

October 2015

Low-gear growth ahead for developed economies

An analysis of economic growth prospects for the United Kingdom, Germany, France, and Japan

Izzet Yildiz, Ph.D.
Analyst

Michael J. Atkin
Portfolio Manager

Jo Anne Ferullo, CFA
Senior Investment Director

Key takeaways

- The global financial crisis of 2008 caused steep declines in growth rates for the United Kingdom, Germany, France, and Japan.
- We believe the U.K. economy will be able to recover to, and perhaps exceed, its long-term growth level. However, growth in Germany, France, and Japan is likely to remain lower than long-run average levels due to population dynamics and lower productivity.
- Some aspects of low inflation pose real risks to all four countries, while Japan and Europe run the most severe risks.
- We note potential economic risks, particularly in Japan's experimental central bank policy.

In many ways, the global economy in 2015 is still struggling to define itself nearly seven years after the financial crisis. Economic recovery has been uneven across the globe: The U.S. is moving right along; Europe appears to have just turned the corner into recovery; and China is struggling as its head of economic steam is now dissipating.

A careful analysis of growth patterns in developed-world economies shows that a recovery to higher growth rates is by no means impossible — particularly in the United States. But in our macroeconomic research, we also find that potential growth is likely to be lower than the long-run averages for a number of major developed countries due to structural economic impediments and population dynamics.

In a recently published study, we focused on the United States, for which we projected a return to a long-range growth rate of 2.2% backed by improving labor productivity likely to reach pre-crisis norms, with potential strength particularly noted in the total factor productivity of select technology industries and manufacturing. In this paper, we look outside the United States to determine growth forecasts for the United Kingdom, Germany, France, and Japan, and offer an analysis of their comparative strengths and weaknesses.

The four countries we investigate in the present study are anchors in global bond benchmarks, and their central banks are enormously influential in determining global liquidity conditions. For these reasons, we believe that analyzing growth in these four nations is both significant and urgent, particularly for fixed-income markets.

Unfortunately, the financial crisis created substantial noise in the available economic data, which continues to complicate analysis today. For this reason, we search for secular pre-crisis trends, assume no permanent crisis-related damage, and extrapolate to the post-crisis period.

Growth overview

Our study shows that the United Kingdom, Germany, France, and Japan are, with some qualifications, headed toward a recovery, but one that is below each country's long-range "normal" economic growth rate. As the table in Figure 1 indicates, our forecast for growth sees each country recovering approximately to its 1996–2004 average but remaining below its 1978–1995 average — with the exception of the United Kingdom, where the projected recovery situation is reversed. In all cases, the growth slowdown from 2005 to 2010, a period that includes the crisis as well as some years of relative strength before the crisis occurred, appears to be severe. But if the demand side of each

of the economies under examination is able to recover, we believe the slowdown will prove to be a temporary phenomenon. Put another way, we think the supply side of each of these economies may be able to respond to renewed demand and convert it to growth.

Another immediately apparent factor we note concerns the impact of demographics on labor’s contribution to growth. As Figure 1 shows, growth in Germany and Japan suffers from a decline in the growth of hours worked, which is one of two major factors that our analysis identifies as a source of growth. As we discuss further in this and our U.S.-focused study, the second major factor of growth, labor productivity (LP), has three internally complex components: capital deepening (CD), labor quality (LQ), and total factor productivity (TFP).¹ Together, these factors make growth rates a dynamic function of sometimes conflicting, sometimes mutually amplifying inputs.

Figure 1. Growth overview

	1978–1995	1996–2004	2005–2010	Long-range forecast
United Kingdom				
Growth	2.0	3.4	0.4	2.5
Growth of hours	-0.3	0.6	-0.1	0.6
Labor productivity	2.3	2.8	0.6	1.9
Germany				
Growth	2.2	1.4	0.7	1.4
Growth of hours	-0.1	-0.3	-0.2	-0.2
Labor productivity	2.4	1.7	0.9	1.6
France				
Growth	2.1	2.1	0.7	1.8
Growth of hours	-0.2	0.4	0.1	0.3
Labor productivity	2.2	1.7	0.6	1.6
Japan				
Growth	3.7	1.1	-0.4	1.1
Growth of hours	0.4	-0.5	-0.5	-0.3
Labor productivity	3.2	1.6	0.2	1.4

Source for all figures, unless otherwise noted, is Putnam Investments research.

As we conducted our research, we sought to determine the long-term trends, both in growth of hours and specific components of LP. In this way, our projections for each country try to distinguish between cyclical and structural factors affecting the trajectory of growth.

The sources of growth

In our analysis, we identify growth of hours and labor productivity as the two major sources of economic growth. While growth of hours is a relatively standard calculation, labor productivity has three components, each of which entails a complex accounting method to capture the factor’s dynamic nature.

$$\text{Growth} = \text{Growth of hours} + \text{Labor productivity}$$

The three components of labor productivity are:

- **Capital deepening (CD):** The growth in capital investment per unit of labor reflects how workers become more productive to the degree their labor is accompanied by efficiently spent capital.
- **Total factor productivity (TFP):** TFP measures improvements in the efficient use of labor and capital. It includes the effects from changes in frequently unmeasured inputs, such as innovation, research and development, and other intangible investments.
- **Labor quality (LQ):** This component is defined as labor input per hour worked; it reflects changes in the composition of the workforce, as well as the difference between the growth in the compensation-weighted index of labor input and hours worked.

$$\text{Labor productivity} = \text{Capital deepening} + \text{Total factor productivity} + \text{Labor quality}$$

The United Kingdom: Risk sharing across sectors

It is commonly known — and still fresh in the minds of policymakers and central bankers — that the financial crisis of 2008 caused a sharp decline in LP across the developed world. The United Kingdom was no exception. In the U.K. economy, we have observed that weakness was especially pronounced in CD and TFP — two of the three key factors that our growth accounting method locates inside LP.

¹ For additional background on our growth accounting method, see the sidebar on this page, and our related research paper on U.S. growth: “The ‘old normal’ returns: Forecasting long-term U.S. growth potential,” pp 2-3.

In the case of CD, which represents aggregate capital accumulation and investment, our research shows that there was a trend decline in the United Kingdom before the onset of the crisis. But with TFP, which quantifies technological and organizational efficiencies and degrees of innovation, the decline beginning in 2008 was an eruptive event borne of the crisis itself. In our view, this aspect of LP in the United Kingdom may thus be poised to recover, if it hasn't already.

A partial offset to systemic risk

Looking at TFP through the lens of different industries, we also learned that the U.K. economy exhibited a surprising resiliency during the crisis years. With few exceptions, the full range of industries showed near-equal declines in TFP. Unlike in the United States, Germany, France, or Japan, the broadly similar impact across U.K. sectors also served to soften the overall blow, showing the ability of the full U.K. industrial

complex to distribute and partially neutralize systemic risk. While capacity utilization in different industries necessarily hit a soft patch during the period's substantial economic contraction, there was remarkably little concentration of risk evident in the U.K.'s economic performance. In this way, the economic stress event of a generation appears to have revealed no Achilles heel in the U.K. economy.

Dark days for the mining sector

The only possible exception to that rule would be the mining sector. The United Kingdom has a long and conflict-ridden history with mining, a sector that famously experienced decades of social and political unrest through the 20th and into the 21st century.

However, despite the deep scars of volatile employment conditions and commodity price fluctuation, generally stronger prices over the past 15 years helped producers stay economically relevant into the crisis era.

Figure 2. Comparative breakdown of labor productivity

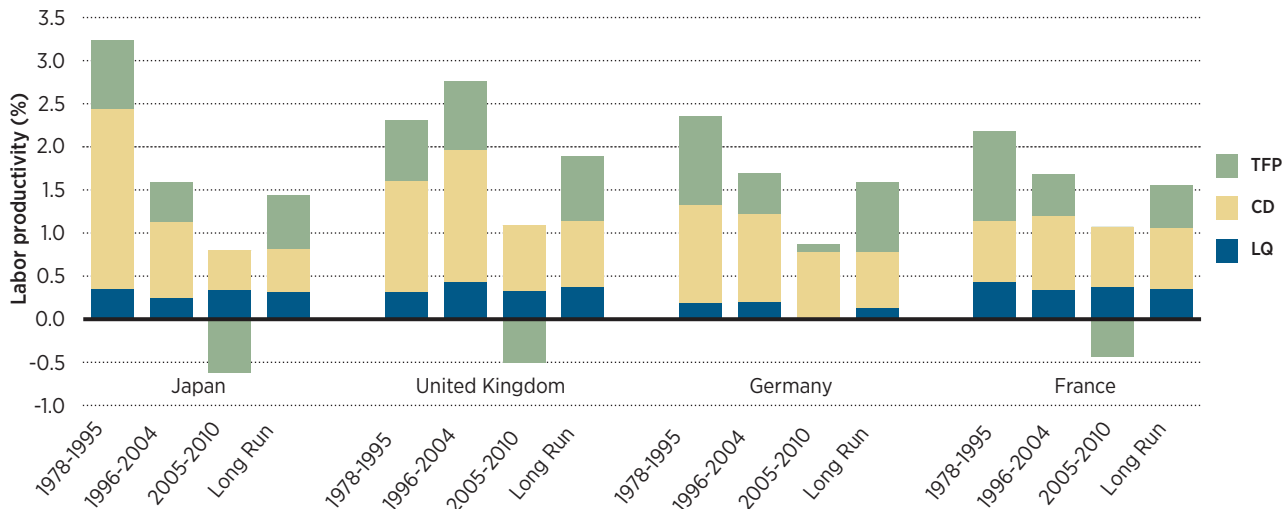


Figure 3. U.K. labor productivity sectoral breakdown

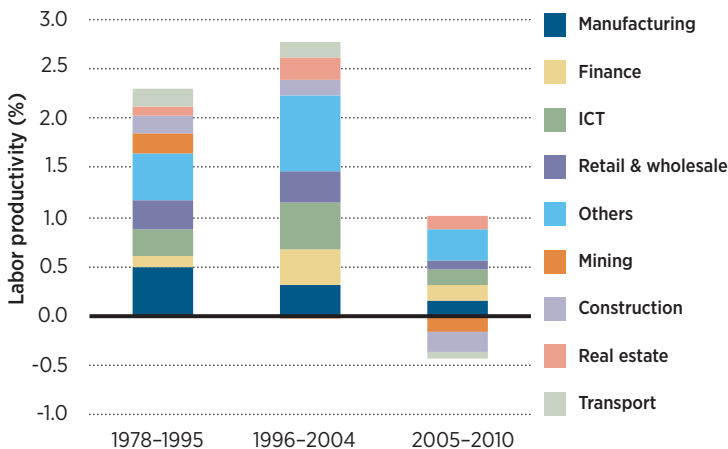
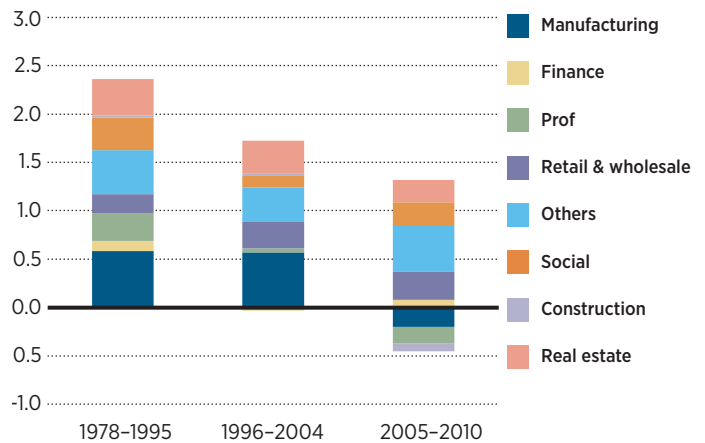
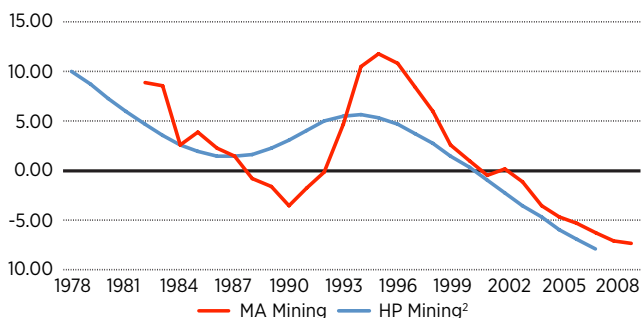


Figure 4. German LP sectoral breakdown



Nevertheless, in retrospect, although the mining sector makes up only a small share of U.K. GDP (approximately 2%), the sector exerted an outsize impact on LP and overall growth rates during and in the wake of the crisis.

Figure 5. U.K. Mining: Despite its small share (2% of GDP), it is a significant drag in productivity and growth.



Germany: Efficiencies in manufacturing

Turning to Germany, we find LP to be unambiguously strong during the crisis. However, the German economy suffers from an acute demographic problem, which has sent the growth of hours into structural decline.

As has been well known since the financial crisis of 2008 morphed into the European sovereign debt crisis, Germany has generally been a bastion of economic strength inside a perennially embattled eurozone. Putting Germany's crisis-driven decline in context, 2005–2010 saw Germany experience a decline in LP growth that was largely driven by a decline in TFP growth. In spite of the reduced capacity utilization that goes with lower TFP, this aspect of the German economy showed surprising resiliency during the crisis, and in fact was on the rise in the years prior to the crisis. Over the long run, we expect TFP will continue to be a key driver of the German economy, as we project it will rebound to 0.8% — approximately half — of long-term LP.

While TFP was on an upward trend in Germany before the crisis, capital deepening appears to have been on a long-term declining trend, just as in the United Kingdom. Also important to note is the weakness in labor quality in the 2005–2010 period. We believe this was largely the result of lower unit labor costs associated with Germany's sizable immigrant workforce.

Importantly, though, if this population limited labor quality's contribution to LP, it also partially offset a serious aggregate decline in growth of hours — a direct result of Germany's rapidly shrinking domestic labor force.

Germany is aging rapidly

Ominously for Germany, a recent study by the Hamburg World Economy Institute found that the German birth-rate is now the lowest in the world. In 2013, Germany had 8.2 births per 1,000 people, slightly worse than Japan, which managed 8.4. France and the United Kingdom, on the other hand, managed 12.7.

These poor demographics have a number of important economic implications, from closing maternity wards in hospitals to a shrinking labor force. As it stands, Germany's growth of hours worked detracted -0.2% during the crisis years, which we calculate would have been twice as bad in the absence of Germany's strong immigration trend.

The efficiencies of German manufacturing

As we peel back the layers of productivity strength in Germany, we find a multi-faceted story of both strength and weakness. On the one hand, we see manufacturing, retail, and real estate as the main contributors to productivity, but within the TFP component of LP, we see a source of great strength in manufacturing and a source of profound inefficiency in professional services. While both areas of the economy were negative during the crisis years, we believe manufacturing is likely to rebound to its long-run positive trend while the outlook for professional services is dim.

For manufacturing itself, the underlying story is fairly complex. While the general direction of the sector is positive, some conditions have historically exerted downward pressure, which we observe as having been ratcheted up in today's policy-driven climate of austerity. Despite the highly evolved organizational efficiencies of German manufacturing, across industries as diverse as furniture and tool-making to aerospace and defense, the decline of capital investment and cost cuts through widespread job rationalization and working-hour reductions have perennially sapped the sector's strength.

Professional services: working more, but less efficiently

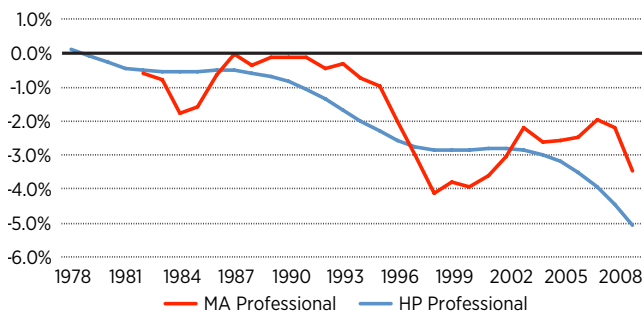
While capital investment only recently declined among German professional services, which include accounting firms, consultancies, and legal services, TFP in this sector has been on the decline since the 1990s. But we

2 The Hodrick–Prescott filter (HP filter) is a mathematical tool used in macroeconomics to remove the cyclical component of a time series from raw data. It is used to obtain a smoothed-curve representation of a time series, one that is more sensitive to long-term than to short-term fluctuations. MA in our charts represents a simple moving average.

also observe that hours worked in professional service are increasing. In other words, the data suggest that despite working more, German professional services are chronically unable to work more efficiently.

In our estimation, Germany will return to 1.4% GDP growth over the long run, assuming manufacturing strength and immigration trends continue to support the economy.

Figure 6. Negative TFP in German professional services



France: Overall stability in growth

As in Germany, the decline in LP in France between 2005 and 2010 was due to a decline in TFP. But unlike Germany, the United Kingdom, and the United States, CD in France does not appear to be in structural decline. When we consider that both labor quality and growth of hours in France also exhibit consistent results, the emerging picture of growth in France appears singularly stable.

Considering TFP in France, we observe that two of France’s key engines of growth — ICT and manufacturing — did lose some momentum during the crisis years. However, we also note that TFP was not in structural decline between 1990 and 2005. Long-term averages for the components of LP and the growth of hours in France demonstrate this fact. Thus, although growth declined modestly between 2005 and 2010, we expect it will return to pre-crisis levels, particularly as there was no structural decline in CD, TFP, or LQ before the crisis.

Unlike Germany, moreover, France does not show a structural break in its growth of hours. After the 1990s, one might say hours were volatile around a constant level, which is where we expect it to stay for the foreseeable future. As we break down our forecast for France’s growth, we see hours contributing 0.3% to the long-range average growth rate, in strong contrast to hours’ -0.2% drag on Germany’s growth.

Sector strength and weakness

In terms of sector performance during the crisis years, France bears a close resemblance to the United States. Specifically, the decline in TFP came overwhelmingly from two areas — the first: internet, communications, and telecommunications (ICT); the second: manufacturing.

Manufacturing during the crisis delivered a negative growth contribution, primarily because of a drop in capacity utilization. The picture is similar for ICT. Whereas the late 1990s witnessed a global increase in TFP, the crisis years dealt a significant — if temporary — blow to TFP in ICT. The important facet of this drop in capacity utilization is that it betrays no pre-crisis, downward structural trend.

Figure 7. French labor productivity sectoral breakdown

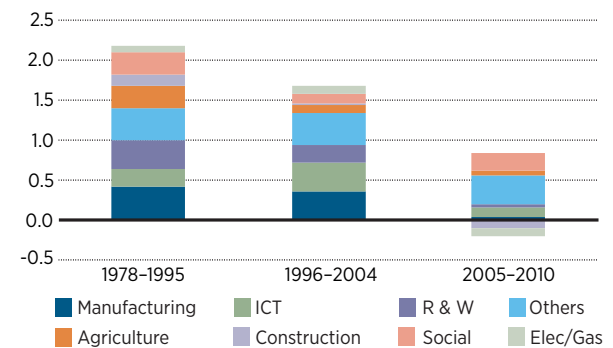
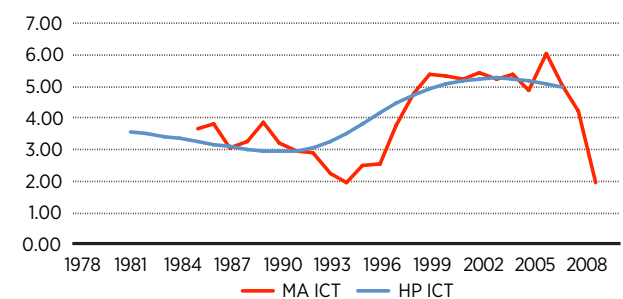


Figure 8. Productivity in ICT in France was strong between 1996 and 2007

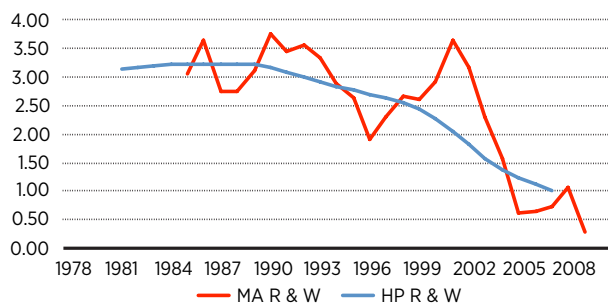


Retail regulations impact LP

A glance at U.S. retailing can help to put France’s retail sector in perspective. Beginning in the 1990s, the United States experienced a retail boom that continued until the early 2000s. This sector strength, as we observed in our earlier study, came particularly from the proliferation of “big box” retailers, whose economies of scale were enhanced by an array of inventory-management advances — including technologies like barcodes.

France, however, missed this evolution in retail, largely due to government regulations. With store size, location, and hours of operation closely managed by the government, “big box” stores have a minimal presence and accordingly limited economic impact. By the same token, inventory management technologies deployed in smaller-store contexts have a more limited positive impact on retail’s organizational efficiencies, which weighed on TFP in this sector.

Figure 9. A long LP decline in France’s retail & wholesale sector



Japan: The uncertain promise of structural reform

If many of the world’s developed economies are still troubled by the long shadow of 2008, Japan suffers from an even more durable-seeming crisis — its two-decade struggle with deflation — as well as from a quickly worsening demographic problem that has no easy solutions. Expected to shed approximately 1% of its labor force each year for the next 10 years, the Japanese economy requires decidedly bold changes in order to move onto a more constructive path.

Into this breach, we have watched Prime Minister Shinzo Abe’s administration announce its “three arrows” policy of government stimulus — what is widely considered to be a radical agenda of monetary, fiscal, and structural reform. Now approximately two years into the implementation of this policy, we have a hard time seeing how the third “arrow” of structural reform has become a reality. Of course, structural reform is the most important — but also the most difficult — part of Japan’s policy experiment, which is designed to address a raft of issues from immigration to regional trade agreements. However, delays and difficulties in implementation raise real concerns about the ability of structural reform to increase potential growth.

LP factors in structural decline

In some respects, we find Japan’s economy to be in structural decline. Capital deepening and TFP are the main drivers of the LP weakness, with CD on a long decline since the 1990s. Meanwhile, TFP exhibited an increasing trend between 1995 and 2007, but contracted on par with the contraction in Germany and France during the crisis period. We are hopeful that TFP could rebound to the 1978–2005 average rate as the recovery in Japan matures.

As for CD, the roots of the current problem began with the asset price bubble and uncontrolled credit expansion in Japan’s flawed banking system at the end of the 1980s. After this bubble burst in the early 1990s, the investment hangover, combined with a “too little, too late” policy response, threw Japan into its deflationary spiral. During the ensuing multi-decade battle with deflation, private capital expenditures continued to be postponed on expectations of low prices and low demand. Public capital expenditures were cut to finance increasing social security obligations for Japan’s rapidly aging population. Over the long term, we expect capital accumulation to stabilize at a relatively low level of 0.5%. However, if Abenomics provides a strong enough push — particularly from the monetary and structural portions of the reform agenda — it could lift the upside potential for CD. At this point in the Abe administration’s reform implementation, monetary policies have unambiguously helped the nation’s capital accumulation and lowered the risk of continued deflation, but delays in structural reforms are preventing further momentum in CD recovery.

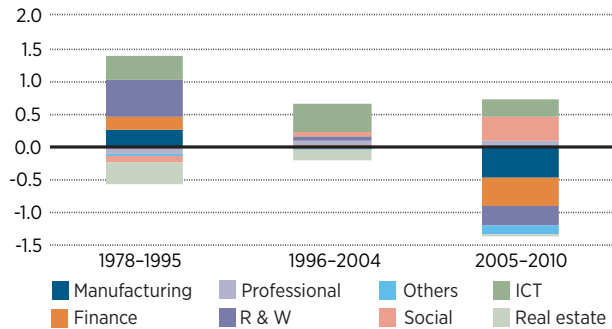
Industrial strengths and weaknesses

Nevertheless, Japan’s long cycle of deflation is a powerful force to contend with. In the 1980s and 1990s, ICT and manufacturing were critical drivers of Japan’s growth. That changed on the manufacturing side beginning with the onset of deflation. CD in ICT also starkly reveals the steady decline in productivity of this sector, while TFP in ICT was generally stable through the crisis years.

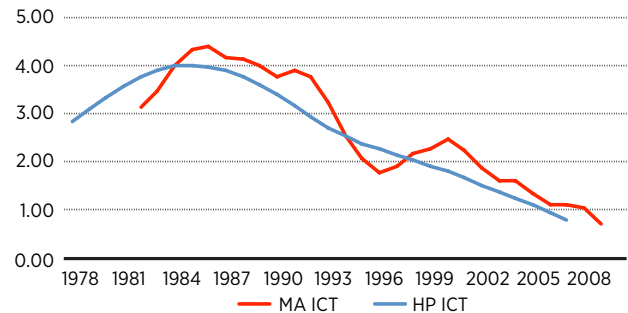
We observe that productivity in manufacturing recovered with the intensification of globalization pressures. Like other countries, Japan felt the imperative to enhance the efficiencies of its manufacturing in light of competition from developing economies. Accordingly, we find capital expenditure per labor unit stabilized around 2000.

Figures 10-13.

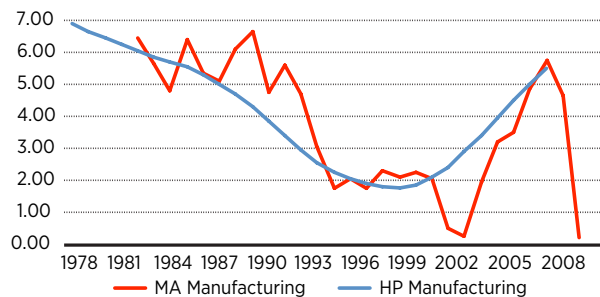
Growth contribution of TFP in Japan (manufacturing and retail disappeared after 1990s)



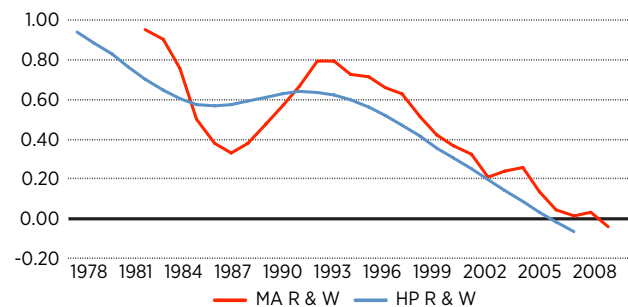
Capital deepening becoming increasingly shallow in Japan's ICT sector



Japan's LP in manufacturing recovers from globalization pressures



Capital deepening exhibits structural decline in Japanese retail & wholesale



The effects of CD and TFP in retail are also interesting to note. Similar to the behavior of the manufacturing sector, deflationary forces may be responsible for the lackluster data for the retail sector's CD. The corporate impulse to delay purchases of new technologies, particularly among smaller retail stores, appears to have generated one of the steepest drops in CD — across all of the advanced economies we have examined — during the crisis period.

Conclusion

In our analysis, we observe declining trends in different aspects of labor productivity and growth of hours worked that bear consideration. Outside of the crisis-related slowdown in labor productivity, previous trends impacting the level of growth in the 10 years leading up to the crisis period are very likely to re-assert their impact. Labor productivity in the long run is trending toward similar levels, around 1.6%, for the major

developed countries. The end result is that growth in these developed markets is likely to resume its previous trajectory rather than improve to the longer-term levels seen in the 1978-1995 period.

To change this trajectory, particularly in the case of Japan, will require deep policy changes and reform measures that are difficult to enact and could require years to overcome the existing imbalances. A key differentiator for long-run growth is population growth, or lack thereof. Immigration is important, and the policies adopted toward immigration will significantly influence long-term growth. In the case of Germany, policy changes aimed at boosting the birth rate would take decades before any meaningful impact could occur. That being said, these economies are not falling into stagnation as some have feared.

These four advanced economies have significant influence on the level of global interest rates. From a macro perspective, lower growth in these countries will act as a dampener on global interest rates. Growth is but one component of a bond yield, and there are many influencing factors that could impact the level and trajectory of interest rates.

The overall level of global interest rates will rise if one assumes that the growth levels we predict are achieved and inflation increases to the level anticipated by the various central banks. The longer-term absolute level of rates is challenging to predict given so many influencing factors, but we believe the trajectory toward higher rates over time, albeit with fits and starts as the crisis effects abate, is quite clear.

This material is prepared for use by institutional investors and investment professionals, and is provided for limited purposes. It is not intended as an offer or solicitation for the purchase or sale of any financial instrument, or any Putnam product or strategy. References to specific asset classes and financial markets are for illustrative purposes only and are not intended to be, and should not be interpreted as, recommendations or investment advice. The opinions expressed in this article represent the current, good-faith views of the author(s) at the time of publication. The views are provided for informational purposes only and are subject to change. This material does not take into account any investor's particular investment objectives, strategies, tax status, or investment horizon. The views and strategies described herein may not be suitable for all investors. Investors should consult a financial advisor for advice suited to their individual financial needs. Putnam Investments cannot guarantee the accuracy or completeness of any statements or data contained in the article. Predictions, opinions, and other information contained in this article are subject to change. Any forward-looking statements speak only as of the date they are made, and Putnam assumes no duty to update them. Forward-looking statements are subject to numerous assumptions, risks, and uncertainties. Actual results could differ materially from those anticipated. Past performance is not a guarantee of future results.

This material is not directed at, or intended for distribution to or use by, any person or entity that is a citizen or resident of or located in any jurisdiction where such distribution, publication, availability, or use would be contrary to applicable law or regulation or would subject any Putnam company to any registration or licensing requirement within such jurisdiction. The information is descriptive of Putnam Investments as a whole

and certain services, securities, and financial instruments described may not be suitable for you or available in the jurisdiction in which you are located. This material or any portion hereof may not be reprinted, sold, or redistributed in whole or in part without the express written consent of Putnam Investments. The information provided relates to Putnam Investments and its affiliates, which include The Putnam Advisory Company, LLC and Putnam Investments Limited®.

Issued in the United Kingdom by Putnam Investments Limited®. Putnam Investments Limited is authorized and regulated by the Financial Conduct Authority (FCA). For the activities carried out in Germany, the German branch of Putnam Investments Limited is also subject to the limited regulatory supervision of the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht - BaFin). Putnam Investments Limited is also permitted to provide cross-border investment services to certain EEA member states. In Europe, this material is directed exclusively at professional clients and eligible counterparties (as defined under the FCA Rules, or the German Securities Trading Act (Wertpapierhandelsgesetz) or other applicable law) who are knowledgeable and experienced in investment matters. Any investments to which this material relates are available only to or will be engaged in only with such persons, and any other persons (including retail clients) should not act or rely on this material.

This material is prepared by Putnam Investments for use in Japan by Putnam Investments Securities Co., Ltd. ("PISCO"). PISCO is registered with Kanto Local Finance Bureau in Japan as a financial instruments business operator conducting the type 1 financial instruments business, and is a member of Japan Securities Dealers Association. This material is prepared for informational purposes only, and is not meant as investment advice and does not constitute any offer or solicitation in Japan for the execution of an investment advisory contract or a discretionary investment management contract.

Prepared for use with wholesale investors in Australia by Putnam Investments Australia Pty Limited, ABN, 50 105 178 916, AFSL No. 247032. This material has been prepared without taking account of an investor's objectives, financial situation, and needs. Before deciding to invest, investors should consider whether the investment is appropriate for them.

Prepared for use in Canada by Putnam Investments Canada ULC (o/a Putnam Management in Manitoba). Where permitted, advisory services are provided in Canada by Putnam Investments Canada ULC (o/a Putnam Management in Manitoba) and its affiliate, The Putnam Advisory Company, LLC.