The Information and Communication Revolution:
Economies without Barriers or Borders

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While preparing to give a talk I typically ask myself a couple of questions: First, why are they interested in me? Second, why am I interested in them? For today’s talk it was easy to answer both questions.

The answer to each question is that monetary policy and telecommunications are inextricably linked. It has long been my belief that thinking about money is thinking about communication. Thinking about prices is thinking about communication. Thinking about financial services is thinking about communication. And, obviously, any payments system is a communication system.

Unfortunately, at times central banks around the world – including ours -- have been criticized for communicating poorly. Either their objectives haven’t been clear or their tactics and strategies have caused confusion. I believe central banks are most successful when they articulate their policy clearly, and when that policy consists of keeping the purchasing power of the currency stable.

Central banks play a critical role in the private wealth creation process by ensuring the soundness of the payments system. First and foremost, this requires central banks to conduct a monetary policy that keeps inflation so low that businesses and households don’t have to worry about it when they make decisions about the future. Keeping inflation low means removing the monetary static in prices that occurs when the exchange value of the monetary unit changes over time. Monetary static garbles the signals that relative price changes provide. Central banks do not want specific prices to be stable; all money prices must be free to change. Instead, central banks want to prevent concerns about the purchasing power of money from influencing economic decisions.
They want all observed price changes to communicate the information necessary for efficient resource allocation.

The goal of monetary policy is straightforward, but achieving it is not. Part of the problem stems from how people even use the term “monetary policy.” Popular usage of the term by “Fed watchers” is quite different from the way I would like to use the expression. Even qualifiers such as monetary policy objectives and monetary policy actions usually require elaboration in order to be clear. At least one dictionary definition of policy is “a high-level overall plan embracing the general goals and acceptable procedures, especially of a government body.”

Yet, the most frequent adjectives we see in the popular press about monetary policy are “tight” or “easy” and reports indicate that the monetary authorities are poised to “tighten” or “loosen” policy. How can a “high-level overall plan” be characterized as tight or easy? Maybe it is fair to characterize the actions to achieve the objectives as being tighter or easier than before, but it certainly is not appropriate to talk about the objectives as being tight or easy.

Even the most avid “fine tuner” of monetary policy has a long-term objective in mind, and people who share the same objective may differ on the appropriate tactics needed to be successful. Excessive focus on the short-term actions to implement a policy runs the risk of confusing observers about the ultimate objective. If observers don’t know the intended destination, or don’t agree with it, they will naturally second-guess the appropriateness of course corrections. And, at times course corrections are necessary when the economic environment we find ourselves in has changed.
The advances in technology, especially telecommunications technology, witnessed over the past decade or so have not only allowed us to increase productivity at record rates, but have also forced us at the Federal Reserve to delve into some deep and far-reaching questions.

Let me start with an apparently simple question that will give some insight into the issues that both you, in the telecommunications business, and we, in the realm of banking and monetary policy, will be dealing with for years to come. That question is: What is a bank? Had I asked this question a generation ago, coming up with the answer would have been much easier. A bank was a place to deposit money and obtain loans. It was where we went to deposit our paychecks or our cash. We physically drove or walked, filled out deposit or withdrawal slips, stood in line, talked with the tellers, and so on. Most banks were imposing structures signifying strength, integrity, and permanence. Banking was a decidedly local experience. In fact, many banking regulations were, or still are, related to geography. It was important to know where the bank was located, how many branches it had, where most of its assets were held, and so on.

In contrast, my grandchildren may never see the inside of a bank; and when asked the name of their bank they will reply, “something dot-com.” After all, the essential activity of a bank is the transfer of information—and that is what ties us in the banking sphere to you in the telecommunications industry.

It seems only natural then, that some firms now specializing in financial services will combine with others now specializing in communications. A couple of months ago the former chairman of Citibank disclosed that prior to merging with Travelers Insurance he was considering a merger with AT&T.
I started thinking about such possibilities a few years ago while attending a conference of central bankers from around the world. A representative from one country explained that the central bank was proposing to their Parliament that they end the statutory distinction between bank charters and any other corporate charters. Then the central bank planned to end the regulatory distinction between a deposit and any other liability on a company's balance sheet.

He was asked, "suppose the phone company says to people: 'you owe us $50, but send us $500 – and we will pay you interest on your credit balance; then when you need to pay your electric bill, simply push all the right buttons and we will make the payment for you.'"

The central banker's response was "that is exactly the example we use with the Parliament."

The follow-up question was, "suppose the phone company then applies for a settlement account at the central bank."

He responded, "we expect that also."

Then he was asked, "doesn't that make the phone company a bank?"

His answer was: "that is not a useful question because nothing depends on the answer – we simply don't care anymore."

I cite this example as a way of illustrating that rapid advances in information and communication technologies are causing us to rethink our ideas about what is and what is not a bank, and what the appropriate role of government is. Technological advances change the economic forces at work, making it necessary for statutes to be amended to reflect the reality of the altered economic environment. For example, last year Congress
finally passed legislation that ended the 66 year-old prohibition of mergers between
banks and insurance companies, after such mergers had already occurred!

Many of the statutes and regulations that segmented and fragmented both
the communications industry and the financial services industry in the United
States were put in place during the 1930s -- in my opinion a watershed decade
around the world. In response to a worldwide economic depression, many
countries greatly increased government intrusion into economic affairs.
Regulations controlled what could be produced and where, what prices could be
charged to consumers, how much could be paid for labor, what interest rates could
be paid or received, and even how much profit could be earned.

Consider some of the by-products of that decade in the financial services industry:

• for more than 40 years, it was illegal for Americans to own gold;

• for 50 years, the government set a maximum interest rate that people were
allowed to earn on their savings;

• arbitrary regulations made it uneconomical for banks to issue traveler’s
checks;

• some institutions could make mortgage loans, but not car loans; some
institutions could offer individual savings accounts, but not checking
accounts;

• withdrawals from some institutions were made only in currency or by a check,
which, if you wanted to pay for something, you had to then deposit into
another institution so you could write another check;
• if you used an ATM across the state line, you could make a withdrawal from your account, but you could not make a deposit. (That finally changed just three years ago.)

These rules -- as many rules are -- were set up explicitly for the political and economic environment in existence at the time. Instead of providing the appropriate infrastructure to enable the banking system to innovate and experiment, government regulations shackled the financial services industry with arbitrary rules and strict definitions outlining what banks and non-bank financial firms could do, what products they could offer, and where they could do business. I'm sure this all sounds very familiar to people in the telecommunications industries.

The main point is, in the decades since the 1930s, technological advances have greatly eroded and undermined the previous legal structure of the financial services industry, as it has the communications industry. Everyone knew the laws and regulations had to change. A dozen years ago few bankers would have predicted that the Berlin Wall would come down before the Glass-Steagall wall separating banking, insurance, and securities activities. It was precisely the irresistible force of innovation in information and communications technologies up against the immovable object of regulations that gave us the rather odd entity known as a non-bank bank.

As financial regulations crumble, as walls typically do, what can we expect? What can we expect as consumers’ banking needs and preferences change? What can we expect as new forms of transactions media arise and evolve?

Answers to these questions are important. They are important because the central bank has the opportunity to be an active, integral piece of the evolving financial
environment. It has the opportunity to help construct an infrastructure that will promote
growth, but it must avoid inhibiting it with arbitrary rules. It has the opportunity to foster
and encourage new payments systems and new media of exchange, which may be stifled
without central bank support, in spite of the dictates of the market.

For a moment, let’s imagine a world in which there is perfect record keeping,
where we can instantly pay for any product or service and instantly record any
transaction. In such a world, what role does government-provided fiat currency serve?
Suppose at a vending machine we could push a few buttons on our cellular phone and
have our soft drink dispensed. Maybe you saw the IBM commercial during the Olympics
where a young woman does just that. Or, suppose we could pay for our parking with a
wireless phone, as is now possible in Europe. My point is that the time will come when
paper currency is no more important in the payments system than metal coins. Money, in
such a world, is just electronic bits of information.

If you were to look up the word “money” in an economics textbook you would
find that one of its essential roles is to serve as a medium of exchange -- that is,
something that is used to facilitate transactions. That something might be stones, metal,
jewels, paper, or electronic bits of information.

A substantial amount has been written about what kinds of objects might be best
suited to perform this media of exchange role. Without getting into the specifics, it
seems quite intuitive that whatever does play this role is itself not expensive to produce
or exchange. Obviously, fiat paper currency fulfills this requirement. Often, however,
precisely because it is easy and essentially costless to produce, governments have
undermined its usefulness by printing too much of the stuff, an issue we won't delve into much today.

And this leads naturally into another question: Historically, why have nearly all countries had their own currency? Maybe to be taken seriously as a country you needed to have a flag, a military, an Olympic team of one form or another, and your own currency. Usually there was also a national airline and a national phone company.

For many reasons, some touched on earlier, the recent trend is in the direction of moving toward fewer currencies. Many countries have “dollarized” – meaning they accepted some other country’s currency as their medium of exchange – Ecuador being the most recent instance – perhaps as a response to a lack of monetary restraint by their central banks. In Europe, eleven governments have adopted the euro to replace their various national currencies.

While these changes are important, advances in technology, especially communications technology, are changing the financial and monetary landscape in even more significant ways. At the same time that more and more countries are dollarizing and the euro is being phased in, we are seeing a new form of money being created: virtual currency.

Beenz and Flooz are examples. Beenz are given as rewards for purchasing products or just visiting web sites. They can be used to buy products from many e-tailers. The upshot is that the currency’s country of origin is no longer meaningful. Beenz are what we might think of as countryless currency. Twenty years ago what prohibited me from buying products directly from someone in Japan was that I did not know what products they had and, even if I did know, I had dollars and they wanted yen.
Flooz are another form of virtual currency, but different from Beenz. You purchase Flooz using a credit card. They are denominated in U.S. dollars—a kind of a worldwide dollarization. They can be sent to someone over the Internet and used to purchase items from participating e-tailers.

I just slipped in a word there, "participating," that I need to elaborate on, and to do so I need to use some jargon. However, it is jargon that many of you might be familiar with, though from your own perspective. In economics we use a term known as network externalities. What this means is that some technologies become ever more useful as more and more people use the technology. For example, while the first telephone was a huge technological breakthrough, if only five people had one, it wouldn't be of much use. Once everyone had one, it opened the world to instantaneous communication. And in the context of money, network externalities are one reason why people in other countries hold so many dollars. The U.S. dollar is so widely accepted as a means of payment precisely because it is so widely accepted as a means of payment! And, it is so because of its properties: stability, integrity, and recognizability.

In addition to new currencies, new technologies have also forged new payments systems. So while sales are instantaneous, payments may not be. E-stores may be open 24/7, but conventional banks are not. The way web sales typically work is through credit. In many places around the world, however, it is possible to debit one account and credit another, so that an electronic cash payment is instantaneous. And new technologies and applications are rapidly arising and spreading. Even as I was preparing for this talk I received this from a news service:
9/13 PRNewswire **Headline:** “NetBank announced the addition of wireless banking services. Along with 24x7 access by phone or PC, NetBank customers can now easily receive account information from any digital cell phone, Web-enabled phone (WAP), or Palm VII without having to log onto the Web.”

And another:

**Headline:** “ING Direct (part of ING Barings) will soon open three bank cafes.”

“It's like a regular coffee shop,” says president and CEO Mr. Kuhlmann, “but you can also do your banking there.”

What is the central bank’s role in all of this? While the Federal Reserve Banks have been major players in earlier forms of payments, like clearing checks, issuing currency and processing currency, our future role is yet to be determined. My hope is that the payments system or systems that evolve will do so precisely for the same reason that people in other countries have found the dollar to be so useful, to economize on the costs of transactions. We must understand that everything we do as a central bank is changing in fundamental ways, and in order to continue to be successful in our primary missions our methods will have to evolve along with communications technologies.

There is no one of our functions as a central bank that could not be assigned to someone else. In recent years, we have seen other central banks around the world give up any role in monetary policy – either through currency boards that simply accept the monetary policy of another country, or by “dollarizing” as Ecuador did just this month, or, by forming multinational economic unions as Western Europe – the Bundesbank, Bank of France, Bank of Italy, and others – did when they transferred their powers to the new European Central Bank.
The British Parliament transferred authority for supervising financial institutions out of the Bank of England into a new agency, and, in fact, less than half the central banks of the world now have supervisory responsibility. Also, many central banks have little role in assuring the dependability and integrity of the payments system of their own country, especially as a payments services provider.

We know what people want. They want someone to be responsible for providing a stable medium of exchange and store of value. They want someone to assure that financial intermediaries are soundly managed and will serve as reliable places both to hold their savings and to obtain loans. And, people want someone to assure that there is an efficient, reliable way to make payments with minimum worry about forgery, counterfeiting and other fraudulent practices.

While the forms of money and payments are migrating from paper currency and paper checks to the electronic debiting and crediting of people's accounts, wherever they are held, the central bank's mission of ensuring the integrity of money and financial services remains the same.

I began my remarks today by noting a link between what you do, communication, and what we do at the Federal Reserve -- money and banking. Buyers will always need to communicate willingness and ability to pay to sellers, and financial service firms will process and communicate the transfer of funds between the parties. I look forward to seeing how the new ideas and technologies will change the way people bank, just as it has changed the way we shop or communicate with one another.