Evolving Differences Among Publicly-Traded Firms in the United States, 1960-2015

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Abstract

I use data on all publicly traded firms in the United States to document the evolving differences between large and small firms over the period covering 1960 to 2015. Focusing separately on the financial and non-financial sectors, I document patterns related to the number of active publicly-traded firms; size differences between the firms at the 10th and 90th percentiles; the share of sales and assets accounted for by firms at the top of the distribution; the behavior of entrants; differences in volatility across small and large firms; the significance of the technology sector; and the sectoral affiliation of publicly-traded firms. I find evidence that, over the past 55 years, disparity (in size and volatility) between the largest and smallest firms has increased, although the picture is more complicated in the financial sector where large firms, for example, have become relatively volatile in comparison with small firms. New non-financial public companies have also become smaller relative to incumbents, while all entrants have had a smaller chance of surviving during more recent decades. My analysis also uncovers a shift away from manufacturing and towards services, retail and wholesale trade, and finance, along with the increasing prominence of high-technology industries.

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1 Introduction

Four of the ten largest US publicly-traded firms, as measured by 2015 sales, did not exist in 1960. The largest, Wal-Mart Stores, Inc. was founded in 1962 and incorporated in 1969, with CVS Health Corp., another retailer, dating from 1963. Apple, Inc. emerged in Silicon Valley in the mid-1970s, and UnitedHealth Group (a managed health care company) was born in Minnesota around the same time. The fact that these businesses were able to rise to the top of the American and global economy within the span of 40 to 55 years would seem to give credence to the existence of an entrepreneurial American dream, whereby a business empire can arise from practically nothing in the course of a generation. On the other hand, it is easy to question whether the young businesses of today will have the capacity to compete against behemoths like Walmart and Apple over the next half-century.

In this paper I investigate the evolution of dynamism and inequality – in particular, size differences – among publicly traded firms in the United States between 1960 and 2015. Using data on all US-listed companies, and focusing separately on the financial and non-financial sectors I document the following eight stylized facts:

i. The number of distinct publicly-traded non-financial firms increased steadily until the turn of the century and has been declining ever since. However, the number of public financial firms has had a positive trend since 1960.

ii. Differences in firm size, measured as the ratio between the 90th and 10th percentiles of the distribution of sales and employment have increased since 1960 in the non-financial sector. Among financial companies, small firms have made headway in catching up with the right tail in terms of asset-holding but not employment.

iii. The share of sales or assets accrued by the firms at the top of the distribution in the non-financial and financial sectors, respectively, has been increasing steadily since the 1960s, despite starting from high levels. The increases are more extreme in the financial sector.

iv. Despite large fluctuations in the amount of entry to the publicly-traded sector over the years, the mean ranking of non-financial entrants has declined, as has their ability to rise in the ranks after entry. By contrast, financial entrants rank
about as high as they did in the 1960s and 1970s, and catch up with incumbents as easily as they did in those early years.

v. The probability of survival by both financial and non-financial entrants has diminished across the decades.

vi. Firms in the bottom decile of the sales and assets distributions consistently experience greater dispersion in growth rates than those at the top.\(^1\) However, in the non-financial sector, dispersion of the top and bottom deciles of the sales distribution has increased about proportionately between 1960 and 2015, while the growth rate dispersion of large financial companies has increased faster than than their smaller counterparts'.

vii. Within the non-financial sector, technology firms stand out for exhibiting greater levels of size disparity, but also experiencing decreases in share of sales accrued by the top of the distribution since the late 1980s.

viii. The sectoral composition of public firms has evolved since 1960 to include fewer manufacturing firms, with increasing numbers of retail, services, and financial firms. Manufacturing has also lost its leadership as the largest sector by employment, with retail, finance and services catching up and other sectors fairly stagnant.

My main contribution in this paper is to describe the evolution of an elite and high-profile subset of the US economy over a long period of time. Publicly-traded firms are interesting in their own right because they are large, successful enterprises, whose fate is intricately tied with that of the broader macro- and global economies. The dynamics of this subset of firms are particularly relevant for entrepreneurial incentives and efforts, since many young businesses strive to grow and eventually raise funds via public equity markets. Evolving disparities between large and small public firms are relevant to recent developments of the US economy, as well as the potential for future macroeconomic performance. Looking at whether and how the patterns I uncover among public firms differ for private firms is also an important question raised by my

\(^{1}\)Throughout this paper I use the terms "volatility" and "dispersion in growth rates" interchangeable. There is a case for distinguishing cross sectional growth rate dispersion from within-firm fluctuations, as done by Davis et al. (2006) for example. The two concepts are closely-related, however, and co-move strongly so for simplicity I do not distinguish between them.
analysis. Davis et al. (2006), for example, find increasing dispersion and volatility among publicly-traded firms like I do, but then contrast this with a downward trend in volatility among privately-held businesses in comprehensive Census data.

My paper is inspired by the growing literature on the long-run evolution of inequality among individuals in the United States and other countries. This literature includes work by Piketty and Saez (2003; 2014) and Piketty (2014), documenting the fall and subsequent rise in income and wealth inequality in much of the rich world through the course of the 20th Century. I instead focus on firms, asking whether a small subset of them also seem to be accruing most of the gains from a growing economy, by analogy with the set of top households that are the focus of the inequality literature. I study a shorter period than the inequality literature does, namely the second half of the twentieth century, which is when data on publicly-traded firms exists. My work also relates to Song et al. (2015), who explore the role of firms in the increase in earnings inequality in the United States. My explicit focus on differences among publicly-traded firms, rather than on employees of different firms, contrasts with the latter. Also my analysis is specific to a subset of large firms, perhaps a study of an "elite" but politically and economically influential subset of the population of US firms. My work fits into the broad literature studying the rise of concentration and superstar firms and the implications of these facts, including contributions by De Loecker and Eeckhout (2017; 2018), Autor et al. (2017), and Eggertsson et al. (2018). In corporate finance, my paper relates to recent studies of trends among US corporations, for example Doidge et al. (2018), which is itself a response to earlier work on the changing nature of public firms by Jensen (1991).

In what follows, I discuss the data and methodology in Section 2, present my findings in Section 3, and outline potential next steps in Section 4 before concluding (Section 5).

2 Data and Methodology

2.1 Data and sample selection

I obtain annual firm-level data from Compustat Fundamentals Annual North America for all years covering 1960 through 2015. Compustat is a standard source of financial and accounting data, which compiles data from filings with the Securities and
Exchange Commission. A company is included in the database as soon as it files a prospectus, quarterly or annual report with the SEC, at which time there is data for the two years prior to the filing. Therefore, Compustat includes information from all firms whose stock is traded publicly in the United States, and also on unlisted firms required to register with the SEC. The latter condition applies to firms whose balance sheet assets exceed a certain threshold and who have more than a certain number of shareholders trading on secondary markets. The asset threshold has increased periodically from $1 million in the 1960s to $10 million since 1996, while the shareholder threshold was 500 between 1964 and 2012, when it was increased to 2000 as part of the JOBS Act (Manderson 2012).

The fact that Compustat consists of firms that have registered with the SEC poses at least two sample selection problems. First, there are firms whose stock trades in American stock markets so they are part of Compustat without being based in the US. I restrict my attention to US-based firms by dropping all observations for which the country of incorporation or headquarters location is not listed as "USA." Second, exactly which firms are included in the database in a given year depends on the current regulations governing SEC registration requirements. In 1960 and 1974, for example, the number of firms in the raw database expands by suspiciously large magnitudes when compared with neighboring years. I have not found a comprehensive source detailing how the regulatory requirements for registering with the SEC across time have changed between 1960 and 2015, and how that impacts what firms appear in Compustat each year. To construct a more well-defined sample I restrict my attention only to firms that I can actively identify as publicly-traded. Namely, I keep only firm-years for which I am able to construct market value\(^2\). The resulting dataset is devoid of spikes in the number of "entering" firms.

More broadly, the publicly-traded subset of the economy is not a representative sample of the US economy by any means. One of the main messages of Davis et al. (2006) is precisely how different the behavior of public firms is from that of private firms, which comprise a majority of firms as well as employment. Some research in corporate finance, for example Ritter and Welch (2002), documents that going public was particularly fashionable during the 1990s. This sort of trend has implications for

\(^2\)Market value is defined as the product of common shares outstanding (CSHO) and calendar year closing price (PRCC\_C). This manual construction of market value results in more firm-year observations than using the pre-populated market value variable (MKVALT) from Compustat.
the composition of my sample, and may be responsible for some economic mechanisms underlying my results.

2.2 Methodology

I convert my baseline firm-year database into a time-series dataset containing statistics about the distribution of publicly-traded firms. Then I plot these statistics across time and documenting the patterns therein. Because the dataset is fairly rich, with over 350,000 firm-year observations I mostly work with annual statistics, but in some cases (especially looking at the behavior and performance of entrants) I create statistics by half-decade (e.g. 1960-1964) to reduce the amount of noise and help discern the broad patterns across time.

For most of my analysis I treat the financial sector (i.e. firms with SIC codes between 6000 and 6999) separately from the rest (i.e. non-financial sectors) of the population of firms. Standard practice in studies that use data on publicly-traded companies is to focus on non-financial firms or perhaps even only the manufacturing sector. However, I also devote substantial attention to the financial sector on its own, because of its growth in recent decades and centrality in the 2008 financial crisis and the Great Recession.

3 US Publicly-Traded Firms, 1960-2015

In this section I document stylized facts about the evolution of disparity and dynamism among publicly-traded firms in the US between 1960-2015. Throughout the analysis I focus separately on financial versus non-financial companies and highlight similarities and differences in the evolution of both sectors.

3.1 Number of firms

Figures 1 and 2 plot, respectively, the number of financial and non-financial public firms in the United States in every year since 1960. The contrast is obvious immediately, and constitutes the first stylized fact in the introduction. The number of non-financial firms increases until the second half of the 1990s, when it peaks at just over 6,000 in 1996 and 1997. There are fluctuations along the way, including a flat period in the mid-1970s, a decline in the late 1980s, and a steep increase in the
mid-1990s. But the overall trend is of increasing numbers of listed companies. Since 1997, though, the number of non-financial listed firms has declined steeply, so that in 2015 there were only about 3000 public firms, half as many as in the late 1990s. This striking break in the trend coincides with Asia’s financial crisis and more broadly with the turn of the century and the bursting of the "tech bubble." However, it is hard to point to definitive reasons behind this pattern. It is possible that the decline in the number of firms is related to increased merger activity among listed firms (The Economist, November 15, 2014), to the rise of private equity as a business model, or simply weak economic conditions since the turn of the century.

Looking instead at the financial sector in figure 2, there is no peak in the mid 1990s followed by a decline in the number of financial firms. Instead, there is a flattening of the trend in the second half of the 1990s, followed by a period of steeper growth since about 2005. This steep growth is briefly interrupted around the time of the 2008 financial crisis, but resumes soon after. As with the non-financial sector, it is hard to explain what lies behind these patterns, but they do reflect the rising prominence of financial services in the American economy in recent decades. A more in-depth study should also consider factors like the repeal of the Glass-Steagall Act in the 1990s, which removed the barrier between commercial and investment banking, and the emergence of hedge funds and complex financial instruments in explaining the patterns.

3.2 Large versus small firms

In Figures 3 and 4 I begin to explore the magnitude of the differences between small and large firms across time, documenting the stylized fact that size dispersion has increased over time among public companies. In each of the figures I plot the 90th and 10th percentiles of the sales distribution and the ratio of the two on the right axis, in all cases using a log-base-ten scale.

Looking at the sales distribution in the non-financial sector in Figure 3, the 90th percentile of the sales distribution has increased steadily since 1960 while the left tail has declined overall, especially in the late 1970s and early 1980s and in the few years following 2010. This decline is despite the fact that I am plotting nominal sales, namely without adjusting for inflation. Overall, the ratio between the 90th and 10th percentiles has increased from about 63 in 1960 to about 4500 in 2015. Much of this
change is accounted for a ten-fold increase between 1975 and 1985 as the ratio goes from about 69 to 700, and a subsequent five-fold increase between 2010 and 2014. Both of these periods coincide with fairly turbulent times for the American economy that include recessions and a period of high inflation in the late 1970s and early 1980s.

The employment distribution has similar movements, in particular a steep rise in the ratio in the years around 1980, but the movement seems chiefly accounted for by the left tail, with flat behavior in the right tail. In fact, firms at the 90th percentile of the employment distribution in 1960 had 25,000 employees, just slightly more than the 21,000 they had in 2015. Firms at the 10th percentile, by contrast, had 20 employees in 2015, much less than the 500 they had in 1960. This picture is interesting in that technological change may be largely responsible for allowing firms to grow (in terms of sales) without hiring thousands more employees, and letting small firms go public and maintain operations with a fairly small workforce.

Among financial companies, the picture is somewhat different, as seen in Figure 4. Looking at balance sheet assets as a measure of firm size (since sales/turnover is probably less useful as a measure of size within the financial sector), it is not the case that firms at the upper tail have become larger while those at the lower tail have become smaller. Instead both have increased since the 1960s, except for a period between the late 1970s and mid-1980s when firms at the 10th percentile of the distribution are shrinking. Indeed, the ratio between the 90th and 10th percentiles decreases overall between the start and the end of the sample, meaning that small financial firms are actually relatively large when compared to their current peers than was the case in 1960. However, there are large fluctuations in the ratio, particularly in the 1980s when firms at the left tail shrank relative to the overall trend.

Movements in the tails of the employment distribution of financial firms are more similar to those in non-financial industries, with relatively flat dynamics for the 90th percentile of employment and an overall decrease in the 10th percentile (including a sharp drop within the 1980s). Overall, it seems that small public firms in the financial industry have been able to keep up with their larger competitors over the years and even make some headway in terms of the size of their balance sheet, but the dynamics of employment seem broadly similar across the financial and non-financial industries. Finance, as a human-capital intensive activity might have benefited from the development of information technology since the 1980s, thus potentially reducing the work force while increasing scale (e.g. in terms of asset-holding) at the same time.
To look at a more concrete measure of how unequal firm size is among financial and non-financial companies and borrowing from the approach in Piketty and Saez (2014), I compute the fraction of sales earned by the top 1, 5, 10, and 25 percent of the population of non-financial firms, and similarly for the assets held by top financial firms and plot them in Figures 5 and 6. The first thing to note from these plots is that the degree of inequality among publicly listed firms is extremely high when compared to that among individuals. Whereas in Piketty and Saez (2014), the top 10 percent of individuals earned somewhere between 30 to 55 percent of all the income in the 20th Century, the top 1 percent of non-financial firms make somewhere between 25 and 40 percent of all the sales among public firms, and the top 10 percent accrue more than 60 percent of all sales. Moreover, the fractions earned by each of the top percentiles has increased since the 1960s, meaning that disparities have become greater over time. Most of the increase, though, seems to have taken place prior to the early 1980s, and since then the series has been mostly stagnant. One reason why the sheer level of inequality among public firms seems so large might be that firms generate their revenues from both capital-holdings and labor services, whereas individuals’ earnings are mainly the result of labor earnings. Indeed, in Piketty and Saez (2014), inequality in wealth holdings is closer in level to what I document here for sales of non-financial firms. If capital is distributed across firms about as unequally as documented by Piketty and Saez, greater significance of capital in revenue generation could explain the high levels of sales inequality.3

In the financial sector, disparities in asset-holding start at a lower level, but increase more steeply so that ultimately in 2015 the degree of inequality in asset-holding among financial firms is significantly greater than that of sales among non-financial firms, with the top 1 percent holding over 60 percent of all assets held by financial public companies. And in contrast with non-financial sales, much of the increase takes place after 1990, when the 5 percent gains ground over the top 10 percent. The reason why in Figure 4 the 10th percentile seemed to catch up with the 90th seems to be precisely that it is the very top firms, the top 1 to 5 percent, that are responsible for the increased disparity in asset-holding among financial public companies. Once again, this is a pattern that should be taken in its historical context, with financial

3Looking at the distribution of capital - i.e. net plant, property, and equipment - in my sample of non-financial firms, the fraction held by the top of the distribution is similar to the proportion of sales and assets held by the largest firms as well.
deregulation and in particular the repeal of the Glass-Stegall Act and innovations within the financial industry towards the end of the 20th Century.

Taking stock of the entire publicly-traded sector, the picture is one whereby large public firms in the US have become much larger relative to their smaller peers over the past 55 years, much like high-earning and wealthy individuals have managed to increase their standing relative to their peers. This automatically creates questions about new entrants’ ability go public and potentially rise among the ranks, or whether they are increasingly stagnant relative to incumbents.

3.3 Behavior of entrants

I study entrant behavior in Figures 7 through 10. Figures 7 and 8 look at the raw number of financial and non-financial firms that first get a market value in each of the years since 1961. While in both cases there is significant volatility in the series, there is a stark distinction between the trend of increasing numbers of new, public, financial firms and the lack of such a trend among non-financial companies, as stated in stylized fact iv. In 1960 hardly any new financial firms turned to public equity markets, with the number in the decade prior to 2015 fluctuating around 200 per year. Perhaps these patterns reflect new niche markets developing within the financial sector, with new business models and markets arising. In the non-financial sector there seem to be episodes of higher and lower entry (for example around 1995 and 2000, perhaps as it relates to the dot-com boom), but overall no discernible trend in the number of new public firms.

Looking at the standing of entrants when they first go public and in subsequent years in Figures 9 and 10, it seems that growth opportunities after going public have become less fruitful for non-financial firms over the past 55 years, while new public financial firms don’t seem to outgrow or stagnate in comparison with incumbents. These figures show for each half-decade (1960-1964, 1965-1979, etc.), the mean percentile ranking of an entrant during the year it first appears in the sample, as well as five and ten years later (conditional on surviving). Whereas on average a new, public, non-financial firm in 1960-1964 had sales at least as large as 30 percent of its peers in 1960, in 2010-2015 it was only as large as 15 percent or so of its peers. Looking at their ranking five and ten years later, it is true that these entrants on average grow relative to their peers, but they seem to catch-up more slowly the later
they went public. For financial companies, in Figure 10, by contrast there is no clear
trend in how the mean ranking of entrants has changed since 1960, with new public
financial companies ranked at about the 30th to 40th percentile of the asset distribu-
tion throughout the period of study and without visible changes in the capacity to
catch-up with incumbents either.

What is common across the financial and non-financial sectors is a decrease in the
probability of remaining in the dataset long after entry, as seen in Figures 11 and 12,
and comprising stylized fact v. Be it out of being acquired, going private by other
means, or going bankrupt, the probability that a new public company has disappeared
from my dataset 5, 10, 15, or 20 years after first being observed is markedly increasing
since the 1960s. For non-financial firms, five-year exit rates were on the order of 50
percent in the half-decades comprising 2000-2004 and 2005-2009, much more than
the 5-10% observed in 1960-1964 and 1965-1969. The picture is similar for financial
firms, and perhaps exacerbated by the recent financial crisis. Underlying this stylized
fact is probably a shift in the selection of what sorts of firms choose to raise public
equity, for example with more small firms going public before getting acquired by a
larger competitor. Ultimately, it is worth considering what changes in regulations,
practices, and attitudes about public equity markets that might be behind higher exit
rates in recent decades.

3.4 Dispersion in Growth Rates

Another measure of interest that might highlight differences among large and small
public companies is dispersion in growth rates, namely the cross-sectional standard
deviation of growth across firms within a year. It could be that the largest public
firms are those that grow most quickly, and perhaps also contract by relatively large
amounts when hit by adverse shocks. This question has been studied extensively,
for example by Davis et al. (2006), who in particular highlight the upward versus
downward trends in volatility and dispersion among public versus private firms. Here
I confirm their overall finding that public firms appear to grow increasingly turbulent,
adding several years of observations and documenting differences in these trends across
the largest and smallest public firms.

I consider the cross sectional dispersion of growth rates of the bottom versus top
deciles of the sales and asset-holding distributions in the non-financial and financial
sectors, respectively. In Figure 13 it seems initially that the largest 10 percent of non-financial firms by sales have similar levels of sales growth volatility in 1960 and 2015, as in the years in between. But in fact, sales growth volatility has increased from 7 to 10 percent in the early 1960s to levels exceeding 20 percent during the late 1990s and early 2000s before coming back down to 15-20 percent over the past decade. This change is dwarfed by the that in the cross sectional dispersion of the bottom decile, which has gone from under 40 percent at the start of the sample to well above 100 percent since the turn of the century. Proportionally speaking, the dispersion of both the top and bottom deciles has increased by a similar proportion, suggesting that the main change over the past half-century has involved primarily an increase in shock dispersion for both the lower and upper tails of the distribution. Davis et al. (2006) argue that this trend is consistent with public firms having more dispersed ownership and thus potentially choosing riskier business models across time. Moreover, they argue that cohort effects can account empirically for this rise. My fact that dispersion has risen about proportionally for the smallest and largest deciles of the distribution adds a new dimension to these facts about volatility, for example suggesting that these cohort effects are important for both superstar public firms as well as small ones.

Figure 13 also shows that dispersion in among the bottom ten percent of the sales distribution has exceeded that of that of the top decile throughout the sample. This result is consistent with the stylized fact found in many datasets that larger firms are more stable and unwavering when compared with their smaller counterparts, with the interpretation being that larger firms’ sales are aggregated over a larger number of establishments, divisions, and products, and the sum across these smaller parts is thus more stable than any of its components.

In the financial industry it is similarly true that the largest firms (by assets) experience a fraction of the dispersion in asset growth rates that their smaller counterparts experience, as seen in Figure 14. In this case, however, the increase in growth rate dispersion of the top decile is relatively larger. The standard deviation of asset growth rates in the top decile increases from 3 to 4 percent during much of the 1960s to about 20 percent between 2003 and 2013, a five- to sixfold increase. By contrast, in the bottom decile, dispersion increases by a factor of 2 to 3, and there even seems to be a downward trend starting around 1990. Although the volatility of this series is more pronounced among these small financial firms, it seems that they have grown
to be more stable relative to the top financial firms than is the case for non-financial companies.

The changing landscape of growth rate dispersion adds another dimension to the question of how smaller versus larger businesses have evolved differently over the past half century, specifically in terms of how risky or stable they appear. The smallest public firms seem increasingly smaller than their largest peers, and they consistently face proportionally greater fluctuations. Small firms in the finance sector have been able to close that gap, but non-financial firms have grown more volatile at both ends of the distribution. These findings constitute my sixth stylized fact about US publicly-traded companies.

3.5 The technology industry

Many forces are potentially responsible for the dynamics documented in the previous sections. One particular feature that has emerged in the past few decades is the emergence of a technological sector which has prominently raised funds via public equity markets, as documented, for example in Ritter and Welch (2002).

The first step to conducting this analysis is defining what firms are in the "tech" sector. At present I am including all firms with SIC codes 357 (Computer and Office Equipment), 366 (Communications Equipment), 367 (Electronic Components and Accessories), 369 (Miscellaneous Electrical Machinery, Equipment and Supplies), 380-389 (Measuring, Analyzing, and Controlling Instruments) and 737 (Computer Programming, Data Processing, and Other Computer Related Services), which is meant to include both the manufacturing and development of hi-tech devices, as well as software design. I am not currently aware of a standard set of SIC industries used to define a "high-tech" sector, so there is room for testing the results against different definitions. For example, I am currently excluding online retailers like Amazon.com, which are classified under non-store retail firms, together with catalog and phone distributors.

Figure 15 corroborates the notion that these technological firms have risen to prominence in recent decades. It plots the share of sales made by the technological sector as a fraction of the sales made by all non-financial public companies by year. The share has trebled since 1960, with the steepest increases between 1980 and 2000. The bursting of the "tech bubble" is evident around the turn of the century, which
is significant especially given that Figure 15 uses sales figures and may thus reflect economic activity better than, say, market value. The rising trend in this figure is also significant if we consider that the relative price of high-tech goods has likely decreased dramatically over the past several decades, which would tend to reduce sales in these sectors relative to other goods and services.

One significant distinction between firms in these hi-tech industries and the rest of the non-financial sector is that the share of sales accrued by the top percentiles of the sales distribution has stalled and even declined since the mid-1980s, as seen in Figure 16. This result is my seventh stylized fact. Towards the beginning of the sample period, the shares accrued by top percentiles in technology industries resemble those in the broader non-financial sector, and reach a high peak in the second half of the 1980s before stalling and even declining for the top 1, 5, and 10 percent. This suggests that smaller technology firms have found a newfound ability to catch-up with their industry leaders, especially since the emergence of the personal computer around the 1980s. That said, the degree of sales concentration in the technology sector reaches higher levels than those seen for the whole set of non-financial firms (see Figure 5 for comparison) and even the slight reversal over the past 20 years has not made tech particularly equal. It is also true that the slight decline in the share of sales made by the largest tech companies seems to coincide with a slowdown in the increase of concentration among all non-financial public firms, suggesting that the deceleration in the tech sector’s concentration could be a cause for the overall slowdown in concentration across non-financial companies.

3.6 Sectoral Composition of Publicly-Traded Firms

The rise of a set of high-tech industries is one notable reorientation of economic activity among publicly-traded companies in the US over the past half-century. However, it is also interesting to see more broadly how the sectoral landscape has changed over the same period of time, with the results summarized in stylized fact vii.4

Figure 17 plots the number of firms according to the major divisions of the SIC classification system.4 The figure shows some of the well-known changes that have

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4Roughly speaking, this coincides with a SIC-1 code; however, some divisions comprise more than one leading SIC digit (e.g. manufacturing includes 2 and 3) and mining and construction are treated separately, although they are both coded with leading digit of 1. Also, for my analysis I group retail and wholesale trade together in one sector comprising all firms with leading SIC digit 5. Note that in Compustat most categorized under SIC-1 code 9 are large conglomerates categorized
taken place in the American economy (and more broadly in developed countries) such as a decline in manufacturing and the rise of the financial and services sectors. It is important to acknowledge, though, that this picture is not necessarily representative of the economic activity undertaken in the US, for example with the manufacturers in the sample potentially including many multinationals that might undertake much of their production abroad, overstating the importance of manufacturing.

Figure 18 looks at the share of employment accounted for each broad industry across the decades. Although this approach provides a sense of which sectors have become more or less important in terms of economic activity, it is important to consider that firms in Compustat report their global rather than domestic US employment. So while manufacturers have steadily reduced their share of employment among in public companies markets since 1960, this decline does not capture shifting production away from the US as long as those foreign operations still belong to the parent firm. Manufacturing’s decline has also only barely made them drop to second place in terms of employment. They are still roughly tied with retail as the largest grouping with a share close to 30%. At the same time service oriented sectors, namely retail and wholesale trade, finance, and other services have seen their share of employment increase visibly since 1960, with the rest of the sectors looking stagnant. It remains to ask how much the changes in sectoral composition are accounted for by the emergence of new industries (or expansion of formerly small niche industries) within the broad categories used in these figures, and how much from the expansion of existing ways of doing business. To give a concrete example for the retail sector, it is unclear how much of the doubling of its share of sales accounted for by innovations that helped stores like Walmart (a relatively traditional retailer) grow, rather than the development of online retailers like Amazon.com?

4 Next Steps

In furtherance of this project there are several avenues for progress.

One important question raised by my series of stylized facts is whether any or all of them are also true among privately-held firms, for instance by looking at comprehensive Census data. The key finding in Davis et al. (2006) is precisely that volatility and

as "unclassifiable" rather than public administration. For example, General Electric and Berkshire Hathaway fall in this category.
dispersion have been steadily rising among listed firms while falling among those that are privately-owned. It is an interesting questions whether the disparities and evolving differences among large and small firms have been larger, similar, or smaller among privately held firms that comprise most of US economic activity. For these analyses, it would be desirable to use a dataset like the Longitudinal Business Database (LBD), which covers all private-sector business establishments in the US and is also able to link establishments within a firm. In such a case, the analysis would focus on industry affiliations, payroll, and employment as these are the main variables in the LBD. Alternatively, it would be possible to focus on the manufacturing sector in isolation using the Census of Manufacturers, which has much richer data on sales, employment, capital stock, and other variables.

A second question that arises from my stylized facts concerns what economic mechanisms might be underlying them. A look at political, regulatory, and historical contexts may help elucidate why the changes happened when they happened. For many of my facts, the early 1980s saw some of the largest increases in firm size differences, during a time of economic reform and a return to controlled inflation under Ronald Reagan’s presidency. Similarly, it would be desirable to ask how (and if) the repeal of Glass-Steagall legislation contributed the continued expansion and concentration of the financial sector. Taking a descriptive approach may help account for the trends I uncover here, but another potential avenue for teasing out these mechanisms could come from a more structural approach. By estimating economic rather than statistical models and comparing whether technological parameters, financial constraints, or fundamental shocks appear different across decades we could potentially learn more about the economic mechanisms underlying the facts. Furthermore, such a systematic study might help us learn whether common calibrations of economic models based on data moments from particular decades are misleading in subsequent periods of time.

5 Conclusion

In this paper I document eight stylized facts about the evolution of publicly-traded companies based in the United States between 1960 and 2015:

i. The number of distinct publicly-traded non-financial firms increased steadily until the turn of the century and has been declining ever since. However, the
number of public financial firms has had a positive trend since 1960.

ii. Differences in firm size have increased since 1960 in the non-financial sector. Among financial companies, small firms have made some headway in catching up with large firms in terms of asset size but not employment.

iii. The share of sales and assets accrued by the firms at the top of the distribution in both the non-financial and financial sectors, has been increasing steadily since the 1960s despite starting from high levels. The increases are more extreme in finance.

iv. The mean size ranking of non-financial entrants has declined, as has their ability to rise in the ranks after entry. By contrast, financial entrants rank about as high as they did in the 1960s and 1970s, and catch up with incumbents about as easily as they did in those early years.

v. The probability of survival by both financial and non-financial entrants has diminished markedly and progressively over the past 55 years.

vi. Firms in the bottom decile of the sales/assets distribution have greater sales growth dispersion than those at the top. However, growth rate dispersion of the top and bottom deciles has increased by a similar proportion in the non-financial sector, whereas large financial firms have become more volatile relative to small ones.

vii. Within the non-financial sector, technology firms stand out for exhibiting greater levels of size disparity, but also have seen small decreases in the share of sales accrued by the top of the distribution since the late 1980s.

viii. Since 1960 manufacturing has lost its position as the largest sector (by employment as well as number of firms) among publicly-traded companies, with retail, finance, and services catching up and other sectors fairly stagnant.

These eight facts document the evolution of an influential, high-profile subset of the US economy over the past several decades. The increasing disparity between larger and smaller public firms is also relevant for current entrepreneurial incentives and efforts, since many young businesses strive to grow and eventually raise funds using public equity markets. Understanding the patterns documented in this paper and
the forces responsible for them may elucidate what made the US economy boom and blunder between 1960 and 2015, and also in the coming decades.
References


Notes: This figure plots the number of public non-financial firms in Compustat for each year 1960-2015.

Notes: This figure plots number of public financial firms in Compustat for each year 1960-2015.
Notes: On the left axis, this figure shows the 90th and 10th percentiles of the sales distribution across non-financial public firms in Compustat for each year 1960-2015, shown on a log base 10 scale. On the right axis it shows the ratio of the 90th to 10th percentile of the sales distribution for public nonfinancial firms in Compustat, 1960-2015.
Notes: On the left axis, this figure shows the 90\textsuperscript{th} and 10\textsuperscript{th} percentiles of the employment distribution across non-financial public firms in Compustat for each year 1960-2015, shown on a log base 10 scale. On the right axis it shows the ratio of the 90\textsuperscript{th} to 10\textsuperscript{th} percentile of the employment distribution for public nonfinancial firms in Compustat, 1960-2015.
Notes: On the left axis, this figure shows the 90th and 10th percentiles of the asset-holding distribution across financial public firms in Compustat for each year 1960-2015, shown on a log base 10 scale. On the right axis it shows the ratio of the 90th to 10th percentile of the asset-holding distribution for public financial firms in Compustat, 1960-2015.
Notes: On the left axis, this figure shows the 90th and 10th percentiles of the employment distribution across financial public firms in Compustat for each year 1960-2015, shown on a log base 10 scale. On the right axis it shows the ratio of the 90th to 10th percentile of the employment distribution for public financial firms in Compustat, 1960-2015.

Figure 5

Notes: This figure plots the fraction of total sales made by the top 1, 5, 10, and 25 percentiles of the sales distribution across non-financial public firms in Compustat for each year 1960-2015.
Notes: This figure plots the fraction of total assets held by the top 1, 5, 10, and 25 percentiles of the asset-holding distribution across financial public firms in Compustat for each year 1960-2015.

Figure 7

Notes: This figure shows the number of new public non-financial firms that appear in Compustat for each year 1960-2015.
Notes: This figure shows the number of new public financial firms appearing in Compustat for each year 1960-2015.
Notes: This figure shows the mean percentile ranking of non-financial entrants in the sales distribution upon entry, 5 years after entry, and 10 years after entry against, grouped according to the half-decade (e.g. 1960-1964 or 1965-1969) during which they first appear in Compustat.

Figure 10

Notes: This figure shows the mean percentile ranking of financial entrants in the asset-holding distribution upon entry, 5 years after entry, and 10 years after entry against, grouped according to the half-decade (e.g. 1960-1964 or 1965-1969) during which they first appear in Compustat.
Notes: This figure shows the probability that an entering non-financial public company does not have an entry for sales (i.e. has exited the dataset) 5, 10, 15, or 20 years after entry graphed against the half-decade (e.g. 1960-1964 or 1965-1969) during which it first appears in Compustat.
Notes: This figure shows the probability that an entering financial public company does not have an entry for sales (i.e. has exited the dataset) 5, 10, 15, or 20 years after entry graphed against the half-decade (e.g. 1960-1964 or 1965-1969) during which it first appears in Compustat.
Figure 13

Notes: This figure plots the standard deviation of sales growth for the highest and lowest 10% of the sales distribution among non-financial public companies in each year 1960-2015, as well as the overall standard deviation of sales growth for each year.

Figure 14
Notes: This figure plots the standard deviation of asset growth for the highest and lowest 10% of the asset-holding distribution among financial public companies in each year 1960-2015, as well as the overall standard deviation of asset growth for each year.

Figure 15

Notes: This figure plots the share of sales made by firms in high-tech industries (i.e. SIC codes 357, 366, 367, 369, 380-389, and 737) as a fraction of all sales made by non-financial public companies in each year 1960-2015.
Notes: This figure shows the fraction of total sales made by the top 1, 5, 10, and 25 percent of the sales distribution across high-tech public firms for each year 1960-2015. High-tech firms are defined as those classified in SIC codes 357, 366, 367, 369, 380-389, and 737.
Figure 17

Notes: This figure shows the number of public firms classified into each of the listed sectors, where the classification is based on the SIC code of the firm.

Figure 18

Notes: This figure shows the fraction of employment accounted for each of the sectors listed, where firms are assigned to each sector according to SIC code.