Business School (Koblenz), York University (Toronto) the 10th CSEF-IGIER Symposium on Economics and Institutions (Capri) and the World Finance Conference (Venice) for helpful comments and suggestions. The views expressed here are the authors, and do not necessarily reflect those of the Bank of Canada or the Bank of Israel.

1. Introduction

Large listed firms in the United States today are exceptional in the sense that virtually all are freestanding: that is, they neither control nor are controlled by another listed firm (La Porta et al., 1999; Villalonga and Amit, 2009; Masulis et al., 2011). Elsewhere, large listed firms often belong to pyramidal business groups, structures in which an apex firm, usually controlled by a wealthy family, holds equity control blocks in one or more listed firms, each of which then holds equity control blocks in one or more other listed firms, and so on. Such structures let business families outside the United States magnify their fortunes into control over corporate assets worth vastly more, effectively entrusting the corporate governance of large swaths of a national economy to a handful of business families. In the United States, even the most prominent tycoon rarely controls more than one listed firm. Elsewhere, control over corporate empires passes from father to son (seldom to daughter), while only a few large listed US firms are heir-run. These differences give US capitalism a less oligarchic flavor than elsewhere.

Using hand-collected data, we show that these exceptional characteristics of the US economy are historically recent. In the 1930s and 1940s, the US corporate landscape resembled that in other countries today, with over 50 large pyramidal business groups operating firms in manufacturing, railroads, and public utilities.[1] Group affiliates included about half of the largest US manufacturing firms, and several powerful financial institutions. As fractions of GDP, the sales of US business groups at the time easily eclipse those of the largest US corporations today. These groups began downsizing and disappearing, some in the late 1930s and many more in the 1940s, so that by the middle of the twentieth century, the US corporate landscape took its current shape.[2]

US pyramidal groups of the 1930s and 1940s differed from those in other countries today in several ways. First, although some US groups were widely diversified, many were highly focused, with all or most of their member firms in a single industry, notably public utilities or railroads. Second, though many US groups were controlled by business families, about half were controlled by widely held apex firms. Third, the intercorporate equity stakes in American pyramids were large, especially after 1940. These patterns contrast with pyramids elsewhere in the world today, which typically have member firms in many (sometimes virtually all) industries, controlling shareholders (usually wealthy

[1] Berle and Means (1932) are often cited for documenting the widely held nature of US corporations and for highlighting the governance problems of such firms. In fact, they discuss pyramidal business groups at length and argue that their governance problems can be worse. In our data set, only about one fifth of the groups were in public utilities. Studies focusing solely on this sector (e.g., Bank and Cheffins, 2010; Mahoney, 2012; Perez-Gonzales, 2014) therefore miss many business groups.

[2] Another unusual feature of the US corporate ownership which is not discussed in the present study is that most large US firms are widely held, whereas large firms elsewhere typically have controlling shareholders, usually wealthy families (La Porta et al., 1999; Becht and DeLong, 2005).

families), and low intercorporate control blocks (20% is often enough to wield effective control because small shareholders seldom vote).[3]

Pyramidal groups in the United States were large, complex, and numerous in the mid-1930s, and then slowly eroded away. By 1950, only a few small pyramids remained. The demise of US business groups occurred later and more slowly than previously posited (Morck, 2005a; Morck and Yeung, 2005; Bank and Cheffins, 2010), with the most precipitous drop after 1940. Groups with family controlled apex firms nearly disappeared by 1950, whereas some groups with widely held apex firms, including important pyramids such as those controlled by AT&T and the Pennsylvania Railroad, persisted.

The demise of business groups in the United States took place against the backdrop of a political climate in which President Roosevelt regarded the concentration of economic power through holding companies and business groups as a serious menace to competition and to American society more generally.[4] We argue that several policy measures introduced during his presidency contributed jointly to the disappearance of the business group structure from the US economic landscape: Consistent with Bank and Cheffins (2010) and Mahoney (2012), we find direct and explicit evidence that the roughly one in five pyramidal groups whose member firms were predominantly public utilities began to downsize and disappear, especially after 1940, when US courts started enforcing the Public Utilities Holding Companies Act (PUHCA) of 1935, long stalled by court challenges. As a result of this Act, the small number of pyramids in public utilities (e.g., electric power, natural gas, sewer and water companies) surviving to 1950 were reduced to two tiers. The PUHCA, however, had no effect on the majority of pyramids which operated in other sectors.

Pyramidal business groups with no significant presence in public utilities began to shrink after 1937 and especially in the 1940s. Several major reforms are implicated:

First, tax reforms starting in 1935 levied double taxation on intercorporate dividends, initially at low rates and then at much higher rates. Because these taxes applied each time dividend income passed from subsidiary to parent, the effective rate compounds the statutory rate by the number of tiers in the pyramid and may become prohibitive for multi-tiered pyramidal groups. Consistent with the tax having an effect on groups, we observe a significant flattening of pyramids after the tax came into force. The tax was avoidable if the parentôs equity holding in the subsidiary exceeded 85%; accordingly, intercorporate stakes increased significantly in the 1940s, often, though not always, to levels above 85%. These high intercorporate equity stakes limit both the separation of ownership from control rights available to the pyramidôs ultimate controlling owners and the usefulness of pyramiding

[3] Pyramidal business groups with widely-held apex companies are rare but not unknown outside the United States ï examples include the BCE and Canadian Pacific groups in mid-twentieth century Canada (Morck, Stangeland and Yeung, 2000), the Handelsbanken group in Sweden (Hogfeldt, 2005), and the Nissan zaibatsu in prewar Japan (Morck and Nakamura, 2005).

[4] See, for example, President Rooseveltôs 1938 speech published in the American Economic Review in 1942.

as a way to lever a merely respectable fortune into control over a much larger business empire. Also consistent with groups restructuring to avoid double taxation, intercorporate dividend, as a fraction of all dividends, peaked in the mid-1930s and then declined markedly.

The next two regulatory reforms may have affected groups, although precise measurement of their effect is not possible and the evidence we present is somewhat speculative. The Securities Act of 1933 and the Securities and Exchange Act of 1934 substantially enhanced shareholder rights, rendering corporations more transparent and proscribing several common ñtunnelingò practices of the 1920s. Plausibly, these changes diminished insidersô private benefits of control. The finding that pyramidal groups with tycoons or families as controlling shareholders disappeared faster than those with widely held apex firms is consistent with this conjecture: to the extent that private benefits of control might have been a more important purpose for the former groups, when securities law reforms interfered with that purpose, they faded away. The general decline in the size and complexity of business groups during the 1940s may also be partly attributed to enhanced public shareholder legal rights protected by the SEC.

The Investment Company Act (ICA) of 1940 affected holding companies, except in public utilities or railroads, by subjecting them to regulation as closed-end mutual funds unless their ownership stakes in the firms they controlled exceeded 50%. Being so classified imposed major constraints on the controlling shareholders and insiders of the holding company, including severe limitations of their involvement in decision making in the firms whose shares the holding company held and on non-armôs-length transactions. The Act also restricted holding companies designated as investment funds from levering up and imposed burdensome disclosure requirements. While no groups in our sample were included in the lists of investment funds directly regulated by the ICA or involved in ICA-based legal challenges, after 1940, most intercorporate control blocks exceeded the 50-percent threshold needed for exemption from this Act. While this could have had other reasons, the ICA might have been responsible.

We also discuss two other legislative and regulatory measures that might plausibly have affected pyramidal groups, estate taxes and antitrust enforcement. We find no evidence that these regulations played a direct role in the demise of groups; family controlled groups commonly used mechanisms to avoid the estate tax, and antitrust enforcement was insufficient to curb the influence of business groups, in line with President Rooseveltôs 1938 speech (published a few years later, see, Roosevelt, 1942). However, all the regulatory measures discussed here, together with other New Deal regulations such as the Glass Steagall (Banking) Act of 1933, may well have combined to create a business environment hostile to large pyramidal groups, and thus help explain corporate ownership in the United States today. The general public policy lesson from the historical period we study may be that only a sustained multi-pronged regulatory effort, combined with the right political climate, can create an economy of freestanding and generally widely held businesses.

The rest of the paper proceeds as follows. The next section presents the historical and institutional background for this study and surveys the related literature, both historical and more recent. Section 3 describes the newly constructed data set used for this study. Section 4 presents what we believe to be the first systematic statistical evidence on the existence and characteristics of business groups in the United States. Section 5 focuses on the demise of business groups after 1937 and examines empirically several possible reasons for it. Section 6 concludes and presents an agenda for future research.

2. Literature Review and Historical Background

Pyramidal Business Groups

Pyramidal business groups[5] are prominent features of the economic landscapes of most countries, both developing and developed, but are all but absent in the US.[6] In a business group, an apex firm holds enough equity in each of a first tier of listed subsidiaries to appoint its board. A majority stake guarantees this, but a much smaller stake generally suffices if most small shareholders do not vote their shares. Each of these firms likewise has publicly-listed subsidiaries, which in turn have their own subsidiaries. The ultimate controlling shareholder, in charge of the apex firm, is usually a family. Such pyramidal business groups can be vast: South Korea is home to the worldôs largest pyramidal group, Samsung, which accounts for about one seventh of Koreaôs GDP. The largest group in Canada in the 1990s, the Hees-Edper group, capped with a family trust structure controlled by a branch of the Bronfman family, contained over 500 corporations organized into 16 tiers. The largest pyramidal group in Sweden, capped by Investors, a closed-end fund controlled by the Wallenberg family, contains firms that collectively constitute about a third of Swedish total market capitalization in a typical year. A pyramidal group controlled by the tycoon Slim Helu similarly dominates Mexican equity markets.

Large pyramidal business groups, letting a modestly wealthy tycoon or family lever its wealth into control over a corporate empire worth vastly more, have several key economic implications. On the positive side, large business groups may well form naturally in economies with weak market institutions (Khanna and Yafeh, 2007), where member firms can provide all or most key inputs to each other and avoid costly armôs-length transactions in product markets rife with corruption, monopoly

[5] Pyramidal business groups are sometimes referred to, especially in US publications, as conglomerates. This is misleading. In US stock markets, conglomerates are single listed firms, or firms with unlisted subsidiaries only, that are diversified ï they operate in multiple industries (Servaes, 1996). Business groups are clusters of listed corporations under common control. Business groups may or may not be diversified, but their member firms seldom are. With one exception (International Telephone & Telegraph, ITT) there is no overlap or relation between the business groups we study here, dating back to the 1930s and 1940s, and the diversified US conglomerates of the 1960s listed in Dirlam (1970).

[6] Morck, Wolfenzon and Yeung (2005), Khanna and Yafeh (2007), and Morck (2010) provide literature reviews. Pyramidal groups in the histories of specific countries are described in the chapters of Barca and Becht (2001), Morck (2005b), and Coplan et al. (2010).

pricing, and quality verification problems. Business group firms can also invest in each other, fund new startups as other group firms come to need new inputs, and coinsure each other ï effectively forming an internal capital market and avoiding the broader economyôs corrupt or dysfunctional capital market and institutions. Funding new startups also naturally extends a groupôs pyramidal structure, as cash-rich member firms readily fund start-ups as subsidiaries in the tiers beneath them. Groups can share new technologies and orchestrate cross-firm collaboration on research without risk of losing intellectual property. Employees and managers can also move from group firm to group firm, in an internal labor market free of the quality verification problems that can undermine economy-level labor markets in developing countries. Outside shareholders may even prefer to invest in group member firms, whose ultimate controlling shareholders attain reputations for fair dealing. Employees and independent suppliers and buyers may similarly prefer dealing with group firms controlled by such persons.

But large groups can also have serious downsides. They can come to wield market power and impede competition, a key concern of President Rooseveltôs in 1930s America. In addition, the family controlling the apex firm has a diminishing financial interest in firms in successively lower tiers of the pyramid, in which it wields complete control with only partial, possibly very little, real ownership. This separation of ownership from control, which Berle and Means (1932) warn of in pyramids as much as in widely held firms, creates scope for a range of corporate governance problems that can compromise economy-level capital allocation and impede economic development (Morck, Wolfenzon and Yeung, 2005; Khanna and Yafeh, 2007).

As economies develop, the advantages of pyramidal business groups fade relative to increasingly efficient market transactions. At a sufficient developmental level, an economy of pyramidal business groups becomes disadvantaged relative an economy of freestanding competitive firms engaging in market transactions; and its pyramids would break up under competitive pressure. This logic suggests that old pyramidal business groups ought to fade away, and that new ones ought not to form in sufficiently developed economies. However, the concentration of economic power associated with controlling a large pyramidal business group bestows formidable lobbying power on their controlling shareholders. If further economic development threatens their economic, political, and social dominance, business groupsô controlling shareholders might lobby to slow or even stall development, leaving their economy in a ñmiddle income trapò (Morck, Wolfenzon and Yeung, 2005). Thus, leading reformers in many countries, including Israel, Italy and Korea, contemplate legislative or regulatory measures to constrain or even dismantle pyramidal groups.[7]

[7] For policies and reforms to curb the influence of business groups in Korea, see Haggard et al. (2003). For a discussion of policy proposals in Israel, see Bebchuk (2012).

American Exceptionalism regarding Business Groups

Pyramidal groups are now so rare in the United States that they were all but forgotten by generations of US economists, and only reemerged as the field sought to make sense of other economies. Figure 1, based on recent data from Masulis et al. (2011), shows far smaller fractions of firms belonging to family controlled business groups in in the United States than elsewhere. Indeed, Villalonga and Amit (2009), searching through US data using a generous definition of a pyramidal business group, identify only a handful of very small marginal structures.[8]

Only the United Kingdom and Japan have a similar dearth of family business groups. Franks et al. (2005) highlight the London Stock Exchangeôs 1968 Takeover Rule, which mandates that any bid for 30% or more of a firmôs shares be for 100%. Pyramids can generally be held together with small control blocks, often far less than 50%, because few small shareholders vote their shares (La Porta et al., 1999). Takeover bids for such a firm quickly force either the raider or defending block holder to pass the 30% threshold, so listed UK firms are generally either widely held or unlisted, making pyramidal groups unstable.[9] The United States has no equivalent Takeover Rule. In theory, US M&A bids can be for any stake; however, essentially all are for full ownership.

Most large Japanese firms belonged to family controlled pyramidal business groups prior to World War II. Japanôs post-war US military government (1945ï1952), tying these families to the wartime regime, dissolved the pyramids, dispersing shares of affiliated companies to managers, employees and others, leaving most large listed firms widely held until the early 1950s (Yafeh, 1995; Franks et al., 2014). Two postwar episodes of hostile takeovers led several groups of large Japanese firms to participate in the formation of keiretsu ï a new form of business group ï arguably designed as a takeover defense (Sheard, 1991; Morck and Nakamura, 2005). Each keiretsu member firm created treasury shares amounting to a majority of its shares, and distributed these to other member firms in return for their shares. This left each firm without any single controlling shareholder, but majority owned by all the other firms in the keiretsu and thus protected from raiders. This shows up as dispersed ownership in international comparisons.[10] The United States has no keiretsu.

---

[8] Examples include Thermo-Electron, a now defunct Boston venture capital firm that retained control blocks after taking its ventures to the IPO stage and Cox Communications, a now-disbanded family-run pyramid with three small listed firms. Kaiser Industries, a listed firm, controlled three listed manufacturing firms until it was dissolved in 1977 (Gilson and Black, 2007). The Tisch brothersô Loew Corporation controlled a block in CBS, a television network, for several years in the early 1990s. A developing exception may be Warren Buffet, controlling shareholder of Berkshire Hathaway, which, until recently, took its acquisition targets private. However, the firm has recently taken to acquiring substantial minority blocks in target firms as an activist investor. Aside from these exceptions, notable for their rarity, intercorporate equity stakes in US listed firms tend to be either takeovers or divestitures underway.

[9] Corporate ownership in the United Kingdom was dispersed even very early in the twentieth century (Franks et al., 2009) suggesting that other forces also contributed to dispersed ownership, if not to destabilizing pyramids. Similar takeover rules in other countries without intense merger activity appear ineffective in deterring pyramids.

[10] Figure 1 also shows Australia, Canada and the Netherlands with a low incidence of pyramidal groups, though not as low as the US. Craswell et al. (1997) confirm that most large Australian firms are widely held. Morck, Tian, Percy and Yeung (2005) show pyramids rising and falling repeatedly in Canada, most recently in the 1980s and 1990s. They relate these changes to economic crises, changes in estate taxes, and the varying scope of state interventionism. The Netherlands has a

Historical Background

Histories of Americaôs rapid industrialization era, roughly between 1870 and 1904, reveal large business groups to be important (Chernow, 1990; DeLong, 1991). In the decades after its Civil War, Americaôs industrialization was led by business groups organized under voting trusts, an 1879 financial innovation of J.D. Rockefellerôs Standard Oil Co., subsequently employed by J.P. Morgan to finance mergers, especially in a merger wave around the turn of the twentieth century. Target firmsô shareholders exchanged their shares for units in a voting trust, which fully owned the targets.[11] These units were non-voting ï their voting rights were ñentrustedò to the Morgan Bank or Morgan-backed entrepreneurs, such as Rockefeller or Thomas Edison. One voting trust could control any number of operating companies. The Morgan Bankôs central role in organizing and running many trusts put it at the center of a large, highly diversified business group (Moody, 1904), with central coordination effected by Morgan partners sitting on member firmsô boards (DeLong, 1991).

Concern that trusts coordinated monopolies led to anti-monopoly legislation, the Sherman Antitrust Act of 1890. American courts had long ruled that corporations had no business owning shares in other corporations, so the rare pyramidal structures that existed required state charters. In 1888, apparently anticipating the Sherman Actôs focus on trusts, New Jerseyôs legislature legalized *holding companies*, corporations whose assets include shares in other corporations (Freedland, 1955; Nelson, 1959; Grandy, 1989). The New Jersey reform, soon emulated by Delaware, offered trusts possible reprieve from the Sherman Act if they reorganized as pyramids (Keller, 1979).[12]

Harried by antitrust lawsuits, Standard Oil Trust reorganized itself under a holding company in 1899, and other large trusts soon followed. Among the holding companies created during this period were the Consolidated Tobacco Company, Eastman Kodak, US Steel (all in 1901), followed by and DuPont (1903) and General Motors (1908) (Bonbright and Means, 1932; Nelson, 1959). Between 1895 and 1904, 167 holding groups consolidated more than 1800 companies and controlled more than 40 percent of the capital invested in the industrial sector (Hogan, 1971; Keller, 1979).

Despite occasional court disputes, several regulatory changes let holding companies expand ever larger pyramidal business groups through the 1920s.[13] The Revenue Act of 1918 granted an

---

mandatory takeover rule and various control enhancement mechanisms, such as golden shares, that can lock in managerial control without large block holders (De Jong and Roell, 2005).

[11] Target shareholders were often eager to do this, especially if the target neared bankruptcy, because their liability, while limited, could exceed what they ñpaid inò to buy their shares. Actual trusts could be far more complicated, but all turned on exchanging voting shares for non-voting units in a voting trust (Chernow, 1990; DeLong, 1991).

[12] The Baltimore & Ohio Railroad (est. 1832), the first US holding company, was perceived as a legal anomaly: ñAt common law, in New York and virtually every other American jurisdiction, it has been uniformly held that a business corporation has no inherent authority to hold the stock of another business corporation, even if both corporations are engaged in exactly the same type of business ventureò (Freedland, 1955, p. 369).

[13] The definition of a business group used in this study requires having at least three publicly-traded companies under common control (see below). As some holding companies controlled private subsidiaries only, the existence of a holding company did not necessarily imply the formation of a business group. For example, real estate companies in the United

explicit tax exemption to intercorporate dividends. States, vying to attract head offices, raced to facilitate holding companies (Nelson, 1959). Successive Coolidge administrations defunded anti-trust enforcement (Bittlingmayer, 2001) which, in any case, was widely thought inapplicable to holding companies (Bonbright and Means, 1932).[14]

Large pyramidal business groups formed rapidly in the 1920s, accruing multiple tiers of fully and partially owned, listed and unlisted, member firms ï some pure holding companies, some partial holding companies, and others pure operating companies (Allen, 1935). Pyramids expanded by founding or acquiring new subsidiaries as well as growing established ones. Soon, large pyramidal groups towered over railroads, manufacturing, and public utilities.

The most comprehensive contemporary source on US pyramids and business groups in the 1930s is Bonbright and Means (1932), who list many 1930s groups variously containing public utilities firms, railroads, manufacturing firms, and financial firms. Many of these groups focused on a single sector ï especially public utilities or railroads. Major investment banks orchestrated the formation of many groups (Kotz, 1978; Markham, 1955), and some retained ongoing control. Wealthy business families ended up in control of many others.[15]

Pyramidal groups came to dominate public utilities more than any other sector, so public utilities pyramids attracted disproportionate attention. This is understandable given the times. Electrification was the internet of the 1920s (Jovanovic and Rouseau, 2003), and local entrepreneurs organized companies to electrify cities and regions all over the United States, often selling out to business groups. By 1926, business group firms generated almost 75% of all electricity (Pinchot, 1928). By 1930, 19 business groups controlled 90% of all electricity generating operating companies (Energy Information Administration, 1993). Other utilities sectors were likewise dominated by business groups. Electric power poles could double as telephone poles, and local phone companies formed throughout the country, their networks soon melded together under AT&T, which controlled approximately 97% of all telephone business by the late 1920s. Four pyramidal groups dominated consumer natural gas provision.

Pyramidal business groups in public utilities contributed critical financial and managerial expertise to small, local operating units they acquired (Ruggles, 1929; Annual Report of the Fair Trade Commission, FTC, 1927). Pyramidal groups were also thought to allocate capital and equipment more efficiently, cut distribution costs, professionalize management, gain better terms from suppliers,

---

States today commonly separately incorporate each of their properties and projects, despite owning 100% of them all. We do not consider these business groups because the controlled corporations are fully owned and unlisted.

[14] Section 7 of the Clayton Act was thought inapplicable to holding companies controlling operating firms not in direct competition with each other (Bonbright and Means, 1932).

[15] Lundberg (1937) describes commonplace inter-marriages between families controlling business groups, not unlike those Bunkanwanicha et al. (2013) describe between present-day Thai families controlling business groups. The National Resources Committee (NRC) describes in *The Structure of the American Economy* (published in 1939) extensive director interlocks in the United States of the 1930s, not unlike those Khanna and Thomas (2009) document in present-day Chile.

coordinate joint engineering, construction and R&D expenditures, and reduce their member firmsô costs of capital by dint of their geographical diversification and mutual coinsurance (Waltersdorf, 1926). These views contrast sharply with turn-of-the-century concerns about holding companies abusing market power (Markham, 1955; Nelson, 1959).

By the late 1920s and 1930s, such sentiments were giving way to skepticism. Many pyramidal groups seemed overcapitalized (Anderson, 1947), prone to monopolistic pricing, or even tainted by political corruption (Waltersdorf, 1926; Buchanan, 1937). Many, seemingly using accounting loopholes to inflate asset valuations, began looking perilously leveraged (Graham and Dodd, 1934).[16] Public utilities could largely escape state regulation by becoming a subsidiary of out-of-state holding companies.[17] Finally, public utilities were local monopolies, so consumers could not take their business elsewhere if prices seemed too high or service too poor.

The 1930s literature on business groups in the United States is remarkably predictive of current work. Buchanan (1936) regards business groups as mechanisms for letting member firms coinsure each other and manage risk, presaging arguments by Khanna and Yafeh (2005). Anticipating Morck, Wolfenzon and Yeung (2005), Anderson (1947), argues that, in their early stages of development, US groups solved problems of under-developed capital markets, but later turned to price fixing, related party transactions and violations of investor rights. Bonbright and Means (1932) auger yet more arguments in the modern literature (e.g., Khanna and Palepu, 2000): groups were established to take advantage of scarce managerial skills and to create internal capital markets for group-affiliated firms, which otherwise faced difficulties raising capital. Bonbright and Means (1932) foreshadow also concerns about ñtunnelingô (Johnson et al., 2000) in positing that groupsô controlling shareholdersô orchestrate intra-group transactions to divert dividends away from other shareholders. One 1930s concern that current work omits is groups benefiting from the ñcost plusò regulation of public utilities, in which regulatory boards set consumer prices to give the firm revenues equal to its costs plus a regulated profit rate. This invites intra-group transactions to transfer costs from unregulated to regulated member firms.

US regulators began to move after a series of influential reports. A 1927 FTC report criticized General Electric for monopolistic pricing. A 1928 report condemned monopoly power in the electricity and gas industries. Also in 1928, the National Association of Railroad and Utility Commissioners

[16] See also *Hearings before the Committee on Banking and Currency*, United States Senate, 73d Congress, 1st Session, on Senate Resolution 84 of the 72d Congress and Senate Resolution 56 of the 73d Congress, Part 2, pp. 563 on 84 of the 72d Co 1933ss ñStock Exchange Practices.ò

[17] Contemporary observers viewed the limited regulation of holding companies in the public utility sector as worrisome (Buchanan, 1937). Even though the public utility sector was heavily regulated at both the State and the Federal levels, the holding companies themselves were left almost unnoticed with no Federal law providing for their direct supervision except the Federal Power Act of 1920. At the State level, in the vast majority of cases, public utility commissioners had no jurisdiction over holding companies, although indirect influence through the regulation of retail prices and of transactions with operating companies within State boundaries was possible. See also President Rooseveltôs 1935 address (http://www.presidency.ucsb.edu/ws/index.php?pid=15019) and Energy Information Administration (1993).

argued that State Commissioners be given explicit powers to regulate holding companies (Greenlaw, 1930; Morehouse, 1929).

With the end of the *laissez-faire* Coolidge administration and the onset of the Great Depression, ideas about breaking the ñmoney trustsò gained further support. Anti-big business sentiment was fuelled by the collapse of the highly leveraged Insull Group, the third largest utility group, in 1931 (Cudahy and Henderson, 2005; Banks and Cheffins, 2010; Mahoney, 2012). Because the groupôs firms had been coinsuring each other (McDonald, 2004), they ultimately failed together, generating spectacular headlines. In the subsequent six years, many more utilities holding companies and affiliates went bankrupt (Melnyk and Lamb, 2006), often following what was perceived as over-expansion and unrelated diversification (Buchanan, 1936 and 1937; Dewing 1941; SEC 1944 Annual report).[18] These events led to a sequence of dramatic regulatory measures.

In 1932 the Interstate Commerce Commission (ICC) submitted to Congress a special report recommending the prohibition of control acquisitions over two or more railroad carriers by a single holding corporation (except with the ICCôs approval), and the application of ICC regulation to the issuance of securities by railroad holding companies (Ansnes, 1932).[19] In 1933 the Emergency Railroad Transportation Act was enacted, broadening the ICCôs jurisdiction over holding companies, subjecting all consolidations, leases and acquisitions of controlling shares or control arrangements by a holding company to the ICCôs approval (Conant, 1961; Goddard, 1933).[20]

Elected at the nadir of the Great Depression, amid widespread dismay that capitalism, liberalism, and even democracy had failed, President Franklin Delano Roosevelt promised Americans a ñNew Deal.ò His administration, blocked by the Supreme Court from implementing the corporatist reforms other Western countries were embracing, had no choice but to chart its own course. The result was a multidimensional array of reforms, several among these explicitly targeting pyramidal groups. After describing our data and evidence about the importance of pyramidal business groups in the period from the 1920s through to 1950, we explain each major reform in detail and our evidence about its actual importance in reshaping the US economic landscape.

3. Historical Sources and the Construction of the Data Set

Our dataset is an unbalanced panel of 15,270 firm-years (2,743 firms) drawn at six points in time: 1926, 1929, 1932, 1937, 1940 and 1950. The main data sources are Moodyôs Manuals ï that is, relevant annual issues of Moodyôs Industrial Manual, Moodyôs Railroad Manual, and Moodyôs Public

[18] Galbraith (1954) describes the failure of the holding companies differently, focusing on what he calls ñreverse leverageò where intercorporate dividends were used to pay interest on bonds issued by companies at the apex of pyramids. In his view, the downturn of the late 1920s created a liquidity problem and reduced the capacity of daughter companies to pay dividends, resulting in bankruptcies of many parent holding companies.
[19] H. R. 11677, 72nd Cong., 1st Sess. (April 28, 1932).
[20] See 15 U.S Code Chapter 2D.

Utilities Manual. These provide general information about each firm, its ownership structure, a brief description of its history, a limited set of financial variables and some information about its capital structure and management.[21]

We start with the ownership structure of the 200 largest US non-financial corporations ranked by total assets, as reported in Berle and Means (1932). This list includes firms in all sectors except finance. Using Moodyôs Manuals, we track the chain of companies controlled by these 200 ñB&M listò corporations and construct 200 detailed ownership trees including parent corporations and successive tiers of controlled subsidiaries. We then follow the same companies over time, backward and forward, in snapshots, the earliest in 1926 and the latest in 1950, constructing similar ownership trees for each year.[22] All companies that were directly or indirectly controlled by a corporation on the B&M list at any time during this 25-year period are included in the sample.[23] We expand these ownership trees by tracking parent corporations, parentôs parent corporations and so on, until we identify the ultimate owners of every corporation.[24] We define owners as ñultimateò if they themselves are not controlled by another entity: the ultimate controlling company may be widely held or controlled by individuals and families, either directly or via trusts and other control devices. Having identified the ultimate owners, we assign every identified firm to a control cluster (a set of firms controlled by a common ultimate owner), or classify it as freestanding. The resulting control clusters are treated as follows: as in Mahoney (2012), a subsidiary of which 95% or more of the shares are controlled by a parent is defined as a fully-owned subsidiary, whereas an affiliated company where the controllerôs equity stake is smaller than 95% is regarded as public (otherwise, it is considered

[21] Moodyôs Manuals, scanned and uploaded onto an online database, are available upon subscription from Mergent Online (http://webreports.mergent.com/). The years we refer to are the manualsô year of publication, which typically contain data for the previous year.

[22] To test for the possibility of sample selection we conduct the following tests: first, following Lundberg (1937), Collins and Preston (1961) and Navin (1970), we confirm that our sample is representative of the overall US corporate population: the combined assets of firms included in our data set amount to over half of all non-banking corporate assets in America at the time. Berle and Means (1932) report that, during their period of study, the remaining corporate assets were held by more than 300,000 small and widely-held companies. Second, we verify, using lists of the largest US firms between the 1940s and 1960s (Lundberg, 1968) that no newly-formed large companies and controlled subsidiaries are omitted from the sample. Finally, to control for the possibility of selection in the ownership data as reported in Moodyôs manuals, we pick at random nine companies from the three different manuals (railroads, public utilities and industrial firms) and compare the list of controlled subsidiaries in their consolidated reports with the subsidiaries reported in Moodyôs manuals. 291 companies exist in both data sources, but 144 are not in our (Moodyôs manuals-based) dataset. Most of these are small (in terms of total assets), 100% controlled subsidiaries.

[23] We are not always able to identify the reason why a firm may not appear in the sample in a certain year. In most cases, we rely on Moodyôs manuals, and conclude that the ñmissingò company was either dissolved or merged into another company, or that it was simply not yet established. In other cases, Moody chose not to include the firmôs reports in the manual because of ñlack of public interest.ò Finally, especially in the case of small subsidiaries entirely owned by larger firms, Moody often chose not to provide a separate report for them. Instead, a brief paragraph is included in the controlling companyôs report, describing the main facts about smaller controlled subsidiaries. Nevertheless, there are still cases where we cannot establish the fate of a company.

[24] Data sources include: Moodyôs Annual Reports, the website fundinguniverse.com, historical texts from archive.org, historical company records, SEC Annual Reports starting 1935, the archives of the Wall Street Journal and the New York Times, and the final report of the Temporary National Economic Committee on the Concentration of Economic Power (TNEC).

private).[25] We combine this information with Moodyôs description of whether the company is traded on a stock exchange and also use the SEC Annual Reports published starting December 1935 and the CRSP database for the period 1930-1950 to verify our definitions. Using this classification of companies into public and private, we define a ñbusiness groupò as a cluster with three or more public companies controlled by the same ultimate owner. Control clusters without any public affiliates (conglomerates or multidivisional firms in modern parlance) are not considered business groups. The robustness of the results to changes in the definition of a group (where a group controls at least four public companies) is discussed later.

We supplement the ownership data with information, also drawn from Moodyôs manuals, on each firmôs total assets, gross revenues and its year and State of incorporation. All the financial and accounting data in this study are converted to constant 2005 dollars.[26]

The nature of each companyôs economic activity is characterized as a pure holding company (with no operations); a semi-holding company (a holding company with operations) and a pure operating company. Companies are also classified into several major industrial categories: railroads (including underground and a variety of other transportation methods), public utilities (including gas, fuel, coke, electricity, water, etc.), manufacturing and ñotherò (a default category for firms which do not fall into any other category). These are sub-divided into more refined industrial sectors.[27]

4. Evidence on the Presence of Pyramidal Business Groups in the United States

Figure 2 summarizes our data on the size and incidence of business groups in the United States from 1926 to 1950. Business groups were large and prevalent in the 1930s and 1940s. The 1930s featured 25 to 29 business groups, collectively containing over 1,000 member firms in the early 1930s and

[25] In the period we study there were no legal limits on the types of shares a company was allowed to issue. As a result, companies could issue several classes of shares, each with a different set of voting rights (Becht and Delong, 2005). Nevertheless, although several classes of shares could theoretically co-exist with pyramids, in the late 1920s, around the beginning of our sample period, the New York Stock Exchange began to object to the issuance of new non-voting common stock, an approach that ñwould seem to have eliminated the use of this device on any large scale in the immediate futureò (Berle and Means, 1932, pp. 71-72); however, other forms of dual class shares seem to have continued to exist. For the purpose of this study we focus only on share classes with fixed voting power at the general shareholder meeting (typically called ñcommon stock,ò although they could have other names). Stocks without voting power at all, or stocks with limited and/or conditional voting power are not included. For companies classified as freestanding (where no individual or family have direct control), we verify using the TNEC reports that no individual or family exercised control through voting trusts, preferred shares or any other control-enhancing mechanism. In other cases, however, the exclusion of preferred shares or other classes of equity could potentially bias our calculations towards overestimating ownership blocks and underestimating wedge between ownership and control rights.

[26] During the time period we study, there were no clear rules regarding the use of consolidated vs. unconsolidated financial stgatements. Consolidation of financial reports occurred frequently, but not always, when the controlling ties between the consolidated companies were very strong (e.g., 95-100% controlled subsidiaries). We try to separate whanever possible consolidated and non-consolidated reports.

[27] For the 200 B&M list corporations, we use the industrial classification provided by Berle and Means (1932), modified using the classification provided in the Statistics of Income publications. In order to identify the industrial affiliation of subsidiaries, we use company names and the description of the firmôs ñoccupationò in Moodyôs manuals. Our industry codes correspond to the 85 industries of the revised 1947 SIC tables, reported in 1958 (roughly similar to modern 3-digit SIC codes).

about 1,000 towards the decadeôs end. During this period, group-affiliates comprised about one third of all US corporate assets and about one half of all non-financial assets.

Table 1 is a snapshot of US groups in 1932. Groups are evident in many industries. Among the 26 groups in our 1932 cross-section, ten had a presence in the public utilities sector and (according to Moody) eight had public utilities as their primary line of business, 17 operated railroads or other transportation-related services, eight controlled manufacturing affiliates, and nearly all were present in one or more service sectors. These classifications are not mutually exclusive, as diversified groups could operate in many industries. In 1932, 13 of the 26 groups had widely held apex firms and 13 were capped by firms controlled by tycoons or business families (Figure 2a). For brevity, we call the former *widely held groups*, though only their apex firms were in fact widely held.

Widely held groups were typically highly focused in two sectors: public utilities and transportation (mostly railroads). Although some family controlled groups were as focused as the widely held groups; others, notably the Du Pont and Mellon groups, were highly diversified, resembling present-day family controlled business groups in emerging markets. Figure 3 summarizes our data on the industrial focus of various groups. The figure measures horizontal focus using group-level equal-weighted sales-based Hefindahl-Hirschman indexes calculated across 85 3-digit industries (group affiliates are actually present in only 24 of those sectors). The mean of around 0.8 indicates high focus, and the median of 1.0 indicates that all of the median groupôs member firmsô sales were in a single industry. A high focus is even more evident in those groups that survived to 1950. Figure 3 measures vertical integration as in Fan and Lang (2000), who report a baseline vertical integration index of 1.8% for US multi-segment firms in 1979-1982, and slightly higher figures in later periods.[28] The group-level vertical integration index in our data is 1.3%, indicating that, on average, only 1.3% of the output of a typical group-affiliated firm could be used as inputs by other firms in its group.[29]

Figure 4 describes the relative importance of business groups in different industries, rather than the importance of different industries in business groups. In 1932, group-affiliated companies accounted for some 80% of all assets in transportation services and public utilities; but groups were also prominent in other capital-intensive heavy industries, such as chemicals and metals. Similar patterns were evident in pre-war Japan and in emerging markets like Korea of the 1970s and 1980s,

[28] To illustrate how this measure of vertical integration is calculated, Fan and Lang (2000) provide the following example (p. 663): ñIn 1992, the total plastics output was $31,502 million. The total output of bags was worth $8,389 million. The bags industry consumed $1,259 million worth of plastics (a_{ij}), whereas the plastics industry employed $10 million worth of bags (a_{ji}) as an input. On a per-dollar basis, the bag industry consumed $0.15 (= 1,259/8,389) worth of plastics for each dollar of bags produced (v_{ij}), whereas the plastics industry consumed $0.0003 (=10/31,502) worth of bags for each dollar of plastics produced (v_{ji}). The vertical relatedness between the two industries is 0.0751 ($V_{ij}=1/2(v_{ij}+ v_{ji})$, the average input transfer between the two industries on a per dollar basisò. Comparisons of vertical integration measures constructed on the basis of this methodology are sometimes difficult as they depend on the number of industries used and on whether or not the diagonal of the input-output table (trade between two firms in the same industry) is taken into consideration or not. Our figures are calculated at the 3-digit level and do not include trade between firms in the same industry.

[29] Groups consisting of firms providing public utilities in different geographical regions are important in these statistics, as they would be characterized as focused (undiversified) and not-vertically integrated.

and could reflect (among other things) preferential access to outside capital or well-functioning internal capital markets.

The largest US groups of the 1930s were very large. In 1932, the Morgan Group, the largest in our data, had revenues of $46 billion (2005 dollars). While this is only about one tenth of the revenues of the largest American corporations today (Walmart or Exxon-Mobil), real US GDP is now fifteen times larger, so the Morgan group of 1932 was about 50% larger, as a fraction of GDP, than today's largest US corporations. The 1932 revenues of the Morgan Group, which summed to about 6.5% of GDP, make it comparable to some large Korean groups today: the revenues of each of Hyundai, LG and SK constituted 6 to 7% of South Korea's 2007 GDP. Samsung, the world's largest group by this metric, with revenues summing to about 14% of South Korean GDP, is about twice as large as the Morgan Group (Colpan and Hikino, 2010, Table 2.3).

Figure 5 contrasts widely held and family controlled groups in 1932. The largest group, the Morgan group, had a family controlled apex firm and member firms in numerous different industries; the second largest, the Pennsylvania Railroad group, had a widely held apex firm and member firms tightly focused in railways. Other large groups of 1932 included the widely held AT&T and the family controlled Mellon and Van-Sweringen groups. On average, family controlled groups were larger, with a mean value of $60 billion in assets (for the entire sample period in 2005 dollars), vs. only $28 billion for widely held groups, though the difference is statistically insignificant.

Figure 6 portrays the pyramidal structures of several large groups in 1932. Pyramidal structures were standard for both widely held and family controlled groups. Table 2 shows that, while the common shares used to control group affiliates implied high average control-cash flow wedges relative to freestanding firms, the common shares-based wedges of widely held groups' member firms were insignificantly different from those of family controlled group member firms. Although there is variation in this respect across groups and over time (discussed below), in both family controlled and widely held groups, the average common equity stake held by insiders was high, on the order of 70%. Indeed, the mean intercorporate common equity stake is below 50% in only one group, the widely held Pennsylvania Railroad in 1940.[30]

Thus, pyramidal business groups were common in the United States throughout the 1930s, constituting a major part of the economy.[31] While many public utilities and transportation firms

[30] The equity stakes we calculate refer to public companies only, where we measure the direct equity stakes of the controlling shareholder or the controlling company in the subsidiaries or affiliates it controls. They are also based only on each firm's most important class of common shares. If preferred shares and other classes of common shares were considered, some control blocks might well be much lower and some wedges much higher.

[31] This statement contradicts Hilt (2014) who argues that ownership in the United States was dispersed even in the early decades of the nineteenth century. Becht and DeLong (2005) describe a process by which ownership gradually became more dispersed in many firms during the first half of the twentieth century. Holderness et al. (2002) find that managerial ownership stakes were low in the United States even in 1935; they do not discuss overall ownership concentration, family

(notably railroads), belonged to pyramidal groups, most pyramidal groups were in other sectors. While the former were industrially focused and often had widely held apex firms, the latter were more apt to be family controlled and diversified across a range of manufacturing industries, thus resembling pyramidal groups in emerging markets today. Finally, extreme wedges between control and cash flow rights were uncommon in the common shares of most US business groups, both widely held and family controlled.

5. Evidence on the Demise of Business Groups in the United States

Figure 2 shows the number and importance of business groups peaking in 1932, declining gradually through the rest of the 1930s, and then dropping precipitously in the 1940s: The number of groups fell from 28 in 1940 to 18 in 1950, 12 disappeared and two new groups formed as spinoffs of existing groups. No entirely new business groups formed during this decade. The number of group-affiliates declined from nearly 1,000 in 1940 to only 330 in 1950; and the share of group affiliates in total US corporate assets collapsed from over 40% in 1940 to about 10% in 1950.

Table 3, listing the groups present each year, indicates that business groups did not disappear completely, even by 1950. Some widely held groups (e.g., AT&T or Pennsylvania Railroad) survived, as did a few family controlled groups (e.g., Du Pont or Rockefeller). However, Table 3 and (more clearly) Figure 2a suggest that family controlled business groups were more likely to disappear than widely held groups: families controlled about half of all groups before 1940, but only one quarter of those still existing in 1950. In contrast, the number of widely held groups remained roughly stable.

Table 4 examines group disappearance by comparing descriptive statistics for the 18 groups that survived through 1950 and the 35 that disappeared between 1929 and 1950:[32] Small, family controlled, diversified groups with more pyramidal levels were more likely to disappear than large, focused groups with widely held apex firms. Moreover, Table 3 shows that the surviving groups contained fewer firms. Moreover, their firms were organized in fewer pyramidal levels: The average number of pyramidal levels in surviving groups fell statistically significantly from 2.8 in 1940 to 2.2 in 1950. Over the same period, the average common equity blocks used to control group-affiliates rose.

To further explore these changes, and to relate them to major regulatory changes, we move from aggregate to group-level and firm-level data. We focus on groups disappearing between 1937 and 1950: a group ceases to exist if enough of its public member firms delist (through bankruptcy or a takeover), are taken private, or become freestanding, leaving the group containing fewer than three public companies and therefore no longer satisfying our definition. Of the 900 group-affiliates

control through trusts and foundations and indirect control chains within business groups; therefore, their findings are not necessarily inconsistent with the results reported here.

[32] The total number of groups which survived and disappeared (53) does not equal the total number of groups in Table 3 (55). The reason for this discrepancy is that two spin-off groups which first appeared in 1950 are not taken into account when calculating the number of surviving groups.

undergoing such ownership changes between 1937 and 1950, 104 were public companies. We then search for links between these ownership changes and specific reforms, which we now describe. Table 5 summarizes the reforms and their likely effects.

The Securities Act of 1933 and the Securities and Exchange Act of 1934

The Securities Act of 1933 and the Securities and Exchange Act of 1934 mandated (and enforced) rules for standardized financial disclosure, securities issuances and enhanced shareholder rights vis-a-vis corporate insiders. These two acts are widely regarded as the foundation of present day shareholder rights in the United States. Although neither explicitly aims at business groups, both plausibly limited tunneling ï controlling shareholders extracting private benefits of control by shifting income from other group firms to firms they directly own (Johnson et al., 2000) ï or at least exposed such transactions to shareholders and lawyers. If pyramidal groups existed because they offered controlling shareholders scope for tunneling, these reforms presumably made groups less worthwhile to them.

We find circumstantial evidence consistent with this logic: First, US pyramids without controlling shareholders were less likely than those with controlling shareholders to disappear in the 1940s. Johnson et al. (2000), Djankov et al. (2008) and others associate tunneling with private benefits to a business groupôs controlling shareholder, hence widely held groups may have been less prone to tunneling.[33] The relatively early disappearance of family controlled groups may therefore be interpreted as evidence that groups whose raison dôêtre was less likely to be the diversion of private benefits to their apex firmôs controlling shareholder were more likely to survive to 1950.

Second, surviving groups have smaller common equity control-cash flow wedges than do disappearing groups (though Table 4 shows both figures to be small), and grow squatter over time (their mean number of tiers drops from 2.8 in 1940 to 2.2 in 1950). Bebchuk et al. (2000) show how tunneling is more lucrative to controlling shareholders whose pyramidal groups contain more tiers of firms held together with smaller equity control blocks (i.e. their control-cash flow wedges are larger). Both findings are thus consistent with surviving pyramids being less amenable to the diversion of private benefits to controlling shareholders, and with a linkage between law and corporate ownership structure (La Porta et al., 2008).

[33] Tunneling in pyramids whose apex firms have a controlling shareholder typically entails the shifting of income from lower tier firms upward to the apex firm, which then pay higher dividends to the controlling shareholder and lower dividends to public shareholders of lower tier firms. How tunneling might work in pyramidal groups with widely held apex firms is less obvious. Morck and Nakamura (2005) describe how the prewar Japanese Nissan pyramid used tunneling to shift resources between member firms so as to maximize the shareholder value of its widely held apex firm. Presumably, widely held apex firms would exhibit managerial shirking, empire building, risk avoidance, and other agency problems associated with dispersed ownership.

The Public Utilities Holding Companies Act (PUHCA) of 1935

In the summer of 1934, President Roosevelt established the National Power Policy Committee (NPPC) to study the public utility industry and propose legislation for it (Mahoney, 2012). The NPPCôs investigation was simultaneous with two other investigations into holding companies, one by Congress through the FTC, the other by the government through the Federal Power Commission (Funigiello, 1973). The FTC report concluded that ñthe detriment of utility holding corporations to the public has exceeded, thus far, their value to the publicò and recommended exercising Federal control over utility holding companies through either taxation or direct prohibitive legislation.[34] To address concerns about the anti-competitive effects of public utility pyramidal groups, given that antitrust regulation at the time was considered inadequate (Roosevelt, 1935), Roosevelt promised that ñamong the subjects that lie immediately before us isé the restoration of sound conditions in the public utilities field through abolition of the evil features of holding corporations.ò[35] In August 1935, Congress passed the PUHCA, also called the Wheeler-Rayburn Act.

The PUHCA imposed severe restrictions on public utilities ï restricting intra-group loans and dividends, and other transactions; limiting group-level lobbying, and drastically curtailing the use of pyramiding in business groups with operating companies in public utilities. The last was spelled out in the PUHCAôs so-called ñDeath Sentence Clause,ò which stipulated that, to remain under common control, public utility groups needed a connected infrastructure, operations in only one industry (i.e. either electricity or gas), and a pyramidal structure no higher than two tiers ï ï a listed holding company controlling listed operating subsidiaries.

The PUHCA was repeatedly challenged in court, and at first seemed likely to fall into juridical oblivion. However, in 1940, a reconstituted Supreme Court not only upheld its key provisions, but imposed a harsher interpretation on the courts and the SEC and allowed enforcement to begin. The SEC sought to use the PUHCA to break up some groups, force others to divest unrelated companies and operations in non-adjacent states, prevent group member firms from issuing non-voting shares, and limit group firmsô leverage. The legal struggle over the implementation and interpretation of the PUHCA only finally ended in 1946, when the Supreme Court reaffirmed the ñDeath Sentence Clause.ò The PUHCA remains in force.

We use the Seventeenth Annual Report of the SEC (1951) to identify companies and groups whose structures or activities were listed by the SEC as subject to restructuring under the PUHCA from 1937 to the end of the 1940s.[36] Of the 900 group member firms that exited from business groups

[34] See pp. 20, 26-27. The report, published after nearly seven years of investigation, covered holding and operating companies with total assets of nearly $12 billion, all in public utilities. See also Energy Information Administration (1993), p.16.

[35] Available at: www.presidency.ucsb.edu/ws/index.php?pid=14890#ixzz1cwHQ1pUl.

[36] Restructurings include ñvoluntaryò proposals submitted by groups and approved by the SEC as well as ñforcedò restructuring based on SEC directives issued under the provisions of the PUHCA. See SEC Annual Report, 1944, p. 65.

between 1937 and 1950, one sixth (149 firms) were on this SEC list. Of the 104 public firms that exited from groups during this period, about a third, 34 firms, appeared on the list. The list includes over a third of the public affiliates of five of the 12 groups that were present in 1940, but gone by 1950 (Doherty, Mellon, Morgan, Stone & Webster and Williams). The list also includes member firms in the Commonwealth Edison and General Electric groups, which disintegrated between 1937 and 1940.[37]

Figure 7 summarizes changes around the advent of PUHCA enforcement in 1940. Figure 7a shows the number of affiliates in groups whose primary business was public utilities falling off after 1937, and dropping faster in the 1940s. Figure 7b shows the average number of pyramidal levels in surviving public utilities-focused groups falling from four in 1940 to two in 1950, in line with the PUHCA provision stipulating no more than two levels in public utilities pyramids.

These findings are broadly consistent with the PUHCA having economic force. However, the effect of this regulatory measure, like that of improved investor protection, is not discernible immediately. Rather, Figure 8 shows many PUHCA-related divestments taking place in the 1940s. Moreover, the PUHCA could not have destroyed all business groups in the United States because most disappearing groups in the 1940s were not in public utilities and were thus not materially affected by it. And, some public utilities groups persisted to 1950, albeit flattened to two-tier pyramids. These findings are consistent with recent work arguing that the PUHCA was economically important (Morck, 2005a, p. 152; Bank and Cheffins, 2010; Mahony, 2012; Perez-Gonzales, 2014), but weigh heavily against it being the sole factor responsible for the demise of pyramiding in the US.[38]

The Double Taxation of Intercorporate Dividends (1935)

In June 1935, Roosevelt sent a special tax message to Congress explicitly calling for tax incentives to encourage the breakup of pyramidal business groups (Blakey and Blakey, 1935). Roosevelt's anti-pyramidal group tax strategy focused on the (multiple) taxation of intercorporate dividends. Figure 9 shows the statutory rate, initially barely 2% in 1935, rising at an accelerating rate to about 14% by the

[37] There were 25 groups in 1937; seven disappeared by 1940 (of which two were subject to PUHCA action). Six spinoff groups and four new ones were created by 1940.

[38] Mahoney (2012) finds negative abnormal returns in utilities shares on news favorable to the PUHCA being enacted. Perez-Gonzales (2014) finds that the PUHCA improved the performance of divested ex-pyramidal group member firms (although it is not clear from this finding why these firms were not divested independently of the PUHCA). Bank and Cheffins (2010) argue that the PUHCA was crucial in ending pyramidal groups which had already become rare in the United States by the 1930s, and that those that still existed were in public utilities sectors. Their claims are not fully consistent with data and findings reported here. In historical evaluations of the PUHCA, its effectiveness was controversial. Anderson (1947) thought that the PUHCA did not imply the elimination of holding companies, but rather that their outlook was ñquite positiveò and, though counting some 345 holding company divestitures by June 1945 (p. 251), he observes that many others submitted reorganization plans for SEC approval. In contrast, SEC chair Harry McDonald (1951) counts 759 PUHCA-related divestitures, with gross assets summing to over $10 billion being divested by the end of 1950. He also argues that the PUHCA reduced pyramidal groupsô geographic spread, counting 10 SEC-registered public utilities groups operating in ten or more states and 14 operating in five or more states in December 1938, but none operating in ten or more states and only eight operating in five or more states in 1950.

early 1940s. However, the power of the tax is its multiple application. In a pyramidal group, the controlling shareholderôs dividend income ultimately depends on dividends paid to the apex firm by subsidiaries, whose income depends on dividends paid them by their subsidiaries, and so on. Profits earned by companies in the lowest tier of the pyramid must pass, as dividends, though all the levels of the pyramid to become dividends payable to the controlling shareholder; so the intercorporate dividend tax bites each time the money passes to a higher tier. Thus, the effective tax rate on a pyramidal groupôs controlling shareholderôs dividend income is the intercorporate dividend rate, compounded by the number of tiers in the pyramid, plus the individual income tax rate applicable on her final dividends received. [39] In virtually every other country, the intercorporate dividend tax is zero so the only tax she pays is her final individual income tax (Morck 2005a).

Another roughly contemporaneous change in the tax law with implications for pyramidal groups was new restrictions on filing consolidated group-level tax returns. This occurred in 1934 for most groups, but not until 1942 for railroad groups, effectively exempting them from intercorporate dividend taxes until then.[40] Other reforms provided preferential tax treatment for parent firms that liquidated or absorbed partially owned subsidiaries, and were designed as tax incentives to reward the downsizing and simplification of pyramidal groups.

Like the PUHCA, the intercorporate dividend tax was explicitly designed to deter pyramiding (Morck 2005a; Morck and Yeung 2005), and is thus another prime suspect in their actual demise. However, empirically confirming its effect is problematic. While the SEC publicly named group affiliates whose ownership or activities violated the PUHCA, the IRS published no comparable list of large intercorporate dividend taxpayers. Moreover, while the PUHCA prohibits specific ownership structures, the intercorporate dividend tax merely renders them costly. Nonetheless, evidence suggestive of the tax being economically important is readily available.

First, intercorporate dividends declined after the tax took effect. In constant dollar terms, the value of intercorporate dividends peaked in 1935, the year the intercorporate dividend tax began, and then declined. The mid 1930s were the nadir of the Great Depression, so lower dividends can be expected in these years. However, while corporate profits surpassed their 1929 levels by 1941 and rose to 250% of that level by the end of the sample period, intercorporate dividends, as a fraction of corporate profits, fell to insignificance. Figure 10 shows this by plotting intercorporate dividends as a

[39] If the statutory intercorporate tax rate is Ű, say Ű= 10%, then \$100 of earnings paid as dividends by a firm in the bottom tier of a ten-tier-high pyramid is taxed ten times at the intercorporate rate before it reaches the ape firm, and ends up as a dividend of \$100 x (1 ï 10%)^{10} = \$34.87 for the ultimate controlling shareholder. This amounts to an effective tax rate of 65.13%, or 1 ï (1 ï Ű)^{t}, where t is the number of tiers of member firms between the ultimate source of the dividend and the ultimate controlling shareholder. Of course, the ultimate controlling shareholder still has to pay individual income tax on the \$34.87.

[40] Railroad groups alone could avoid the intercorporate dividend tax by paying a small consolidated tax and filing a single consolidated tax return for the entire business group. In 1940, the only group in which the mean intercorporate common equity stake is below 50% is the Pennsylvania Railroad group. In 1942, this option was eliminated.

fraction of all dividends: This ratio also peaks in 1935, the year in which the tax was introduced, and then drops, falling dramatically and monotonically to negligible levels through the 1940s.

Second, groups restructured in ways that suggest they were trying to avoid, or at least minimize, the burden of the intercorporate dividend tax. Figure 11 shows the mean common equity stakes used to control group affiliates hovering around 75% in 1950, a 9-percentage point increase from the 66% mean of level prevalent in 1940. After further tax reforms in 1942, dividends received from affiliates controlled with equity stakes of 85% or more were exempt from the intercorporate dividends tax, so the increase in control block size may reflect groups increasing their intercorporate control blocks to avoid the tax. The decline in the number of pyramidal levels in surviving groups between 1940 and 1950 evident in Figure 7b would also reduce the impact of the tax by reducing the number of times it can be levied.

Third, the multiple application of the intercorporate dividend tax was designed to penalize pyramidal groupsô controlling shareholders. As noted above, pyramidal groups with controlling shareholders, and whose insiders therefore depended on dividend income passed up through tiers of intermediate firms to their apex firms, were more apt to exit by 1950 than were pyramids with widely held apex firms. Presumably, the insiders of these firms did not depend on dividend income, so the tax burden was perhaps less pressing to them.

Finally, the Twentieth Century Fund (1937) lists thirty companies whose holding company ownership structures it infers changed earlier in 1937 to avoid the intercorporate dividend tax. This list includes two firms in our sample of group-affiliates, one in the Du Pont group, which survived until 1950, and another in the Mellon group, which disappeared between 1940 and 1950 and flags both as explicitly citing the tax as motivating their restructurings.[41] We conclude that the intercorporate dividend tax is likely to have contributed meaningfully to the erosion of US groups.

The Investment Company Act (ICA) of 1940

The voting trusts that capped turn-of-the-century business groups had not disappeared entirely. Indeed, the stock market boom of the 1920s saw the rapid growth of many closed end funds, listed companies whose only assets were shares in other companies. Closed end funds are important parts of major pyramidal groups elsewhere in the world today ï for example, Investor, the apex firm of Swedenôs Wallenberg family pyramid is a closed end fund. Roosevelt clearly saw this possibility too and, in a 1938 speech, called for the enhanced regulation of investment trusts both to improve investor

[41] Inspection of the list reveals the other 28 groups in the list to be controlled by entities which do not control three public firms and therefore are do not satisfy our definition of a business group.

protection and to prevent the undue concentration of economic power that they, like holding companies, can provide.[42]

The Investment Company Act (ICA) imposed sweeping new regulations on investment companies, defined as listed firms whose assets primarily consisted of other firmsô shares. Obviously, this could include apex firms or intermediate tier firms in some pyramidal groups. A company subject to the ICA has to meet enhanced disclosure standards, obey strict limitations on leverage, restrict its executives or shareholders from involvement in the management of companies whose shares it holds, and engage in no related party transactions with those firms. Applied to a pyramidal groupôs apex firm, the ICA would force the controlling shareholder to become a passive investor in her corporate empire. However, the ICA explicitly exempts holding companies in public utilities and railroads, as well as holding companies whose equity stakes in their subsidiaries exceed 50%.

The SECôs 1949 Annual Report lists investment companies and investment trusts subject to action under the ICA, and none are among our sample of group affiliated firms. However, the ICA went into full effect immediately, with none of the legal delays that initially blocked the PUHCA or the gradual increase in pressure that occurred as intercorporate dividend tax rates rose. Figure 11 shows a very pronounced rise in intercorporate common equity control blocks in most groups. If the increase were designed solely to meet the intercorporate dividend tax exclusion criterion, a minimal stake of 85%, the observed increases would not have been sufficient. However, Figure 11 shows that, in all groups, the 1950 common equity control stakes exceeded the 50% threshold required for exemption from the ICA. The dearth of stakes below 50% in the 1950 data suggests that some manufacturing-oriented groups may have restructured in the wake of the ICA to avoid having their holding companies, or subsidiaries acting as holding companies, being classified as investment companies. Of course, if the ICA were the only factor, intercorporate stakes would presumably have clustered just above 50%. That many are far higher suggests other forces, perhaps the intercorporate dividend tax 85% deductibility threshold or pressure from SEC-empowered shareholders.

Other Possibly Pertinent Policies:

Antitrust Enforcement, Estate Taxes, the Glass-Steagall Act and Railroad Regulation

Several other important reforms that took place in the 1930s and 1940s may also have indirectly affected the viability of business groups. This section considers each in turn.

Becht and DeLong (2005) highlight US antitrust law as an important force in fragmenting US business, beginning with the Supreme Courtôs 1911 decision to uphold the Sherman Antitrust Act and order the breakup of the Standard Oil pyramidal business group. In the 1920s, successive Coolidge

[42] ñThe investment trust, like a holding company, puts huge aggregations of the capital of the public at the direction of a few managers. Unless properly regulated, it has potentialities second only to the holding company as a device for further centralization of control over American industry and American finance.ò (Roosevelt, 1942, p. 126).

administrations defunded antitrust enforcement, and the Sherman Act became dead letter. The FTC was reassigned to preapprove mergers, rather than investigate monopolistic practices. President Roosevelt, speaking in 1938 (the speech was published in 1942), laments the weakness of antitrust enforcement and promises to increase funding for it, but also proposes to use other regulatory tools to curb the influence of groups in view of the deficiencies of the antitrust authorities at the time. This weakness was reversed in the 1940s: Fligstein (1990, Table 5.1) documents a marked increase in antitrust enforcement expenditures especially during the second half of the 1940s.

Using the sources cited in Posner (1970, footnotes 2 and 13), we create a list of disappearing companies which also appeared as defendants in antitrust cases filed both by the Antitrust Division of the Department of Justice and the FTC between 1929 and 1950. In line with President Rooseveltôs rhetoric and Fligsteinôs data (1990), antitrust enforcement was rare in the 1930s with only 66 documented enforcement cases. By contrast, we find 640 cases of alleged anticompetitive behavior reported during the 1940s. However, of these cases, only 15 involved group-affiliated firms and only four concerned public companies; even out of these four cases, two were dismissed. We conclude that antitrust enforcement was probably not a major force in bringing about the demise of business groups (See also Table 5).

Morck, Percy, Tian and Yeung (2005), documenting a decline of business groups in Canada from 1910 through the 1960s and their resurgence thereafter, suggest as an explanation the replacement of that countryôs estate tax in the 1970s by a more easily avoidable (and deferrable via family trusts) realization of capital gains on death. They report that at least some heirs had to downsize their business groups, selling shares and firms to pay estate taxes. Figure 12 shows top US tax rates on inherited income rising through the 1930s and stabilizing at unprecedentedly high levels in the early 1940s (Gale and Slemrod, 2001), suggesting that US business groups might have been forced to downsize as heirs sold companies to pay huge estate taxes. Succession events, however, were not particularly common in our sample period and Table 6 shows that those that did occur were not obviously related to group disappearance.

Table 7 lists mechanisms commonly used by wealthy controlling families to avoid estate (and other) taxes starting in early decades of the twentieth century. However, complete avoidance appears implausible: Chernov (1990) describes an ñavalancheò of art sales after J.P. Morganôs death to pay the estate taxes. Leaphart (1930) describes in detail a sequence of 1920s court cases criticizing and restricting the extensive use of trusts and other devices to limit the tax liability of individuals. The New Deal, in addition to raising top tax rates, closed off many tax loopholes and stepped up enforcement in the 1930s (Brownlee et al., 2002, p. 786). Fack and Landais (2011) find charitable donations by the wealthiest one percent of Americans correlating significantly with top marginal tax rates, but caution that the value of these donations may often be overstated. Clotfelter (2012) describes the high philanthropic funding of public goods as a form of American exceptionalism caused by its

exceptionally high estate taxes. Overall, while mechanisms to limit the applicability of estate taxes were readily available during our sample period, it is unlikely that estate taxes were totally irrelevant in the 1930s. Our data provide no clear evidence, and we therefore leave the role of taxes in forcing the downsizing and exits of business groups unresolved.

A third major reform of the era, the Glass-Steagall (Banking) Act of 1933, forced banks to be either commercial banks (taking deposits and making loans) or investment banks (engaged in underwriting, active investment management, etc.) within one year. This potentially affected four groups in our sample, which contained banks.[43] The Morgan Bank, the financial firm in the Morgan Group, the largest pyramidal group in our sample, opted to be a commercial bank. This decision may well have impaired the Morgan Groupôs internal capital market by making group affiliation less worthwhile, and perhaps explains the groupôs dissolution in the 1940s. The Stone &Webster Group likewise contained a bank affected by the Act, and also disappeared in the 1940s. The Kuhn & Loeb Group broke up in the 1930s and the Harriman Group survived until 1950. Obviously, the timing of these dissolutions accords poorly with the 1934 deadline for compliance with the Glass-Steagall Act. Moreover, both the Morgan and Stone & Webster groups contained many affiliates subject to the PUHCA, which came into force in 1940 and so better fits their 1940s dissolutions. We therefore can document no clear role for the Glass-Steagall Act in the demise of business groups in the United States.

Finally, railroad groups occupied a regulatory domain of their own. After successive waves of overbuilding bankrupted many railroads, solvent railroads complained that lines acquired in bankruptcy sales, often by Morgan-financed buyers (Knight, 2014), unfairly undercut their prices. Also, there were concerns that the Rockefellerôs Standard Oil group had negotiated especially low freight rates, allegedly to drive independent oil companies into accepting takeover bids (Collier and Horowitz, 1989). The federal railroad regulator, the Interstate Commerce Commission (ICC), thus came to perceive its mandate as keeping freight rates up. In what Huntington (1952), Stigler (1971), and others characterize as an epitome of regulatory capture, railroads lobbied intensively to protect the ICCôs turf from encroachments by rival regulators and the ICC worked tirelessly to protect the status quo in the railroad sector. Within the government, the ICC was a powerful agency because it regulated an industry that many politicians wanted to influence. The result was an environment in which the ICC later sought to regulate trucking and shipping to control competition with railroads. The ICC was emasculated in 1980, when railroads were deregulated, and abolished in 1995.[44]

[43] We identify banks influenced by the Glass Steagall Act using a list of 17 defendant banks in the US vs. Henry Morgan case (1947), a follow-up to Glass-Steagall Act, in which the banks were accused of attempting to monopolize the US banking industry. The list is reported in Morrison et al. (2013).

[44] The Staggers Rail Act of 1980 let carriers, rather than the ICC, set freight rates. The Interstate Commerce Commission Termination Act of 1995 pulled the plug on the long moribund agency.

Our data contain no instances of the ICC restructuring railroad pyramids. The only regulatory measure that clearly affected railroad pyramids was the intercorporate dividend tax, and only after 1942. Consistent with the tax having some effect, we observe a marked increase in the mean common equity control stakes in two railroad groups that survived to 1950, the Pennsylvania Railroad and Southern Railway (Figure 11). In the case of the Pennsylvania Railroad group, this accompanies a dramatic downsizing of the group in the 1940s (Table 3). However, railroad groups also faced dramatic changes in their economic environment: rising competition from trucking in the 1920s (Goddard, 1996) and falling demand during the Great Depression of the 1930s both presumably took a toll. Many disappeared in the 1930s (Table 3) without being subject to any new regulation.

The Political Climate of the Era

The Crash of 1929 devastated much of Americaôs middle class (Bernstein 1987). By 1932, stocks were worth barely 10% of their 1929 peak valuations. Thousands of banks failed across the country, wiping out depositorsô life savings. Fundamentally sound companies could no longer obtain working capital, and followed their banks into bankruptcy by the thousands. By 1933, the official unemployment rate was 25% and real GDP had fallen by almost half. Trade barriers halted agricultural exports and farm prices plummeted. Surviving banks foreclosed on mortgages, and middle class Americans, grown accustomed in the 1920s to having cars, telephones, electric home appliances, and homes or farms, suddenly found themselves in poverty. The US government struggled to cope with tens of millions of unemployed. From 1932 through 1934, the Senate Banking Committee, directed by Ferdinand Pecora, exposed a long series of massive frauds and swindles that left many of Wall Streetôs most powerful figures wealthy, even as their investment clients lost everything (Perino, 2010). Unsurprisingly, many Americans saw these unfolding disasters as the failure of capitalism.

President Franklin Delano Roosevelt came to power in 1932 on a wave of anti-business sentiment, and sought to gain reelection by implementing a New Deal for middle class Americans that would insulate them from the incompetence and rapacity of Wall Street. Earlier in the century, Theodore Roosevelt came to power on a similar wave of anti-business populism that ran its course and yielded to the renewed free market policies of the 1920s. Business leaders in the 1930s, and even the 1940s, might have hoped that Rooseveltôs New Deal, with its anti-pyramiding measures, might similarly be soon reversed. However, the Depression dragged on; and, election after election, Roosevelt swept back into power supported by solid Democratic majorities in Congress. Progressives increasingly dominated the Supreme Court, whose Associate Chief Justice, Louis Brandies, had achieved fame lambasting Wall Street and Big Business in his popular best seller *Other People's Money – and How the Bankers Use It*, first published in 1914 and reissued in 1933. As the years passed, the New Deal became the new normal. Hopes for reversing its reforms faded, and business groups had no choice but to acquiesce.

Robustness of the Results to Alternative Definitions of Groups

The definition of a group on the basis of common control over three or more publicly-traded companies is, of course, arbitrary. Our main results, however, on the number of groups in existence in each year and on the factors which affect their likelihood of survival remain unchanged when we modify the definition of a group and require control of four public companies or more. The results are presented in the Appendix: Appendix Figure 1 confirms that the trend in the total number of groups and the proportion of family controlled vs. widely held ones are similar when a group is defined as having four public affiliates or more. Appendix Table 1 confirms that the main differences between surviving and disappearing groups are unchanged when the definition of a group is modified (although not all differences are statistically significant).

6. Conclusions

The stylized facts documented here offer possible lessons for present-day policy makers in many countries where regulatory measures to limit the role of business groups, and big business more generally, are being considered. For example, anti-group regulation is unlikely to yield immediate results, especially in an institutionally developed country with developed courts and property rights; the effects we observe in our US data are mostly from the 1940s, a decade or so after the introduction of anti-group regulation. Another lesson is that no single regulatory measure is a panacea for powerful business groups. Instead, the US experience described here suggests that what may be needed is a combination of regulatory measures, possibly including both direct structural restrictions on groups as in the PUHCA and incentives for groups to downsize, as in divided taxation, applied consistently over a long time period against the backdrop of an appropriate political climate.

In addition, the findings of this study may challenge certain aspects of the conventional wisdom in the modern corporate governance literature. For example, one implication of the finding that business groups thrived in the early twentieth century United States is that there seems to be no inherent contradiction between the presence of business groups and common law. This buttresses arguments, based on the importance of business groups in other common law countries ï such as Canada, Hong Kong, India, Israel, Malaysia and Singapore ï against a common law legal origin precluding business groups.

Our findings add historical evidence from the United States to the histories of corporate ownership of other developed economies. Unlike the United States, the United Kingdom had dispersed ownership throughout the twentieth century, regardless of formal measures of investor protection (Franks et al., 2009); Japan, which was subject to an anti-big business policy shock (Yafeh, 1995; Morck and Nakamura, 2005; Franks et al., 2014) around the same time the policies discussed here were implemented in the United States, ended up with a quasi-unique corporate ownership structure

based on long-term cross shareholding arrangements. The United States, despite its institutional proximity to the United Kingdom, had a concentrated ownership structure in the first half of the twentieth century. And, the United States, despite the similarity to Japan in the spirit of anti-big business policy measures, ended up with a very different ownership structure than Japan. These historical comparisons suggest that the evolution of corporate ownership and the impact of financial regulation are complex phenomena which vary with country-specific contexts. These findings call for development of a new theory of the relation between the regulatory and legal environment and the structure of corporate ownership.

The present study delineates an exciting research agenda. One interesting subject to explore using our historical data set is the endogenous formation and disintegration of business groups at the individual firm level: What types of firms were acquired by groups? Which firms were divested? Can these patterns shed light on the economic reasons for the existence and demise of groups in the United States? Another interesting research direction we intend to pursue has to do with the effect of group disappearance on competition: Did the elimination of business groups foster competition in general or in specific industries? Given that the anti-big business spirit of the 1930s was primarily motivated by competition-related arguments, can we find evidence of changes in structure, conduct and performance of some sectors in the US economy? Finally, we plan to test whether the demise of groups affected financial development and the use of external finance in industries from which the groups disappeared.

References

Allen, Fredrick Lewis (1935), *The Lords of Creation* (New York: Harper and Row).

Anderson, William (1947), ñPublic Utility Holding Companies: The Death Sentence and the Future,ò *Journal of Land and Public Utility Economics*, Vol. 23, pp. 244-254.

Ansnes, Bliss (1932), ñFederal Regulation of Railroad Holding Companies," *Columbia Law Review*, Vol. 32, pp. 999-1016.

Bank, Steven and Brian Cheffins (2010), ñThe Corporate Pyramid Fable,ò *Business History Review*, Vol. 84, pp. 435-458.

Barca, Fabrizio and Marco Becht, Editors (2001), *The Control of Corporate Europe* (Oxford: Oxford University Press).

Bebchuk, Lucian (2012) ñCorporate Pyramids in the Israeli Economy: Problems and Policies: A Report Prepared for the Committee on Increasing Competitiveness in the Economy,ò Ministry of Finance, Government of Israel.

Bebchuk, Lucian, Reinier Kraakman and George Triantis (2000), ñStock Pyramids, Cross-ownership, and Dual Class Equity,ò in Randall Morck (Editor), *Concentrated Corporate Ownership* (Chicago: University of Chicago Press).

Becht, Marco and Bradford DeLong (2005), ñWhy Has There Been So Little Block Holding in America?ò in Randall Morck (Editor), *A History of Corporate Governance around the World: From Family Business Groups to Professional Managers* (Chicago: University of Chicago Press).

Berle, Adolf and Gardiner Means (1932), *The Modern Corporation and Private Property*, (Rutgers, New Jersey: Transaction Publishers).

Bernstein, Michael (1987), *The Great Depression: Delayed Recovery and Economic Change in America, 1929-1939* (Cambrigde: Cambridge University Press).

Bittlingmayer, George (2001), ñThe Use and Abuse of Antitrust,ò in John Denson (Editor), *Reassessing the Presidency: The Rise of the Executive State and the Decline of Freedom* (Auburn, Alabama: Von Mises Institute).

Blakey, Roy and Gladys Blakey (1935), ñThe Revenue Act of 1935,ò *American Economic Review*, Vol. 25, pp. 673-674 (1935).

Bonbright, James and Gardiner Means (1932), *The Holding Company: Its Public Significance and its Regulation* (New York: McGraw Hill).

Brandeis, Louis (1914), *Other People's Money – and How the Bankers Use It* (New York: Stokes Press).

Brownlee, Elliot, Eric, Rakowski, Glenn Fisher, David Gelfand and Joel (2002). ñTaxation,ò In Kermit Hall (Editor), *The Oxford Companion to American Law* (Oxford: Oxford University Press).

Buchanan, Norman (1936), ñThe Origin and Development of the Public Utility Company,ò *Journal of Political Economy*, Vol. 44, pp. 31-53.

Buchanan, Norman (1937), ñThe Public Utility Holding Company Problem,ò *Columbia Law Review*, Vol. 25, pp. 517-551.

Bunkanwanicha, Joseph Fan and Yupana Wiwattanakantang (2013), ñThe Value of Marriage to Family Firms,ò *Journal of Financial & Quantitative Analysis*, Vol. 48, pp. 611ï 636.

Chernow, Ron (1990), *The House of Morgan: An American Banking Dynasty and the Rise of Modern Finance* (New York: Grove Press).

Clotfelter, Charles (2012), ñCharitable Giving and Tax Policy in the U.S.,ò In Gabrielle Fack and Camille Landais (Editors), *Charitable Giving and Tax Policy: A Historical and Comparative Perspective* (Paris: Paris School of Economics and CEPR).

Colpan, Asli and Takashi Hikino (2010), ñFoundations of Business Groups: Towards an Integrated Framework,ò in Colpan, Asli, Takashi Hikino and James Lincoln (Editors), *The Oxford Handbook of Business Groups* (Oxford: Oxford University Press).

Collier, Peter and David Horowitz (1989), *The Rockefellers: An American Dynasty* (New York: Summit Books.

Collins, Norman and Lee Preston (1961), ñThe Size Structure of the Largest Industrial Firms, 1909-1958,ò *American Economic Review*, Vol. 51, pp. 986-1011.

Colpan, Asli, Takashi Hikino and James Lincoln, Editors (2010), *The Oxford Handbook of Business Groups* (Oxford: Oxford University Press).

Conant, Michael (1961), ñRailroad Consolidations and the Antitrust Laws,ò *Stanford Law Review*, Vol. 14, pp. 489-519.

Craswell, Allen, Stephen Taylor, and Richard Saywell (1997), ñOwnership Structure and Corporate Performance: Australian Evidence,ò *Pacific-Basin Finance Journal*, Vol. 5, pp. 301-323.

Cudahy, Richard and William Henderson (2005), ñFrom Insull to Enron: Corporate (Re) Regulation after the rise and fall of two energy Icons,ò *Energy Law Journal*, Vol. 26, pp. 35-110.

De Jong, Abe, and Ailsa Roell (2005), ñFinancing and Control in the Netherlands: a Historical Perspective,ò in Randall Morck (Editor), *A History of Corporate Governance around the World: From Family Business Groups to Professional Managers* (Chicago: University of Chicago Press).

DeLong, Bradford (1991), ñDid J. P. Morgan's Men Add Value? An Economistôs Perspective on Financial Capitalism,ò in Peter Temin (Editor), *Inside the Business Enterprise: Historical Perspectives on the Use of Information* (Chicago: University of Chicago Press).

Dewing, Arthur (1941), *The Financial Policy of Corporations* (New York: The Ronald Press).

Dirlam, Joel (1970), ñObservations on Public Policy toward Conglomerate Mergers,ò *St. John's Law Review*, Vol. 44, pp. 193-210.

Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer (2008), ñThe Law and Economics of Self-Dealing,ò *Journal of Financial Economics*, Vol. 88, pp. 430-465.

Energy Information Administration (1993), *The Public Utility Holding Company Act of 1935: 1935-1992*, Washington, DC.

Fack, Gabrielle and Camille Landais, (2012), ñPhilanthropy, Tax Policy and Tax Cheating: A Long Run Perspective on US data.ò In Gabrielle Fack and Camille Landais (Editors), *Charitable Giving and Tax Policy: A Historical and Comparative Perspective* (Paris: Paris School of Economics and CEPR).

Fan, Joseph and Larry Lang (2000), ñThe Measurement of Relatedness: An Application to Corporate Diversification,ò *Journal of Business*, Vol. 73, pp. 629-660.

Fligstein, Neil 1990), *The Transformation of Corporate Control* (Cambridge: Harvard University Press).

Franks, Julian, Colin Mayer and Hideaki Miyajima (2014), ñThe Ownership of Japanese Corporations in the 20th Century,ò *Review of Financial Studies*, Vol. 27, pp. 2580-2625.

Franks, Julian, Colin Mayer and Stefano Rossi (2005), ñSpending Less Time with the Family: The Decline of Family Ownership in the United Kingdom,ò in R. Morck (Editor), *A History of Corporate Governance around the World: Family Business Groups to Professional Managers* (Chicago: University of Chicago Press), pp. 581-612.

Franks, Julian, Colin Mayer and Stefano Rossi (2009), ñOwnership, Evolution and Regulation,ò *Review of Financial Studies*, Vol. 22, pp. 4009-4056.

Freedland Fred (1955), ñHistory of Holding Corporation Legislation in New York State, *Fordham Law Review*, Vol. 24, pp. 369-411.

Funigiello, Philip (1973), *Toward a National Power Policy: The New Deal and the Electric Utility industry, 1933-1941* (Pittsburgh: University of Pittsburgh Press).

Galbraith, John-Kenneth (1954), *The Great Crash, 1929* (New York: Houghton, Mifflin Harcourt Publishing Co.).

Gale, William and Joel Slemrod (2001), ñRethinking the Estate and Gift Tax: Overview,ò NBER Working Paper No. 8205.

Gilson, Ron and Bernard Black (2007), *The Law and Finance of Corporate Acquisitions, Second Edition* (St. Paul, Foundation Press).

Goddard, Edwin (1933), ñThe Emergency Railroad Transportation Act,ò *Michigan Law Review*, Vol. 31, pp. 1112-1117.

Goddard, Stephen, (1996). Getting There: The Epic Struggle between Road and Rail in the American Century (Chicago: University of Chicago Press).

Graham, Benjamin and David Dodd (1934), *Security Analysis* (New York: McGraw-Hill).

Grandy, Christopher (1989), ñNew Jersey Corporate Chartermongering, 1875-1929,ò *Journal of Economic History*, Vol. 49, pp. 677-692.

Greenlaw, Lowell (1930), ñThe Regulation of Holding Companies,ò *Proceedings of the Academy of Political Science*, Vol. (14), pp. 108-131.

Haggard, Stephen, Wonhyuk Lim and Euyaung Kin (2003), *Economic Crisis and Restructuring in Korea: Reforming the Chaebol* (Cambridge: Cambridge University Press).

Hilt, Eric (2014), ñHistory of American Corporate Governance: Law, Institutions and Politics,ò NBER Working Paper No. 20356.

Hogan, William (1971), *Economic History of the Iron and Steel Industry in the United States* (Lexington, MA: D.C. Heath & Co.).

Hogfeld, Peter (2005), ñThe History and Politics of Corporate Ownership in Sweden,ò in Randall Morck (Editor), *A History of Corporate Governance around the World: From Family Business Groups to Professional Managers* (Chicago: University of Chicago Press).

Holderness, Clifford, Randall Kroszner and Dennis Sheehan (2002), ñWere the Good Old Days That Good? Changes in Managerial Stock Ownership Since the Great Depression,ò *Journal of Finance*, Vol. 54, pp. 435-469.

Huntington, Samuel (1952) ñThe Marasmus of the ICC: The Commission, the Railroads, and the Public Interest,ò *Yale Law Journal*, Vol. 61, pp. 467-509.

Johnson, Simon, Florencio Lopez-de-Silanes and Andrei Shleifer (2000) ñTunneling,ò *American Economic Review*, Vol. 90, pp. 22-27.

Jovanovic, Boyan and Peter Rousseau, (2003) ñTwo Technological Revolutions,ò *Journal of the European Economic Association*, Vol. 1, pp. 419-428.

Keller, Morton (1979), ñBusiness History and Legal History,ò *Business History Review*, Vol. 53, pp. 295-303.

Khanna, Tarun and Catherine Thomas (2009), ñSynchronicity and Firm Interlocks in an Emerging Market,ò *Journal of Financial Economics*, Vol. 92, pp. 182-204.

Khanna, Tarun and Krishna Palepu (2000), ñIs Group Affiliation Profitable in Emerging Markets? An Analysis of Diversified Indian Business Groups,ò *Journal of Finance*, Vol. 55, pp. 867-891.

Khanna, Tarun and Yishay Yafeh (2005), ñBusiness Groups and Risk Sharing around the World,ò *Journal of Business*, Vol. 78, pp. 301-340.

Khanna, Tarun and Yishay Yafeh (2007), ñBusiness Groups in Emerging Markets: Paragons or Parasites?ò *Journal of Economic Literature*, Vol. 45, pp. 331-373.

Knight, Timothy, (2014), *Panic, Prosperity, and Progress: Five Centuries of History and the Markets* (New York: Wiley Press).

Kotz, David (1978), *Bank Control of Large Corporations in the United States* (Berkley: University of California Press).

La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer (1999), ñCorporate Ownership around the World,ò *Journal of Finance*, Vol. 54, pp. 471-517.

La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer (2008), ñThe Economic Consequences of Legal Origins,ò *Journal of Economic Literature,* Vol. 46, pp. 285-332.

Leaphart, C.W. (1930), ñUse of the Trust to Escape the Imposition of Federal Income and Estate Taxes,ò *Cornell Law Review*, Vol. 15, pp. 587-608.

Lundberg, Ferdinand (1937), *America's 60 Families* (New York: Vanguard Press).

Magill, Roswell (1939), ñEffects of Taxation on Corporate Policies,ò *Proceedings of the Academy of Political Science* (Monopoly and Competition in Industry and Labor), Vol. 18, pp. 74-88.

Mahoney, Paul (2012), ñThe Public Utility Pyramids,ò *Journal of Legal Studies*, Vol. 41, pp. 37-66.

Markham, Jesse (1955), ñSurvey of the Evidence and Findings on Mergers,ò in NBER Special Conference Series: *Business Concentration and Price Policy* (Princeton: Princeton University Press).

Masulis, Ronald, Peter K. Pham and Jason Zein (2011), ñFamily Business Groups around the World: Costs and Benefits of Pyramids,ò *Review of Financial Studies*, Vol. 24, pp. 3556-3600.

McDonald, Forest (2004), *Insull: The Rise and Fall of a Billionaire Utility Tycoon* (Washington DC: Beard Books).

McDonald, Harry (1951), ñWhat Has the Public Utility Holding Company Act Contributed to the Utility Industry?ò An Address at the Annual Convention of the Michigan Gas Association and the Michigan Electric Light Association, June 25.

Melnyk, Markian and William Lamb (2006), ñPUHCAôs Gone: What is Next for Holding Companies?ò *Energy Law Journal*, Vol. 27, pp.1-24.

Moody, John (1904), *The Truth about the Trusts: A Description and Analysis of the American Trust Movement* (New York: The Moody Publishing Company).

Morck Randall, Bernard Yeung, and Daniel Wolfenzon (2005), ñCorporate Governance, Economic Entrenchment, and Growth,ò *Journal of Economic Literature*, Vol. 43, pp. 657-722.

Morck, Randall (2005a), ñHow to Eliminate Pyramidal Business Groups ï The Double Taxation of Intercorporate Dividends and Other Incisive Uses of Tax Policy,ò in James Poterba (Editor), *National Bureau of Economic Research Tax Policy Annual* (Chicago: University of Chicago Press).

Morck, Randall and Masao Nakamura (2005), ñA Frog in a Well Knows Nothing of the Ocean: A History of Corporate Ownership in Japan,ò in Randall Morck (Editor), *A History of Corporate Governance around the World: Family Business Groups to Professional Managers* (Chicago: University of Chicago Press), pp. 367-466.

Morck, Randall, and Bernard Yeung (2005), ñDividend Taxation and Corporate Governance,ò *Journal of Economic Perspectives*, Vol. 19, pp. 163-180.

Morck, Randall, David Stangeland and Bernard Yeung (2000), ñInherited Wealth, Corporate Control and Economic Growth: The Canadian Disease?ò in Randall Morck (Editor), *Concentrated Corporate Ownership* (Chicago: University of Chicago Press).

Morck, Randall, Editor (2005b), *A History of Corporate Governance around the World: From Family Business Groups to Professional Managers* (Chicago: University of Chicago Press).

Morck, Randall, Michael Percy, Gloria Tian and Bernard Yeung (2005), ñThe Rise and Fall of the Widely Held Firm - A History of Corporate Ownership in Canada,ò in Randall Morck (Editor), *A History of Corporate Governance around the World: Family Business Groups to Professional Managers* (Chicago: University of Chicago Press), pp. 65-140.

Morehouse, E.W. (1929), ñSome Problems of State Control of Public Utility Holding Companies,ò *Journal of Land & Public Utility Economics*, Vol.5, pp. 19-28.

Morrison, Alan, Carola Schenone, Aaron Thegeya and William Wilhelm (2013), ñInvestment Banking Relationships: 1933-2007,ò unpublished working paper, Oxford University.

Mundstock, George (1988), ñTaxation of Intercorporate Dividends under an Unintegrated Regime,ò *Tax Law Review*, Vol. 44, pp. 9-10.

National Resources Committee (1939), *The Structure of the American Economy* (Washington DC: US Government Print Office).

Navin, Thomas (1970), ñThe 500 Largest American Industrials in 1917,ò *Business History Review*, Vol. 44, pp. 360-386.

Nelson, Ralph (1959), *Merger Movements in American Industry, 1895-1956* (Princeton: Princeton University Press).

Perez-Gonzales, Francisco (2014), ñOrganizational Form and Firm Performance: Evidence from 'Death Sentence' of the Public Utility Act of 1935,ò unpublished working paper, Stanford University.

Perino, Michael, (2010), *The Hellhound of Wall Street* (London: Penguin Press).

Pinchot, Gifford (1928), *The Power Monopoly: its Make-up and its Menace* (Pennsylvania: Milford Press).

Posner, Richard (1970), ñA Statistical Study of Antitrust Enforcement,ò *Journal of Law and Economics*, Vol. 13, pp. 365-419.

Roosevelt, Franklin D. (1935), ñMessage to Congress Recommending Regulation of Public Utility Holding Companies,ò http://www.presidency.ucsb.edu/ws/index.php?pid=15019.

Roosevelt, Franklin D. (1942), ñA Message from the President of the United States Transmitting Recommendations Relative to the Strengthening and Enforcement of Anti-trust Laws,ò *American Economic Review*, Vol. 32, pp. 119-128.

Ruggles, C.O. (1929), ñRegulation of Electric Light and Power Utilities,ò *American Economic Review*, Vol. 19, pp. 179-182.

Schaffer, Daniel (1979), ñIncome Tax of Intercorporate Dividends,ò *Tax Law*, Vol. 33, pp. 161-182.

Servaes, Henri (1996), ñThe Value of Diversification during the Conglomerate Merger Wave,ò *Journal of Finance*, Vol. 51, pp. 1201-1225.

Sheard, Paul (1991), ñThe Economics of Interlocking Shareholding in Japan,ò Ricerche Economiche

Stigler, George (1971), ñThe Theory of Economic Regulation,ò *Bell Journal of Economics and Management Science*, Vol. 3, pp. 3ï 18.

Twentieth Century Fund, Committee on Taxation (1937), *Facing the Tax Problem* (New York: Twentieth Century Fund).

Villalonga, Belen and Raphael Amit (2009), ñHow Are U.S. Family Firms Controlled?ò *Review of Financial Studies*, Vol. 22, pp. 3047-3091.

Vol. 45, pp. 421ï 448.

Waltersdorf, M. C. (1926), ñThe Holding Company in American Public Utility Development,ò *Economic Journal*, Vol. 36, pp. 586-597.

Yafeh, Y. (1995), ñCorporate Ownership, Profitability and Bank-Firm Ties: Evidence from the American Occupation Reforms in Japan,ò *Journal of the Japanese and International Economies*, Vol. 9, pp. 154-173.

Data Sources

Moodyôs Manuals, 1926-1950: http://webreports.mergent.com/

NBER, US Business Cycles Expansions and Contractions:

http://www.nber.org/cycles/US_Business_Cycle_Expansions_and_Contractions_20120423.pdf

Statistics of Income: http://www.irs.gov/pub/irs-soi/

United States Census Bureau, ñBicentennial Edition: Historical Statistics of the United States, Colonial Times to 1970ò: http://www.census.gov/prod/www/statistical_abstract.html

US Input-Output Tables: http://www.bea.gov/industry/io_histsic.htm#47

Historical Documents and Official Reports

Federal Trade Commission (FTC) Annual Reports: http://www.ftc.gov/os/annualreports/index.shtm

Interstate Commerce Commission (ICC) Reports

The National Association of Railroad and Utility Commissioners

Securities and Exchange Commission (SEC) Annual Reports: http://www.sec.gov/about/annrep.shtml

State Utility Commissioners Reports

Temporary National Economic Committee (TNEC), (1940), *The Distribution of Ownership in the 200 Largest Nonfinancial Corporations*, monograph 29 (1-2) (Washington DC: U.S. Government Printing Office): http://www.bpl.org/govinfo/online-collections/federal-executive-branch/temporary-national-economic-committee-1938-1941/

Corporate Histories

Fundinguniverse.com

Wall Street Journal Archives: http://pqasb.pqarchiver.com/wsj/search.html

New York Times Article Archives: http://www.nytimes.com/ref/membercenter/nytarchive.html

Table 1: Distribution of Business Groups by Industry, 1932

The table presents the number of total and publicly-traded (in parentheses) group affiliates by industry and control type (family controlled vs. widely held groups). Industry definitions are based on 2-digit codes from the 1958 Standard Industrial Classifications (Source: Benchmark IO Historical SIC Data, BEA).

	Industry / Business Group	Wholesale & Retail Trade	Amusements	Repair / Construction	Transportation & Warehousing	Communications	Public Utilities	Finance & Insurance	Coal Mining	Other	Primary Iron & Steel Manuf.	Electric Equipment	Construction	Textile	Chemicals	Rubber & Plastics	Motor Vehicles	Tobacco	Petroleum Refining	Other Metal Products	Metalworking Machinery	Food
Widely held Groups	American Telephone & Telegraph Co.					48(8)	1(0)															
	Anaconda Copper Mining Co.									2(0)	9(6)	1(1)										
	Atlantic Coast Line Co.				36(5)																	
	Delaware Lackawanna & Western Rd. Co.				20(3)																	
	International Tel. & Tel. Corp.					11(5)																
	Kennecott Copper Corp.				1(0)						6(4)											
	Loew's Inc.	1(1)	8(3)																			
	Middle West Utilities Co.			1(0)	10(0)	4(3)	100(8)	1(0)														
	Pacific Lighting Corp					1(1)	5(3)															
	Paramount Publix Corp.		8(4)																			
	Pennsylvania Rd. Co.				237(43)				2(0)													
	Southern Ry. Co				38(5)																	
	Stone & Webster, Inc.				3(0)	1(1)	35(6)															
Family Groups	Doherty					1(1)	48(4)						1(0)									
	Du Pont				1(0)		1(1)	2(0)				1(0)		1(0)	1(1)	5(4)	3(1)					
	Harriman				26(4)																	
	Hill				25(5)													4(4)				
	Hopson				6(0)	1(0)	50(6)	1(0)														
	Kuhn-Loeb				17(4)	4(3)																
	Mellon	1(0)			7(0)	2(2)	60(15)		9(1)	1(0)	1(1)	2(1)	2(0)		3(0)		1(0)		2(0)	5(2)	2(0)	
	Morgan	1(1)			49(1)	8(8)	235(19)	4(1)	4(1)		2(2)	4(1)			1(0)		3(1)		1(0)	2(0)	3(0)	
	Rockefeller								1(1)										38(13)			
	Sinclair																		11(6)			
	Van Sweringen				100(11)				1(0)													1(0)
	Vanderbilt				72(13)																	
	Williams				2(0)	2(2)	29(2)						1(0)									

Table 2: Direct Common Equity Ownership Stakes held by Controlling Shareholders/Companies in Public Affiliates: Averages for the Entire Sample Period

Sample or subsample	*Firms*	*Mean*	*T-ratio for difference between row (2) and (3), and row (4) and (5)*
(1) All public firms	923	76%	
(2) Group-affiliates	614	72%	7.47***
(3) Standalone (unaffiliated firms)	309	85%	
(4) Family controlled groups	285	73.1%	-1.32
(5) Widely held groups	329	70.3%	

Table 3: US Business Groups, 1926 – 1950

The table presents the number of group-affiliated firms (public in parentheses) by year and group from 1926 to 1950. A business group is defined as having three or more public companies controlled by the same ultimate owner. The principal fields of activity (from Moodyôs) are as follows: PU ï public utilities; MF ï manufacturing, RR ï railroads; CM ï communications; FD ï food products, including tobacco; ET ï amusement.

	Business Group	Principal fields of activity	1926	1929	1932	1937	1940	1950
Widely-Held Groups	American Gas & Electric Co.	PU		<<< Morgan >>>		General Electric	Electric Bond & Share Co.	7 (8)
	American Radiator & St. San. Corp.	MNFC		4 (6)				
	American Telephone & Telegraph Co.	COMM	6 (45)	8 (48)	8 (49)	7 (39)	7 (35)	8 (30)
	American Tobacco Co.	FOOD		4 (5)	Hill	Rockefeller	3 (4)	4 (4)
	Anaconda Copper Mining Co.	MNFC			7 (12)	Broes and Gosman	6 (11)	5 (10)
	Atlantic Coast Line Co.	RR	4 (35)	5 (36)	5 (36)	4 (35)	4 (38)	
	Baltimore & Ohio R.R. Co.	RR					5 (42)	4 (25)
	Baltimore & Ohio R.R. Co.+New York Central	RR					3 (38)	
	Commonwealth Edison Co.	PU		<<< Insull >>>		4 (34)		
	Dela. Lackawanna & Western Rd. Co.	RR	3 (21)	Vanderbilt	4 (20)	4 (20)		
	Delaware & Hudson Co.	RR	3 (14)	3 (13)	Harriman-Kuhn-Loeb	3 (14)	3 (14)	
	Delaware & Hudson Co. + Union Pacific Rd. Co.	RR					12 (63)	
	Electric Bond & Share Co.	PU	General Electric	<<< Morgan >>>		General Electric	11 (66)	11 (24)
	General Electric Co.	PU, MNFC		<<< Morgan >>>		15 (88)		
	General Theatre Equipment, Inc	AMUS		4 (13)				
	Great Northern Ry. Co	RR		<<< Hill >>>		3 (20)		
	International Telephone & Telegraph Corp.	COMM		6 (14)	5 (12)	4 (11)	4 (14)	3 (8)
	Kennecott Copper Corp.	MNFC	4 (5)	4 (7)	4 (7)			
	Loew's Inc.	AMUS			4 (9)	5 (10)	3 (10)	3 (7)
	Middle West Utilities Co.	PU	<<< Insul >>>		11 (131)			
	New York, New Haven & Hartford R.R. Co	RR			<<< Pennsylvania Rd. Co. >>>			3 (13)
	National Dairy Products Corp.	FOOD		3 (11)				
	Pacific Lighting Corp	PU		3 (7)	4 (6)	3 (5)		
	Paramount Publix Corp.	AMUS		3 (7)	4 (8)		3 (8)	3 (4)
	Pennsylvania Rd. Co.	RR	32 (170)	51 (208)	44 (241)	18 (185)	13 (124)	9 (35)
	Radio Corp. of America	COMM					4 (10)	
	Southern Pacific Co.	RR				3 (59)	3 (47)	
	Southern Ry. Co	RR	5 (40)		6 (38)	5 (40)	5 (39)	6 (32)
	Stone & Webster, Inc.	PU		8 (40)	8 (39)	8 (38)	7 (36)	
	Tide Water Associated Oil Co.	MNFC	5 (11)					
	United Gas Improvement Co.	PU	4 (50)					
	Western Union Tel. Co.	COMM		Morgan	Harriman-Kuhn-Loeb		3 (4)	3 (4)
Family owned groups	Broes and Gosman	MNFC				11 (18)		
	Crawford	PU	3 (16)					
	Cyrus S. Eaton	MNFC	6 (20)	10 (33)				
	Doherty	PU	3 (41)	4 (47)	6 (50)	4 (43)	3 (47)	
	Du Pont	MNFC	3 (8)	6 (11)	8 (15)	5 (13)	4 (16)	4 (9)
	Harriman	RR	4 (29)	4 (30)	4 (26)	4 (26)	3 (26)	11 (50)
	Harriman-Kuhn-Loeb	RR, COMM			7 (21)			
	Hill	RR	3 (27)	4 (26)	9 (29)			
	Hopson	PU		6 (67)	6 (58)			
	Insull	PU	6 (68)	28 (116)				
	Mather	MNFC					3 (4)	3 (3)
	Milbank	RR		5 (37)				
	Mellon	RR,PU,MNFC,COMM		10 (85)	23 (99)	14 (35)	10 (26)	
	Morgan	RR, PU, MNFC	9 (30)	45 (264)	40 (338)	17 (199)	9 (105)	
	Prince	MNFC		3 (5)				
	Rockefeller	MNFC	19 (30)	27 (46)	15 (41)	14 (74)	11 (37)	6 (16)
	Sinclair	MNFC			7 (11)	3 (12)	3 (9)	
	Stone & Webster families	PU	7 (35)					
	Van Sweringen	RR		13 (111)	11 (102)			
	Vanderbilt	RR	12 (68)	20 (91)	13 (72)	12 (66)		
	Warner	AMUS		3 (6)				
	Williams	PU	5 (28)	15 (51)	4 (34)	7 (58)	8 (25)	
	Young and Kirby	RR		<<< Van Sweringen >>>		12 (103)	10 (72)	5 (50)

Table 4: Surviving vs. Disappearing Groups

The table presents statistics for the entire sample period for surviving groups (established at any time during the period 1926-1940 and still in existence by 1950) and for disappearing groups (which do not exist in 1950). *Industrial Concentration* is a Herfindahl-Hirschmann Index of group revenues in different industries; *Ownership Stake* is the (average) direct common equity stake held by insiders in group firms; *Vertical Integration* is the average opportunity for vertical integration in all lines of business (see text). One and two asterisks denote differences statistically significant at the 10 and five percent levels, respectively.

	Number of groups	**Family controlled (%)**	**Age (years)**	**Total assets ($mil)**	**Industrial concentration**	**Pyramidal levels (public firms only)**	**Pyramidal levels (all firms)**	**Controlling shareholder's common equity ownership (%)**	**Vertical integration**
Survived	**18**	**30%**							
Mean			**33**	**21,238**	**0.9**	**1.7**	**2.6**	**74**	**0.015**
Median			27	10,508	1.0	1.0	2.0	72	0.013
Maximum			73	58,900	1.0	4.0	6.0	95	0.040
Minimum			8	1,160	0.56	1.0	1.0	56	0.002
Disappeared	**35**	**51%**							
Mean			**27**	**16,694**	**0.8**	**2.0**	**3.1**	**70**	**0.011**
Median			21	9,858	0.98	2.0	3.0	68	0.007
Maximum			71	76,400	1.0	4.0	5.0	95	0.040
Minimum			7	720	0.27	1.0	1.0	12	0.0006

Table 5: The Effect of Regulatory Measures on Business Groups

Reform	Legal Source, year enacted, regulator	Reform effective		Hypothesized Effect	Evidence	Tentative Conclusion
		After	In			
Shareholder Rights	Securities Act: 230.100-230.174 (1933); Securities Exchange Act: 240.0-1-240.12a-9 (1934), SEC	1934	All sectors	• Disappearance of groups more prone to diversion of private benefits from minority shareholders to controllers	• Pyramids with fewer tiers/smaller ownership-control wedges survive longer • Widely held groups survive longer	Likely important, but not cleanly distinguishable
Public Utilities Regulation	Public Utility Holding Company Act (PUHCA): 15 U.S Code Chapter 2C (1935), SEC	1935, 1940, 1946	PU only	• Reduction in number of tiers in public utilities pyramids to two • Reduction in scope of activities of public utilities groups	• Disappearance of many public utilities pyramids in the 1940s • 149 out of 900 group disappearing affiliates & 34 out of 104 disappearing public group affiliates named by SEC • Surviving public utilities pyramids reduced to two tiers, limited scope of activities	Important for groups with public utilities, but irrelevant for most groups
Inter-corporate Dividend Tax	Revenue Acts (1935, 1936, 1938, 1942), IRS	1935	All sectors ex. RR1942, thereafter all sectors	• Fewer levels in pyramids • Inter-corporate equity control blocks rise to over 85% after 1935, after 1942 for railroads • Lower inter-corporate dividends	• Fewer levels in pyramids • Many, but not all, control blocks exceed 85% by 1950 • Lower inter-corporate dividends • Du Pont & Mellon groups justify their restructurings as avoiding tax • Restructuring of railroad groups in the 1940s?	Likely important, but not solely responsible, esp. for railroad groups
Investment Companies	Investment Company Act (ICA): 15 U.S Code 64-80a (1940), SEC	1941	All sectors ex. PU & RR	• Inter-corporate equity control blocks rise to over 50% ex. in public utilities & railroads	• Many control blocks between 50% & 85% in 1950	Likely important, but blocks well above 51% in many groups as well as in railroads suggest other factors too
Antitrust Enforcement	Sherman Act: 15. U.S Code 1-7 (1890); Clayton Act: 15. U.S Code 12-27 (1914); Federal Trade Commission Act: 15 U.S Code 41-58 (1914); Celler Kefauver Act:-64 Stat. 1225 (1950), FTC & Dept. of Justice	1911	All sectors	• Disappearance/downsizing of groups with affiliates competing with each other in the same industry and/or state	• Cases in the 1940s name only 15 of 900 group affiliates/four of 104 public group affiliates divested/undergoing ownership changes, and two of the four cases were dismissed.	Not directly responsible for the demise of groups, may have contributed to the hostile environment
Banking regulation	Glass-Steagall Act (1933), SEC	1934	Banking	• Adverse effect on internal capital markets and dissolution of groups containing universal banks	• Some groups containing banks dissolve • But only four such groups exist, of which two also contain many public utilities	Possibly important for groups with banks; irrelevant for other groups, effect hard to measure
Estate tax	IRS		All	• Dissolution/downsizing of groups after controllerôs death to pay tax • Dissolution/downsizing before controllerôs death to fund philanthropy	• Groups adopt mechanisms to avoid tax (e.g., trusts and foundations) • No link between controllerôs death and group disappearance • Increase in philanthropy corresponds to increased tax rate?	Unclear

Table 6: Family Groups and Succession

The table presents, for the major family controlled groups, their year of disappearance and of the time of the controller's death (* marks the death of a founder). Group longevity is the period of group existence (in years) after the controllerôs death where negative values indicate groups which disappeared before their controllerôs death and positive values are for groups which disappeared after their controllerôs death.

Group Name	Group Disappearance	Controller/ Founder (*) Death	Group Longevity
Crawford	1929	1935*	-6
Doherty	1940	1939*	1
Du Pont	1960s	1948	12
Eaton	1929	1979*	-50
Harriman	1960s	1986	-26
Hill	1932	1916*	16
Hopson	1932	1949*	-17
Insull	1929	1938*	-9
Kuhn and Loeb	1932	1903*	29
Mather	1940	1931*	9
Mellon	1940	1937*	3
Morgan	1940	1943	-3
Rockefeller	1960s	1937*	23
Sinclair	1940	1956*	-16
Stone and Webster	1940	1950*	-10
Vanderbilt	1937	1944	-7
Van Sweringen	1936	1936*	0
Warner	1929	1967*	-38
Williams	1940	1953*	-13
Young	1950s	1958*	-8

Table 7: Year of Establishment of Family Control Mechanisms

The table presents the principal control devices associated with family controlled business groups and the year of their establishment. Sources: TNEC (1940), Lundberg (1937), www. fundinguniverse.com

Group Name	Trusts, Foundations, Partnerships, Trustees, Estates	Year Established
Crawford	Union Trust Co. of Pittsburg and Annie Laurie Crawford	1910
Doherty	Henry L. Doherty & Grace Doherty Foundation	1905
Du Pont	Empire Trust	1904
	Wilmington Trust	1903
	Delaware Trust	1919
Mather	Samuel Mather Estate Inc.	1930
Mellon	Union Trust Co. of Pittsburgh	1889
	The A.W Mellon Educational and Charitable Trust	1930
Rockefeller	Rockefeller Foundation	1913
	General Educational Board	1902
	Rockefeller Institute for Medical Research	1901
	Equitable Trust	1903
	Carnegie Corporation	1913
	Laure Spelman Rockefeller Memorial Foundation	1918
Young	Summer Moore Kirby Trust	1931

Figure 1: The Fraction of Listed Corporations Affiliated with Business Groups

The figure reports the percentage of listed firms affiliated with family business groups by country. Source: Masulis et al. (2011).

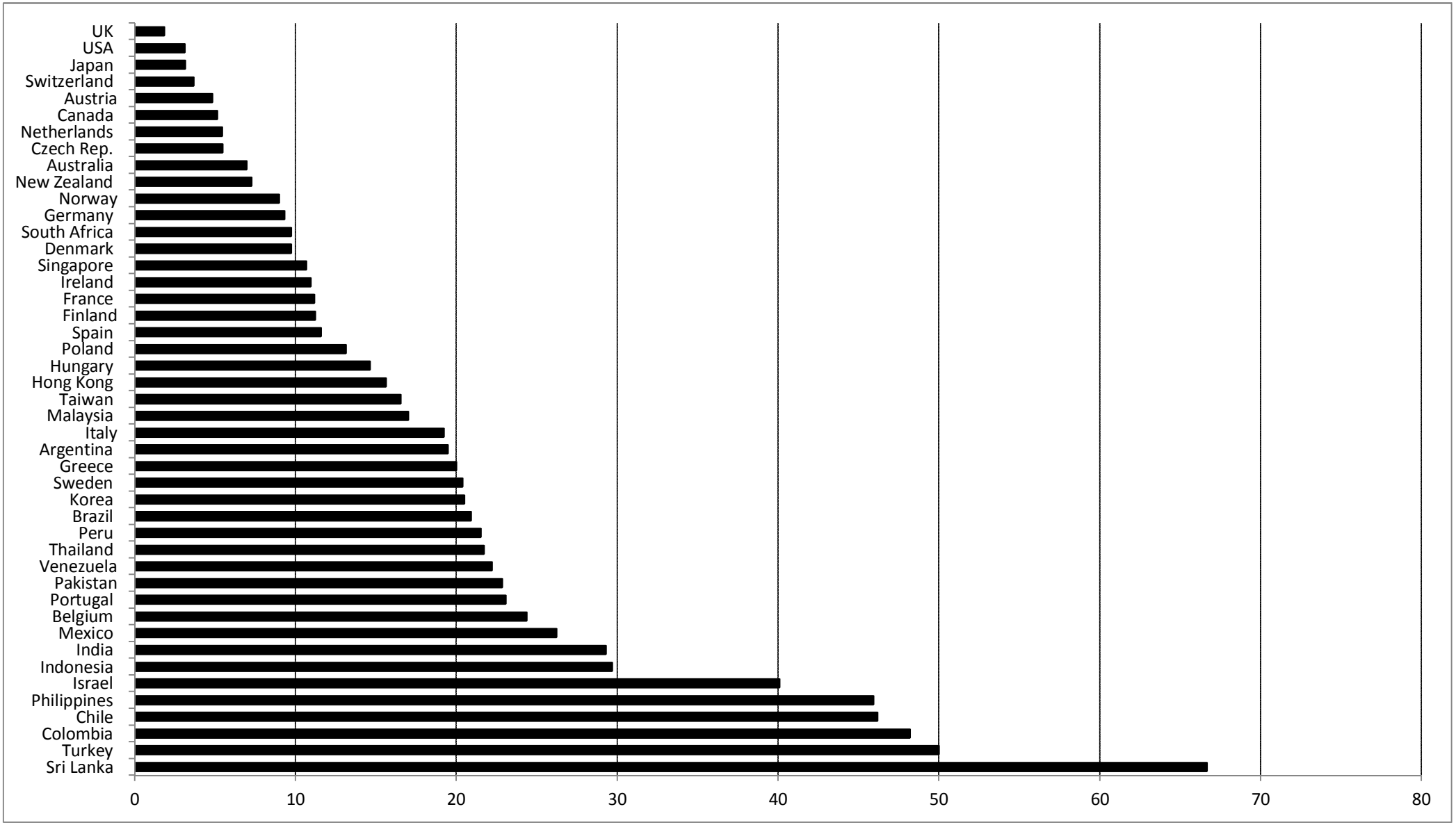


Figure 2a: Widely held and Family controlled Business Groups, 1926-1950

The figure presents the number of business groups by year. A group is defined as having three or more public companies controlled by the same ultimate owner.

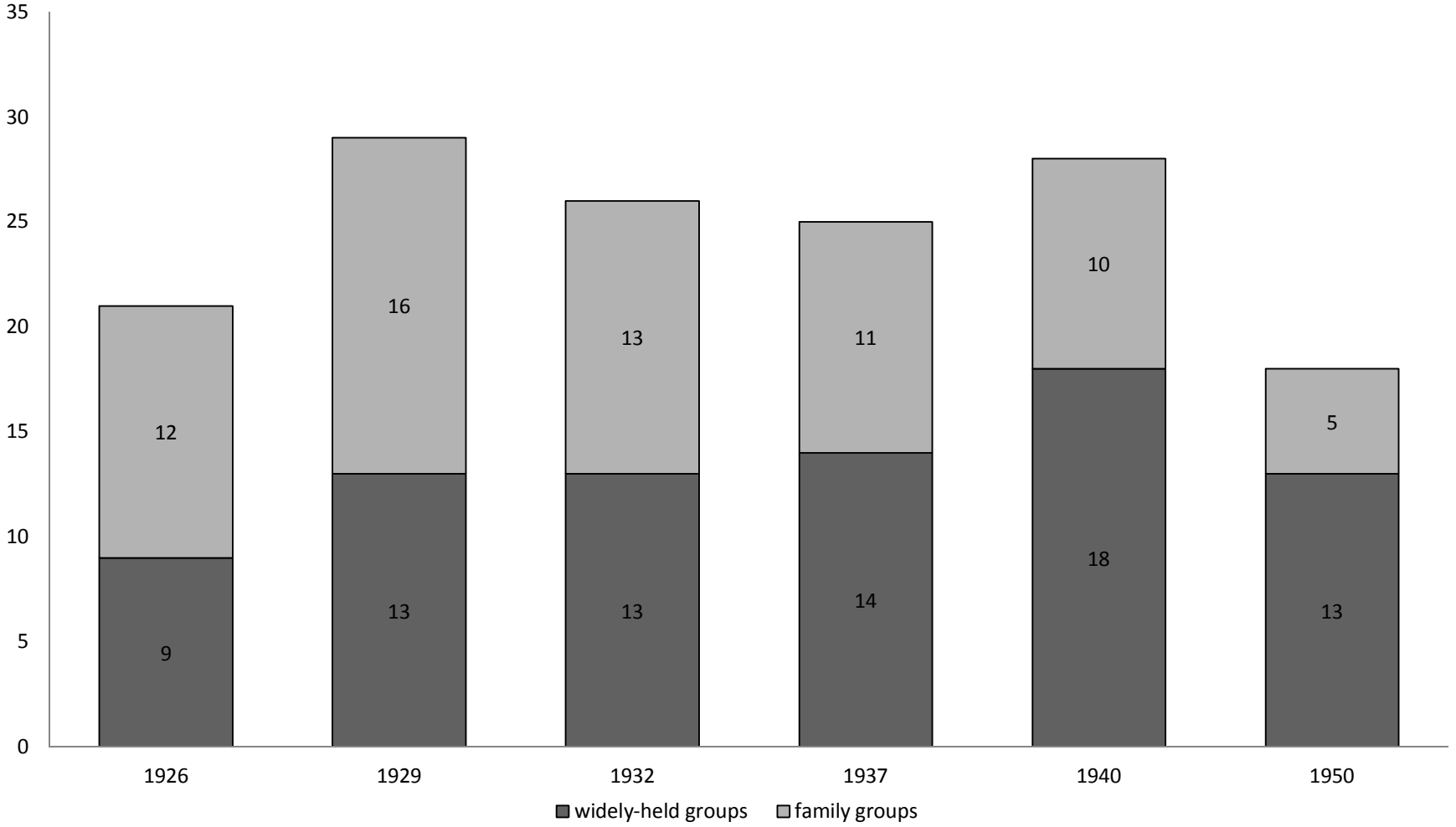


Figure 2b: Number of Group-affiliated Firms, 1926 -1950

The figure presents the number of group-affiliated companies (total and publicly-traded) by year. A group is defined as having three or more public companies controlled by the same ultimate owner.

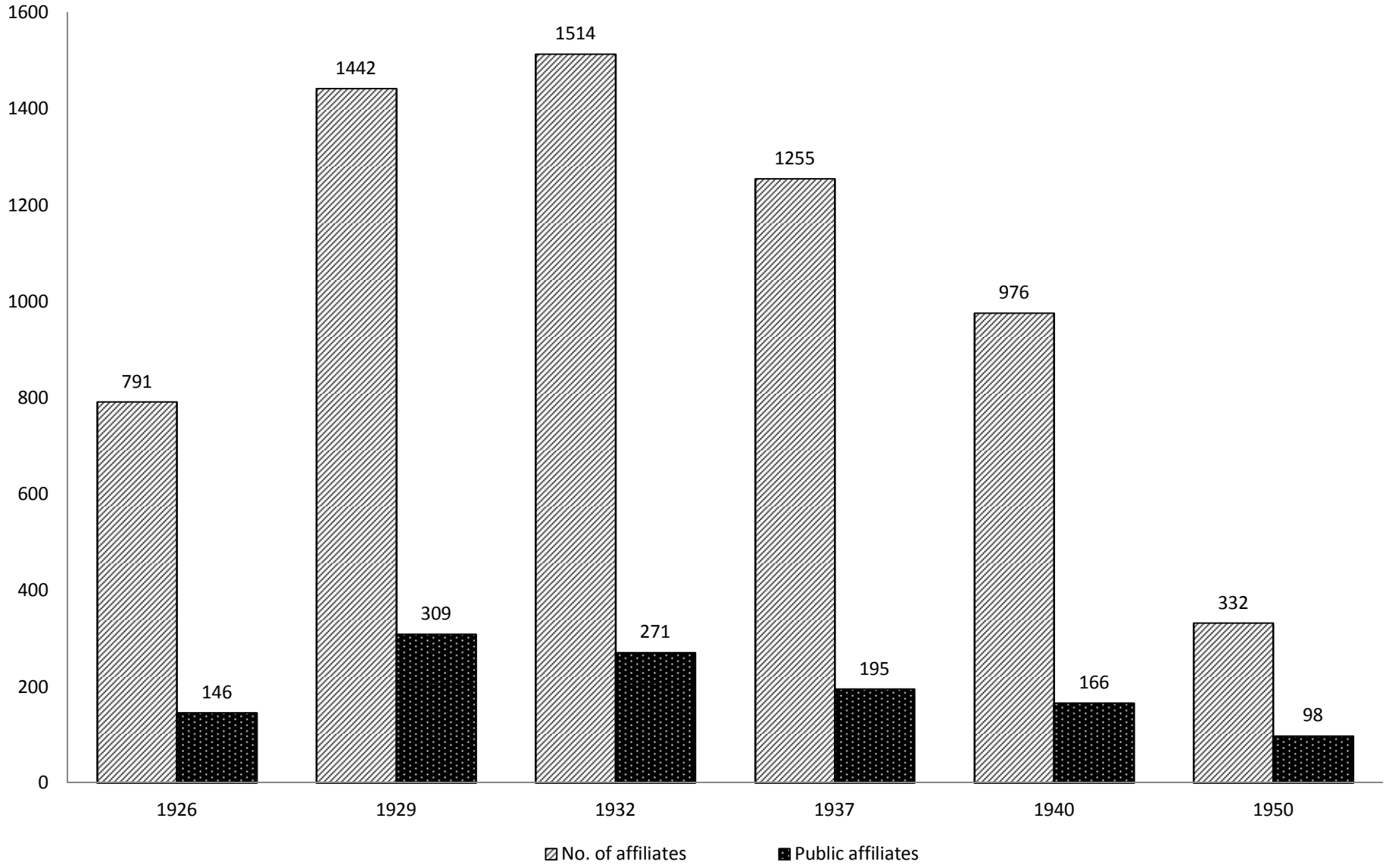


Figure 2c: Assets Controlled by Business Groups, 1926 -1950

The figure presents the share of total (or non-financial) corporate assets in the United States controlled by business groups by year. A group is defined as having three or more public companies controlled by the same ultimate owner. The data are based on consolidated financial reports drawn from Moodyôs manuals.

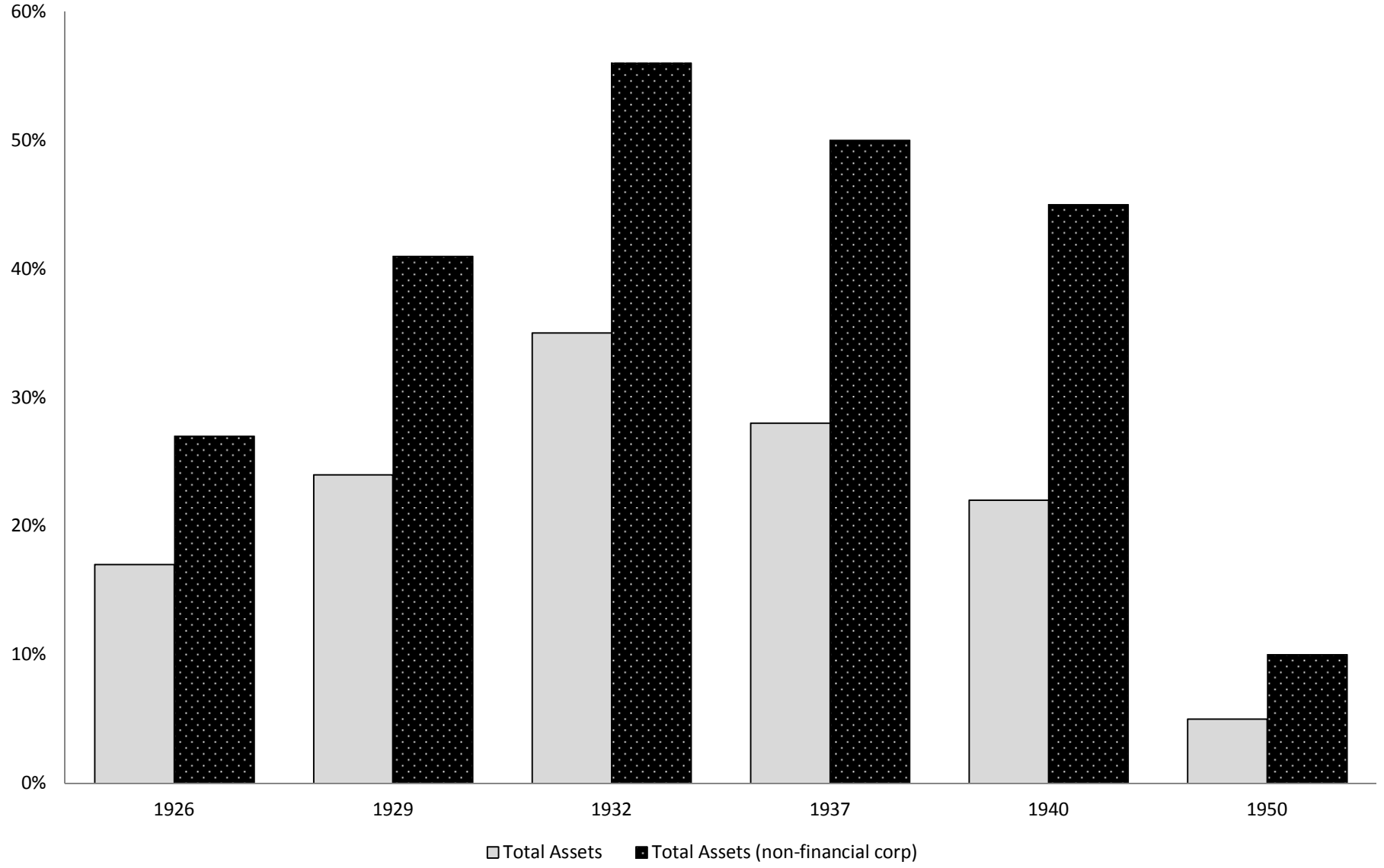


Figure 3: Average Group Diversification (HH Index) and Vertical Integration

The figure presents group diversification (Herfindahl-Hirschman Index of group revenues by industry) and vertical integration (as in Fan and Lang, 2000), by year. For method of calculation, see text.

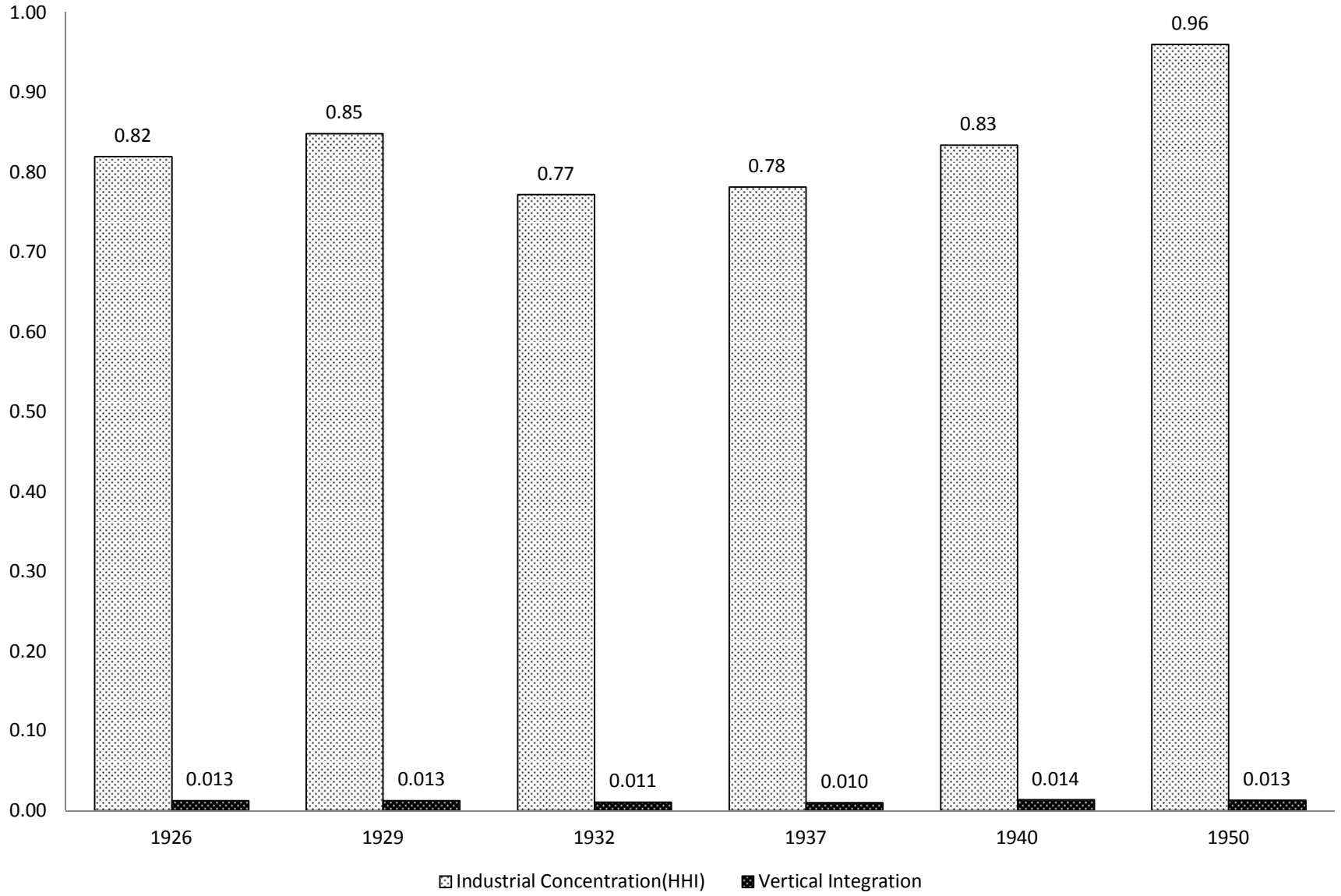


Figure 4: The Market Shares of Group Affiliates by Industry, 1932

The figure presents the market share of group-affiliated companies by (non-financial) industry. Market share is measured as the ratio of the total assets of group-affiliates to the total assets of all firms in the industry. Industries are based on the 2-digit 1958 Standard Industrial Classifications (SIC codes). Sources: Moodyôs manuals (1932), Statistics of Income (1932).

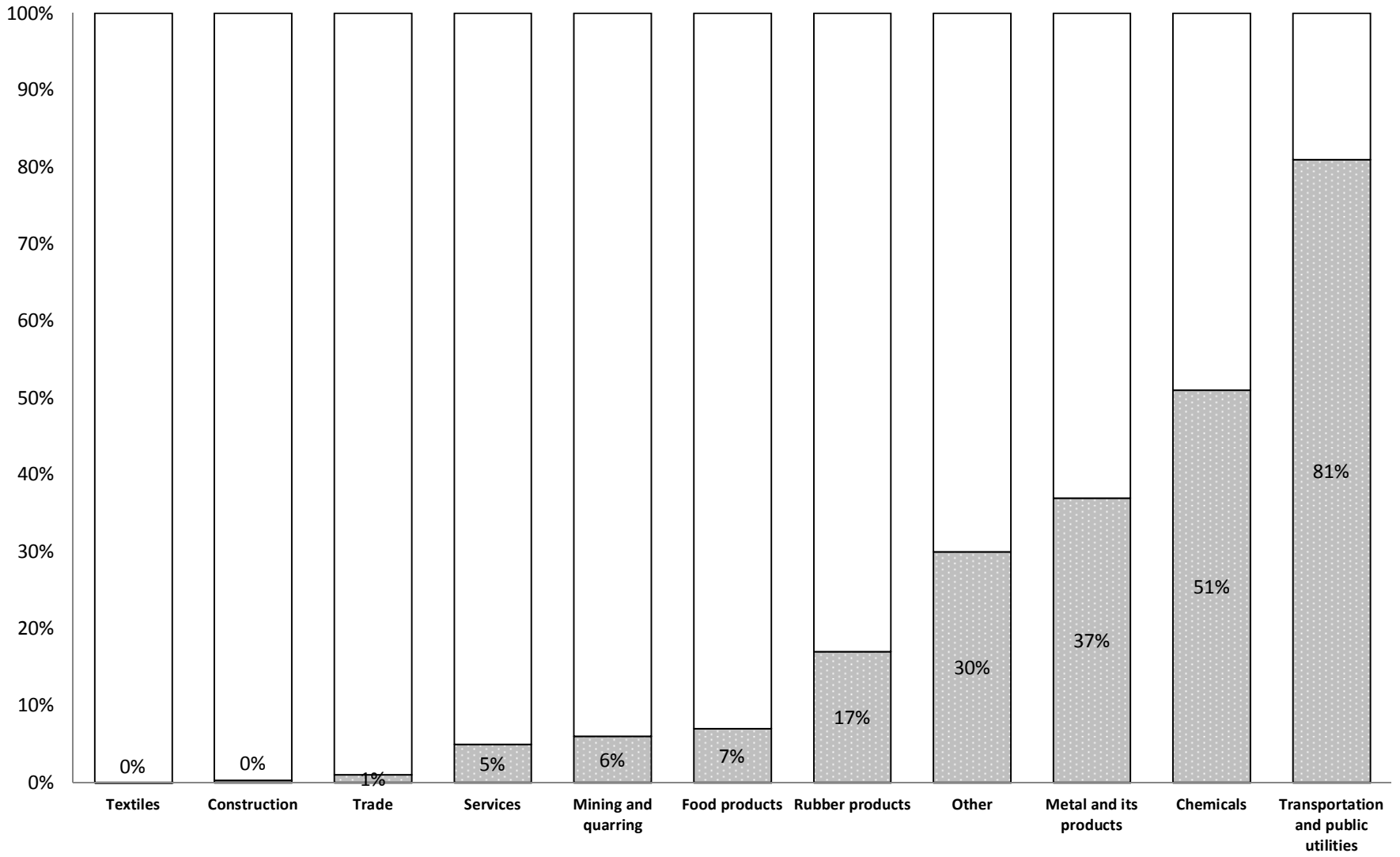


Figure 5: Size Distribution of Widely Held and Family Controlled Business Groups, 1932

The figure presents the 1932 distribution of US business groups by size (measured by the combined total assets of all affiliated firms). Family controlled and widely held groups are presented by black and grey bubbles, respectively. A group is defined as having three or more public companies controlled by the same ultimate owner. Source: Moodyôs manuals.

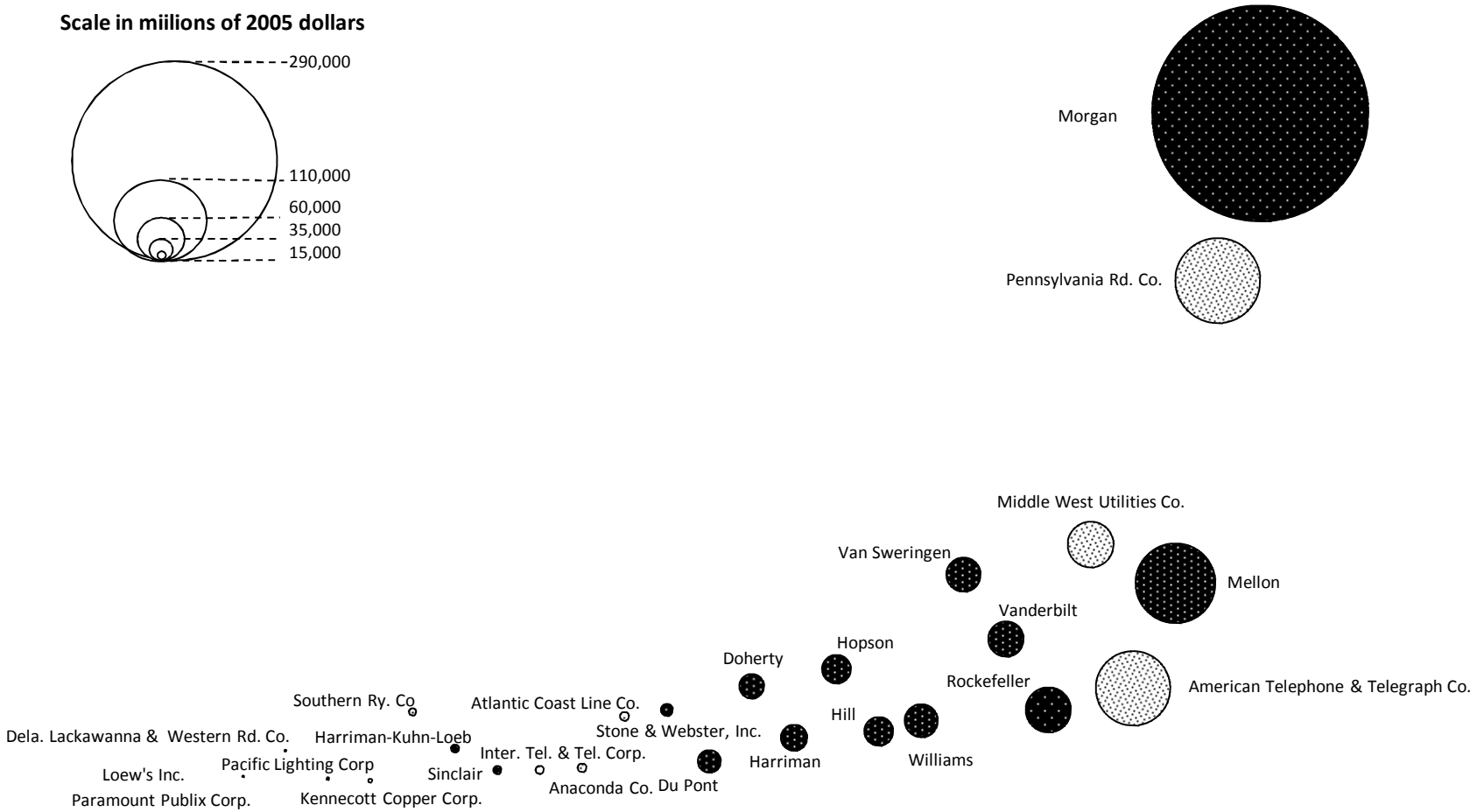


Figure 6: Pyramidal Structure of Business Groups, 1932

The figure presents the pyramidal structure of US business groups in 1932. Arrows represent the control relations between companies. A business group is defined as having three or more public companies controlled by the same ultimate owner.

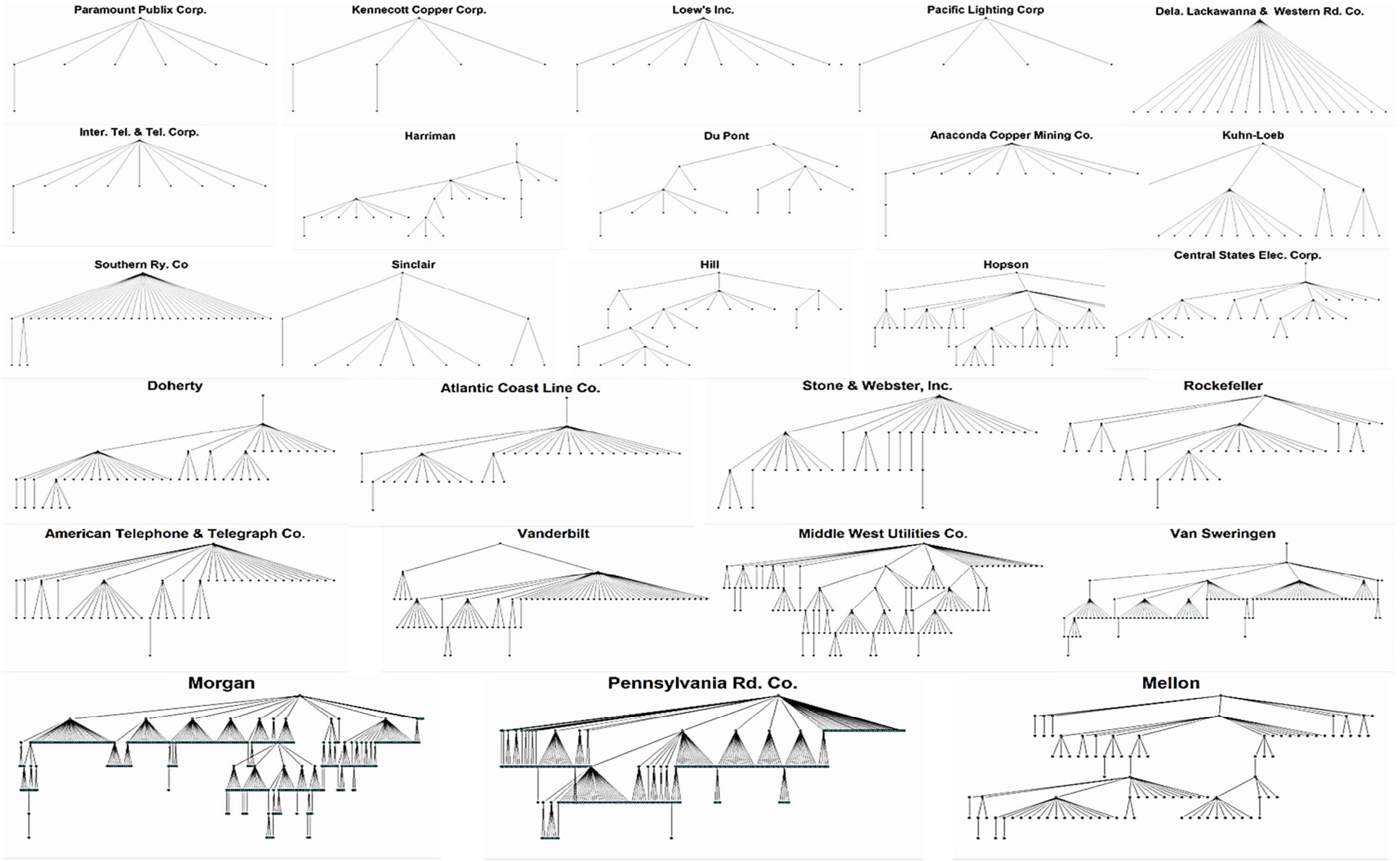


Figure 7a: The Disappearance of Public Utility Groups

The figure presents the number of group affiliates in groups whose primary business is the provision of public utility services and in other groups. Source: SEC Annual Reports, 1935-1950.

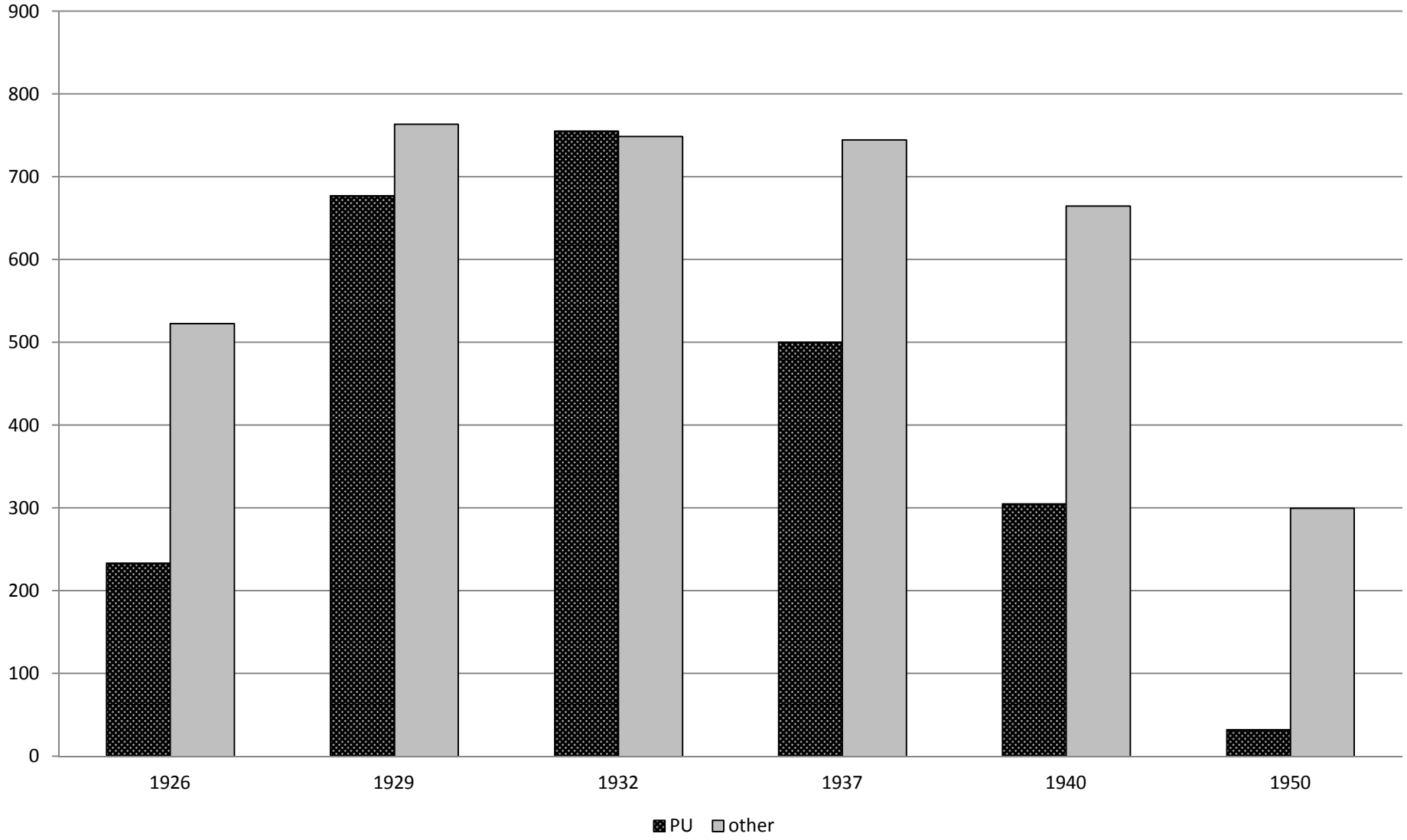


Figure 7b: Average Number of Pyramidal Levels: Public Utility Groups vs. Other Groups

The figure presents the number of pyramidal levels in groups whose primary business is the provision of public utility services and in other groups. Source: SEC Annual Reports, 1935-1950.

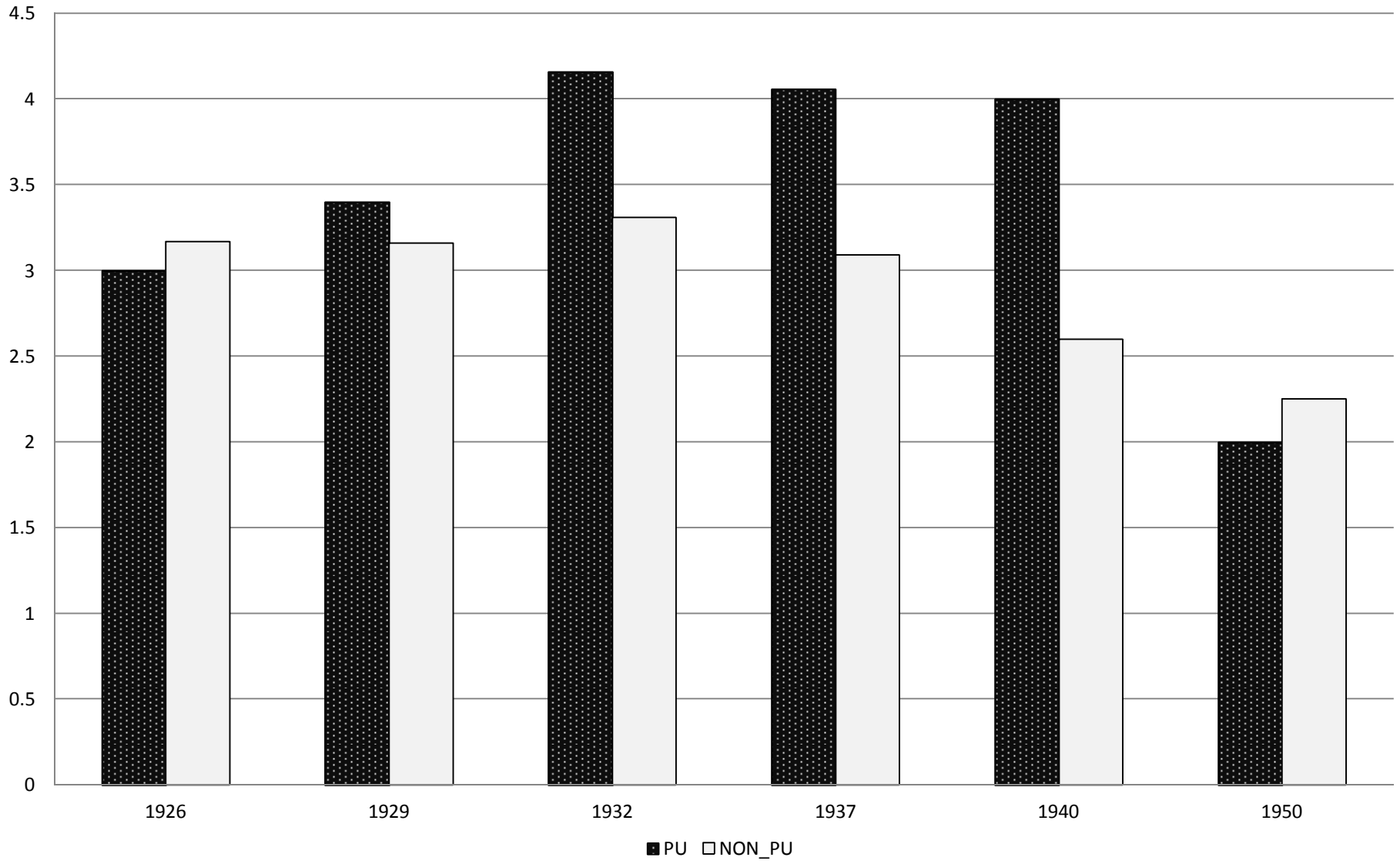


Figure 8: Divestments by Public Utility Holding Companies, 1936-1955

The figure presents the number of electric, gas and non-utility properties divested in various ways by PUHCA-registered holding companies between December 1, 1935 and June 30, 1955.
Source: SEC Annual Reports, 1935-1955.

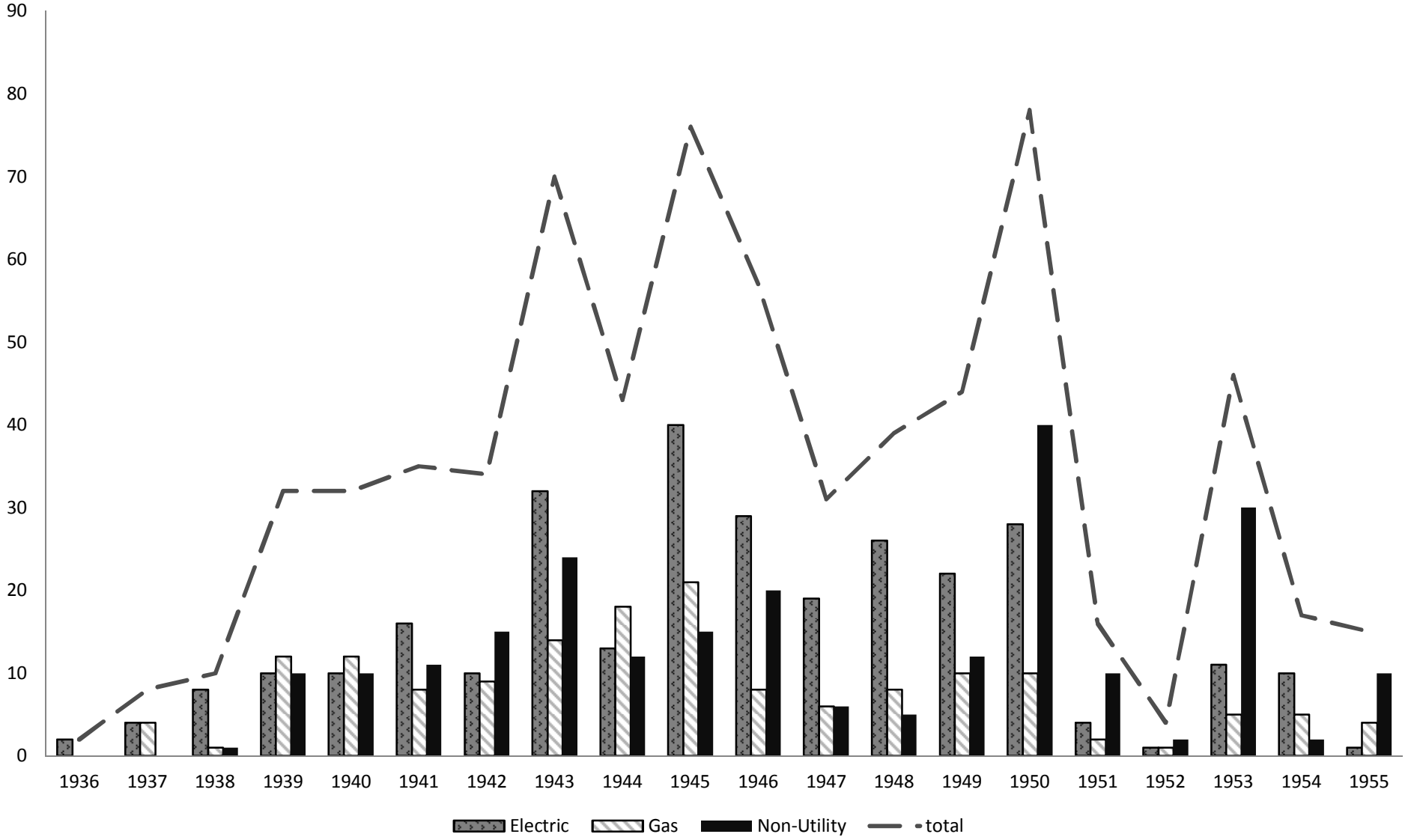


Figure 9: Statutory Inter-corporate Dividend Tax Rate Applied at Each Pyramidal Tier
Source: Schaffer (1979); Mundstock (1988)

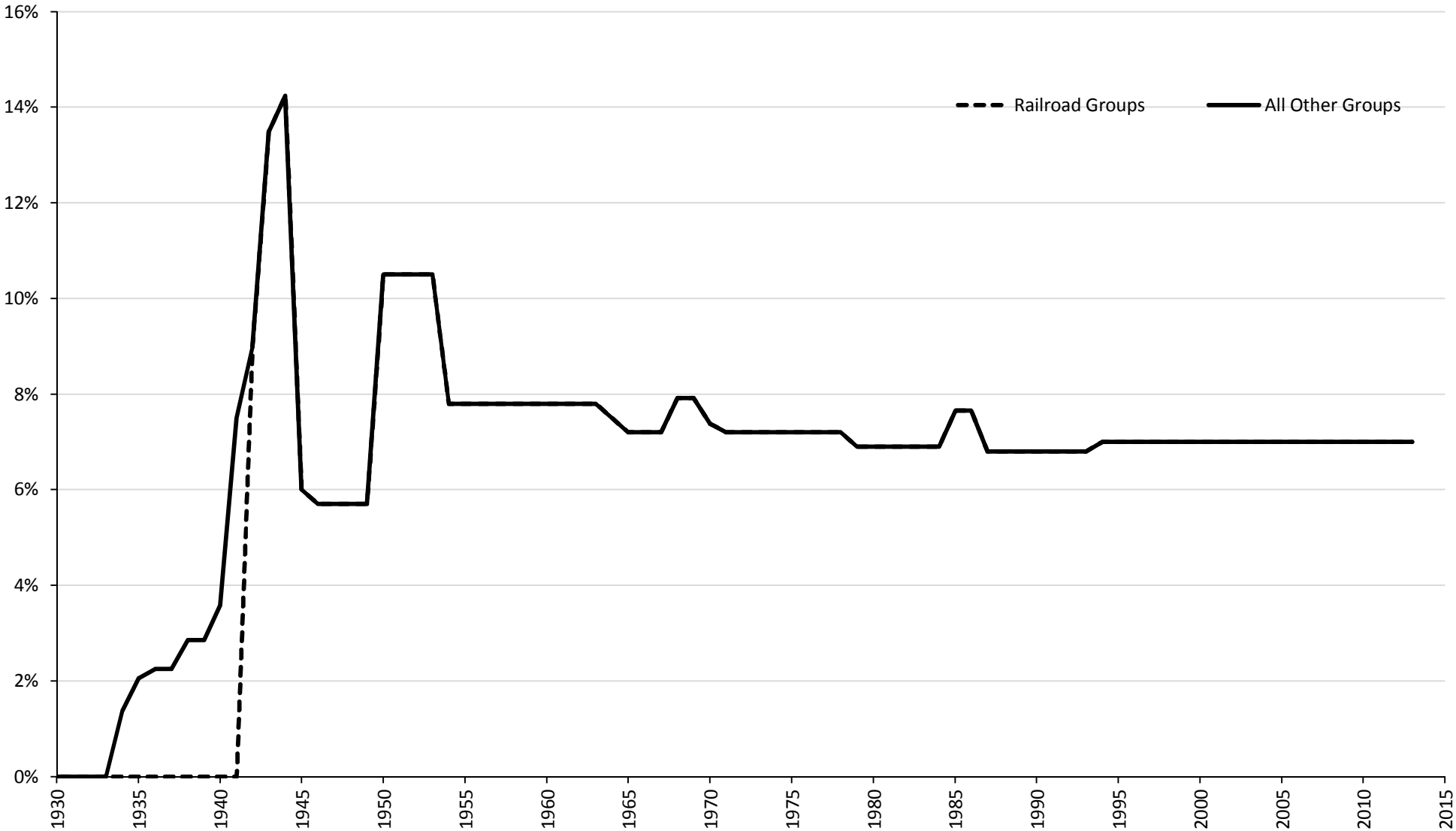


Figure 10: The Ratio of Inter-corporate Dividends to Total Dividends, 1926-1950
Source: Statistics of Income (1951)

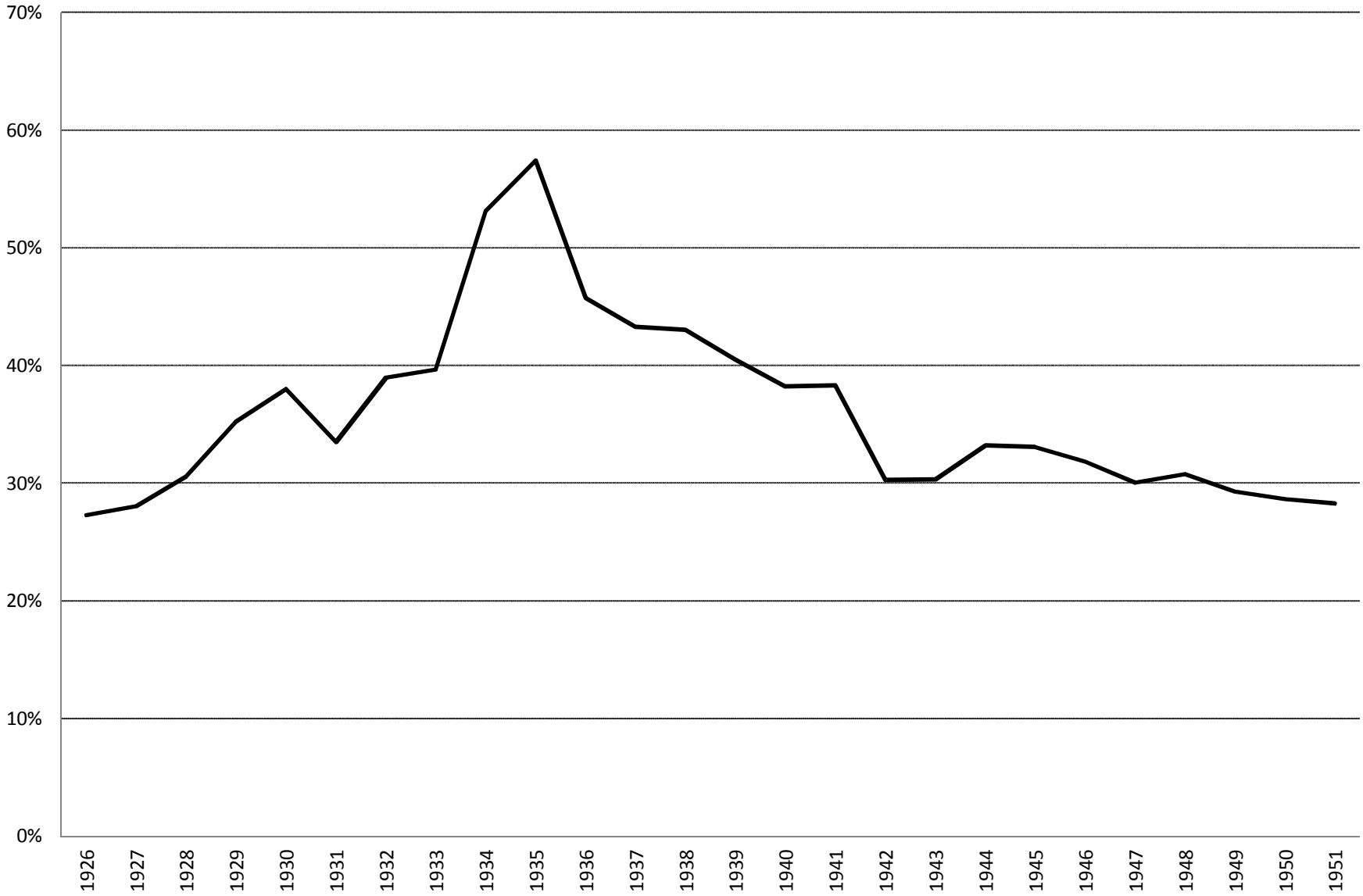


Figure 11: Changes in Average Controlling Blocks in Group Affiliates, 1940 to 1950

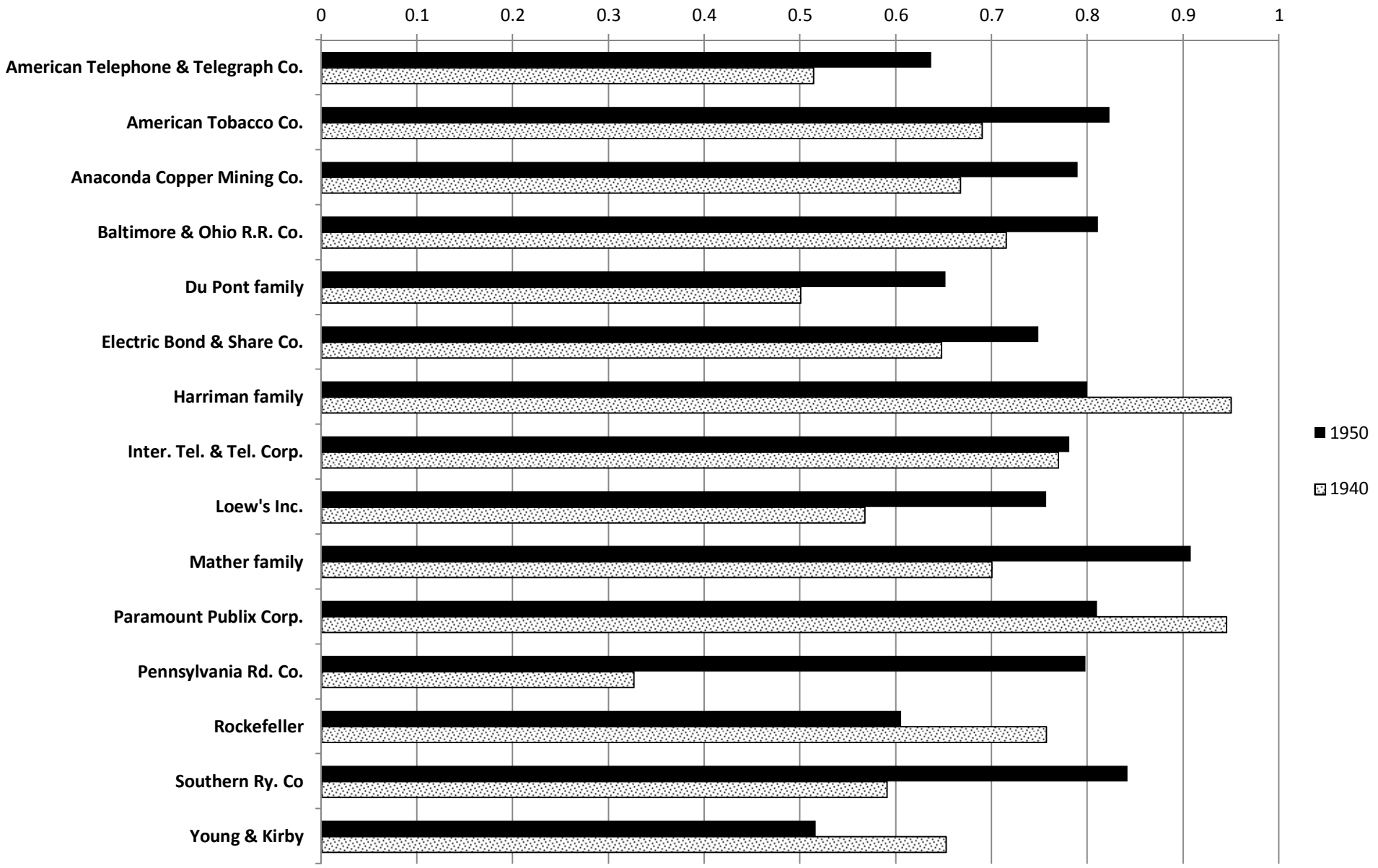
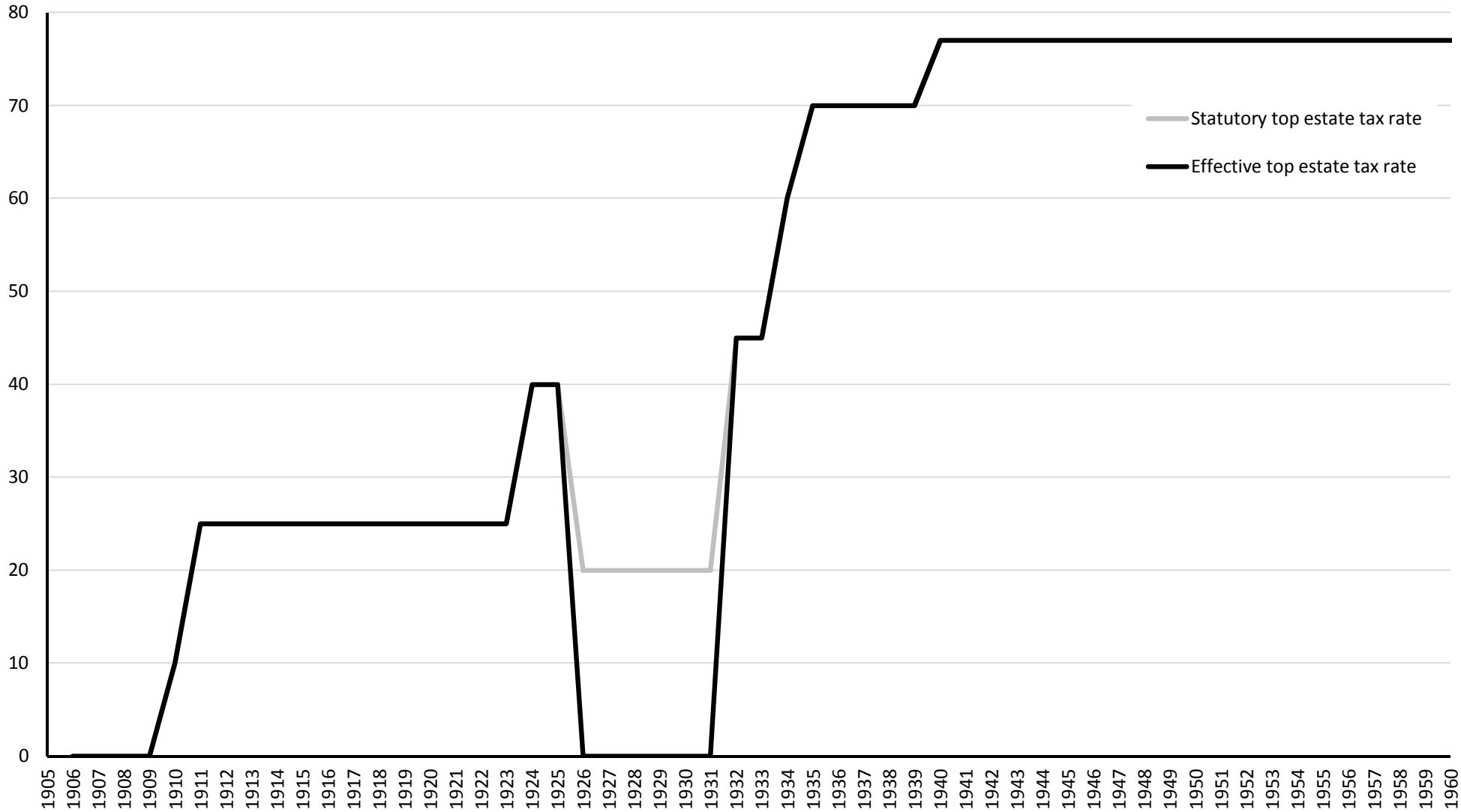


Figure 12: Marginal Federal Estate Tax Rate at the Highest Wealth Level, 1916- 1960
Source: Gale and Slemrod, (2001)



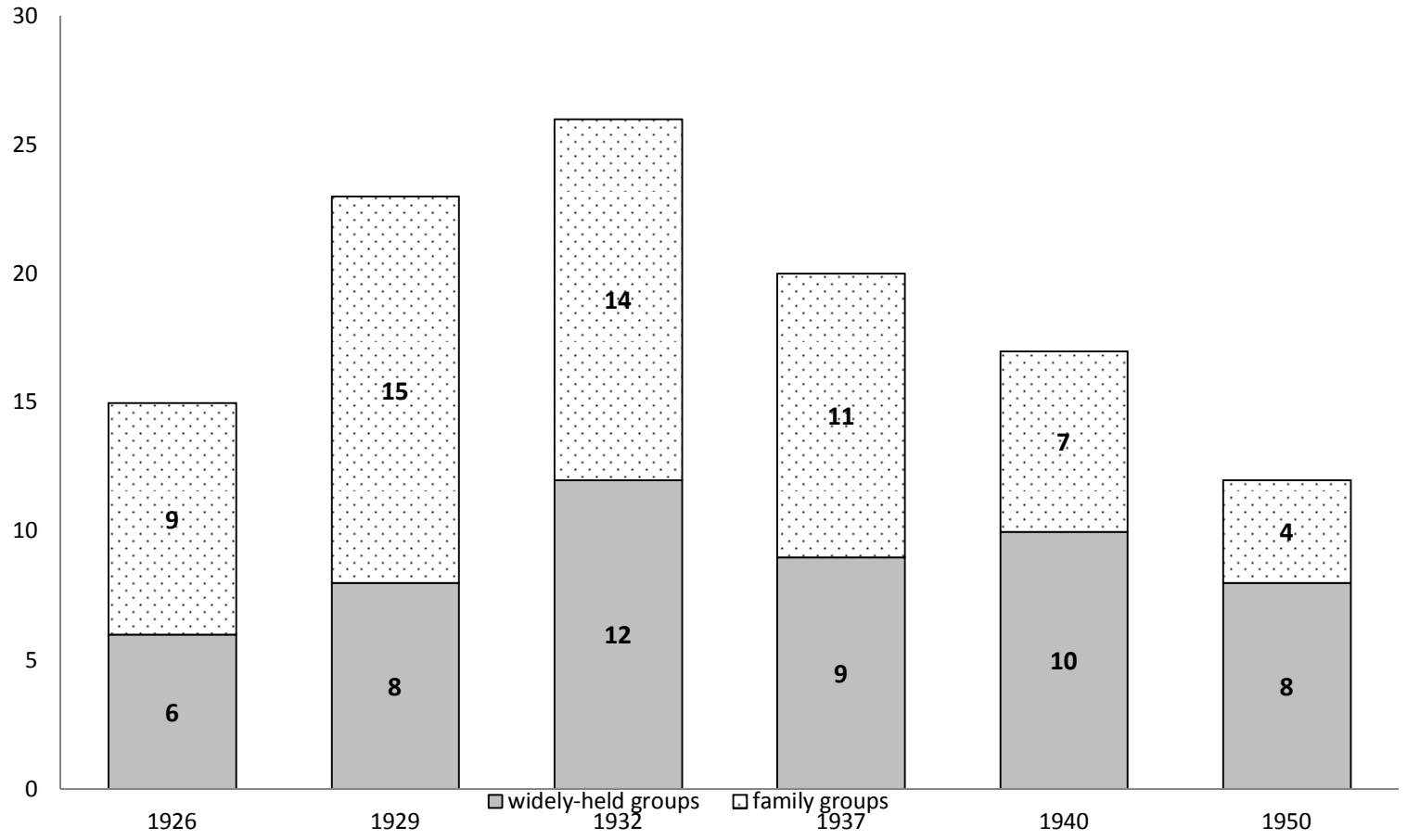
Appendix Table 1: Surviving vs. Disappearing Groups with Four Public Affiliates

The panel presents mean values of group characteristics for business groups of four or more public companies which survived until 1950 and for disappearing groups. *Industrial Concentration* is a Herfindahl-Hirschamn Index of group revenues in different industries; *Ownership Stake* is the (average) direct equity stake held by insiders in group firms; *Vertical Integration* is the average opportunity for vertical integration in all lines of business (see text).

	Number of Groups	**Family controlled**	**Age**	**Total Assets ($mil)**	**Herfindahl Index**	**Pyramidal Levels (public companies only)**	**Pyramidal Levels (all companies)**	**Ownership Stake held by Controlling Shareholders**	**Vertical integration**
Survived	12	33%	30	30,800	0.84	2.0	2.9	81%	0.015
Disappeared	30	50%	27	12,600	0.77	2.1	3.3	73%	0.011
p-value		-	<0.05	<0.001	-	-	-	-	-

Appendix Figure 1: Widely Held and Family Controlled Groups of Four or More Listed Companies, 1926-1950

The figure presents the number of business groups by year. A group is defined as having four or more public companies controlled by the same ultimate owner.



about ECGI

The European Corporate Governance Institute has been established to improve *corporate governance through fostering independent scientific research and related activities.*

The ECGI produces and disseminates high quality research while remaining close to the concerns and interests of corporate, financial and public policy makers. It draws on the expertise of scholars from numerous countries and bring together a critical mass of expertise and interest to bear on this important subject.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

ECGI Working Paper Series in Finance

www.ecgi.org\wp

Electronic Access to the Working Paper Series

The full set of ECGI working papers can be accessed through the Institute's Web-site (www.ecgi.org/wp) or SSRN:

Finance Paper Series	http://www.ssrn.com/link/ECGI-Finance.html
Law Paper Series	http://www.ssrn.com/link/ECGI-Law.html