Summary

Labor productivity has slowed sharply around the world. Why does this matter? Productivity is the key driver of potential growth rates in the long term. We dove into the possible reasons for sluggish productivity growth and its implications for monetary policy, asset prices and corporate capital management. Highlights:

- A productivity revival is crucial for getting ailing economies back on their feet. Productivity trends in coming years, we believe, will have a more far-reaching impact on economies and asset prices than market fixations such as how much the U.S. Federal Reserve (Fed) raises interest rates in 2016. Productivity will be a major driver of policy decisions in the long run, in our view.

- The causes of the productivity slowdown vary across regions. A recent dip in capital expenditures (capex) per worker is the driver in the developed world. A long-term slump in total factor productivity (a proxy for technological innovation) is worsening the trend. The latter is the main drag in emerging markets (EMs), adding to challenges such as China’s slowdown and the commodity price crunch.

- We introduce three productivity scenarios with different implications for economies, policy and asset prices: 1) Structural Slowdown: Productivity stays low as the benefits of today’s innovations pale against those of the past (think electricity); 2) Cyclical Rebound: Productivity growth rebounds as economies recover, rates rise and companies boost capex; 3) Measurement Error: Official data underestimate the benefits of new innovations.

- A structural productivity slowdown would, over time, point to lower economic growth and higher inflation than currently priced in by markets. Central banks might raise rates sooner and faster than expected — yet end at a lower peak. The yield curve would flatten, while equities and credit would fare poorly.

- A cyclical productivity rebound would help keep inflation low in the long run, allowing central banks to increase rates at a gentler pace — but to a higher eventual peak. The yield curve would steepen, equities would rally and credit spreads would tighten, we believe.

- The Measurement Error scenario points to little change in monetary policy in the near term (economic slack would be unchanged). Yet as measurement errors are gradually corrected and central banks factor in higher potential growth, it indicates higher peak interest rates in the long run. Understated productivity does not imply an easier monetary policy stance, in our view.

- We think all three scenarios are at play, but we lean toward Measurement Error. Innovation is changing business so fast that traditional economic metrics simply have not kept up. Many technologies are bringing greater efficiencies at lower cost. Consider their quality improvements and downward influence on prices, and consumption and productivity growth start to look much better.

- Productivity ties in with the debate on what companies should do with their cash. Share buybacks have become the favored use of capital amid low rates. Buybacks and research and development (R&D) spending have delivered the highest shareholder returns in U.S. markets since 1985, our analysis shows. The results for capex were mixed; cash acquisitions, dividends and debt reduction led to share price underperformance, we find.
Introduction

Labor productivity has slumped across the globe since the 2008 financial crisis. Why does this matter? Valuations have leapt ahead of the business cycle in many markets. The Fed has drawn the curtains on seven years of zero interest rates. This means faster economic growth is needed to support corporate profits — and valuations of risk assets. See Cycles Out of Sync of December 2015. We debated the reasons for the productivity slowdown — and the long-term implications for asset prices. The tables below summarize our findings. These are broad strokes. Risks such as oil price swings or a Chinese currency devaluation could have a greater near-term impact.

We see four other reasons why productivity matters:

1) There are only two ways for an economy to grow: increase the size of the workforce or make workers more productive. The former is set to shrink — particularly in developed markets — as populations age. Labor productivity is the key to reviving economies. 2) Productivity determines the natural speed limit of economies’ growth rates — and the degree of inflationary pressures. This, in turn, has a big impact on the pace and destination of monetary policy normalization. 3) Productivity is a driver of corporate profitability. More productive firms have a greater ability to sustain wage increases or return cash to shareholders. 4) Higher productivity and faster economic growth make it easier for indebted economies and companies to deleverage.

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No developed economy has escaped the productivity blues. Productivity growth has screeched to a halt in the U.K. and Italy since 2011. See the chart on the right. Japan’s labor productivity has been growing at less than one-tenth the pace of previous decades. The U.S. has fared no better than France — and worse than Germany over the past four years. Canada was the relative outperformer. Yet the productivity bar is low; the chart shows Canada was the G7’s worst performer in the prior 60 years.

Is the productivity slowdown structural — or cyclical? It appears to be a bit of both. The slump was evident well before the financial crisis, especially in the U.S. Yet labor productivity has slowed since 2008 in the U.S. and even more so in the European Union. See the charts below. Economies suffered from a double whammy after the crisis as shrinking labor forces and poor productivity hit economic growth.

Credit booms tend to undermine productivity growth, the Bank for International Settlements posits in a recent study. Booms lead to a shift of labor into lower productivity industries (think construction), it argues. The productivity hangover tends to persist long after the bursting of credit bubbles, the BIS concludes.

Productivity is a trillion dollar question. Consider the difference between U.S. GDP growth of 2% or 3% over a decade. The latter, which assumes 1% faster productivity growth, would result in an economy $2 trillion larger — roughly the size of Italy’s economy, we calculate.

Sources: BlackRock Investment Institute and The Conference Board, December 2015.
WHAT WENT WRONG?

To understand the productivity slump, we need to peek below the surface. There are three ways to raise labor productivity:

1 Capex: Increase capital per worker — or spending on plants, equipment and software. Call it capex or “capital deepening.” See the dark purple bars in the chart above.

2 Labor quality: Raise the skills and education levels of workers (light purple).

3 Efficiency: Squeeze greater efficiencies out of the workforce through innovation, management or investments in intangible capital such as intellectual property. This is measured as total factor productivity or TFP (green).

The recent U.S. productivity slump has been driven mostly by a reversal of the first factor. Capex growth has been negative, effectively turning capital deepening into capital shallowing. Note: The capital shallowing of recent years may be temporary, reflecting weak demand due to the sluggish economy and uncertainty about monetary policy.

The chart also shows a long-term decline in TFP. This is worrying — and points to a decline in (measured) technological innovation. TFP growth has actually turned negative in Europe, Japan and EM. See the chart on the right. This is hard to square with the innovations of the digital economy. One explanation: The benefits of many new technologies are not yet captured in economic data.

The EM productivity decline has been steepest. These economies have picked the low-hanging fruits of urbanisation, shifting workers from agriculture to industry and creating a middle class. Now they must shift from imitation to innovation. The problem? Reform efforts are stalled in many countries. Some are trying to wean themselves off an addiction to fixed asset investment (China) or consumer credit (Brazil) and need to deleverage.
**TRADE TREMORS**

A decline in global trade growth may also lie behind the EM productivity slowdown. Trade increases competition and spurs diffusion of new technologies. EM productivity growth has shown a tight relationship with export volumes in past decades. It slumped after the mid-2000s, coinciding with a peak in EM export growth. See the chart below. This could mean globalization has plateaued, or paused at best.

Global trade grew 2.8% in 2014, compared with an annual average of 5% since 1990, according to data from the World Trade Organization.

**DIFFUSION DIFFERENCE**

The availability of technologies such as broadband internet is a key driver of labor productivity across countries, survey data show. See the chart on the top right. The U.S. tops the chart, with high diffusion rates of new technologies — and the highest per-capita labor productivity in the world.

Developing economies such as India, Vietnam and China bring up the rear. These economies lag in the diffusion of new technologies (notwithstanding hype about Chinese internet and e-commerce giants), and labor productivity is relatively low.

The problem? Productivity growth is disruptive, as it implies using fewer workers to produce the same amount of goods. Finding jobs for the displaced workers is a challenge for emerging markets trying to rebalance their economies amid sluggish economic growth.

**LOW FOR LONG?**

Falling nominal growth has tracked a steady decline in global long-term yields since 1980. See the chart below. If the productivity decline is structural, it points to lower interest rates for longer. A cyclical rebound would involve higher rates in the long run, we think. See pages 7 and 8.
Tale of Three Theories

Productivity pessimists argue the slowdown is structural — and may not reverse itself any time soon. This gloomy lot believes the impact of today’s innovations will fall far short of the effects electricity and the steam engine had. Perhaps such inventions only come around once every few centuries. This would imply we are returning to a “low normal” of subdued productivity growth. Think medieval times.

In addition, new technologies and the ‘sharing economy’ are disrupting existing business models and allow companies to get by with less physical capital. This is good for consumers — but depresses productivity-boosting capex.

E-commerce, for example, is flourishing in the U.K. at 12% of total retail sales, the Bank of England (BoE) notes in a September 2015 blog. Traditional retailers are struggling to downsize floor space and work forces. Result: Productivity growth in the retail sector has stalled. The effects of online banking on consumer banks are similar.

A corporate focus on short-term results may also depress capex. U.K. companies are using discount rates 5%-10% higher than is rational to assess investment projects on a one-year horizon, a 2011 BoE paper argues. In other words, firms appear to be setting the hurdle for capex too high. It is easier to increase earnings by buying back shares.

WINNER TAKES ALL

The growing gap between productive and unproductive firms suggests the diffusion of new technologies is slowing. So-called “frontier” firms in the services sector raised productivity around 50% in the 2000s, OECD research shows. See the left chart below.

“Non-frontier” firms were left behind. Productivity was flat, while the entire corporate sector eked out a small gain. See the left chart below. The manufacturing sector shows similar (although less extreme) divergences, as the right chart below shows.

This reflects a winner-takes-all business world, in which the gap between strong and weak companies is widening. This trend only appears to have gotten stronger since the financial crisis. Think of the dominance of the leading players in internet search or online video streaming services.

STRUCTURAL IMPACT

What would the structural slowdown scenario mean for monetary policy and markets? Lower productivity growth would point to weaker potential economic growth — and less slack (excess capacity) in the economy. Wages would eventually start to rise — and companies would have to lift prices or cut into profit margins. All else equal, this would likely boost inflationary pressures over time. The Fed, the central bank furthest ahead in normalising monetary policy, would raise interest rates more quickly. This would threaten lofty asset valuations. Yet sluggish growth would point to a lower peak federal funds rate than in the past.

LIFE ON THE FRONTIER

Labor Productivity of Frontier vs. Non-Frontier Firms, 2001-2009

Source: BlackRock Investment Institute and OECD study, November 2015. Notes: Labor productivity is defined using value-added Labor productivity. Services refer to non-financial business services. Frontier firms are defined as the top 50 most productive within each industry, by each year.
CYCLICAL REBOUND

Optimists argue a cyclical turnaround in productivity could be just around the corner. Fed rate increases could be a catalyst for higher productivity:

1. The Fed’s tentative steps toward lift-off may have exacerbated worries about the strength of demand, leading firms to delay productivity-boosting capex.

2. Rock-bottom rates made it easier for highly indebted — and poorly performing — companies to remain on life support. Productivity should rise as these zombie firms are weeded out. And higher rates will make it less appealing for companies to issue debt and buy back shares, making capex relatively more attractive.

Other key points:

- Years of underinvestment in infrastructure mean the capital stock is aging in many economies. Think of creaky roads, bridges and airports. The average age of the non-residential private capital stock in the U.S. is at 50-year highs, according to data from the U.S. Bureau of Economic Analysis. This suggests there is pent-up replacement demand.

- Governments around the world have committed to ambitious reform agendas. As these reforms bear fruit, productivity should pick up. Examples are “Abenomics” in Japan or Prime Minister Narendra Modi’s battle to tear up red tape in India. Caveat: Governments rarely implement difficult structural reforms unless prompted by crises.

- Productivity per worker in recent decades was depressed by a huge influx of new workers in the 1990s from the opening up of China and the collapse of communism, Morgan Stanley argues in a September 2015 report. Productivity growth is set to rebound as global aging makes labor markets tighter, it concludes.

A cyclical productivity rebound would boost economic growth. This would imply greater slack in the economy than is currently thought — and less inflationary pressures. Central banks would raise rates more slowly (but to a higher eventual peak than in other scenarios). The yield curve would steepen in the long run, we believe. This is a positive scenario for equities. Profit margins would likely stay high, and monetary policy would remain easy for longer.

MEASUREMENT ERROR

A third camp argues the decline in productivity is a statistical mirage. Traditional economic metrics simply have not kept up with fast-changing technologies geared toward greater efficiency at lower cost, our Measurement Error scenario holds. It also may take some time for the benefits of these technologies to be realized, we believe.

New technologies such as cloud-based computing are driving down the cost of corporate investment and making companies more efficient. This is showing up in lower inventory levels, as detailed in a December 2015 BlackRock Blog post. One-fifth of the largest 1,500 U.S. companies by market value now have zero inventories, up from 5% in 1980, according to Morgan Stanley data.

U.S. consumers are adopting new technologies such as smart phones at the fastest rate since the advent of the television. These innovations arguably enhance our lives, yet are not accounted for in official data. Think of free apps that allow us to learn a language or check road conditions. Adjusting for rapid improvements in quality is another challenge. Statisticians try to factor in these improvements by tweaking price deflators, yet we think they still understate quality improvements — and, therefore, true productivity.

How much of the productivity decline do these deficiencies explain? Understated productivity means real annual U.S. GDP growth may have been 0.7% higher than reported over the past five years, with consumer inflation overstated by 0.5% a year, Goldman Sachs estimated in a July 2015 report.

IT’S THE SLACK, STUPID

Does this mean central banks can keep rates low for longer? We do not think so. If the productivity slowdown is simply a measurement mirage, then both actual and potential growth are understated. The difference between the two — the so-called output gap — is unchanged. This means monetary policy would likely remain the same in the near term. In the long run, the implications depend on whether the measurement error is recognized. Will statisticians and central bankers suddenly see the error of their ways? We do not hold our breath. Yet we could see a gradual lifting of productivity estimates over time. This would point to higher peak interest rates and steeper yield curves in the long run.
Capital Management

Declining levels of corporate capex play into the productivity debate. Shareholders often encourage companies to invest for growth — but also react enthusiastically to news of share buybacks, increased dividends or buyouts. This begs the question: What is the best form of capital management for creating shareholder value? We crunched the numbers on U.S. stocks (Russell 1000) since 1985 and had three key findings:

1. Companies in the top quintile of spending on buybacks and R&D deliver the highest shareholder returns over one- and five-year horizons. See the tables below.
2. Capex (investment in real estate, plant and equipment) is by and large neutral. There is little evidence big capex spenders outperform in subsequent years.
3. Other uses of cash — acquisitions, dividends and debt reduction — result in share price underperformance.

The outperformance of buybacks and R&D holds true both for companies that ranked in the top buyback and R&D quintile over a one-year period (the left table below), and for serial buyback and R&D spenders (those ranked in the top quintile over five-year periods in the right table). Why such a strong result for R&D? It stimulates innovation, new products and more efficient ways of doing things.

Biggest Bang for the Buck


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<tr>
<th>Short-Term Capital Management</th>
<th>Total returns</th>
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<tbody>
<tr>
<td>(Measured over 1-year period)</td>
<td>1-year</td>
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<tr>
<td>Buybacks</td>
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<tr>
<td>R&amp;D</td>
<td>14.43%</td>
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<td><strong>Russell 1000 Index</strong></td>
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<tr>
<td>Capex</td>
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<tr>
<td>Debt Reduction</td>
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<td>Dividends</td>
<td>12.69%</td>
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<tr>
<td>Acquisitions</td>
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<tr>
<td>Buybacks</td>
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<td>Capex</td>
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<td><strong>Russell 1000 Index</strong></td>
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<tr>
<td>Dividends</td>
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<tr>
<td>Acquisitions</td>
<td>13.09%</td>
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<tr>
<td>Debt Reduction</td>
<td>14.59%</td>
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</table>

Sources: BlackRock Investment Institute and Compustat, December 2015. Notes: The analysis is based on Russell 1000 universe excluding financials and utilities from 30 June, 1985 through 30 November, 2015. Companies are bucketed by quintiles over each period. Performance of each capital management bucket reflects the top quintile of companies that spent most on that form of capital management as percentage of sales over one- and five-year periods. The performance figures are absolute, equal-weighted and based on rolling one- and five-year windows. R&D expenses are from the income statement; other items are from statement of cash flows. Acquisitions are cash outflows used for acquisitions. Buy backs are the net use of funds that decreases common and/or preferred stock. Capital expenditures (capex) are cash outflows used for additions to real estate, plant and equipment. PR&OE. Debt reduction is net reduction in long-term debt caused by its maturing, paydowns and the conversion of debt to stock. Dividends are cash dividends for common and preferred stock. Past performance is not a reliable indicator of future performance.

Capex Conclusions

The results for capex are mixed. Companies ranked in the top capex quintile over one-year periods underperformed marginally in subsequent years, we found. Yet consistent capex spenders did a tad better than the index. These are broad strokes, however, and context and subtleties matter:

- Some companies are much better at getting bang for their capex buck than others. This is reflected in a wide dispersion of returns among the top quintile of capex spenders.
- There is a difference between maintenance capex (to keep the lights on) and growth capex (investing in the future). Capex that creates growth may generate returns more similar to R&D.
- The tendency of companies to invest heavily at cycle peaks is a detriment to long-term returns of our capex factor. Not all capex is created equal.
- Our study does not take into account cyclical factors such as economic, monetary policy and other trends (example: commodities supercycle). Capex dried up in the developed world after the financial crisis, arguably creating a need to rebuild depleted capital stock.

Buybacks offer a mirror image: They are a great idea when interest rates are at zero and growth is anemic. They may be less effective when shares are pricey and interest rates are rising. Buybacks or dividends financed from increasing cash flows should be better for shareholders than those financed by a growing debt pile. The averages obscure these nuances.
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