Macro problems, micro solutions

How trade, technology and finance can help keep the recovery going
Overview
Five years after the nadir of the global financial crisis, we look over where we have arrived and what lies ahead. The crisis had its origins in macroeconomic and financial imbalances. Many of its most severe consequences were seen at the macroeconomic and systemic financial levels – though, of course, they were felt most at the social and personal level. In a climate of austerity, both government spending and bank lending have been pressured in some of the world’s largest economies. There is hope in signs of economic growth, in signs of progress in trade negotiations, and, above all, in continuing technological progress. This paper argues that technology will continue to play a key role in driving the recovery. From our perspective at UBS, we must consider the implications for the financial services industry. We highlight the role of technology in increasing connectivity, networking, and the demand for a “longer tail” of services, and the implications of increasingly shorter supply chains that cut out financial intermediaries.

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Section 1: Two views on austerity

– The post-financial crisis world has been dominated by debates over “growth versus austerity”, both in terms of government spending and financial regulation.

– While some have argued that the way to reduce government debt burdens is to reduce fiscal deficits through some combination of tax rises and spending cuts, others have countered that policies to promote growth are also important for stabilizing and ultimately, reducing debt-to-GDP ratios.

– Banks have already taken great strides to rebuild capital ratios that were impacted by the financial crisis. That said, in some regions, there appears to have been a recent shift in emphasis towards leverage ratios rather than risk-based capital ratios, which could lead to further deleveraging by banks and negatively impact financial stability. At UBS, we support the risk-based approach, based on internal models, with a back-stop leverage ratio – as agreed in Basel III – and complemented by stress tests. This is an effective combination to ensure adequate capitalization of the banking system, and the efficient provision of financial services and credits to households and corporations. However, we would warn against over-reliance on leverage ratios as a regulatory tool, and believe the global recovery can be best supported by focusing on the consistent implementation of the risk-based framework agreed under Basel III.

Growth and austerity: the political economy

From massive street protests to august policymaking circles, “growth versus austerity” has been one of the most hotly contested debates in the past few years. Nowhere was the clamor louder than in the world’s two largest economies, the US and the Eurozone.

A common thread runs through both regions’ recent histories. In 2008 came the financial crisis that led to a deep recession and gaping 2009 fiscal deficits. By 2010, forces had emerged to stem the rise in national debt burdens. Pressure came from contrasting sources – the Tea Party movement in the US, and bond markets in the Eurozone periphery.

In 2011, tough decisions were taken on public spending and tax, which prompted something of a backlash in the economic debates over austerity. The change in view at the IMF is indicative of this shift, first arguing in favor of policies of deficit reduction and austerity, before changing stance toward favoring more growth-oriented policies.

On one side of the debate, there was a view that the way to reduce government debt burdens is to remove fiscal deficits through some combination of tax rises and spending cuts. For proponents of this view, merely cutting a large fiscal deficit would be inadequate – the deficit should move below nominal growth, or even into a fiscal surplus. On the other side was a view that while higher government spending inevitably increases public debt in the short term, it may reduce debt-to-GDP ratios in the long run by contributing to a broader economic recovery.

The narrative in the largest developed economies does not tell the whole story, however. It excludes the emerging economies that account for a growing share of the world’s output. Nor does it reflect the situation in smaller developed economies that suffered less during the worldwide recession – particularly commodities exporters such as Canada, Australia and Norway.

Viewing the global economy as a single unit, we see a very different picture to the post-crisis world of austerity – at least if “austerity” is taken to mean government spending cuts. The two largest components of global GDP, namely private consumption and fixed investment, both hit multi-year peaks in the first quarter of 2008. The ensuing recession was arguably made less severe by the ongoing rise in government consumption, in keeping with Keynesian economics. Rising government outlays and falling tax revenues helped to cushion declines in private consumption and fixed investment.

Since the start of 2008, government consumption at the global level has risen by 20% in real terms, whereas private consumption and fixed investment have risen just 8% and 5%, respectively. In other words, despite talk of austerity, government spending continues to run ahead of private-sector spending. That has two important implications – one structural, and one cyclical.

Structurally, government debt, government spending, and the share of government within the economy must be sustainable. Government consumption’s share of global GDP has risen from 11% to 14% over the past 15 years. In 2013, it reached its highest level since 1980. At the same time, government debt-to-GDP ratios have hit record highs in many countries. In the long run, such elevated levels of expenditure (and corresponding levels of debt and deficit) are probably not sustainable, in particular, given other structural changes underway. For instance, demographic trends in many advanced economies pose challenges. Working age populations are growing more slowly, or in some countries, such as Japan, beginning to decline. Accordingly, the window of opportunity for mature economies to bring government debt levels down to sustainable levels is gradually narrowing, owing to inexorable demographic shifts.

Cyclically, private consumption needs to make a bigger contribution to the next phase of economic recovery. Private consumption is the largest component of global GDP, but its share was already falling at the start of the recession and continues to hit new multi-decade lows. Fixed investment is also making a smaller contribution to global growth than it did in the pre-crisis years.

Why are these private-sector growth engines stuck in a low gear? Various factors are at work, including a potentially
self-reinforcing cycle of diminished business confidence, rising unemployment, more skewed income distribution and weak consumer spending. However, fiscal restraint has also played a role in preventing economies from enjoying more robust growth and the virtuous circles that typically ensue in recovery. Equally, a form of “silent austerity” is to be found in the banking sector: increased financial regulation and associated restraint on private-sector credit supply.

**Growth and austerity: the role of the banks**

In recent years, some tension has emerged between the competing objectives of regulators wanting banks to hold more capital and the broader policy aim to lift growth, including via increased credit availability and bank lending.

Getting credit flowing again has been the key to recovery. The US recovery has benefited – particularly in housing – from having recapitalized banks relatively early in 2008 and 2009. The UK and the Eurozone have lagged. The ECB’s Asset Quality Review, stress tests and placing the ECB as the single supervisory body should go some way to restore banking sector stability in the Eurozone, but the process will take time. For example, results of the various bank tests are not due until November 2014.

There are two ways banks can increase capital ratios – either by increasing capital or by reducing risk-weighted assets (RWAs). A recent paper by the European Banking Authority\(^1\) shows that the Core Tier 1 ratio for their sample of 64 EU banks has risen from 10.0% in December 2011 to 11.7% in June 2013. Drilling down, the improvement in the capital has come fairly evenly from increasing capital and reducing RWAs. Of the 170 basis points rise in capital ratios, 80 basis points came from higher capital and 90 from a decrease in RWAs.

Even within the reduction of assets, there have been nuances, with not all assets being considered equal. Given higher risk weightings for loans to businesses than for sovereign debt holdings, there has been an implicit incentive for banks to shift away from lending to corporates and to lend to governments instead.

**Alternative access to finance**

Weak bank lending has been somewhat offset by capital markets activity. In the Eurozone, where the credit crunch has been the most protracted, banks have been disintermediated

\(^1\) The European Banking Authority “Outcome of 2013 EU-wide transparency exercise”, 16 December 2013.
as large companies have gone directly to the markets to access funding. Eurozone banks’ lending to corporates is down 4% year on year, but issuance of corporate debt is up 10% year on year.

However, the problem is that bank lending still makes up 80% of the total loans to corporates. So, while the burden shouldered by corporate bond markets is increasing, it is doing so slowly. Moreover, although debt issuance is an option for some large listed companies with reasonable credit ratings, it is not a viable form of financing for smaller or riskier companies – let alone individuals. For the latter, the growth in pay-day lenders and peer-to-peer lending is filling a gap left by traditional banks.

The future
Banks have already taken steps to rebuild capital ratios that were impacted by the financial crisis. Indeed, we now have a fresh credit cycle at work in the US and, to a degree, in the UK. The Eurozone is lagging behind, but given the framework set out by the European Central Bank, we should see good progress in 2014. Emerging market banks are in a different stage of the credit cycle, in many cases having avoided the worst of the direct effects of the credit crunch. But, in some emerging economies, credit cycles are now showing signs of overheating.

We would argue that there has been a steady improvement in banks’ capital positions, and some relaxation of tensions between increased regulatory demands and the desire to promote credit formation. That shift found an echo in recent comments from George Osborne, the UK Chancellor, who noted the need for “financial stability, but not the stability of the graveyard”. Nonetheless, the impact of regulation is difficult to predict. In some regions, there appears to have been a recent shift in emphasis toward leverage ratios rather than risk-based capital ratios, which could lead to further deleveraging by banks and pose risks for financial stability.

At UBS, we are committed to the goal of improving the stability of the financial system. We caution against over-reliance on leverage ratios as a regulatory tool, and we think the global recovery can be best supported by focusing on the consistent implementation of the risk-based framework agreed under Basel III, rather than “reforming the reform” before it’s actually been implemented. The current Basel III standard of regulatory requirements is a major step forward, which has been achieved only after several years of joint improvements by the industry and regulators.

The leverage ratio is an essential part of Basel III and the Swiss Too-Big-To-Fail framework. A “backstop” leverage ratio reinforces risk-based capital requirements. We strongly share the opinion of the Basel Committee and the Swiss Too-Big-To-Fail Commission that the leverage ratio should not become the binding capital constraint in the normal course of business. The supplemental leverage ratio should, however, ensure that an appropriate minimum level of capital is held at all times as a backstop in the event that the risk-based measure may fail to capture certain risks appropriately.

A dominant leverage ratio would set the wrong incentives. The leverage ratio, as currently defined, does not make a
Section 2: Trade wars

– In the years leading up to the financial crisis, burgeoning current account deficits and surpluses confronted the world economy. Since then imbalances have narrowed considerably, but for the most part this is due to collapsing import demand and painful internal adjustment.

– Such adjustments have also led to a slowdown in world trade growth. Fortunately, even while progress on global trade agreements has been slow, there has been movement in bilateral and multi-lateral agreements.

– Recent efforts to revitalize global trade, including the agreement reached in Bali at the end of 2013, are encouraging. In addition, technological progress should encourage countries to enhance their competitiveness.

The recent great recession had important impacts on international trade, some of which may prove long-lasting. We look at how international trade has changed from three points of view: the evolution of global imbalances, trends in international trade, some of which may prove long-lasting. We look at how international trade has changed from three points of view: the evolution of global imbalances, trends in globalization, and the structure of trade negotiations.

Economic approach: a world not re-balanced
In the years leading up to the financial crisis, burgeoning current account deficits and surpluses confronted the world economy. Those imbalances contributed to the excesses in investment and borrowing that brought on the crisis, above all in the US, but also in several ‘peripheral’ Eurozone countries such as Ireland and Spain. By halting those large cross-border capital flows, the accepted view is that the crisis has helped to restore the world to a healthier, more balanced position.

And indeed, the aggregate surplus and deficit positions of the emerging and advanced economy blocs have narrowed considerably. Additionally, the large external deficits in the Eurozone periphery, which contributed greatly to the Eurozone sovereign crisis, have largely vanished. The world seems more balanced, apart from growing deficits in several major emerging economies, including Turkey, South Africa, India, and Brazil.

Unfortunately, however, recession and collapsing import demand have been the primary causes of external adjustment. And that simply means that the heralded declines in external imbalances have come at great cost — namely, significant internal imbalances. Over the past five years there has been a clear inverse relationship between changes in domestic demand and changes in the external balance. In contrast, there is no statistical relationship between changes in external balances and movements in exchange rates between 2008 and 2013.

In short, the adjustment of current account imbalances in the world economy was mostly a function of recession, not shifts in competitiveness. Large current account deficit countries restored external equilibrium at the cost of domestic disequilibrium, with the consequence that output plummeted and unemployment soared. As a consequence, the chief challenge facing the world economy today is the restoration of fuller employment and a corresponding higher level of economic activity.

That, in turn, begs the question of how global aggregate demand can be raised. The answer will say a great deal about whether global imbalances are truly resolved or only temporarily lower. Unfortunately, much of the world economy appears unable or unwilling to lift domestic demand. In the course of the next two years Japan will embark on a policy of fiscal consolidation, centered on increases in the consumption tax. Most parts of the emerging bloc are beginning to suffer from debt fatigue. In Europe, domestic demand will also remain subdued owing to the simultaneous de-leveraging of the financial and public sectors described in Section 1.

That leaves the US as the sole major economic region capable of driving up its rate of growth via increased domestic demand. The upshot is that if the US is to restore full employment, it will have to do so without much help from the rest of the world.

Two broad economic implications follow. First, the world economy remains just as unbalanced today as it has been over the past quarter century — domestic demand is unhealthily skewed toward the US. Second, given that the US economy does not have the same vitality that it did before the crisis, the export-led recoveries elsewhere will remain correspondingly weaker for longer.

Financial approach: adapt to new pattern
One of the consequences of shifting imbalances is changes in capital flows and hence financing conditions, particularly for sovereigns. Consider, for instance, Spain, which used to run large current account deficits (in excess of 10% of GDP) financed by portfolio inflows. The sudden stop of foreign funding during the financial crisis forced a sharp contraction of domestic demand. In turn, the current account deficit disappeared, while the fiscal deficit jumped. Banks’ activities turned, as reflected by their large-scale purchases of domestic government debt (Bonos). Reduced external financing pressures and an increase in domestic purchases of government debt contributed to the reduction in sovereign risk premiums for countries such as Spain.

A related point concerns the role of central banks. Foreign official holdings of Treasuries rose from about USD 600 billion in 2000 to USD 4 trillion in 2013. However, with the advent of smaller US external deficits, the trend has slowed and may even be reversing. Foreign official Treasury holdings declined by about USD 125 billion between March and August 2013. The upshot is that a different buyer for US Treasuries had to step in, which during ‘quantitative easing’ has been the Federal Reserve.
A second consequence is that the unwinding of external imbalances and the ensuing years of a sluggish global recovery have taken their toll on global trade. Prior to the crisis, a one percentage point increase in global GDP growth boosted world trade by roughly two percentage points. In the past five years, the trade multiplier has collapsed – trade is growing in line with sluggish world GDP growth. Accordingly, the trade intensity of the global recovery has fallen.

Importantly, that trend appears structural rather than cyclical. A key reason is that import demand collapsed as former deficit countries adjusted, whereas surplus countries did not provide a fully offsetting lift in their import demand. Moreover, a re-balancing of China’s economy away from more commodity-intensive growth, coupled with the US ‘energy revolution’, is contributing to a slowing of world commodity trade growth.

More sluggish world trade growth has a number of implications, particularly for emerging markets. For example, companies in emerging economies have traditionally been dependent on foreign demand for revenues and earnings. Given that global trade multipliers are lower, any cyclical rebound in emerging equity earnings is likely to be modest. Also, because world trade is likely to grow more slowly, emerging currencies will have to bear more of the adjustment in restoring external balance where deficits now exist (e.g. in Turkey, Brazil, India or South Africa). Hence emerging currencies are likely to be weaker. Lastly, given the rise in debt as a share of GDP across much of the emerging bloc, a slower global trade environment suggests that emerging sovereign and corporate credit risks are now somewhat higher.

New forms of trade negotiations
For some time, world trade has moved away from major multi-lateral agreements to increased bilateral deals. The Regional Trade Agreement (RTA) database maintained by the GATT/WTO shows that these types of agreements have gradually become prevalent since the early 1990s. In the middle of this year, 575 RTA notifications had been received by the WTO, of which 379 were in force. The more recent RTAs include provisions on trade in services, but also are more ambitious in terms of covering other areas such as intellectual property, competition policy, trade facilitation or government procurement. One of the latest examples is the tentative free trade agreement between Canada and the European Union, the Comprehensive Economic and Trade Agreement (CETA) signed on October 18th 2013. Other major free trade agreements are under negotiation. The Trans-Pacific Partnership (TPP) will include most of the Pacific Rim nations (but not China). The trans-Atlantic free trade agreement (TAFTA) between the US and the European Union could establish the largest free trade bloc, covering close to half of the world’s GDP.

The emergence of these bilateral or multi-lateral deals is a direct consequence of the failure of the previous WTO negotiation round. The latest, the Doha round, was initiated in 2001, but negotiations broke down in 2008, essentially on the back of agricultural import rules. And although the Doha round has not been formally closed, the hope that it will produce a meaningful outcome is limited. Some hope has been renewed by the WTO agreement in Bali in December 2013, which ought to ease customs restrictions.

Game theory tells us that bilateral or multi-lateral negotiations should be easier to obtain than global agreements. Major bilateral free trade agreements may also put pressure on other countries to join as well.

Trade agreements are especially important as the very nature of trade is changing. OECD data shows that typically half of international trade is intra-firm trade, and hence easily movable from one production unit to another one elsewhere. The term “global value chains” reflects an increasing trend towards the dispersion of the production chain’s activities (including design, marketing or financing) across the world. The “global value chain” (GVC) is a by-product of lower trade barriers, lower transportation costs and advances in information technology. As a consequence, the competitive advantage of a company does not rest in its ability to sell a final product, but rather in its ability to add value in one part of the process without developing a whole industry.

Free trade agreements allow companies to optimize the localization of the different parts of their production. For a company that is part of the value chain, an import tariff in the country where it resides could create a disadvantage as it will morph eventually into a tax on exports: trade protectionism therefore rapidly becomes a hindrance to exports. Canada provides an interesting example as it unilaterally decided on March 2010 to lift trade barriers to a wide range of input products for its industry in the hope that it would make its industry more competitive. Also, bilateral trade agreements might not be as powerful as expected if third-party zones used in the GVC are not included. This is one of the main issues with the transatlantic agreement which, because it does not include Asian offshoring or outsourcing partners, could prove less efficient than planned. Trade agreements could be less efficient if they do not encompass a liberalization of investment and services as a way to transfer technology in the parts of the production chain that need it.

Given the complex cross-currents of game theory, it is too early to predict whether the outcomes of the main trade negotiations now underway will provide a major breakthrough for further globalization. However, technological progress is one factor that should encourage countries to enhance their competitiveness.
Section 3: Technology and productivity

- New technologies, in manufacturing, connectivity, and energy efficiency in particular, have the potential to transform the global economic landscape, potentially in profound ways.

- From a macroeconomic perspective, these new technologies increase potential growth, allowing the economy to grow faster, and may also put downward pressure on energy prices.

- The US stands out as a likely beneficiary, where its competitive advantage in the production and deployment of information technology is widely recognized. Meanwhile, some countries’ development could be threatened by the substitution of cheaper and more efficient capital for labor and by the shortening of global supply chains.

New technologies have the potential to transform the global economic landscape. Recent advances in information and communications technology, new innovations in methods of manufacturing, and fresh ways of harnessing and exploiting energy could unleash significant growth benefits for the world economy over the next few decades.

Some of the new technologies allow companies to tap into a higher quality of physical capital at lower prices. Enhanced energy storage, shale gas and oil techniques, and innovations in renewable energy are helping to drive down the price of energy relative to the trend that would have unfolded in their absence. In all cases, these technologies have the potential to lift productivity growth across sectors and countries, allowing faster growth and lower inflation.

These new technologies can make the world economy more inclusive and more efficient, but they may also lead to significant dislocations. Mobile communications technology has the potential to bring 2–3 billion people into the world economy in the coming decade. Additive manufacturing, known as “3D printing”, could remove up to 90% of the waste from some manufacturing processes. At the same time, advanced robots, which can work for as little as USD 4 per hour, may eventually displace existing employment in manufacturing.

A recent study by the McKinsey Global Institute finds that these new technologies have the potential to generate a direct global economic impact in the order of USD 14–33 trillion per year in 2025. Our own simulations and estimates suggest that trend global growth could be 0.5 to 0.7 percentage points higher than in the absence of technological change, implying productivity gains comparable to those unleashed by the advent of the personal computer and internet revolutions of the 1990s.

**What are these new technologies?**

In a series of recent UBS research publications we have identified several new technologies that could potentially transform the world economy in the years ahead. They include innovations in a number of areas, but three sectors stand out: information and communications technology (ICT), manufacturing processes, and energy extraction.

Any new technology changes the way the world economy operates. In economic jargon, technological change shifts the parameters of the economy’s production function. Simply put, better technology allows the economy to produce more goods and services at lower prices.

In the realm of information and communications technology, for example, potential efficiency gains include the widespread diffusion of mobile devices, easing access to the internet. They also include advances in artificial intelligence, machine learning and voice recognition, as well as the ‘internet of things’, which helps companies to manage supply chains better.

UBS analysts forecast that global internet users will grow by almost 50% over the next five years and that 5bn smartphones will be sold over the next four years. At the same time they see significant scope for further improvement in bandwidth speeds on wired and wireless networks.

In manufacturing, efficiency gains include the deployment of more advanced robotics alongside recent advances making it more practical and profitable to substitute capital for human labor. Low-cost robots can change manufacturing by increasing precision and productivity without incurring higher costs. Further efficiencies can be exploited with the use of 3D printing, which reduces waste in manufacturing, improves precision of design, and shortens complex supply chains.

Finally, energy efficiency opportunities range from the extraction of oil and gas reserves from shale rock formations to enhanced energy storage. Our US energy team’s work suggests that shale extraction techniques alone may add 0.5 percentage points per year to US growth over the next 10 years.

From a macroeconomic perspective, new technologies increase potential growth, allowing the economy to grow faster. For a given level of output growth, inflation is lower. Importantly, policymakers and above all central bankers must appreciate those changes as they are happening. During the 1990s, for example, the Federal Reserve chairman Alan Greenspan was early to recognize that productivity gains flowing from the personal computer, internet and other new technologies were allowing the economy to grow faster without stoking inflation. Accordingly, the Fed accommodated faster growth by not tightening monetary policy in ways that might have been suggested by the static macroeconomic models prevailing at the time (although some commentators later attributed the dotcom bubble to this policy change).

New technologies may also put downward pressure on energy prices. Many of these technologies, such as waste-reducing...
3D printing, lower the energy intensity of global manufacturing and trade. By bringing product design and manufacturing closer to the end user, thus shortening supply chains, 3D printing also reduces transport costs. The US Department of Energy anticipates that 3D printing could save more than 50% of energy use compared to today’s existing manufacturing processes. The shale revolution will exert further downward pressure on oil and natural gas prices, particularly if the technology is exported worldwide.

**Distribution of gains**

Who are the likely winners? The US stands out as a likely beneficiary. The country is at the forefront of many of these technological innovations. Its competitive advantage in the production and deployment of information technology is widely recognized. The US is at the forefront of the shale revolution. The US financial sector, above all in venture and private capital activities, arguably underpins more entrepreneurial activity than anywhere else.

Some gains are already in evidence. A recent study from the US Federal Reserve, for example, suggests that innovation in the US semiconductor sector is continuing at a rapid pace. The authors think US labor productivity growth could rise to its long-run average of 2.25%, or even higher, in the years to come.

In most instances, the benefits from new technologies are estimated to accrue to developed economies, but there are exceptions. Mobile technology, for example, could connect 2–3bn people at the frontiers of the developing world to the digital economy. With less legacy infrastructure and fewer investments in old technology, innovation could allow frontier economies to leapfrog to more efficient and capable technologies.

Drawing on these observations, UBS economists have conducted model simulations suggesting that global GDP growth could be 0.5–0.7 percentage points per annum higher as a result of the adoption and diffusion of these new technologies. The models also suggest that global inflation levels could be one percentage point lower than would otherwise have been the case.

However, shifts in technology may prove disruptive for some economies and sectors. Labor markets in manufacturing could be materially affected as capital in the form of robotics and 3D printing replace low and semi-skilled jobs. For some economies on the cusp of joining the global manufacturing and trading system (for example in South Asia, the Middle East, Africa and parts of Latin America), development could be threatened by the substitution of cheaper and more efficient capital for labor, and by the shortening of global supply chains. Those economies might otherwise have progressed along the lines of other previously successful emerging economies.

To be sure, the world economy has seen many disruptive technologies in the past and there have been many false predictions in history that labor would be made redundant by capital. To the extent that global productivity gains generate additional global income, purchasing power and demand, there is little cause for concern. But it is important to know that policy has a role to play, in particular to provide members of society with the education, training and skills to adapt to a world of advancing technology and shifting comparative advantage.

Some of these technologies may enhance welfare by improving the quality of life and the environment. 3D printing, for example, not only customizes products for end users, but also removes waste and reduces transport costs. Mobile technology, in conjunction with the cloud and the internet of things, ought to improve supply chain management and reduce the need to hold inventory. Developments in battery storage and renewable energy are even more obvious ways in which environmental costs can be lowered. By reducing drudgery, waste and transport, new technologies have the potential to improve the quality of work and the quality of our surroundings.

We are therefore optimistic that productivity-boosting technology can drive the next phase of economic progress. In the two remaining sections of this paper, we present two ways in which it can do so in an area close to our hearts at UBS: the financial services industry.
Section 4: The “long tail”

– The internet has profoundly changed the media and retail sectors, enabling access to a “long tail” of products, which consumers navigate with the help of ever increasing connectivity and networking.

– Increased connectivity and networking is now leading consumers increasingly to demand more, and differentiated, financial services, showing that the “long tail” is also present within the financial industry.

– This will require the industry to fundamentally adjust, and to focus on: creating new and productive investment networks that add value to clients and make relationships stickier; better understanding client behavior and needs which will, in turn, lead to a bifurcation of service provision, with bespoke, individualized products and services; embracing new technology and sources of information; and developing distribution in a manner that lowers costs.

Traditional book, music, and video stores focused on “hits,” a relatively small group of products with the highest sales volume potential, given their limited, and costly, physical shelf space. Similarly, most movie theaters focused on the same small sample of expected hits. Conventional wisdom was that consumers had broadly similar tastes and that demand for the tail of products that were not “hits” was relatively small. Or, perhaps more simply put, that a broad “90% of revenue is derived from 10% of products” rule applied.

However, the rise of the internet first challenged, and then thoroughly changed, this view of the media and retail industries. As the barrier to providing a broader range of choice caused by the physical costs of storage disappeared, demand for the tail of products proved increasingly large. In fact, as each new choice was added, there was seemingly at least someone who wanted it. The internet revolution showed that there was a huge demand for non-hits, or a “long tail” to demand.

While technology enabled the access to greater choice for consumers, increasing connectivity and networking played key roles in helping fuel the growth of highly successful new business models like Amazon, eBay, and TripAdvisor. Word of mouth and growing networks of reviewers and recommenders allowed individuals to help one another navigate the increasingly large range of “non-hit” consumption possibilities.

Self-perpetuating choice
Technology facilitated greater choice, increasing demand for niche “non-hits”. This, in turn, led to increased networking in order to share information to help navigate the greater range of consumption opportunities. The process took on a self-perpetuating character, further increasing the appetite for “non-hits”, making networks and connectivity ever more vital to navigate the increasingly long tail of products available for consumption.

The impact of the internet and long tail was most keenly felt in the media and retail sectors. As early as 2001, in its annual report, Amazon.com boasted that: “we now have 45,000 items in our electronics store (about seven times the selection you’re likely to find in a big-box electronics store)”. Not only did companies like Amazon have superior selection but they were able to compete on price due to lower staff and real estate costs. In the same report Amazon declared that annual inventory turn had increased to 16x from 12x, whereas leading US physical electronics retailer Best Buy’s figure at the time was less than 7x. Such competitive advantages hurt those retailers that were unwilling or unable to adapt. For example, the US bookseller Borders slid into decline and filed for Chapter 11 bankruptcy protection in 2011. In the UK, HMV, a music and video businesses with a history going back more than 110 years, filed for administration in 2012, having once been worth almost GBP 1bn.

Amazon is just one example of how online retailers have leveraged consumer networks to help consumers navigate the long tail. Upon logging in, consumers are welcomed by a list of recommendations based upon their previous searches cross-referenced against the purchases of other “similar” consumers. Upon selecting a product, alternatives and add-on sales are offered using the same principle, while direct user-generated content is displayed via customer “top lists” and customer reviews. Many sites offer incentive programs for contributing to the “community” via the review process. Amazon, like eBay, has also adopted “open architecture” via its “marketplace”. This largely self-regulated community comprises private sellers competing with Amazon on price, quality and range, and paying a fee for access to Amazon’s platform. By consciously giving up exclusivity, Amazon has embraced the power of the network, ensuring a greater range of products, diverse revenue streams, and a greater market share of global retailing.

Finance “blockbusters”
Like the media industry, finance has also tended to focus on scale, or “blockbusters.” Private wealth managers have traditionally combined scalable products, such as discretionary mandates, alongside large highly secure vaulted facilities for gold and precious items, thus serving both paper and physical wealth through blockbusters.

Generally speaking, brokers have focused resources on only the most liquid shares and bonds, where trading revenues can cover the fixed cost of human analysis. Investment banks have targeted the biggest transactions to leverage sizable overheads, focusing on large equity and debt transactions, and IPOs.

Like private wealth managers, asset managers have sought scale, focusing on liquid securities and pursuing increased assets under management. This strategy reflects somewhat fixed back-office, legal and compliance costs.
Retail banks have built large-scale physical networks, incurring many of the same economies of scale as traditional book, music, and video stores. So their business lines also centred on high-volume products, focusing on clients with sufficient funds to open an account and with the potential to seek mortgage and car loans. This largely disfranchised a proportion of the population who did not have enough cash or credit quality.

Across the financial spectrum, all of these activities focused on large and/or scalable activities to fund the large-scale infrastructure and operating costs needed to provide the services. The cost of building up the infrastructure needed to compete in these spaces provided a barrier to entry and ensured the focus remained squarely on the blockbusters.

These blockbuster activities also do not typically utilize networks or attempt to connect clients directly to one another. In fact, the reverse is true. To maintain its role as a valued intermediary between capital providers and requireurs, the traditional finance industry has been incentivised not to facilitate client connectivity and networking. In doing so, the industry has sacrificed free exchange of information, and potentially favorable outcomes, in order to retain an informational advantage.

**Technology has challenged the financial industry**

As with the media and retail industries, the internet is also changing the way that finance is offered and accessed. Technological advances, and the greater connectivity and networking opportunities they have created, are leading to the demand for services provided outside the traditional financial sector.

**Private wealth management**

The traditional role of wealth management as a custodian has been challenged in both conceptual and physical form. Increased access to financial information, primarily through the internet, has increased investors' financial knowledge and thus increased the required granularity and tailoring of wealth solutions. The recent development of virtual currencies such as Bitcoin even presents – albeit on a small scale – a challenge to physical stores of wealth such as gold, and thus to the role of private wealth managers as physical custodians.

**Broking**

Investors’ desire for trading anonymity and a need to improve investment performance by reducing costs have combined with technology and the power of networks to create “dark pools”. Anonymous in name, order size, and price, these trading platforms, without traditional intermediaries, are making substantial inroads into the business conducted by traditional exchanges. In Europe, for example, dark pools’ market share has doubled in the last two years, while in the US they now account for more than one in seven shares traded (by value). Technology had already disrupted broking when electronic exchanges replaced, in all but a handful of cases, stock trading by physical participants.

Technology has not only affected the execution of broking, but also its delivery. Low-cost internet brokers have not just aggregated client orders to increase accessibility. They have also extended research’s reach beyond the blockbusters to cover smaller companies that have historically added alpha to a portfolio, in keeping with academic research by scholars such as Eugene Fama and Kenneth French. Internet brokers and a wide range of blogs and financial websites have thus challenged traditional brokers’ monopoly of information and opinion. In such networked forums, information about companies, the economy and politics is shared, exchanged, dissected, debated and potentially “socially” improved. While there is a danger that misinformation ensues, the process has undoubtedly increased the demand for niche ideas. In doing so it has reduced the competitive advantage of the large, traditional brokers with expensive research capabilities.

**Investment banking**

Being the intermediary of financing is at the heart of investment banking. However, its traditional hegemony has been challenged by the rise of large-scale capital providers, such as sovereign wealth funds, and by the increased availability of economic and financial information through technological conduits such as Bloomberg. Direct investments are increasingly circumventing financial intermediaries and as a consequence multiple hybrid solutions such as IPO “corner-stoning” have developed, at least partially reducing the influence of investment banks as the allocators of financial assets.

The same technological trends that have affected “high finance” have also operated at a smaller level, aggregating providers of capital in niche sectors and products. Crowdsourcing, for example, is fast becoming mainstream. Leading internet platform kickstarter.com has alone raised almost USD 1bn since inception, with a single project raising over USD 10m, a sum firmly in the territory of investment bank financing.

Greater connectivity has also enabled like-minded individuals to come together to pursue social causes, where assets have already surpassed USD 50bn, according to Monitor Group. With these trends likely to continue and such forums becoming increasingly mainstream, existing models of finance will be challenged.

**Asset management**

The increasing connectivity and availability of information has increased financial market efficiency, or at least perceived efficiency, leading to the rise of passively managed funds as investors question the value of active management. Global exchange-traded products have, according to Blackrock, ballooned from USD 79bn in 2000 to over USD 2.3 trillion as of November 2013.

Technology has also resulted in a greater choice of services and investment opportunities, and thus, like the retail and media industries, investors have pursued the long tail. Having had a clear home bias historically, investors have since embraced global funds. For example, in the UK, according to IMA, retail investors had a flat allocation to UK-domiciled equity funds since 2008, while over the same time period they have increased their global equity fund exposure by GBP 19 billion, equivalent to a remarkable 93% of the net allocation to regional or country-specific equity funds over the period. As interconnectivity continues to accelerate, investors will become increasingly comfortable with foreign markets. As such, in the future, investors are likely to invest with the
same level of precision and discretion that they have historically applied to their home markets. The investing trend that evolved from local to global investing will thus become “glocal” – global investing with local knowledge.

Retail banking

The desire to access finance more quickly and/or on more favorable terms has been increasingly fulfilled by technology and networks. The internet has enabled non-traditional lenders to reach a larger population via a broad spectrum of lenders. So-called “pay-day” lenders, such as Wonga.com, which provide short-term cash loans without “phone calls, meetings or faxing” and with “decisions and cash sent within five minutes”, have used technology to create national businesses and brands. Although there is considerable political debate about such practices, the transparency of being a centralized business, exposed to criticism on a democratic platform such as the internet, has raised the profile of a previously “door-to-door” business model.

Non-traditional lenders have also employed networks that have opened up access to capital for consumers not historically serviced by the traditional financial sector. Online businesses such as Zopa, for example, have generally managed to control bad loans. Zopa, for example, has had historical bad debts of just 0.2% since 2010. Though not directly comparable, Barclays’ credit card business (broadly representative of the UK market due to a market share in payments of some 40%) has, over the same period, experienced 2.5% of its loan book being more than 30 days in arrears.

Retail banking business models, aided by technological progress and networks, have thus opened up credit to consumers hitherto excluded from the financial system. They are also challenging the hegemony of traditional lenders in business lines with higher credit quality.

Embracing connectivity, networking, and technology – not just to survive but to thrive

Consumers are demanding increasingly differentiated services from the financial industry, showing that the long tail is present within finance as well as retail and media. This presents significant challenges to the traditional finance business model and forces the industry to adapt in order to thrive. This will require the industry to adjust its entire value chain.

The finance industry will need to source investment opportunities in new ways, helping drive connectivity among its clients to create new and productive investment networks. For example, private wealth management can facilitate introductions between like-minded individuals, leading to fresh investment opportunities. UBS, for example, has units set up specifically to facilitate such investments. Investment banking can increasingly bring together clients of opposing views to facilitate internal trade crossing at reduced cost, a practice that can account for 30–50% of trading flows on any given day. And retail banking can learn from the innovation underway in non-traditional lenders, and adapt its products to match.¹

By embracing networks and technology, the industry has the opportunity to add value to clients and make relationships stickier. UBS runs networks ranging from the prestigious B:connected network for billionaire clients through to local industry-relevant forums that bring together clients of shared background.¹

An increased understanding of client behaviour and needs will in turn lead to a bifurcation of service provision, with bespoke, individualized products and services. As the traditional competitive advantage – a high-cost research operation – has diminished, the industry must embrace new technology and informational sources and evolve distribution in a manner that lowers costs. Already “highly interactive” and “mass tailored” websites are provided by financial institutions, such as UBS, and personalized emails with content automatically selected, based on previous search histories, are likely only the first step in developing intelligent research-to-client targeting.¹

Valuable information must be made as easy to consume as the raw, unfiltered, freely available information with which the finance industry is increasingly competing. For example, social media interfaces can make wealth management services more granular and personalized. Increased adoption of internet and mobile banking can tailor the experience of retail banking customers, and asset managers can break down the barriers between client and manager through a range of new communication channels.

For the financial industry, attempting to keep clients and stakeholders at arm’s length from each other in an increasingly connected world could lead to increasing disintermediation. In contrast, by embracing technological change and the power of networks, the industry can add greater value in its role as a financial intermediary, develop new business lines, and, ultimately, improve returns for shareholders. But nobody in the industry can take their intermediary role for granted, as we discuss below.

¹ The value of investments can fall as well as rise. You may not get back the amount originally invested.
Section 5: Technology posing profound questions for intermediary industries

- Intermediary business models, including financial services, face significant challenges as a result of technology improving connectivity and increasing the opportunities for disintermediation.

- Industries that have already been significantly disrupted by such technology have seen a surprising trend towards re-intermediation. New business models have emerged helping users navigate the options available in a transparent and unbiased manner.

- Banks can no longer seek to make money merely from acting as a middle man and charging for transactions. There is still room to add significant value, as new intermediaries in other industries have proved. The most valuable services can only be provided by properly understanding our clients’ needs.

Intermediary professions, i.e. those that act as a link between ultimate sellers and buyers, do not seem to inspire much respect among the public. Opinion polls regularly cite the likes of car salesman, advertising practitioners, and stockbrokers as near the bottom of lists of “most respected professions”. Indeed, in last year’s Gallup survey, more than 89% of respondents rated each of these jobs as having “average” standards of ethics or lower.

In recent years, as the global economy has struggled to recover from the financial crisis, such ratings have plumbed new lows. The role of intermediaries and the costs they impose in all fields, finance included, have come under close scrutiny. Clearly, in a stuttering economy, consumers have become more price-sensitive, including on fees for intermediaries.

Something much deeper is also happening, however. As technological forces transform the way individuals and companies make decisions and connect with one other, intermediaries are increasingly being supplanted by technology and challenged to justify their fees.

The questions posed by this transformation are profound. What might a world of shorter supply chains mean for economic potential? And, in a future interconnected world, do intermediaries have any role left to play? To understand the answers to these questions, it is worth taking a step back to consider why intermediaries have developed in the first place, and how they have responded to challenges already posed to them by technological developments to date.

Why exist at all?
In perfect markets, intermediaries would not exist at all. In transparent markets, buyers and sellers are fully aware of the location, prices, and types of all products available. Clearly, most markets do not fall entirely into this category, and, to some extent, most markets suffer from informational asymmetries. As Joseph Stiglitz and others have shown, such markets suffer from inefficiencies due to problems such as adverse selection.

In a financial market without intermediation, buyers of financial securities would suffer from an informational disadvantage relative to sellers. The risk premium demanded by buyers would be too significant for high-quality sellers to be willing to issue. We need only look at the absence of natural credit markets in many developing economies that lack financial intermediaries to see this in action.

It is here that intermediaries have historically stepped in. From real estate brokers to advertisers, all attempt to provide buyers with sufficient information to overcome their perceived informational deficiency, while profiting by earning a commission or spread on the transaction.

The problem
The problem from a macroeconomic perspective is that while intermediaries have added economic efficiency by enabling desirable transactions that otherwise would not take place, at their core, they are incentivized to ensure that some informational asymmetry persists. It is from such asymmetries they make their profits. Too often, they have failed to act as true fiduciaries. From the viewpoint of an individual salesperson, this is perfectly rational, but for the economy as a whole, it means a deadweight loss, when the existence of the intermediary should have helped reduce it.

Worse, with intermediation sometimes taking on multiple layers, moral hazard has proved to be a major risk. The subprime crisis laid bare the consequences of the distorted incentive structures created by such multiple layers. This had disastrous economic consequences, and rightly damaged the perception and reputation of intermediaries. At its core, it is this rightful concern that products may be getting overhyped or mis-sold that leads to the distrust from the public.

Pressures from connectivity
Therefore, it should come as little surprise that with the information revolution helping connect buyers and sellers, and providing a greater level of information about markets than ever before, traders are increasingly seeking to avoid intermediaries. Take the travel agency business. Traditionally earning a significant portion of its income from commissions on airline tickets, the rise of direct booking via the internet led to significant pressure on the industry’s commission-based income. The UK is Europe’s most advanced market in terms of online booking – internet bookings represent close to 80% of all trips in 2012, a near-50% increase since 2008, according to a recent study of online booking trends. Just 15% of trips were booked through traditional agencies.

Elsewhere, recorded media has faced a major challenge. Convenient and low-cost online alternatives have led to sales of physical music falling by more than half in the past decade.
A similar story is playing out across recorded media including books, video and games. Companies reliant on physical music, books, and video sales or rentals have faced bankruptcy. In the insurance industry, online buying has allowed greater price transparency for consumers and reduced the need for insurance brokers. Today, searching for insurance quotes online is the most popular means of shopping for auto insurance in the US, accounting for 67% of buyers, according to a recent survey.

In each case, the determining factors of the transition are a combination of more reliable information coming at lower cost and with greater convenience. Of course, this poses a significant challenge for intermediaries, although from a macroeconomic perspective, all are highly positive developments. In each case, informational asymmetry is reduced significantly and economic efficiency is improved.

**Challenges for financial services**

In our own intermediary industry, financial services, the effect of these secular trends cannot be escaped. Already, the development of connected technologies has transformed the potential cost and convenience of a number of products. Basic trading services are now made available more cheaply and conveniently than ever before by a range of online brokers. In the asset management industry, the development of exchange-traded products has allowed investors to access broad indices across an increasing range of asset classes at low cost. And even within finance itself, investment banks have sought to disintermediate exchanges through dark pools.

**Re-intermediation**

Yet, for the industries in question, the results need not be disastrous. An interesting precedent in most industries that have suffered from disintermediation has been a trend towards re-intermediation. The sheer choice and scope of the online market has meant a role has developed for new intermediaries who can contextualize this.

Apple’s iTunes and Spotify have emerged to help users navigate the vast array of musical options available. In the travel space, online portals such as TripAdvisor, Expedia and booking.com act as a first port of call for many seeking advice or a convenient means of booking. And while insurance broking has been challenged by the rise of the internet, a plethora of online comparison websites have stepped in to the position brokers may have once held.

**The lessons for financial services**

The finance industry can learn from this. The lesson from a number of other industries has been that fighting technological change has usually been to no avail. Instead, it has often proved better to help users navigate the options available in a transparent and unbiased manner, and keep fees low for basic services, while seeking to profit from non-commoditized, high-value added areas.

While there is a long way to go, UBS has begun to take some steps in this direction. To help our clients contextualize the range of available investment options, both the investment bank and wealth management have refocused their offerings on advisory services. The development of an independent Chief Investment Office within wealth management is designed to ensure we act as a transparent fiduciary. And in the investment bank, the transition in our business model has been toward, that of a trusted advisor to institutional and corporate clients.1

Meanwhile, we need to ensure that client transactions are conducted at the lowest possible cost. In wealth management, this means remaining committed to our best execution and open architecture principles, and offering a range of flat fee options to clients. And in the investment bank, it means using technology to continue to improve execution capability. UBS continues to make significant strides in multilateral trading facility trading, helping our clients trade at lower cost. In asset management, with technology increasing performance and fee transparency, it means offering a range of low-cost exchange traded funds while becoming more focused than ever on ensuring the performance of active funds justifies their higher fees.1

Moves to disintermediate the banking sector are nothing new. Indeed, the very development of a capital market at all is, in a sense, a disintermediation, as companies seek to source funding directly from investors, without the need to take a bank loan. As capital markets grew over recent decades, banks responded to the transition well, stepping into the new market to act as advisors on the wide range of options available to investors.

The challenge posed by a combination of advancing technology and new regulation is potentially greater than ever. Changes in regulation, such as higher capital requirements and increased cross-border transparency, could also serve to exacerbate the disintermediation trend. Such regulatory changes come with greater complexity, which could require greater scale.

In conclusion, banks can no longer seek to make money merely from acting as a middle man and charging for transactions. There is still room to add significant value, as intermediaries in a number of other industries have proved. The most valuable services can only be provided by properly understanding our clients’ needs. In doing this, we at UBS hope to help our clients meet their financial goals, and to play our part in finding microeconomic solutions to the macroeconomic problems that world leaders are working to solve.1

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