

The two-speed economy

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I. The changing shape of the US economy

Although recent economic data have generally begun to improve, the pace of the post-crisis recovery has been far weaker than the historical pattern suggests it should be. We estimate that if the current recovery had followed the historical norm seen in US economic cycles since 1980, GDP growth since the end of the crisis in mid-2009 would be nearly nine percentage points higher today, and roughly five million more jobs would have been created over the course of the recovery.

Macroeconomic factors have weighed heavily on post-crisis economic growth. These include demographic changes and housing and fiscal headwinds, which together account for roughly 75% of the weakness seen this recovery relative to the historical norm, according to our US Economics research team.¹ However, looking at “the recovery” solely from the macroeconomic perspective overlooks the significant differences in how it has played out across various parts of the economy. The quality of the recovery has varied widely for large and small firms – and for the people who work for them – and perceptions of the strength of the recovery have tended to follow personal experience rather than the macroeconomic average.

Specifically, when we look beneath the economy-wide numbers, we see that large corporations have performed well, generating strong revenue growth, rising employment and robust wage growth. Small firms, in contrast, have suffered low rates of business formation and tepid employment growth. Employees of small firms have also seen significantly weaker wage growth than employees of large firms have enjoyed.

The two-speed economy is evident across a broad range of data.² Revenues for the S&P 500 (ex-financials) grew roughly 6% annually between 2009 and 2014, well above the average for the prior four recoveries, while small businesses haven’t yet fully recovered from the recession. Survey data suggest that growth rates for small firms have only recently shown signs of converging toward the growth rates indicated by large firm surveys.

Perhaps the simplest and most economically significant demonstration of the challenges facing smaller firms is that the number of these businesses actually declined over the five years from the start of the crisis – the only such decline since the data became available in the late 1970s. The result is an estimated 600,000 “missing” small firms, and six million jobs associated with these firms, as of 2012. Although it is unclear what percentage of these jobs were truly lost – as some might have been absorbed by large firms – this dynamic nevertheless represents a meaningful structural shift in the economy.

Employment data tell a similar story. Available US Census Bureau data show that jobs at firms with more than 500 employees grew by roughly 42,000 per month between 2010 and 2012, exceeding the best historical performance over the prior four recoveries. In contrast, jobs at smaller firms declined by roughly 700 per month over the same period, a sharp contrast to the average monthly growth of roughly 54,000 jobs over the prior four recoveries. While the US Census Bureau data is only available through 2012, it enables us to quantify the relative shift in the share of employment between large and small firms. Other data series – such as small business surveys, the US Bureau of Labor Statistics (BLS)

¹ The Goldman Sachs US Economics team has published extensively on the macroeconomic factors affecting the recovery. For example, see Hatzius et al, “*US Economics Analyst: Sticking with Stronger*,” May 2014; Hatzius et al, “*US Economics Analyst: More Cyclical than Secular*,” December 2013; Mericle, “*US Daily: Assessing the Slowdown in Potential Growth*,” November 2013.

² Given the wide scope of issues we discuss throughout this paper, we rely on a range of data sources covering differing time periods depending on data availability, which in some cases is limited. We use the longest-running data series wherever possible. Throughout the paper we note the relevant timeframe and data source.

firm employment dataset and the household employment survey of sole proprietorships – indicate that there has not been a significant change in these patterns since 2012.

Also significant is the gap that has developed in wage growth between large and small business establishments. Although wages (indexed to 1996 levels) at both large and small establishments increased nearly in tandem during the decade before the crisis, these two figures have since diverged and now reflect a gap of roughly 20 percentage points. This suggests that small businesses continue to struggle, and that their employees may be paying an ongoing price in the form of lost wages.

While there may always be some debate about the complex and lingering nature of the effects of the crisis, particularly on business decisions, the most widely-cited and perhaps the most likely explanation for much of the split that we observe between the performance of large and small businesses is the cumulative impact of the new regulations and related policy actions that have been taken since the crisis.³

As we discussed in our June 2014 paper, “*Who pays for bank regulation?*”,⁴ new banking regulations have made bank credit both more expensive and less available. This affects small firms disproportionately because they largely lack alternative sources of finance, whereas large firms have been able to shift to less-expensive public market financing.

While banking regulation has played a key role, regulation outside of banking has also raised the fixed costs of doing business. It is unclear whether these economy-wide regulations can explain the bifurcation between large and small firms, but regulation would typically have a disproportionate impact on the ability of small firms to compete, despite often subjecting larger firms to notable increases in direct regulatory scrutiny and higher absolute costs. The negative competitive effects for small firms arise because of the relatively fixed-cost nature of complying with regulations; large firms have a much larger volume of business over which to spread higher fixed regulatory costs than do small firms. And even when small firms are formally exempted from regulations, they may still feel the impact because they may effectively be required to meet what soon become de facto standards for the industry as a whole.

Even as large firms experience a relatively robust recovery, they appear to be investing less than we would expect given their historically high profit margins, and investing with a bias toward shorter-term projects; this dynamic may be playing out because large firms are facing less competition from smaller firms. Investments in intellectual property, for example, are tracking nearly five percentage points below even the low end of the historical experience and more than 20 percentage points below the historical average.

Considered in isolation, the negative impacts of each of the rules imposed since the crisis may not be significant. Cumulatively, however, they have had a clear and meaningful impact on the relative competitiveness of small businesses. The question of whether this trade-off is acceptable is both a political and an economic judgment. Taken together, the reduced competitiveness of small firms and the changing investment decisions of larger ones are reshaping the competitive structure of the US economy in ways that are likely to reverberate well into the future, and in ways that any future evaluation of the aggregate effects of post-crisis regulations should consider.

³ See, for example, Koppl, “*From Crisis to Confidence: Macroeconomics after the Crash*,” December 2014; Duygan-Bump et al, “*Financing Constraints and Unemployment: Evidence from the Great Recession*,” October 2014 and Baker, Bloom and Davis, “*Has Economic Policy Uncertainty Hampered the Recovery?*,” February 2012.

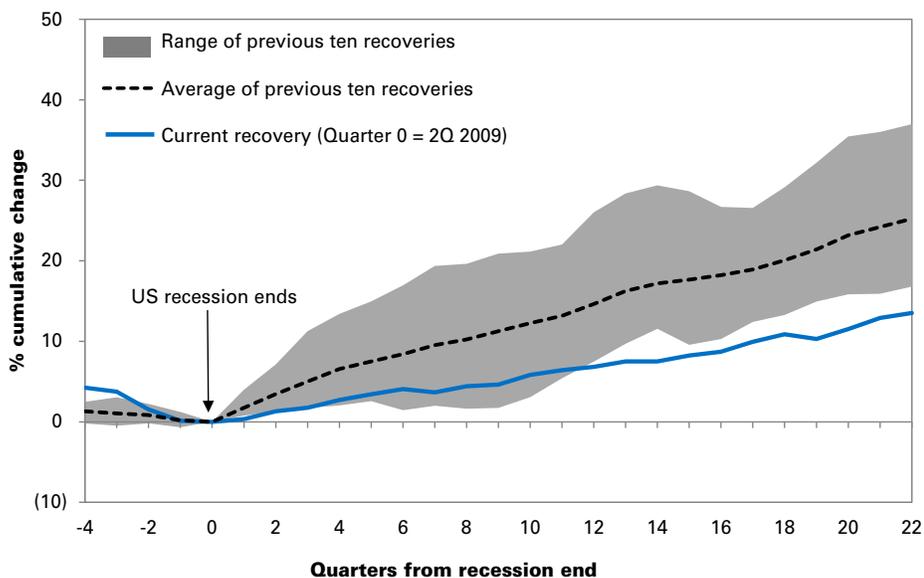
⁴ See <http://www.goldmansachs.com/our-thinking/public-policy/regulatory-reform/who-pays-for-bank-regulation.html>

II. The recovery has been slow and uneven

Although recent macroeconomic data have generally begun to improve, US economic activity since the 2008 financial crisis has lagged previous recoveries by a wide margin (see Exhibit 1). We estimate that if the current recovery had followed the historical norm seen in US economic cycles since 1980, growth in GDP since the end of the crisis in mid-2009 would be nearly nine percentage points higher today than the 14% that has been recorded. A longer time horizon shows an even more dramatic underperformance: the current recovery lags the low end of the historical range of recoveries dating as far back as the late 1940s (see Exhibit 2 for a historical list).

Exhibit 1: The recovery in real GDP lags historical recoveries

Reflects recoveries between 1949 and 2014; growth in real GDP



Source: Bureau of Economic Analysis (BEA), Goldman Sachs Global Investment Research.

Exhibit 2: US recessions since the late 1940s

	Beginning of recession	End of recession	Duration of recession (# of months)
1	November 1948	October 1949	11
2	July 1953	May 1954	10
3	August 1957	April 1958	8
4	April 1960	February 1961	10
5	December 1969	November 1970	11
6	November 1973	March 1975	16
7	January 1980	July 1980	6
8	July 1981	November 1982	16
9	July 1990	March 1991	8
10	March 2001	November 2001	8
11	December 2007	June 2009	18

Source: National Bureau of Economic Research (NBER), Goldman Sachs Global Investment Research.

What can explain this anomalous weakness? Several macroeconomic factors have contributed, including demographic changes and housing and fiscal headwinds, which taken together account for roughly 75% of the weakness seen this recovery relative to the historical norm, according to our US Economics team. Yet to speak about “the recovery” overlooks the very different ways it is playing out across different parts of the economy. The recovery felt by large firms and the people who work for them is very different from the recovery felt by small firms and the people who work for them. We see this divergence across a wide range of indicators, as we discuss next.⁵

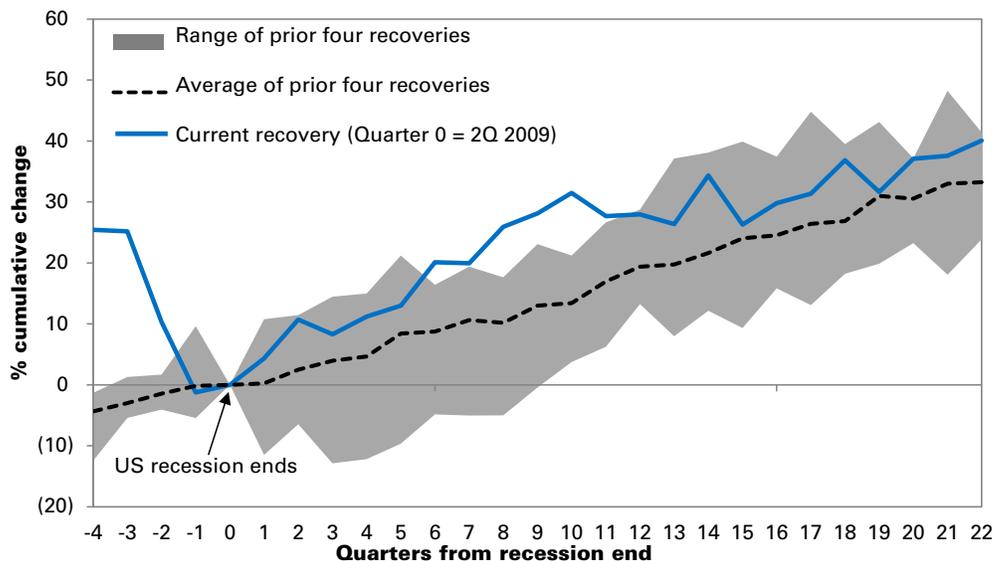
Large firms outpace small firms in revenue growth

Consider revenue growth since the end of the recession in mid-2009. Although the largest companies, the S&P 500 (excluding financials),⁶ saw their revenues decline significantly during the crisis, they have since experienced a recovery in revenue growth that outpaces the historical trend over the past 35 years. The revenues of these firms are 40% higher today than at the end of the recession; this figure is roughly seven percentage points above the average rebound seen at the same point in the prior recoveries since 1980 (see Exhibit 3). Such strong revenue growth for the largest US companies helps to explain why the S&P 500 index has reached all-time highs, despite the generally lackluster recovery.

Using IRS data that is available over a shorter timeframe to examine a broader universe of large US firms – those with more than \$50 million in annual revenue – we find that revenues grew 8% on a compounded annual basis between 2009 and 2011. Smaller firms in the same dataset fared poorly in comparison: those with less than \$10 million in annual revenues enjoyed only 2% growth over the same timeframe.

Exhibit 3: S&P 500 companies (ex-financials) have experienced historically robust revenue growth since the recession ended in 2009

Reflects recoveries since 1980 (latest available data are as of 4Q2014)



Source: Compustat, Goldman Sachs Global Investment Research.

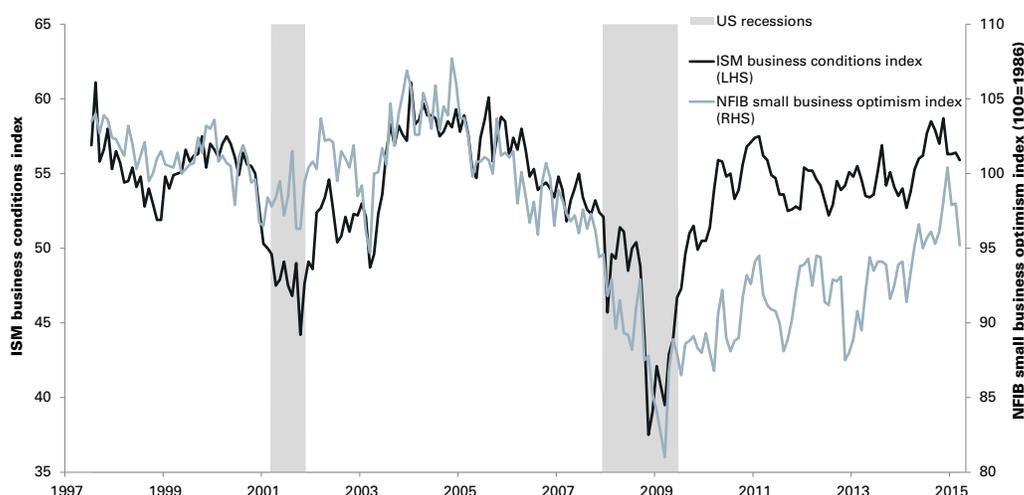
⁵ In this paper we define “small” businesses as firms or establishments with fewer than 500 employees. Appendix A shows a different cut-off, defining “small” businesses as those with fewer than 100 employees. The results of our analysis are similar regardless of whether we use 500 or 100 as the cut-off.

⁶ Consistent with industry practice that reflects the substantial differences in business models between financial and non-financial firms, we exclude financials from our analysis of the S&P 500.

Surveys indicate that small firm growth has only recently shown signs of converging toward large firm growth

The two key indices of business conditions also reflect a divergence in growth rates between large and small firms, as shown in Exhibit 4. The Institute for Supply Management (ISM) surveys measure business conditions indicative of current and future growth among larger firms, while the National Federation of Independent Business (NFIB) index measures similar metrics among smaller firms.⁷ The ISM and the NFIB measures tracked closely from the late 1990s until the crisis, when they began to diverge significantly. While both measures have improved since the recession ended, the NFIB's assessments of conditions and its implied growth rates for smaller firms have only recently shown signs of converging toward those indicated by the ISM.

Exhibit 4: NFIB and ISM surveys indicate that small firm growth has only recently shown signs of converging toward large firm growth



Source: ISM, NFIB, NBER, Goldman Sachs Global Investment Research.

The number of small firms is declining

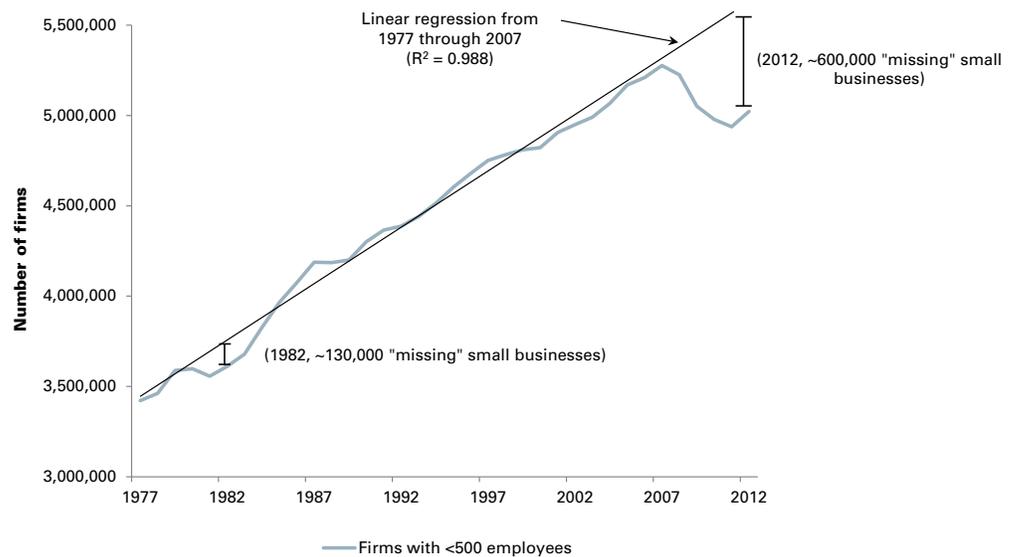
We see the challenging operating environment for small firms reflected in the decline in the number of these businesses since the start of the crisis. Available US Census Bureau data show that the number of small firms declined over the five years that followed the onset of the crisis – the first such occurrence since the data became available in 1977 (see Exhibit 5).

⁷ The NFIB small business optimism index is based on a monthly survey of NFIB member businesses, which are primarily firms with annual gross receipts of less than \$10 million (<http://www.nfib.com/foundations/research-foundation>). The ISM surveys members of the ISM Business Survey Committee and publishes monthly diffusion indices related to both the manufacturing and the non-manufacturing sectors; we rely here on the composite reading derived by Haver Analytics (<http://www.ism.ws/index.cfm>).

Using a simple trend line, we estimate that if the number of firms with fewer than 500 employees had grown in-line with the historical pattern seen from 1977 through 2007, there would have been roughly 600,000 more small businesses in 2012. This measure of “missing” small businesses is nearly five times the largest prior gap of 130,000 seen in 1982. Historically, small businesses have employed an average of 10 people on a weighted basis. This suggests that the shortfall of roughly 600,000 small businesses might account for about six million associated small business jobs in 2012, although it is unclear whether these jobs were truly lost, since some might have shifted to large businesses.

Exhibit 5: The number of small firms declined over the five years from the onset of the crisis

Data available from 1977 to 2012



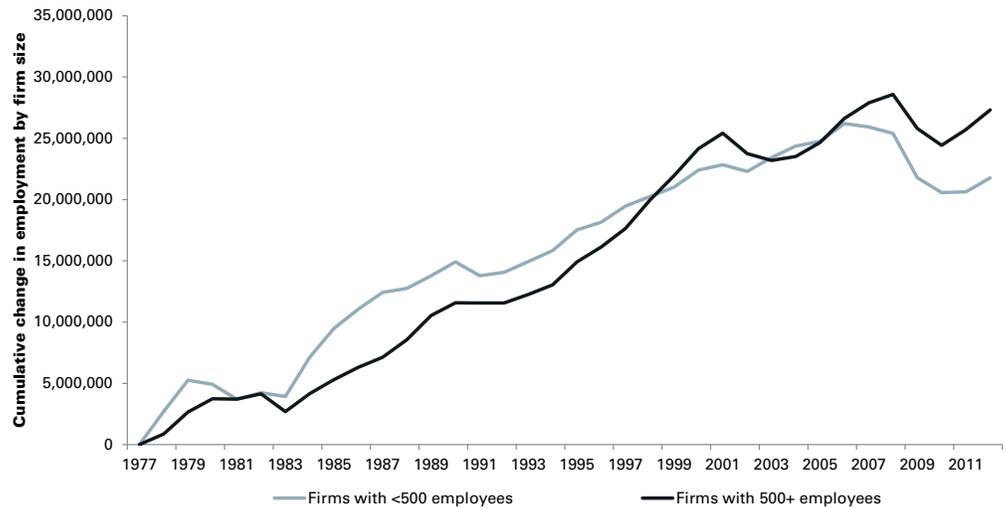
Source: US Census Bureau, Goldman Sachs Global Investment Research.

Employment at small firms is lagging substantially

The problems facing small firms can also be seen in the employment data. Exhibit 6 shows US Census Bureau data measuring employment among firms of different sizes between the late 1970s and 2012. The cumulative change in employment at firms with fewer than 500 employees had historically outpaced the comparable figure for larger firms; in recent years this trend has reversed, with the cumulative rise in employment at smaller firms running significantly below the cumulative increase at larger firms.

Exhibit 6: Cumulative change in employment at smaller firms has lagged the comparable figure for larger firms

Data available from 1977 to 2012



Source: US Census Bureau, Goldman Sachs Global Investment Research.

Exhibit 7 uses the same US Census Bureau dataset to show the average monthly change in employment for the four prior recoveries since the early 1980s. Jobs at firms with more than 500 employees grew by roughly 42,000 per month between 2010 and 2012, exceeding the best historical performance over the prior four recoveries. In contrast, jobs at firms with fewer than 500 employees declined by nearly 700 per month over the same timeframe, whereas this figure had grown by roughly 54,000 per month on average over the prior four recoveries.

Exhibit 7: Relative to history, monthly employment at smaller firms during the early years of the recovery has lagged the comparable figure for larger firms

Average monthly change in employment at firms by size; data available from 1977 to 2012

	Small firms (fewer than 500 employees)	Large firms (500 or more employees)
1981-1983	-27,000	-29,000
1983-1985	146,000	32,000
1992-1994	57,000	41,000
2002-2004	42,000	-53,000
2010-2012	-700	42,000
Average of prior four recoveries since the early 1980s	54,000	-2,000

Source: US Census Bureau, Goldman Sachs Global Investment Research.

The US Census Bureau data series we examine above is only available through 2012, but it allows us to quantify the relative shift in the share of employment between large and small firms. Other data series – such as small business surveys, the BLS employment dataset and the household employment survey of sole proprietorships – suggest that there has not been a meaningful change in these patterns since 2012. See Appendix B for more detail regarding differences in the BLS and US Census Bureau employment datasets.

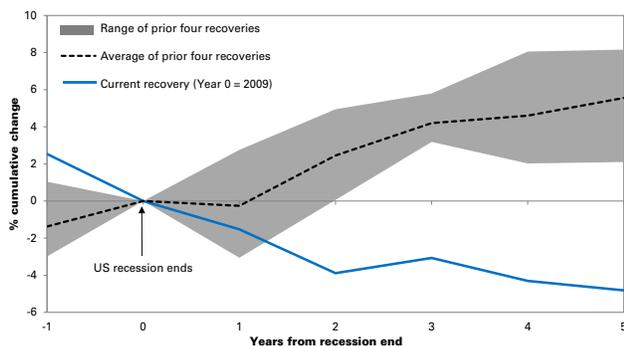
Sole proprietorships have also posted a weak recovery

Sole proprietorships, which are not included in the small business data discussed above, play a key role in the economy. These businesses can act as a critical safety valve for unemployed workers. Given the severity of the recent recession, growth in this category should have been strong – but here too the data show that the recovery has been notably weak.

The US Census Bureau counted nearly 23 million sole proprietorships in 2012, reflecting an increase of just 5% since the end of the recession; this is a fraction of the 15% increase over the comparable timeframe during the 2001 recovery. A longer-running and more frequently reported dataset from the BLS that tracks unincorporated self-employed workers (a subset of sole proprietorships) shows that growth in this category has run below even the low end of the historical experience since 1980: the number of unincorporated self-employed workers declined by 150,000 between 2010 and 2012, with a further decline of more than 170,000 during the subsequent two years. This equates to a total reduction in unincorporated self-employed workers of 3% between 2010 and 2014. See Exhibits 8 and 9.

Exhibit 8: Growth in unincorporated self-employed workers has been well below the historical post-recession trend

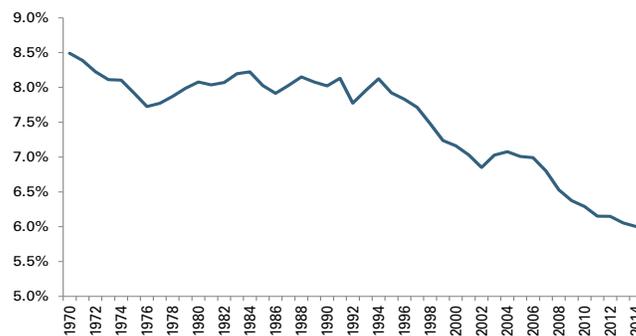
Reflects recoveries between 1980 and 2014



Source: BLS Current Population Survey, Goldman Sachs Global Investment Research.

Exhibit 9: Unincorporated self-employed workers are a shrinking part of the labor force

Self-employed workers as a proportion of the total civilian labor force



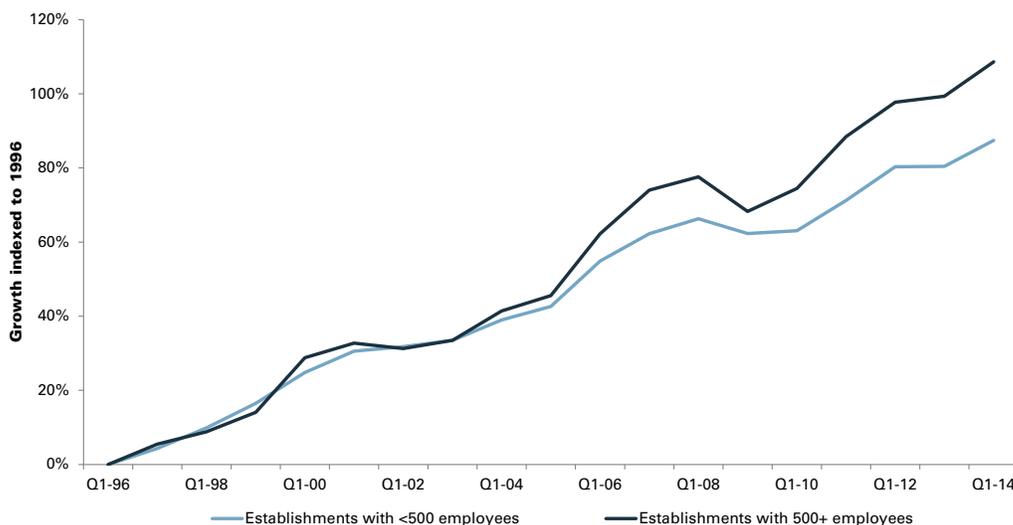
Source: BLS Current Population Survey, Goldman Sachs Global Investment Research.

Wage growth lags at small establishments

The wage data also highlight the divergent positions of small and large establishments.⁸ Indexed to 1996 levels, wage growth at establishments with more than 500 employees outpaced wage growth at smaller establishments by a cumulative six percentage points during the 14 years from 1996 through 2009.⁹ However, over the subsequent five years, the gap expanded by an additional 14 percentage points, more than twice the divergence seen from 1996 through 2009 in fewer than half as many years.¹⁰ See Exhibit 10.

Exhibit 10: Wage growth at large establishments has outpaced wage growth at small establishments

Average weekly wages in the first quarter of each year, indexed to 1996



Source: BLS, Goldman Sachs Global Investment Research.

⁸ While a single business can have more than one establishment (which can be thought of as a storefront), small firms typically have just one.

⁹ Wages include bonuses, stock options, severance pay, profit distributions, cash value of meals and lodging, tips and other gratuities, and, in some states, employer contributions to certain deferred compensation plans such as 401(k) plans.

¹⁰ Although the data begin in 1990, our analysis begins in 1996 because of a reporting anomaly in 1995. See Appendix B for the full time-series.

III. Assessing the impact of regulation on small firms

While there will likely always be debate about the complex and lingering nature of the effects of the crisis, perhaps the most plausible explanation for the post-crisis bifurcation between large and small firms is the cumulative impact of new regulations, for two principal reasons.

First, by increasing capital requirements and imposing other restrictions on banks, new regulations have effectively increased the cost and reduced the availability of credit for small firms, which lack alternative sources of finance.

Second, by tightening regulatory requirements across the broader economy (not just for banks), new regulations have raised the fixed cost of doing business. This is a hardship for all firms, and it is not clear whether these regulations can fully account for the bifurcation we see between small and large firms. Nonetheless, these non-bank regulations are particularly challenging for the smaller firms that lack a sufficiently large revenue base over which to amortize these higher fixed costs.

Small firms are hurt most by higher bank borrowing costs

Heightened regulation since the crisis has succeeded in increasing the safety and soundness of the banking system. But, as we discussed in our June 2014 paper, "*Who pays for bank regulation?*", new regulations have also effectively acted as a "tax" on banks, changing the relative prices of different activities, making some activities more expensive and others cheaper. The impact across bank customers is uneven: those customers who can find less expensive sources of financing turn to them, while those without alternatives are forced to bear the higher costs of the taxed activities or are unable to access credit.

In our earlier paper, we reviewed the new regulatory landscape across a broad range of lending markets and looked at changes in lending rates, measured against a 2000-2007 pre-crisis baseline. We found the impact of new regulation to be striking: the markets most exposed to regulatory change, and in which there are few alternative providers of financing, have seen lending rates rise most significantly, while the markets least exposed – or where strong non-bank finance alternatives exist – have actually seen lending spreads fall from the pre-crisis period. See Exhibit 11.

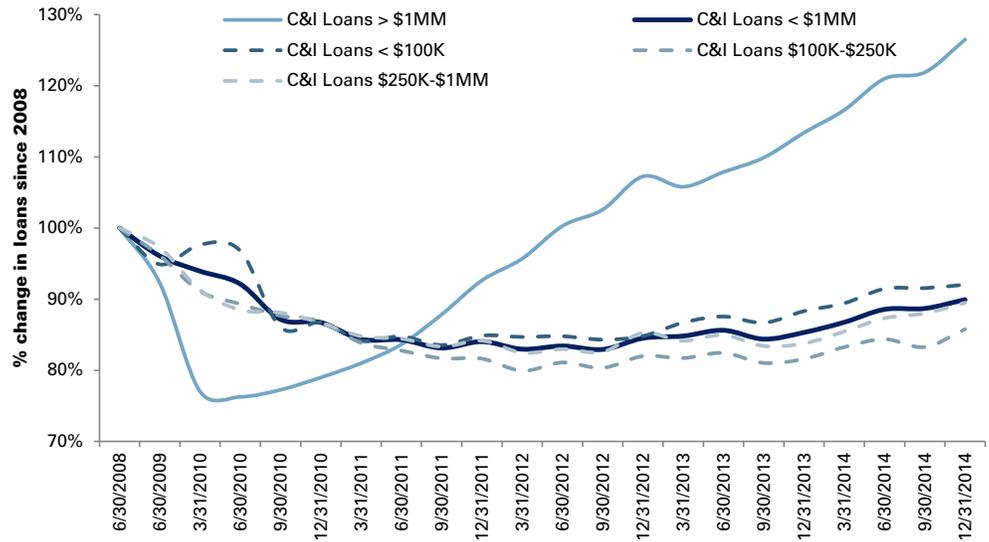
Exhibit 11: Lending rates have been affected by post-crisis banking regulation
 Prevailing lending rates, expressed as spreads over applicable benchmarks

Forms of lending Loan/ borrower type	Price (spread over applicable pricing benchmark)			
	2000-2007	2008-2010	2014	14 vs. pre-'08
Credit card	10.6%	13.2%	13.1%	249 bp
Higher FICO	9.6%	10.8%	11.6%	200 bp
Lower FICO	10.3%	13.3%	13.1%	281 bp
Residential mortgage	--	--	--	--
Jumbo	1.7%	3.0%	2.0%	29 bp
Conforming	1.7%	1.9%	1.8%	9 bp
FHA/ VA	1.8%	2.1%	1.5%	-31 bp
Subprime	--	--	--	--
Home equity	2.7%	4.5%	3.4%	65 bp
Commercial real estate	--	--	--	--
Class A (higher-credit)	--	--	--	--
Class B (mid-credit)	1.7%	2.6%	2.1%	47 bp
Smaller CRE	--	--	--	--
Commercial & industrial	--	--	--	--
Large IG corporates	1.5%	2.7%	1.3%	-23 bp
Large HY corporates	5.5%	9.3%	4.0%	-147 bp
Medium unrated corporate	3.5%	5.6%	4.5%	93 bp
Small unrated corporate	2.4%	3.3%	2.7%	31 bp

Source: Goldman Sachs Global Investment Research. The appropriate benchmarks are the one-year Treasury for credit cards and the 10-year Treasury for residential mortgages, commercial real-estate and home equity loans. C&I lending spreads for corporate borrowing are measured against the 3-month Treasury, though for investment grade (IG) bonds, each bond is measured against the appropriate benchmark Treasury, determined by the bond's maturity date. For high yield (HY), the spread is options-adjusted.

The tax from increased bank regulation falls disproportionately on the smaller businesses that have few alternative sources of finance. We see this in the muted recovery in bank lending to small businesses: outstanding commercial and industrial (C&I) loans for less than \$1 million are still well below the peak 2008 level and are only 10% above the trough seen in 2012. In contrast, larger C&I loans outstanding (above \$1 million) are more than 25% higher than the peak in 2008, as Exhibit 12 shows. Moreover, the cost of the smallest C&I loans has risen by at least 10% from the pre-crisis average. The evidence suggests that smaller firms continue to borrow from banks – when they can get credit – because they lack effective alternative sources of finance. It also suggests that they are paying notably more for credit today; this weighs on their ability to compete with larger firms and to create new jobs.

Exhibit 12: Lending to small businesses has lagged during the current recovery
 C&I loans outstanding (2Q2008 through 4Q2014)



Source: FDIC Quarterly Banking Profile, Goldman Sachs Global Investment Research.

In contrast, since the crisis, the largest firms have built up their cash reserves. Non-financial S&P 500 companies hold roughly \$1.4 trillion in aggregate in cash and equivalents on their balance sheets, an increase of approximately 80% from the pre-crisis peak. This makes them less likely to require new external funding.

When large firms do seek external funding, many have access to public debt markets, in which yields are near historical lows. However, it is important to note that public debt issuance itself carries regulatory and compliance obligations, making it too expensive for some firms. Here too size is a key factor in determining whether firms can access the lower borrowing rates that bond markets now offer – and the smallest firms often find these costs too great.

Funding for new businesses has been particularly affected by new regulations. Their very nature as new firms makes it difficult for them to obtain funding in a credit-constrained environment. Typically they rely on bank loans and credit cards, along with savings from friends and family for initial funding.

These lending channels have generally been constrained by post-crisis regulations, with higher prices and lower availability of credit. Credit card debt, for example, has been affected not only by stronger bank capital requirements, but also by the Credit CARD Act of 2009 and greater oversight from the Consumer Financial Protection Bureau. Exhibit 11 above illustrates the dynamics of credit card pricing in recent years: rates have risen significantly, with spreads now at least 200 basis points wider than the pre-crisis period, even for prime borrowers. Many would-be borrowers have been priced out of the market entirely: there are nearly 85 million fewer credit card accounts than at the peak in 2008, a reduction of more than 15%.

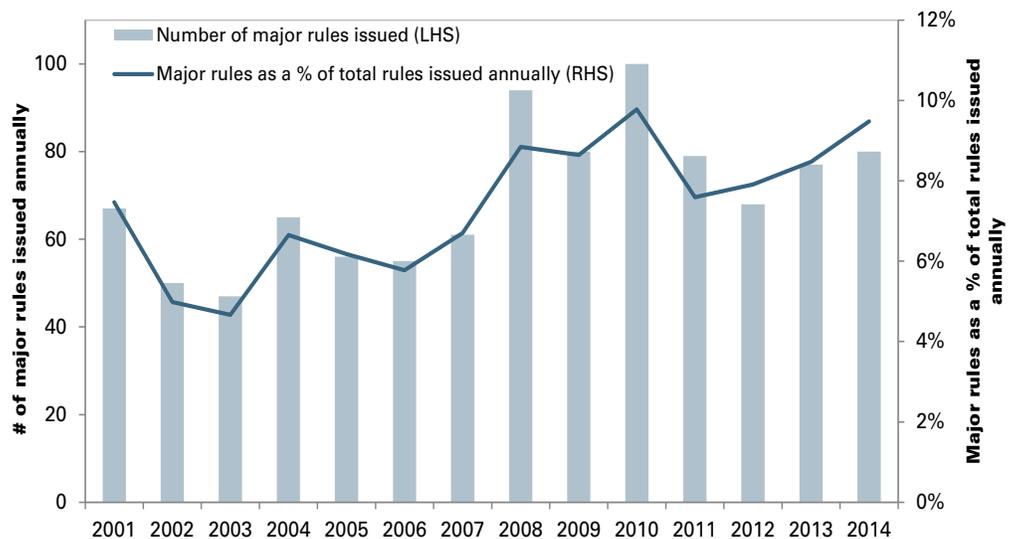
Regulatory costs create competitive disadvantages for small firms

While we see the new regulations affecting banks as a key driver of the slow and uneven recovery, they are not the only factors. Regulations affecting many other areas of the economy, such as labor and healthcare, have raised the fixed costs of doing business for large and small firms alike – but the competitive consequences differ.

Data from the US Government Accountability Office (GAO) show that the issuance of “major” rules has risen significantly in the wake of the crisis and has remained elevated since then. Roughly 575 major rules were issued at the federal level between 2008 and 2014, some 45% more than the preceding seven-year period, and the share of major rules in the overall total has risen as well. See Exhibit 13.

Exhibit 13: “Major” federal rules issued annually since 2001

A “major rule” costs the US economy \$100 million or more annually or results in adverse effects on factors such as competition, investment and employment



Source: GAO, Goldman Sachs Global Investment Research.

Regulation entails costs for both set-up and ongoing compliance. Many of these costs are “fixed,” meaning that a firm must bear the cost regardless of its size. The consequences differ for large and small firms. Large firms typically bear far higher total costs, but smaller firms often bear far higher unit costs – meaning a higher cost per employee or per dollar of revenue. For example, the National Association of Manufacturers finds that regulatory costs for companies with fewer than 50 workers are 30% higher per employee than for large firms; in the manufacturing sector, the costs for small firms are more than twice as high per employee.¹¹

In effect, higher fixed costs of regulation mean that the government has created economies of scale in regulatory compliance, and that the economically optimal size of a company has generally risen. At a minimum, higher unit costs make small firms less competitive; at worst, they can operate as barriers to entry for new competitors across many sectors.

Exempting smaller firms from regulation would not necessarily help them to compete more effectively in a highly regulated environment. Small firms may be subject to the standards that are imposed on larger firms on a de facto basis, even if not on a de jure basis. This is because regulatory standards for large firms often become the baseline for the industry as a whole, forcing small firms to comply as a precondition for doing business with large firms, regardless of whether small firms are officially covered by the regulation.

This trend is fueled by the growing practice of enforcing regulations via third parties – holding firms responsible for the conduct of their clients, suppliers or distributors. For large firms, particularly consumer-facing ones, the potential reputational and legal risks of dealing with small firms that are subject to less stringent standards may more than outweigh other factors like cost savings or convenience. In effect, small firms may avoid the government paperwork faced by large firms, but they are not always exempted from complying with similar standards, nor can they necessarily avoid the associated costs.

¹¹ See Crain and Crain, *“The Cost of Federal Regulation to the US Economy, Manufacturing, and Small Business,”* September 2014.

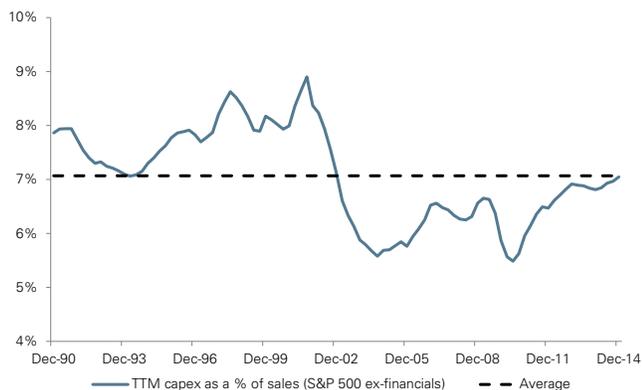
IV. Reduced competition from small firms appears to be affecting the investment decisions of large firms

The impact of the two-speed economy extends beyond the small firms themselves. The competitive disadvantages facing smaller firms appear to be driving larger firms to invest less, and in shorter-term projects, than has historically been the case. This outcome is likely to be to the long-term detriment of the US economy.

Exhibit 14 shows investment in capital expenditures by non-financial S&P 500 companies over the prior 12-month period, measured against revenues. Capital expenditures as a proportion of revenues are only slightly lower than the historical average (by 10 basis points), but this figure is skewed by investments that reflect structural shifts in the energy industry, specifically in shale. After excluding energy, capital expenditures as a percentage of sales are more than 100 basis points below the average since the early 1990s. This figure is particularly surprising given these firms' historically robust net profit margins today.

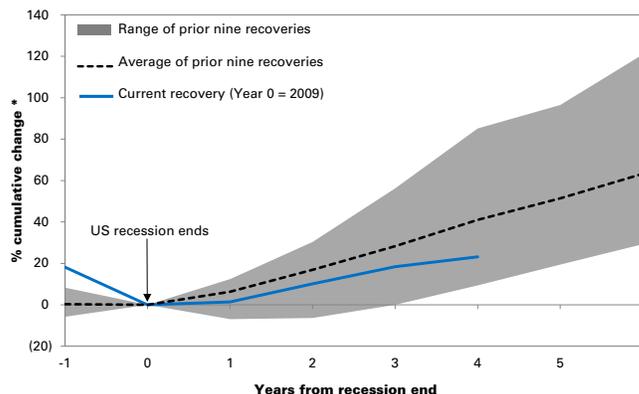
Analysis of a broader dataset suggests that the largest firms are not simply redirecting their funds elsewhere. As Exhibit 15 shows, the recovery in total investment across the US economy – including investment in plants, equipment and intellectual property (but excluding investments in the energy sector)¹² – is considerably weaker than in previous recoveries.

Exhibit 14: Trailing 12-month capital expenditures as a percentage of S&P 500 revenues (excluding financials) are still below trend



Source: Compustat, Goldman Sachs Global Investment Research.

Exhibit 15: Lackluster recovery in private fixed asset investment in the US (excluding oil and gas)
Reflects recoveries between 1954 and 2013

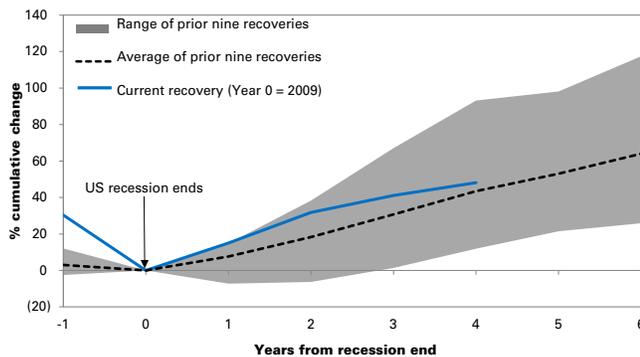


Source: BEA, Goldman Sachs Global Investment Research. (*) Total private fixed asset investment includes plant, equipment and intellectual property.

¹² Private non-residential investment, excluding investments in oil and gas; data based on the Bureau of Economic Analysis' national income and product account data.

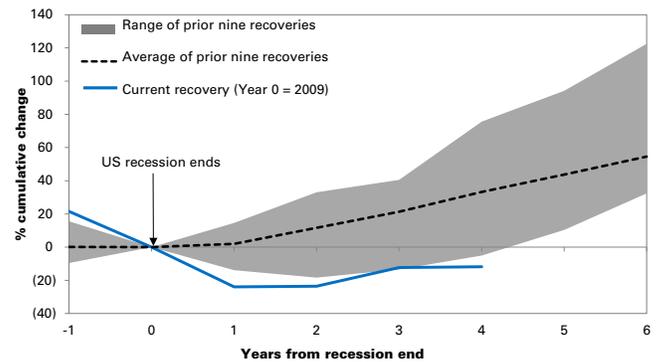
The typical pattern in a slow economic recovery is that firms limit their more cyclical investing, such as investments in equipment, and choose instead to dedicate resources to projects that are designed to benefit from an upturn over the longer term, such as capital-intensive plants. This cycle has bucked that trend. The upturn in equipment investment has been slightly better than the historical average of the prior nine recoveries since the mid-1950s, as Exhibit 16 shows. At the same time, investment in plants has lagged and is trending well below the historical average over the same timeframe (again excluding oil and gas), as Exhibit 17 shows.

Exhibit 16: The current recovery has seen an upturn in private equipment investment (excluding oil and gas)...
Reflects recoveries between 1954 and 2013



Source: BEA, Goldman Sachs Global Investment Research.

Exhibit 17: ...while private plant investment (excluding oil and gas) has lagged significantly
Reflects recoveries between 1954 and 2013



Source: BEA, Goldman Sachs Global Investment Research.

What lies behind this atypical bias toward short-term investments (in the form of equipment) and against longer-term investments (in the form of plants)? Regulation may be driving the shift, in an indirect way.

A number of statements from CEOs of major US firms suggest that uncertainty around future regulation may be responsible for the reluctance to invest for the longer term. There also appears to be concern that regulation has become more results-oriented than process-oriented, meaning that if specific regulations fail to produce certain outcomes, they can and will be changed with retroactive effect. The result is lasting operational uncertainty for US businesses, manifested in a change in the time convexity of investment: investment goes to projects that pay off over the short term rather than the long term.

Examples from two sectors help to illustrate this point. First, consider petrochemicals, which are used in everything from plastics to medicines to paint. Petrochemicals are energy-intensive, not only because they are derived from crude oil or natural gas, but also because their production requires energy. As the supply of US shale gas has risen, the cost of producing petrochemicals has declined dramatically, making long-term investments in the sector more attractive economically.

Even so, many long-term investment projects in petrochemicals have been delayed or put on hold, as Exhibit 18 shows.¹³ Environmental regulations have existed in the sector for years, suggesting that the current delays do not reflect newly heightened environmental regulatory concerns. A more likely explanation is that these delays reflect uncertainty around the future regulation of natural gas – which is the critical element to attractive long-term investments in the sector.

¹³ See Strongin et al, "Unlocking the Economic Potential of North America's Energy Resources," June 2014 (<http://www.goldmansachs.com/our-thinking/our-conferences/north-american-energy-summit/unlocking-the-economic-potential-of-north-americas.pdf>).

Exhibit 18: Despite favorable economics, many chemicals projects have been delayed

Examples of recent delays to investment projects in the US chemicals industry

Owner	Location	Product	Capacity Addition (kmt/year)	Targeted Start Up Dates:	
				Old	New
Agrium	Midwest	Nitrogen	1000	2017	Indefinite Hold
US Nitrogen	Greeneville, TN	Nitrogen	75	2012	2015
Celanese	Houston, TX	Methanol	1,300	1H2015	4Q2015
Enterprise	Houston, TX	PDH	750	2015	2016
LSB Industries	El Dorado, AR	Nitrogen	375	2015	2016
Valero	New Orleans, LA	Methanol	1,600	2016	2018
Exxon	Houston, TX	Ethylene	1,500	2016	2017
CHS Inc	Spiritwood, ND	Nitrogen	800	2016	2018
Texas Clean Energy Project	Penwall, TX	Nitrogen	475	2015	2019
Ohio Valley Resources	Rockport, IN	Nitrogen	880	2016	2017
Yara	Belle Plaine, SK	Nitrogen	750	2H2016	Indefinite Hold
Hydrogen Energy California	Kern County, CA	Nitrogen	400	2017	2020
Idemitsu Kosan	Freeport, TX	Alpha-Olefins	330	2016	Cancelled

Source: Company reports, media reports, AmmoniaIndustry.com, Goldman Sachs Global Investment Research.

Second, in contrast, consider the US paper industry. Paper manufacturing has been in decline since the early 1990s, reflecting the secular shift of newspapers, magazines and documents to digital format. The secular decline in demand and output was matched by underinvestment (and an aging capital stock) from the early 1990s until the late 2000s. Since then, however, the industry has seen a surprising trend relative to the underlying decline: paper output has risen, due largely to cheaper input costs, in particular shale gas.

As a result, the US has gone from a net importer of paper products over the 2000s to a net exporter since 2009. In fact, the pace of growth in investments in plant, equipment and intellectual property in the paper sector is outpacing the historical trend seen for recoveries since 1960. This likely reflects the rapid payback period associated with paper investments. Even given ongoing regulatory uncertainty, these investments are economically viable because their payback is much quicker than that available in other natural-gas-consuming industries.

V. Conclusion

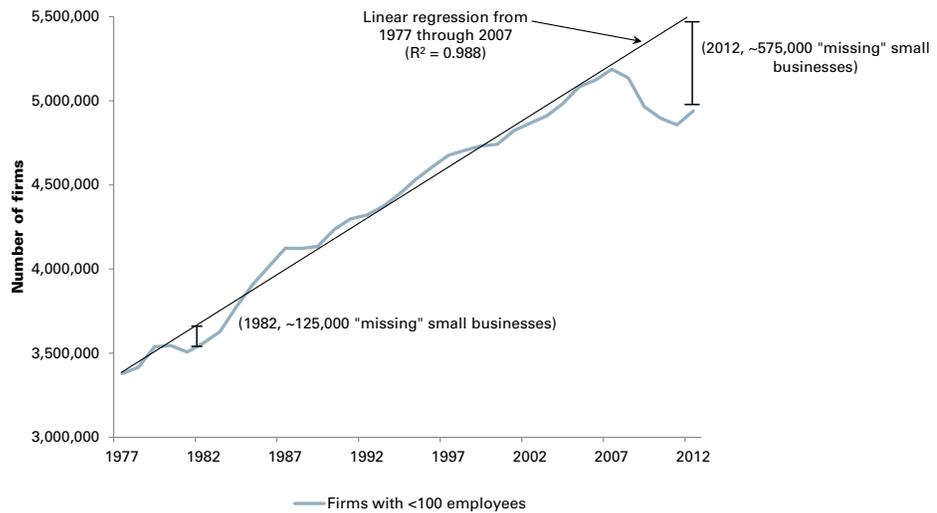
While perhaps not on a rule-by-rule basis, in the aggregate the cumulative effects of post-crisis regulations appear to have had a negative impact on the relative competitiveness of small businesses, reshaping the U.S. economy – and likely in ways that were unintended. Each new regulation was not meant to create negative outcomes: each was aimed instead at addressing other policy issues, such as ameliorating the risks of another financial crisis, protecting workers or providing greater access to healthcare. Whether the trade-offs created by the cumulative effects of new regulations are acceptable is both a political question and an economic one, but the issues we observe in this paper should be considered as part of any future evaluation of the aggregate effects of the new rules.

Appendix A: Defining “small” businesses

We define “small” businesses throughout this paper as firms or establishments with fewer than 500 employees. As we show in Exhibits 19, 20 and 21, using an alternative definition of “small” businesses – those with fewer than 100 employees – yields similar conclusions to those we observe in the body of the paper.

Exhibit 19: The number of firms with fewer than 100 employees declined over the five years from the onset of the crisis

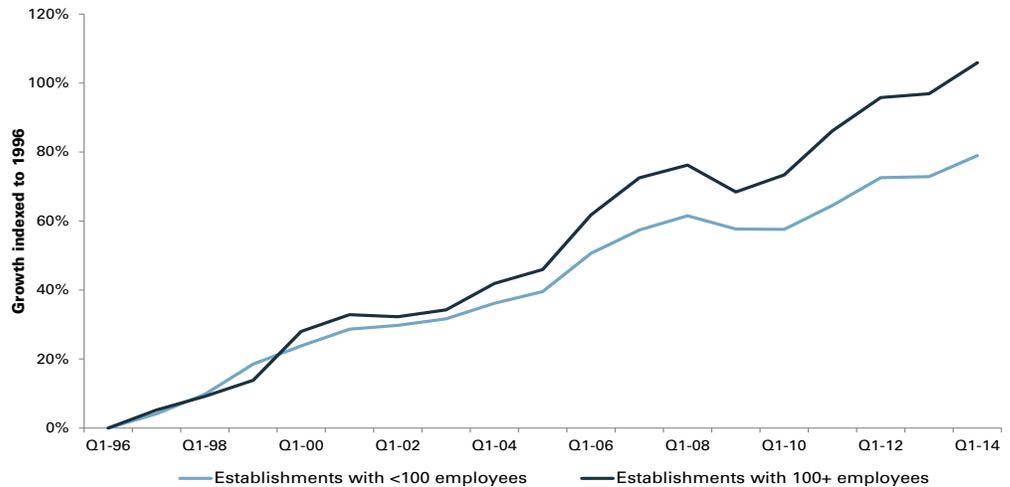
Data available from 1977 to 2012



Source: US Census Bureau, Goldman Sachs Global Investment Research.

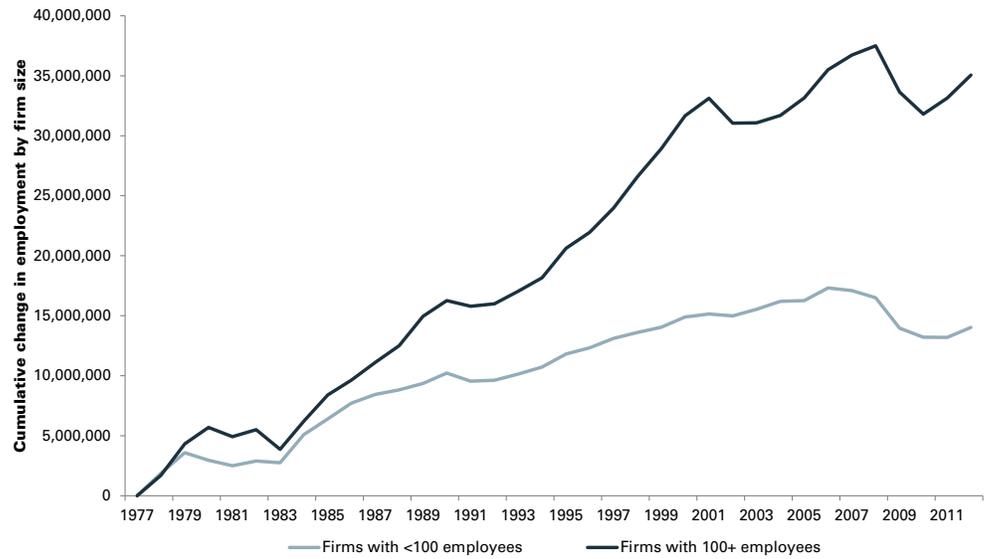
Exhibit 20: Wage growth at establishments with more than 100 employees has outpaced wage growth at smaller establishments

Average weekly wages in the first quarter of each year, indexed to 1996



Source: BLS, Goldman Sachs Global Investment Research.

Exhibit 21: Cumulative change in employment at firms with fewer than 100 employees has lagged the comparable figure for larger firms
 Data available from 1977 through 2012



Source: US Census Bureau, Goldman Sachs Global Investment Research.

Appendix B: Employment figures and wage data

We use the US Census Bureau's Longitudinal Business Database (LBD) in our analysis of firm employment. The LBD is based on a survey of US businesses with paid employees. The data are available annually from 1977 to 2012 (thus providing a long time series but failing to provide data after 2012). The data show the number of firms in operation during each year, classified by number of employees. The LBD uses a "mean-sizing" approach. For example, a firm may have had five employees last year ("t-1") and 25 this year ("t"), or an average of 15 employees between the two years. The firm would thus be classified in the bucket of firms with "10-19" employees this year, from a bucket of "5-9" employees in the prior year.

The BLS Business Employment Dynamics (BED) data series is an alternative measure of job growth at small businesses. However, the BLS BED data assess job growth by size class, rather than jobs within a given size class, and thus the data are not directly applicable to the question at hand, namely the relative shift in the share of employment between large and small firms. The BED data are based on a quarterly census of US businesses covered by state unemployment insurance programs. The data are then linked over time to provide a longitudinal history.¹⁴ The BED data are available quarterly from 1993 to 2014 (providing a shorter time series than the LBD but offering more recent data).

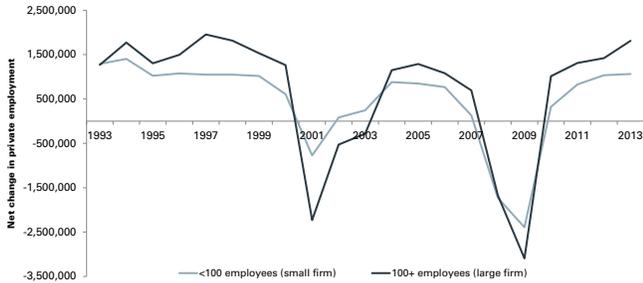
The BED relies on a "dynamic-sizing" methodology, which allocates a firm's quarterly employment gain or loss to each respective size class in which the change occurred. Firms are initially assigned to a size class based on their employment in the previous quarter, and over-the-quarter employment changes are distributed to the appropriate size category when a size-class threshold has been crossed. For example, if a firm grows from three employees to 13 employees, the growth of 10 would be allocated as follows: size class 1-4 employees would be credited with the growth of one employee (the growth from three to four), size class 5-9 employees would be credited with the growth of five employees (the growth from four to nine), and size class 10-19 employees would be credited with the growth of four employees (the growth from nine to 13).¹⁵ See Exhibits 22 and 23.

¹⁴ See "Employment growth by size class: firm and establishment data," December 2011, (<http://www.bls.gov/opub/mlr/2011/12/art1full.pdf>).

¹⁵ See "Employment dynamics: small and large firms over the business cycle," March 2007, (<http://www.bls.gov/opub/mlr/2007/03/art3full.pdf>).

Exhibit 22: Firms with more than 100 employees have added more jobs than small firms since the end of the recent crisis...

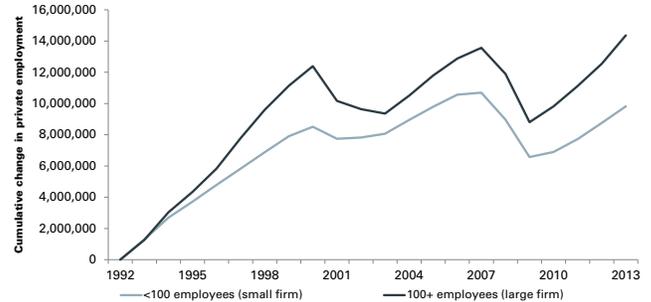
Annual data available 1993-2013



Source: BLS, Goldman Sachs Global Investment Research.

Exhibit 23: ...contributing to a wider gap in employment relative to history

Cumulative employment on an annual basis since 1992

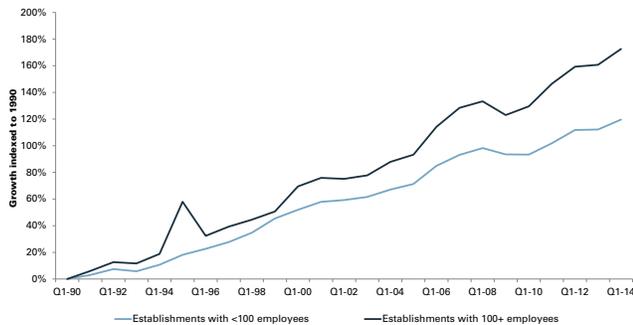


Source: BLS, Goldman Sachs Global Investment Research.

A final note: The wage data referenced in this paper come from the BLS Quarterly Census of Employment and Wages (QCEW). The data are available beginning in 1990; however, we begin our analysis in 1996 due to a significant data anomaly in 1995. Although we cannot be certain, the anomaly may arise because the data were previously reconstructed from an older classification system. As Exhibits 24 and 25 below show, beginning our analysis in 1990 and excluding the anomaly in 1995 yields similar results to those we observe in our prior analysis, again whether we set the threshold for “small” businesses at 100 employees or at 500 employees.¹⁶

Exhibit 24: Wage growth at establishments with more than 100 employees has outpaced wage growth at smaller establishments during the current recovery

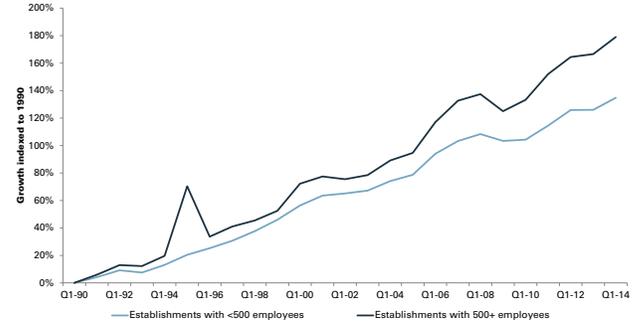
Average weekly wages in the first quarter of each year, indexed to 1990



Source: BLS, Goldman Sachs Global Investment Research.

Exhibit 25: Wage growth at establishments with more than 500 employees has outpaced wage growth at smaller establishments during the current recovery

Average weekly wages in the first quarter of each year, indexed to 1990



Source: BLS, Goldman Sachs Global Investment Research.

¹⁶ See the BLS QCEW for additional detail: <http://www.bls.gov/cew/datatoc.htm>

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