

Business Investment in the United States: Facts, Explanations, Puzzles, and Policies

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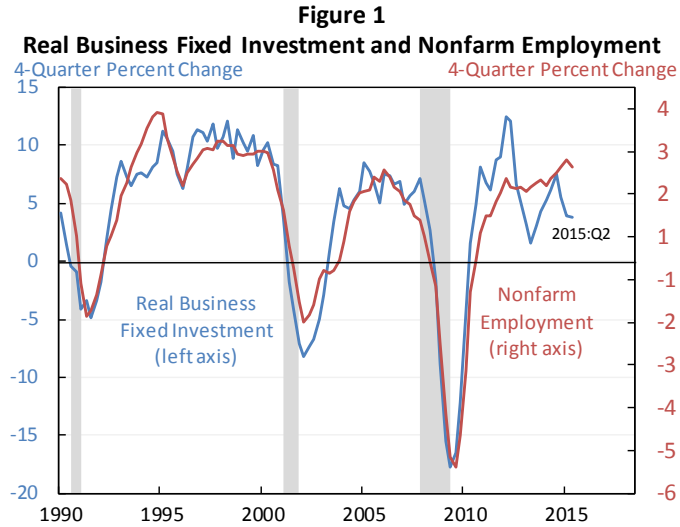
As prepared for delivery

It is wonderful to join you at the Progressive Policy Institute's (PPI) *Reviving Private Investment* forum. PPI has been an important voice in the economic policy conversation for more than twenty-five years, contributing ideas for smart policies that promote shared and sustainable growth. Forums like this one that bring together private-sector leaders, policy analysts, and government officials are a great way to advance that conversation.

It is hard to imagine an economic challenge where we have much more to gain from combining the views of the public and private sectors than encouraging business investment. Investment is critical to our economic growth, as a source of more capital that can help our workers produce more and of the services that our consumers count on. In addition, investment is an important source of technological progress and a principal contributor to productivity growth. PPI has done a service by highlighting a number of the companies that are leading the way in investment.

There truly are some exciting examples of recent investments: internet service providers have been outpacing other advanced economies in deploying tens of billions of dollars of investment, even during the Great Recession, making the United States the world leader in 4G and expanded broadband fiber; oil and gas companies have taken advantage of new technologies to increase U.S. oil production by almost 4 million barrels per day and also position the United States to become one of the world's leading exporters of liquid natural gas; clean energy companies have made investments that have tripled wind energy generation and boosted solar generation twenty-fold since 2008; and American automakers have firmly rebounded from their crisis, increasing investments here in the United States.

Amidst this justifiable excitement, investment—after being a bright spot early in the recovery—has grown more slowly in recent years, mirroring trends across a range of advanced economies. This is noteworthy because it comes in the context of a strong labor market recovery in the United States. Employment is growing at its fastest pace since the 1990s, and we are in the midst of the longest streak of job creation on record. Figure 1 shows that while business investment normally moved with employment growth in response to broader business cycle shifts, the response since the global financial crisis has been more volatile.



This decline in investment growth across advanced economies merits an explanation. It has implications for our thinking about a number of major economic issues, including the future of productivity growth, the equilibrium interest rate and the “secular stagnation” hypothesis, and the role of public policy in encouraging and facilitating investment.

The investment slowdown is particularly notable because it comes at a time of high cash flows for businesses and substantial accumulated earnings both domestically and overseas. Some claim this supports the view that U.S. regulations or policy uncertainty or the international tax code are restraining investment. But that argument is not supported by the evidence. It cannot explain the slowdown across advanced economies, it is inconsistent with the strong job growth in the United States, and it rests on a false premise: business confidence has improved and corporate profits are surging.

In these remarks I argue—consistent with both longstanding theory and empirics—that the shift in investment more likely relates to the path of overall output growth and reflects both international and domestic factors. Indeed, as the International Monetary Fund (IMF) outlined in the April 2015 *World Economic Outlook* (IMF 2015), the modest pace of investment growth across advanced economies has been broadly consistent with the slow pickup in total output growth, a relationship at the heart of “accelerator models” of investment. This conclusion has also been reached in the Organisation of Economic Cooperation and Development (OECD)’s June 2015 *Economic Outlook* (OECD 2015) and by the Council of Economic Advisers’ internal work. From that perspective, the key to boosting investment growth is to further strengthen overall economic output.

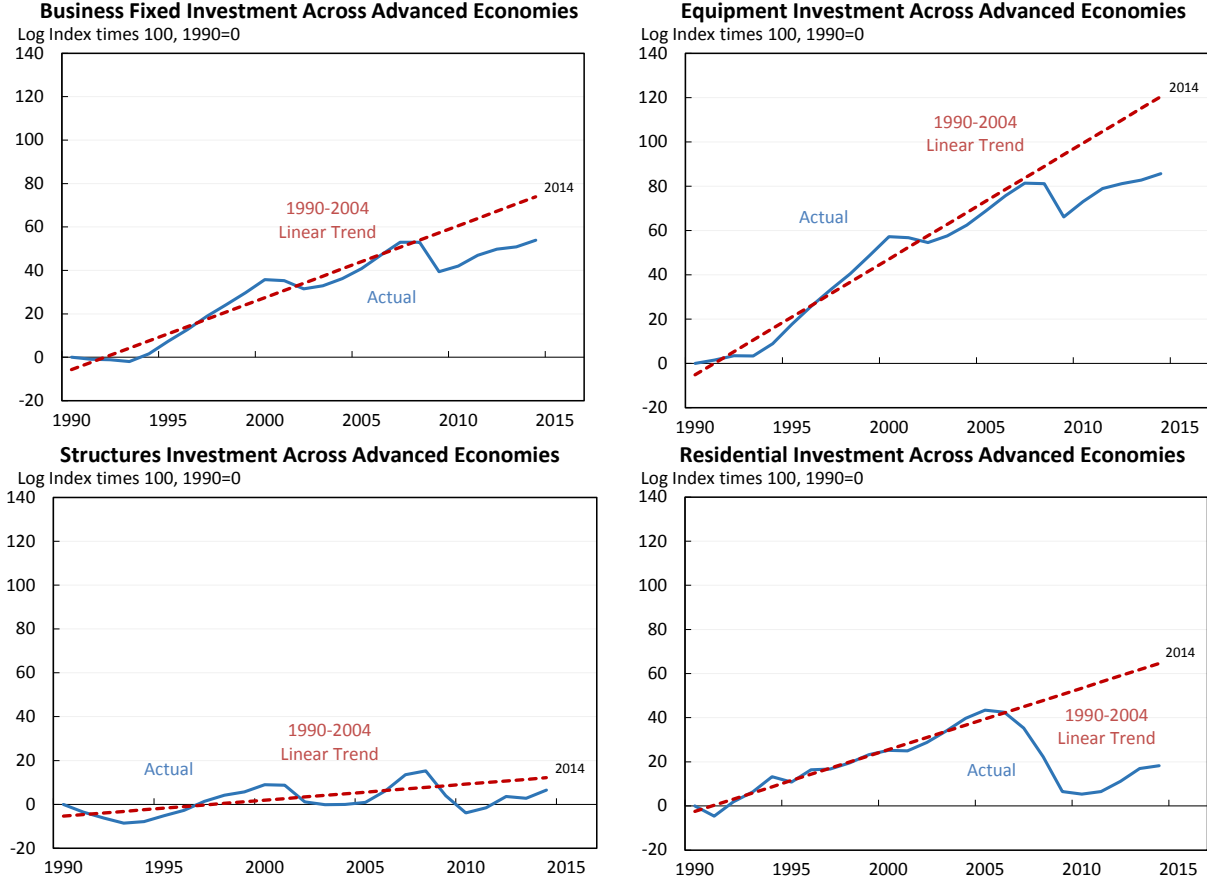
Although there is much we understand about the recent dynamics of investment, there is also much we do not understand. I will describe three puzzles surrounding investment growth: the impact of technology on investment, rising returns to capital, and potential mis-measurement. Each of these issues has important implications for the future of investment and of productivity growth, which is one of the central macroeconomic questions we face today.

Regardless of the solutions to these puzzles, however, we know that public policy should increase both the quantity and quality of public and private investment and that these goals can actually be complementary. To this end, the President has taken steps to encourage high-quality investment throughout the recovery. He continues to press for a robust pro-investment agenda that includes relieving the sequester, investing in infrastructure, reforming the business tax code, expanding trade and foreign direct investment, and continuing to support innovation, manufacturing, and small businesses.

The Investment Shortfall Across the Advanced Economies

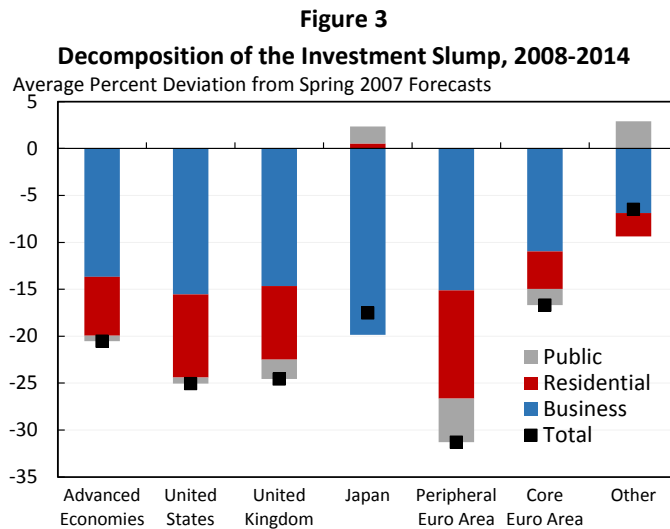
Across the advanced economies, investment has not yet returned to its pre-recession trends. The four panels of Figure 2, adapted from the International Monetary Fund’s April 2015 *World Economic Outlook*, illustrate this phenomenon (IMF 2015). While previous business cycles have seen investment fluctuate above and below trend—with the notable exception of equipment investment after the 2000-01 recession—the financial crisis shocked the level of investment, and advanced economies have yet to catch up.

Figure 2



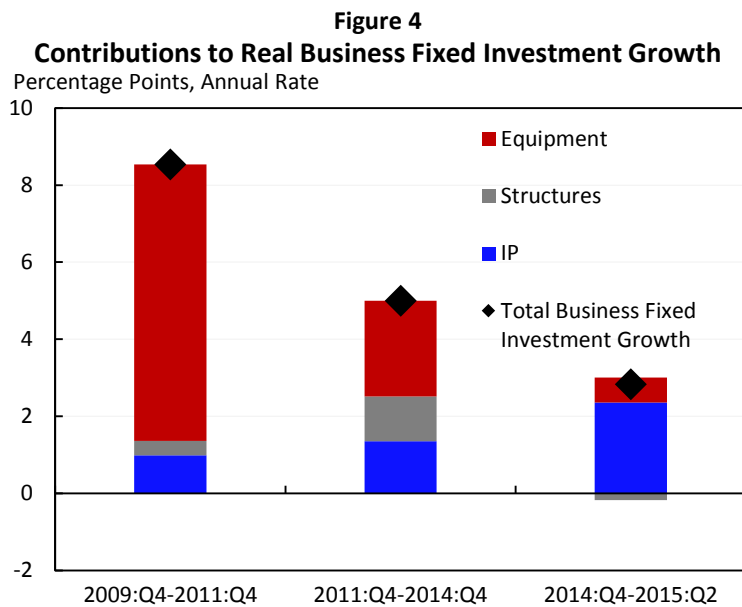
These patterns have been broadly consistent across the major economies, albeit with important variations, as shown in Figure 3. Both business investment and residential investment have fallen

below pre-crisis forecasts. But because residential investment is smaller as a share of the total, its shortfall is less consequential for total investment. Public investment has also generally fallen below pre-crisis expectations as well, exacerbating the overall challenge but to a lesser degree than private investment. Given its relative importance, my remarks today will focus primarily on business fixed investment.



Investment in the United States: Accelerating R&D and Slowing Equipment Investment

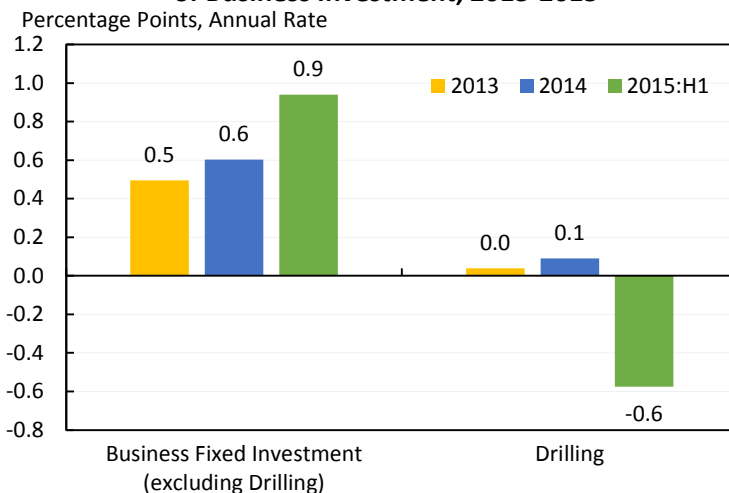
The step down in aggregate investment growth, shown in Figure 4, masks divergent trends across the major investment categories of structures, equipment, and intellectual property products. Total business fixed investment grew at an annual rate of 8 percent per year from 2009:Q4 to 2011:Q4, 5 percent through 2014:Q4, and 2¾ percent in the first half of this year.



The halving of oil prices since the middle of last year can more than account for the lower pace of investment growth this year. Overall, the fall in oil prices benefits the U.S. economy because we are net importers of oil—and the lower oil price is, in effect, equivalent to a roughly \$700 per household tax cut that boosts consumption. But these benefits for consumers have been partly offset by the costs to the oil extraction industry, which has seen a falloff in drilling investments.

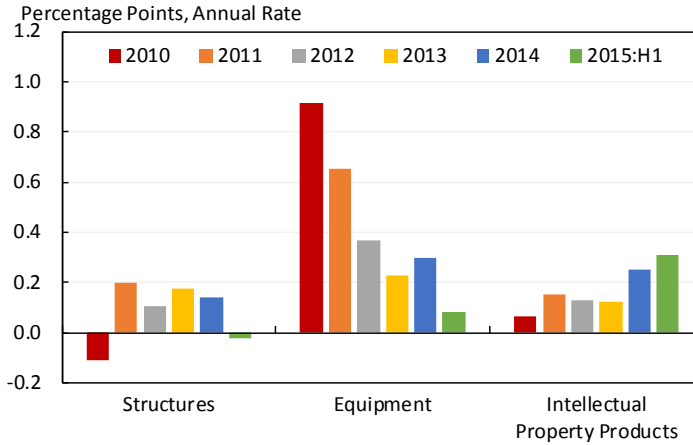
Drilling investment was particularly strong in 2011, but it contributed little to output from 2012 through 2014 before contracting in the first half of this year. In fact, over the past two quarters, the slower rate of investment growth is entirely attributable to drilling as shown in Figure 5. Without drilling, the business investment picture has improved markedly this year and investment growth has increased in each of the past two years. There are tentative signs that the oil drag may be waning, as the number of oil rigs in operation—which collapsed sharply in the wake of the oil price decline—has largely stabilized since May.

Figure 5
Contribution to Real GDP Growth from Select Components
of Business Investment, 2013-2015



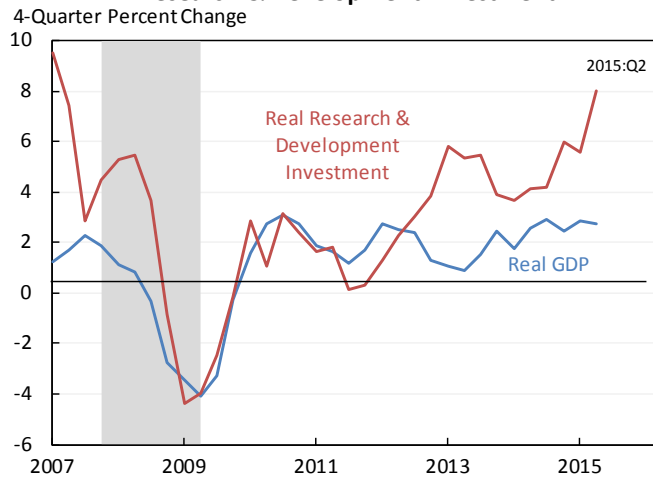
So in recent quarters, the investment story has been about oil. But drilling cannot explain the broader trends over the past five years. Since 2010, most of the step down in investment growth was attributable to reduced growth in equipment investment, as shown in Figure 6. At the same time, intellectual property products investment has been accelerating and over the last four quarters it grew 7.3 percent, the fastest pace since 2005. In fact, stronger growth in intellectual property products investment has partially offset the slower growth in equipment investment over the past two years. Intellectual property products consists of about 45 percent research and development (R&D) investment, 45 percent software investment, and 10 percent artistic originals.

Figure 6
Contribution to Real GDP Growth from Select Components
of Business Fixed Investment, 2010-2015



The acceleration in intellectual property products investment, and R&D in particular, is also encouraging for the future path of productivity. Economists believe that R&D investment is particularly valuable for boosting future productivity. Businesses seem to agree, as R&D investment has accelerated despite the broader challenges facing investment. Indeed, R&D investment has grown 7.9 percent over the past four quarters—three times faster than the whole economy, as shown in Figure 7. It is typical for R&D investment to outpace GDP in expansions, and this recent surge has brought R&D as a share of the economy to its highest level on record—back in line with its long-term trend.

Figure 7
Research & Development Investment

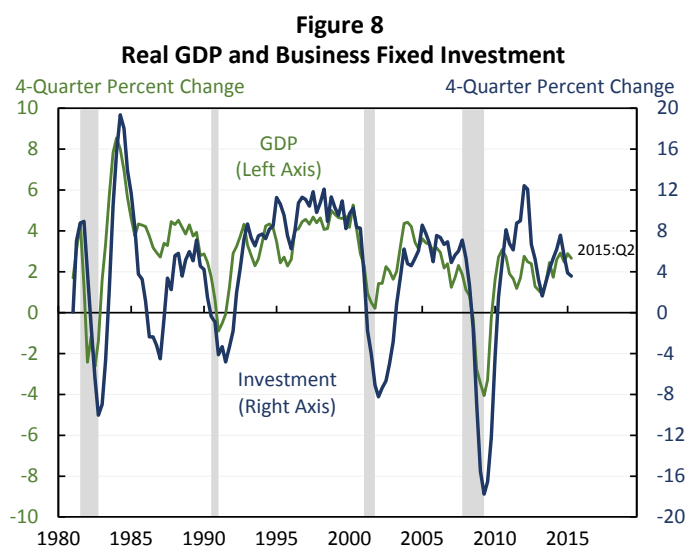


The divergence in investment by type parallels the divergence in investment by industry—what Michael Mandel of PPI has called “uneven innovation” (Mandel 2015). Mandel argues that innovative information-technology firms are currently experiencing a boom in investment that is not shared by other large sectors, such as health care. This divergence reminds us that aggregate trends in investment can mask important differences across firms and industries, and that a pro-investment policy agenda must focus on a range of investment types.

Explaining Investment Trends in the United States: Investment Generally Follows Overall Demand, Notwithstanding High Cash Flows and Rising Business Confidence

In the United States as well as in many of the other advanced economies, investment growth has largely been consistent with the recovery in business output. In the standard economic model of investment, a representative firm with constant returns to scale chooses the level of capital that will maximize its expected future profits. Investment, as an addition to the capital stock, then increases when output *growth* is expected to increase, hence the long-standing “accelerator” model of investment (Samuelson 1939). According to this view, businesses invest because they expect consumers to buy their products in the future, not simply because they currently have high profits or substantial retained earnings.

Modern versions of the accelerator model, which allow for more general forms of production, capital depreciation, and adjustment costs, show that the recent decline in investment growth is not surprising given the overall trajectory of output growth (IMF 2015, Pinto and Tevlin 2014, OECD 2015).¹ The initial burst of U.S. investment early in the recovery, as seen in Figure 8, likely owed to investment projects that had been delayed during the recession, in addition to the recovery in output. But more recently, investment growth has settled in line with its usual historical relationship with output growth. (Note that Figure 8 relates the *growth* of investment to the *growth* of overall output. The picture is similar when relating the *growth* of investment to the *acceleration* of overall output, or the change in the growth rate.)



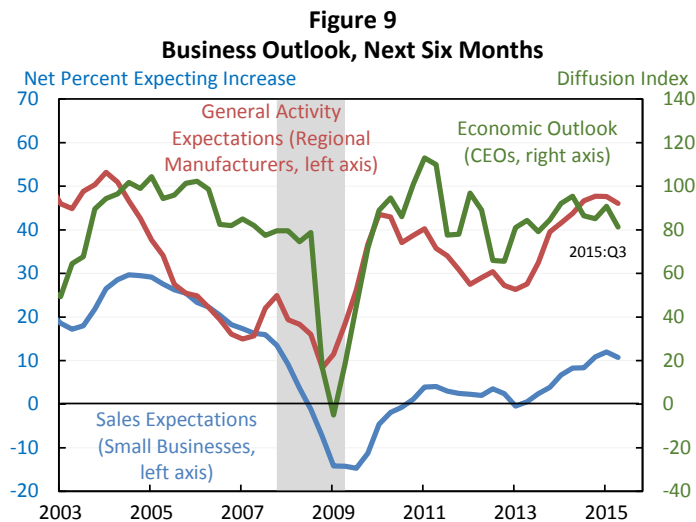
It is reasonable to ask whether the estimates from accelerator models and the relationship in Figure 8 are driven by causation or correlation. One approach used by IMF economists was to examine the impact on investment of output changes caused only by the reduction of budget

¹A standard assumption in estimating accelerator models of investment is that the ex-post realizations of output growth are a good proxy for firms’ ex-ante expectations for growth. This assumes that businesses incorporate any predictable information about future output growth in their outlook, not that they can perfectly predict future growth. Surveys of business sentiment, analysts’ earnings expectations, and corporate bond spreads provide additional information on growth expectations.

deficits. They argued that these policy-related shocks are plausibly unrelated business-cycle shocks, which affect both investment and output simultaneously. In general, their approach confirmed the results of standard accelerator models: recent output changes are sufficient to explain the trajectory of investment. That said, the IMF did identify some countries in the periphery of Europe that experienced a larger pull-back in investment than overall demand could explain, likely related to markedly tighter credit conditions and heightened political uncertainty.

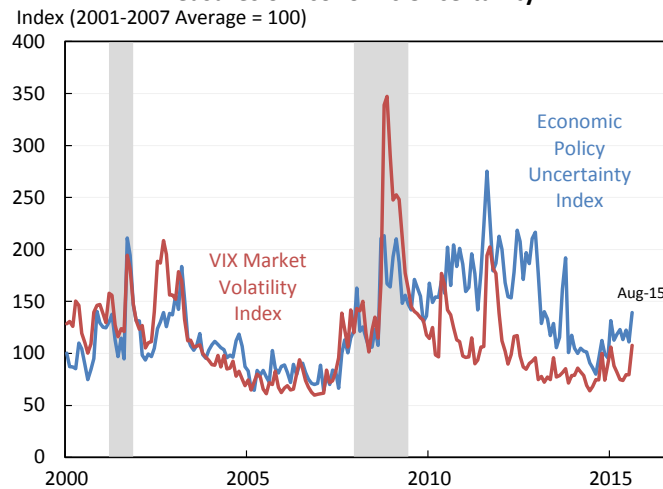
Other stories are harder to square with the data. Some have blamed weak investment on pessimism and uncertainty among businesses, government regulations, limited access to credit, or laws governing international taxation. To the degree that investment growth has slowed across advanced economies, it is unlikely that the specific policies adopted in one country offer a likely explanation. Accelerator models explain essentially the entirety of this decline without leaving any residual unexplained. Moreover, the job market has consistently outperformed expectations in the United States (although not in many other advanced economies), casting further doubt on arguments about regulations or uncertainty holding back the economy.

The direct evidence also contradicts claims about pessimism and uncertainty. A broad range of business surveys, at the regional, sectoral, and national level, have generally shown improvements in business outlook in recent years as shown in Figure 9. In some cases, such as among small businesses, the outlook is still below pre-recession readings, but the recent improvement would still suggest an acceleration of investment. The Business Roundtable’s CEO Economic Outlook Index has generally averaged around pre-crisis levels.



Likewise, as shown in Figure 10, corporate bond spreads and the VIX equity volatility index (measures of economic uncertainty) as well as measures of policy uncertainty have retraced much of their sharp increases in the last recession. They have generally fallen over the course the economic expansion, with some recent uptick in uncertainty around the recent global turmoil.

Figure 10
Measures of Economic Uncertainty



Indeed, one could ask why the improvements in business sentiment and reductions in uncertainty have not led to an increased pace of investment growth. One possibility is that the Great Recession led to more cautious investment plans, such that it has taken longer than usual for an improved outlook to translate into new investment projects. In effect, two factors outside the simple accelerator model cancelled out. Regardless, the improvements in business sentiment in recent years should be viewed as a support to investment growth in the United States.

Three Puzzles About Business Investment

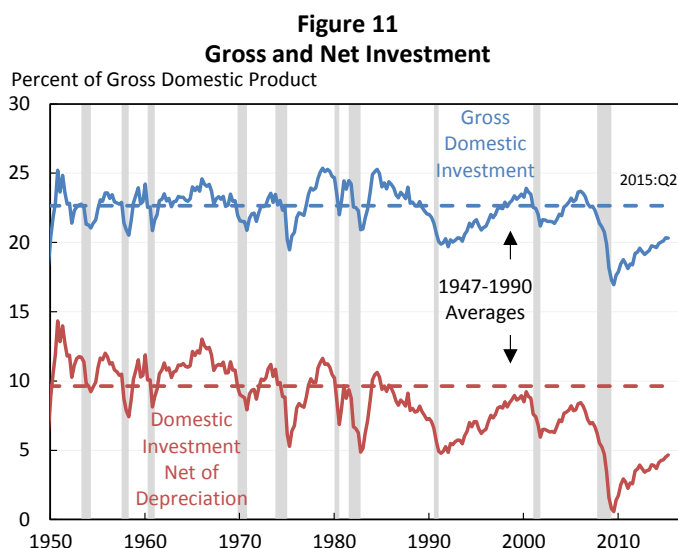
Economists have a reasonably good understanding of the recent trajectory of business investment and much of it is explained by textbook determinants of investment. Nevertheless, there are a number of deeper questions about current levels of investment, especially as they relate to the longer-term structural trends. In the following, I list three of these puzzles and offer some tentative observations, but in all cases they merit further discussion and thought.

1. Does the modern, technological economy require less investment?

Larry Summers has observed the emergence of a dichotomy between market valuations, which should reflect future expected earnings, and current levels of investment. As Summers noted, WhatsApp and Snapchat now have greater market valuations than Sony, with next to no capital investment required to achieve them—nothing compared to the physical and human capital amassed by Sony over decades (Summers 2014, Summers 2015). One might hypothesize that the modern technology-driven economy simply requires less capital and thus less investment.

To the degree that this is true, it is not obviously a source of concern. If anything, it represents an advance as we can effectively get higher levels of output without the same degree of capital inputs. The hypothesis does, however, have other implications. Summers argues that it is one reason that the equilibrium interest rate has fallen, with implications for macroeconomic policy.

In aggregate, however, it is less clear how true—or at least how quantitatively important—this issue is in the first place. Although Snapchat and WhatsApp require relatively little capital, consumers access them through the often large investments in wired and wireless networks made by internet service providers. Overall, the share of gross investment in GDP was consistent with its historical average in the years before the Great Recession, notwithstanding the fact that we had already witnessed the rise of the first and second generation internet companies, as shown in Figure 11.



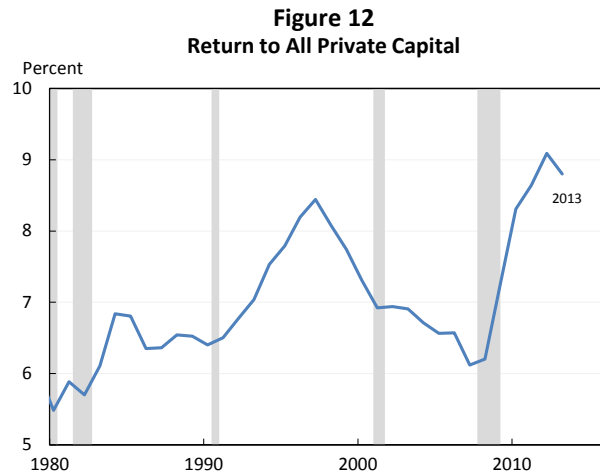
Of course, some of that earlier investment could have reflected a temporary bubble. The fact that today’s gross investment is 2.3 percentage points lower than its historical average could reflect not just the macroeconomic forces described above, but also a structural break. Additionally, the composition of capital has shifted to shorter-lived equipment, like computers, so depreciation is higher than otherwise and businesses have to invest more just to maintain the capital stock. Investment net of depreciation as a share of GDP was already lower than its historical average going into the recession and today remains well below its historical average, as also shown in Figure 11.

Alternately, the explanation might be a reduction in investment spending due to technological progress—what economists would call a shift of the demand curve in the market for investment. However, this has largely manifested in lower prices (i.e., lower interest rates) rather than in lower quantities (i.e., lower investment) due either to very inelastic saving or a simultaneous increase in saving. Nevertheless, it is not at all clear based on the evidence to date that there has been a permanent reduction in gross investment as a share of the economy.

Lower interest rates themselves are somewhat at odds with the fact that the private return on capital has increased in the last few years—the basis of the second puzzle.

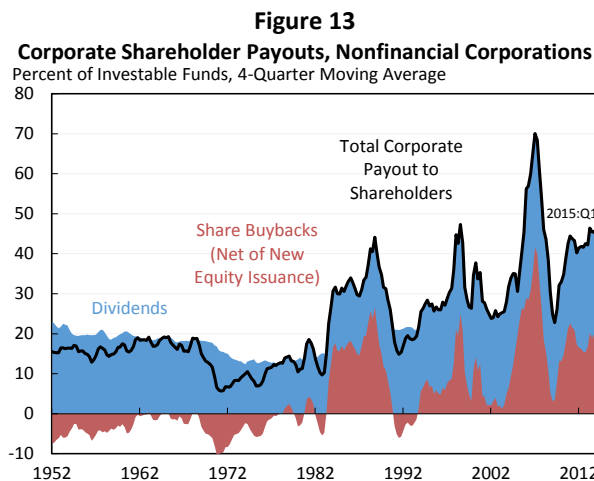
2. Why have the private returns to capital risen in recent years even as investment has not?

Business profits, cash flow, and the return to capital rebounded strongly in the recovery. Figure 12 shows the rebound in returns to capital since the crisis, now at a higher point than any time in recent decades.



Still, these favorable conditions have not translated into increased investment. Where, then, are the high profits going? From an economic perspective, an important part of the answer is the accelerator discussion above—research has consistently found that demand matters more for investment than cash flow. But this argument says nothing about the occurrence of high returns to capital in the first place.

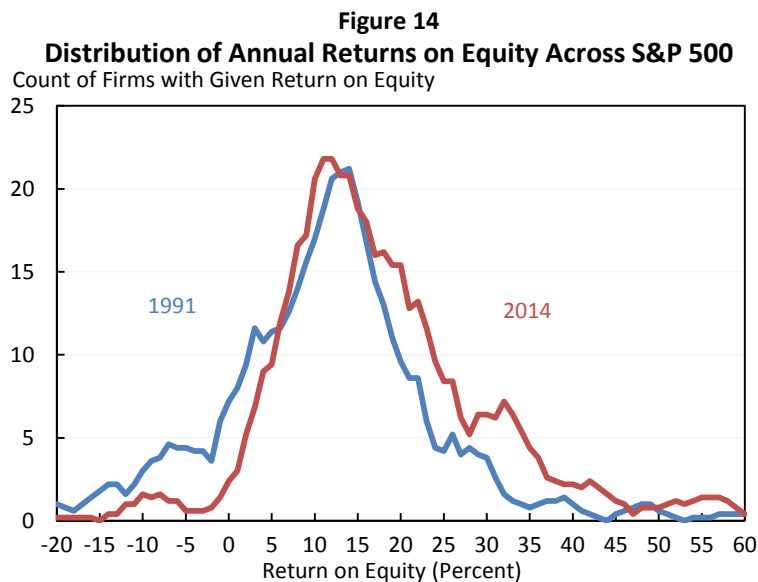
From an accounting perspective, the mystery is resolved by dividends and share buybacks. Nonfinancial corporations are now returning nearly half of the funds that could be used for investment to stockholders, as shown in Figure 13. This is consistent with older firms returning more of their funds to stockholders than younger firms, as long-standing trends have resulted in a higher proportion of older firms relative to younger ones. The current share of funds being returned to stockholders, in the form of both dividends and share repurchases, has been trending higher for decades and remains at a high point compared with historical averages.



The increased preponderance of older firms might at least partially explain increased payouts to shareholders, but it does not explain the increased rate of return—or the fact that this increased rate of return coincides with a reduction in the risk-free rate. The answer to this conundrum may be found in the fact that one number—the aggregate return to capital—does not adequately reflect the profile of risks and rewards that individual businesses face as they make investment decisions. While aggregate returns have risen, they may be distributed more unequally or have a wider variance about them, reflecting riskier economic conditions.

Indeed, some evidence suggests that the distribution of returns to capital has grown increasingly skewed and the high returns increasingly persistent. This potentially reflects the rising influence of economic rents and barriers to competition, as some corporations make substantial returns year after year.

The distribution of equity returns among publicly traded corporations appears to have grown more skewed to the high end with time, as shown in Figure 14. While the mean return on equity across the S&P 500 is largely the same in both of the years shown, the distribution has skewed to the high end potentially reflecting more super-normal returns being earned by those firms at the high end of the distribution.



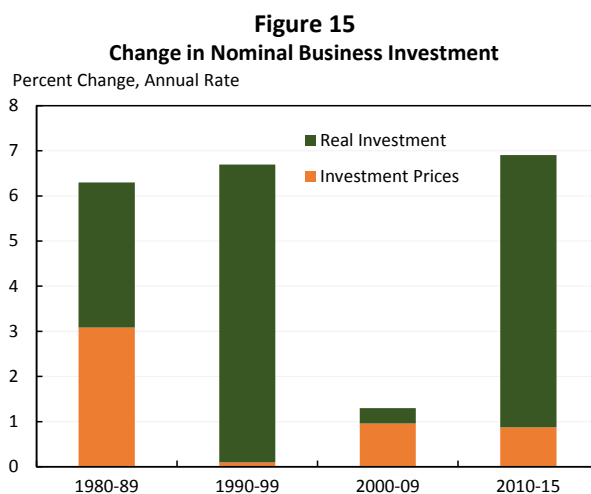
The return on invested capital shows a similar pattern of returns fanning out across the distribution of firms, suggesting that returns on capital have not been rising uniformly. To the extent economic rents are skewing the distribution, the aggregate return-on-capital figures might paint a misleading picture. However, like all the puzzles presented here, I am offering these observations more in the spirit of starting a conversation than of ending one.

3. Are we mis-measuring business investment?

A third puzzle is whether we are even measuring investment growth accurately. It is easy to measure the increase in nominal dollars spent on computers or robots, but measuring prices that

account for improvements in the quality of these computers or robots is much harder. To the degree that quality is improving more quickly than is captured in the official statistics, then we are buying more and more computing or robot power each year—and real, price- and quality-adjusted investment is growing faster than in the official statistics. Moreover, this measurement problem would worsen in periods when *actual* innovation picks up with a more rapid introduction of new products or changes in business models.

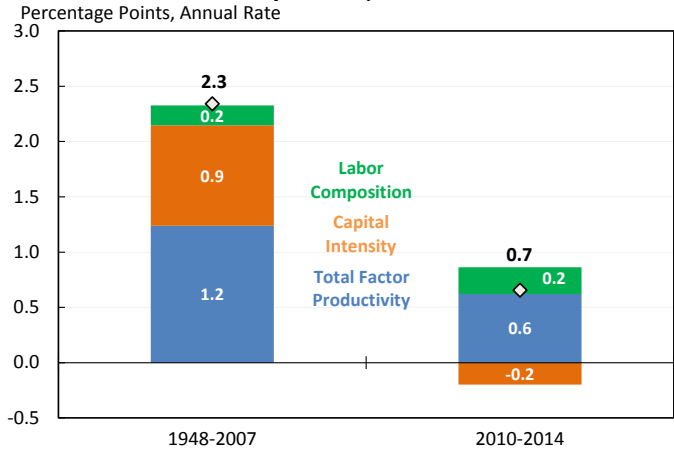
Real investment, as measured in the official statistics, accelerated in the 1990s as the prices of investment goods decelerated, in part due to falling prices for high-tech investment goods, as shown in Figure 15. Official statistics now show modest increases in investment goods’ prices, though the increases may partly reflect difficulties in measuring quality improvements. If price increases had held steady (rather than rising), reported real investment growth would be higher now, other things equal. Economists have attempted to document some examples of this (Byrne, Oliner, and Sichel 2015). But it is unclear how widespread these examples are, whether there are counterexamples, and to what extent it affects long-term trends.



The Stakes: Business Investment Growth and its Implications for the Future of Productivity Growth

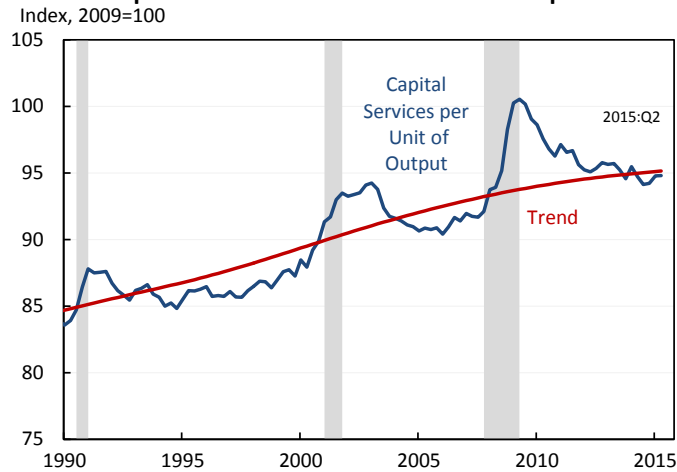
Two of the most important challenges in macroeconomics today are understanding the causes of the recent slowdown in global productivity and understanding its future outlook. In a recent speech, I argued that current trends in investment have played an important role in the lower growth rate of productivity (Furman 2015b). Historically, investment per worker-hour—referred to as capital intensity—has added nearly 1 percentage point to labor productivity growth, nearly matching the contributions of “total factor productivity” to total labor productivity growth. But since 2010, capital intensity has been a drag on productivity, as shown in Figure 16. Moreover, reduced capital deepening can account for two-thirds of the below average productivity growth in recent years. This is contrary to the usual historical pattern whereby the contributions of capital intensity to productivity growth are relatively constant across time while the major variations in labor productivity growth have been largely driven by variations in total factor productivity growth.

Figure 16
Sources of Productivity Growth, 1948-2007 vs. 2010-2014



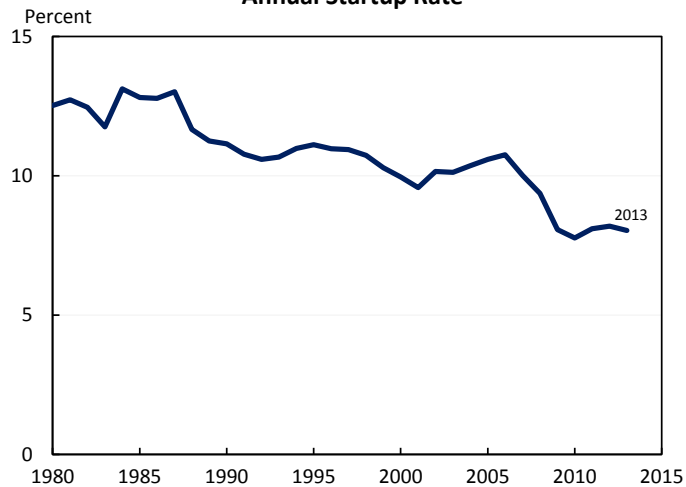
The optimistic view is that the headwinds to investment from the Great Recession have largely eased and investment is poised to return to its prior, stronger trend. Even years into the recovery, businesses had access to more capital services than the level of output would typically have required. The excess of capital suppressed new investment and helped lower capital services. Capital services are now back on trend as shown in Figure 17, one factor weighing toward a pick-up in investment. Any further increases in output are likely to be matched by stronger increases in investment than have occurred thus far during this expansion.

Figure 17
Capital Services Relative to Business Output



On the other hand, there are decades-long trends of less dynamism in the business sector which could suggest a shift in previous patterns of investment. The share of new firms among all firms—the startup rate—has trended down over the past decades, as shown in Figure 18.

Figure 18
Annual Startup Rate



The President’s Agenda to Increase the Quantity and Quality of Investment

This analysis and discussion motivates the President’s agenda for investment, an agenda whose goal is to increase both the quantity of investment and the quality of investment—focused on the complementary elements of public and private investment. The following section reviews steps that the President has already taken to support investment and lists some key elements of the agenda to encourage robust and high-quality investment going forward.

The first implication of this discussion is that strengthening the economy as a whole will act to increase investment through the accelerator mechanism discussed above. The most immediate step in this regard would be to relieve the sequester—a measure that was proposed in the President’s FY 2016 Budget and that the Congressional Budget Office (CBO 2015) estimates would add 0.4 percentage point to GDP growth in 2016.

Despite soaring levels of private R&D investment—which I discussed earlier—public R&D investment is at a historic low as a share of the economy. Since public R&D tends to focus on the “R” and private on the “D,” it is important for long-term productivity growth that both components remain robust—another reason it is essential to relieve the sequester and make the types of investments in research proposed in the President’s Fiscal Year 2016 Budget. If, on the other hand, Congress enacted a full-year continuing resolution the result would be \$1 billion less in funding than under the President’s Budget for the National Institutes of Health (NIH), translating into 1,300 fewer new grants, and also 1,000 fewer National Science Foundation (NSF) grants than under the President’s Budget.

Additional public infrastructure investment would complement private investment on both the demand side, by expanding the overall economy, and on the supply side, by boosting its rate of return and increasing its desirability. The Administration has proposed boosting surface transportation in the GROW Act. In addition, we are encouraging private infrastructure investment through the steps we have taken to streamline the permitting process—such as

enhancing the Federal Infrastructure Permitting Dashboard and releasing new guidance to Federal agencies establishing metrics for the permitting and environmental review of infrastructure projects. We have also taken steps to leverage private capital in infrastructure investment, including with the Build America initiative to encourage public-private collaboration.

One of the most direct tools to affect private investment is reforming our business tax system. A reformed system can be more neutral between different types of investment, financing of investment, and location of investment—all resulting in more capital being allocated to its highest returning projects rather than subjected to tax-influenced distortions. The President has proposed a framework that would cut the corporate rate to 28 percent, broaden and reform the tax base, and reduce opportunities for base erosion. However, we should not extend or make permanent bonus depreciation. Extending bonus depreciation, which was an effective temporary countercyclical measure, is no longer necessary and extending or making it permanent would add substantially to the deficit with little benefit for the broader economy.

Business tax reform would help ensure neutrality in the tax system, but some types of investment are particularly beneficial if they lead to greater innovation and spillovers of knowledge across firms. The President has also proposed expanding, reforming, and making permanent the Research and Experimentation tax credit, a step that would subsidize innovative activities undertaken in the United States on a going-forward basis. This measure would have substantially higher bang-for-the-buck than an innovation box, which would provide large windfall benefits for decisions that have already been made, highly profitable investments that would be pursued without additional tax incentive, and pure luck.

Steps to encourage innovative investment go beyond fiscal policy. The Administration has been focused on other measures to facilitate private investment, such as by freeing up spectrum so that it can be redeployed in higher-valued uses like mobile broadband—a critical catalyst for more business investment. In addition, sound regulatory policy can increase transparency and predictability for investment going forward. For example, the Administration has put forward emissions rules for vehicles that give automakers clear targets for future investment and innovation as well as flexibility in hitting these targets. In the electricity generation sector, the Clean Power Plan also provides a long-term roadmap that will encourage innovation in clean energy and conservation.

The Administration has been particularly focused on the manufacturing sector. Manufacturers have added nearly 900,000 jobs over 66 months. Moreover—as Gene Sperling has noted—manufacturing punches above its weight, with outsized contributions to exports, R&D, and investment. The Administration has continued to make targeted investments in advanced manufacturing—including initiatives to build U.S. leadership in cutting-edge manufacturing technologies through the National Network for Manufacturing Innovation and linking small businesses to capabilities they need to compete through the White House Supply Chain Innovation Initiative; and linking manufactures to opportunities to bring production back to the United States.

Cutting across many of these areas, the analysis above has highlighted the multi-decade decline in new business formation and the potential implications that it has for business investment and innovation. The Administration supports a number of initiatives that help start-ups and small companies: gain access to capital with extensive lending facilities like the Small Business Administration's (SBA) flagship 7(a) program; grow mentorship opportunities for entrepreneurs through small business development centers and women's business centers; and increase export opportunities through the National Export Initiative/NEXT.

Investment is not only a domestic issue. Our businesses invest in order to export to foreign markets and there are substantial cross-border investment flows. The President is committed to opening up foreign markets to American goods, a step that would increase the return to making investments in the United States. Trade also has been shown to increase innovation by increasing competition and also through learning by exporting (Furman 2015a). The President's trade agenda includes regional agreements like the Trans-Pacific Partnership (TPP) and the Transatlantic Trade and Investment Partnership (T-TIP), as well as multilateral efforts through the World Trade Organization (WTO), including the WTO Information Technology Agreement, the WTO Trade Facilitation Agreement, the Trade in Services Agreement, and the Environmental Goods Agreement.

In addition, the Administration has sought to encourage more investment in the United States, including through the SelectUSA initiative, the first government-wide initiative to attract and retain job-creating business investment into the United States. This year, SelectUSA has assisted over 1,000 investment clients and helped generate more than \$20 billion of investment and 9,300 jobs in the United States.

Ultimately, productivity growth is essential to raising middle-class incomes, crafting a sustainable budget, and building the long-term strength of our economy. Investment, in turn, is critical to productivity growth. There are a lot of exciting innovations at the cutting edge of businesses and research. There are important public policy steps we can take to capitalize on these developments, boosting both the quantity and the quality of private and public investment to lay the foundation for stronger growth in the future.

Notes to Figures

Figure 1

Note: Shading denotes recession.

Source: Bureau of Economic Analysis; Bureau of Labor Statistics.

Figure 2

Note: The figure, modeled on IMF (2015), presents data for 28 advanced economies: Australia, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom, and United States.

Source: International Monetary Fund; national authorities via Haver analytics.

Figure 3

Note: The figure shows the deviation of investment between 2008 and 2014 from forecasts made in the spring of 2007. The black squares indicate the average percent deviation of total investment. The divided into different colored segments show the contribution of the components of investment—business, residential, and public—to the deviation. Public sector contributions to residential and nonresidential investment are excluded from these categories when data for these contributions are available. The Peripheral Euro Area category includes Greece, Ireland, Italy, Portugal, and Spain. The Core Euro Area category includes the rest of the Euro Area economies in the list of 28 advanced economies included in the note to the previous figure.

Source: International Monetary Fund (Fiscal Monitor database); Consensus Economics; national authorities via Haver Analytics.

Figure 4

Source: Bureau of Economic Analysis; CEA calculations.

Figure 5

Note: “Drilling” refers to the mining exploration, shafts, and wells category of investment in the National Income and Product Accounts. All growth rates and contributions are Q4/Q4, except 2015:H1, which is 2015:Q2/2014:Q4.

Source: Bureau of Economic Analysis; CEA calculations.

Figure 6

Note: All growth rates and contributions are Q4/Q4, except 2015:H1, which is 2015:Q2/2014:Q4.

Source: Bureau of Economic Analysis; CEA calculations.

Figure 7

Note: Shading denotes recession.

Source: Bureau of Economic Analysis.

Figure 8

Note: Shading denotes recession.

Source: Bureau of Economic Analysis.

Figure 9

Note: The general activity expectations of regional manufacturers is the Federal Reserve Bank of Philadelphia's Future General Activity Index. The small business sales expectations index is the National Federation of Independent Business's Small Business Optimism Index. The CEO sentiment index is the CEO Economic Outlook Survey Diffusion Index, for which readings above 50 indicate expansion.

Source: Federal Reserve Bank of Philadelphia; National Federation of Independent Business; and Business Roundtable.

Figure 10

Note: Shading denotes recession.

Source: Chicago Board Options Exchange; "Measuring Economic Policy Uncertainty". (2012). Scott R. Baker, Nicholas Bloom and Steve Davis. Stanford mimeo.

Figure 11

Note: Shading denotes recession.

Source: Bureau of Economic Analysis.

Figure 12

Note: The rate of return was calculated by dividing private capital income in current dollars by the private capital stock in current dollars. Private capital income is defined as the sum of 1) corporate profits ex. federal government tax receipts on corporate income, 2) net interest and miscellaneous payments, 3) rental income of all persons, 4) business current transfer payments, 5) current surpluses of government enterprises, 6) property and severance taxes, and 7) the capital share of proprietors' income, where the capital share was assumed to match the capital share of aggregate income. The private capital stock is defined as the sum of 1) the net stock of produced private assets for all private enterprises, 2) the value of total private land inferred from the Financial Accounts of the United States, and 3) the value of U.S. capital deployed abroad less foreign capital deployed in the United States.

Source: Bureau of Economic Analysis (Fixed Asset Accounts); Federal Reserve Board of Governors (Financial Accounts of the United States); CEA calculations.

Figure 13

Note: Investable funds are defined as operating cash flow.

Source: Federal Reserve Board of Governors (Financial Accounts of the United States); CEA calculations.

Figure 14

Note: The annual return to common equity is displayed for the stated year (i.e. 1991 or 2014) for all members of the S&P 500 as of the last week of May the following year (i.e. 1992 or 2015).

The distribution of returns covers all members of the S&P 500 in the year indicated and buckets firms by single percentage-point intervals, smoothed by averaging over five percentage-point

intervals. The tail ends of the distribution (above or below a 60 percent or 20 percent return on equity, respectively) were trimmed for optical clarity.

Source: Bloomberg Professional Service; CEA calculations.

Figure 15

Note: Investment prices reflect the implicit deflator for private nonresidential fixed investment. The deflator was calculated by dividing real private nonresidential fixed investment in chained 2009 dollars by nominal private nonresidential fixed investment.

Source: Bureau of Economic Analysis; CEA calculations.

Figure 16

Note: Displayed series are the contributions to labor productivity growth in the private nonfarm business sector.

Source: Bureau of Labor Statistics; CEA calculations.

Figure 17

Note: Annual capital services from BLS multifactor productivity database are displayed. Data after 1964 are interpolated with quarterly data from Macroeconomic Advisers; data before 1965 are interpolated by moving average. The displayed nonlinear trend is a bi-weight filter using a 60-quarter window.

Source: Bureau of Labor Statistics (Labor Productivity and Costs); Macroeconomic Advisers; CEA calculations.

Figure 18

Note: The start-up rate is calculated by dividing new firms in a given year by the total number of firms economy-wide. The data is published by the U.S. Census Bureau in its Business Dynamics Statistics. New firms are defined by the Census Bureau as those of “age zero” in the dataset.

Source: Census Bureau; CEA calculations.

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