"Welcome, Mr. Matsushita, to the New World"

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Dear Matsushita-san:

A couple of years ago, I attended a breakfast meeting in New York hosted by my good friend Toshimi Yamani. Yamani-san's breakfast meetings were always important events in New York. They were attended by the most important and powerful Japanese businessmen in America and by some of the most important American journalists and business people as well. And they always had an interesting speaker. At this particular meeting, the guest of honor and speaker was Helmut Schmidt, the former German Chancellor and economist who was the architect of that nation's economic rise.

I had met the chain-smoking Chancellor years before in Europe when I was a young economist at the United Nations. Back then, we talked about the post-Bretton Woods economic arrangement. He was very pessimistic about the global economy and its chances for long-term stability. I was curious to see if Mr. Schmidt views had changed.

"Chancellor," I said, taking him off to the side. "What do you think *now* of the current global economic system?"

"System?" He said, puffing on his cigarette. "We don't really have a system. Bretton-Woods was a system. What we have is what I call a *floating non-system*."

I paused for a moment to consider the thought. "And what do you think about the central banks' ability to take a leadership role in that non-system?"

The ex-Chancellor trained his large, gray eyes on me. Smoke swirled as he puffed his cigarette. "They are perhaps the least able group to take the lead," he finally said. "They don't even understand that the world has changed."

Matsushita-san, making your fellow central bankers understand the dimensions of the new world will be your greatest challenge. Without such an understanding, they will not be able to lead.

The world is indeed different today than it was two decades ago when the old Bretton Woods system unraveled. Central banks, while important, are far less important than they once were. The reason is that we now live in the *megabyte* economy.

The megabyte economy is the non-system Chancellor Schmidt talked about. It is a phenomenally complex assemblage of computers, fiber-optics lines, satellites and microwave relays. It is a network, really, that moves money at nearly the speed of light. But what kind of money does it move? Not money in the old sense -- the coins and bills we keep in our pockets and purses -- instead, this new economy moves only the "ones" and "zeros" of the computer code. Money is now another form of information.

The amount of money traveling through the world's megabyte network is vast. Each day, $1.4 trillion passes underneath the pot-holed streets of New York and through its computers. Similar amounts travel through Tokyo's markets and banks. And because it is a *network*, this new megabyte economy has no real center. With computers, everything on the network is equidistant from everything else. In fact, distance does not matter on a network where electrons and photons travel at Einsteinian speeds. Washington, Tokyo,

New York, Chicago and London exist next to each other in cyberspace. The Federal Reserve, the Bank of Japan, the local department store, Automated Teller Machines (ATMs) and even the neighborhood gas pump are linked in the syncopated dance of electronic money.

For the world's central bankers, this presents a problem. Take, for example, one of their primary tasks -- assuring the value of the currency. Guaranteeing the value of the currency, Matsushsita-san, is one of your goals, according to a recent interview you gave to the The Economist newspaper.

In the old days, by that I mean a decade and a half ago, the central bankers wielded enormous power. They could make an announcement, huff and puff, and all the world's currency markets would shudder. The central bankers would say "the dollar is too weak," or the "yen is too strong," and traders would brace themselves for central-bank intervention. When the intervention happened, and central bankers bought or sold billions of dollars worth of a currency in the markets, that currency's value would change.

Today, when the central bankers make their announcement traders "just yawn," said Madis Senner, a dollar trader who is director of Global Fixed Investments at Van Eck Associates Inc., in New York, and the author of several books on the international financial markets. "We pay attention to what the central banks say, but we don't worry all that much. The central banks don't move the market anymore."

Why can't they move the markets? And if they don't move the markets, who does?

Each day, on the computerized trading floors that make up the world's floating non-system, about $1 trillion changes hands as speculators and investors bet on the world's major currencies. These traders have six, sometimes eight, computers on their desks which

are connected to currency markets around the world. They buy and sell currencies with the click of the mouse. If they are running trading programs on today's most sophisticated software platforms, a single trader may be watching between 20 and 30, different windows on his computers. These programs are comparing exchange rates for the dollar and yen *simultaneously* on different markets around the world. If the yen rises in London but falls slightly in New York, a touch of the mouse allows the traders to take advantage of those minute discrepancies. Sophisticated analysis programs, some based on *expert-system* software, help the traders make their buy and sell decisions.

It all has the feel of a video game, except the game is real and the stakes are trillions of dollars worth of megabyte money. While kids in the video arcades ride simulated rockets to the moon and play virtual chess, these *money* arcades are tied directly to the centers of the world's wealth. The games these traders play affect the average citizen's buying power and the fates of entire nations.

A visit to Salomon Brothers in New York, will explain what I mean. There are two trading floors at Solly's, as it is called. Each is about 90 meters long by 70 meters wide. On the floor, as far as the eye can see, there are desks piled high with computers. Some of the computers have little windows where traders can watch CNN to learn about changes in the world.

Behind these desks, small teams of traders meet, plan strategy and then execute trades. The teams are composed of highly intelligent people who are filled with energy and spirit. The mood on the floor is not unlike the mood on the baseball field -- intense, focused, ready to respond. There are teams that trade bonds, futures contracts, derivatives and anything else the mind can imagine.

These teams have electronic access to the all of the world's news gathering organizations -- from Nikkei to Bloomberg, Reuters, AP, Financial Times, Wall Street Journal and the New York Times. They also have analysis software that is designed to assess and help the traders distribute risk. Through their terminals, Solly's traders can communicate with anyone else in this electronic world.

Salomon Brothers, like much of the megabyte world, is populated with the best and the brightest minds. Traders, who were once street-smart hustlers, are now very likely to have Ph.D's in engineering, physics, computer science or economics. Not only do they come from the nation's best business schools, but a growing number earned their degrees at M.I.T., Berkeley and Carnegie Mellon -- places better known for science than business. Wall Street -- not to mention Chicago, London and Kabutocho -- have become the world's high-tech centers and have attracted the world's most astute minds.

And Solomon Brothers is only one trading house -- one *node* of the megabyte economy. There is Nomura and Fuji, Bear Stearns, Citicorp, Morgan Stanley, Dai Ichi Kangyo, and on and on. All of these nodes connected together electronically in cyberspace, doing business in nano-seconds. Though they are far away from one another *geographically*, they are all located on the same street, *electronically*.

Compare that to the central banks, Matsushita-san.

The central banks, fine institutions that they are, arose in the 19th century. They are marble palaces of quiet dignity -- existing light years away from the howling outcries of the Chicago trading pits and the fancy hand-signals of Tokyo's traders.

Though the central banks are large-scale *economic* entities, they are larger-scale *political* entities. Their presidents and chairmen are there because they are identified with a

point of view that the party-in-power finds favorable. (By contrast, the markets have no point-of-view except maximizing profit.) You, Matsushita-san, are one of the few central bankers who was actually a banker. Most come from the world of politics, academia and government.

Because the central banks are political institutions, they work through committee structures, they write policy papers, they testify before their Congresses and Parliaments, and they meet on a regularly scheduled basis to talks about such things as interest rates.

Compared to the markets, these institutions operate in *geological* time frames. While the October 19, 1987, stock market crash destroyed billions of dollars worth of value each minute, it took the world's central banks, along with committees of Congress and of the world's Parliaments, months -- *and in some cases years* -- to assess the damage. By the time these establishments made their pronouncements about what had happened, the markets had changed. The regulators had moved too slowly.

These two very different worlds, the slow and ponderous political world of the central banks, and the electronically frenzied world of the markets, make it difficult to really determine who is regulating whom. Last November, when the Federal Reserve finally decided that the dollar had fallen too far against the yen, it gathered together about $2 billion worth of currencies and bought back dollars. The Fed's actions, coupled with lots of PR from Washington, increased the value of the dollar by six-tenths of one percent against the yen. But the next day, the markets corrected the Feds' actions by driving the dollar back to its previous days price. As a result, the Fed found itself overruled by the market. So who is regulating whom? In that case, the Fed was regulated by the markets.

The world's central banks are a bit like Great Britain -- once mighty, still filled with grandeur and pomp, but clearly second-tier players. For an institution in that predicament, high-mindedness and diplomacy are the last preserves of power.

Not only have private speculators overwhelmed the world's central banks when it comes to dollar volume, but new participants are now aiming at creating alternatives to the central banks' themselves. The floating non-system is giving rise to new, private, sub-systems within it.

Citicorp is an example. While it may no longer be one of the world's largest banks, it is one of its most technologically sophisticated. Back in the 1970's, Citicorp recruited Paul Glaser, an engineer, from the space program to work for the bank. Mr. Glaser used his space-program skills to build Citicorp's ATM network and create its computer networks for credit cards and money. His legacy lives on at Citicorp where the company is experimenting with what it calls "Electronic Money."

Electronic Money puts a computer chip inside a credit card. That's not particularly new. Smart cards have been around for more than a decade in Europe.

But what distinguishes Citicorps' card is not the technology but the *concept*. By creating a card that can be "charged" with money each morning on a personal computer, from a phone or an ATM machine, and "discharged," each time you pay a bill or make a purchase, Citicorp has created something new: its own, private form of money.

In the Citicorp concept, merchants will sign up with the bank to accept Citicorp's Electronic Money. Employers, department stores, gas stations, supermarkets, all will agree to be part of the network that Citicorp oversees. But what will be exchanged? Not U.S. dollars but Citicorp dollars; a new form of private currency issued by the bank. Citicorp,

not the Fed, will guarantee the value of its new medium of exchange. Citicorp, not the Fed, will determine how many hours of work it will take to purchase a car. And, if you want to spend Citicorp's Electronic Money at an establishment that is not connected with the bank, there will probably be an exchange rate to contend with between U.S. dollars and Citicorp's electronic currency. What will guarantee the value of Citicorp's proprietary money? It could be gold, it could be dollars, or it could be anything else the bank chooses. Who knows, one day Citicorp's currency may be a better investment than U.S. dollars.

And who will regulate Citicorp's Electronic Money? Or a new money invented by a large Japanese Bank, for that matter? That's a good question -- one that you, Matsushita san, will probably have to answer during your tenure at the Bank of Japan. It is a dilemma that no one has had to consider for decades. Private bank-issued money has not existed in the United States since the establishment of the Federal Reserve in 1914. It has not existed in Europe for even longer. As a consequence, no one knows who will be responsible for setting the rules governing this medium of electronic exchange.

Citicorp is not the only company trying to navigate through the global, non-system. In November, Bill Gates, co-founder and chairman of the Microsoft Corporation, announced he would enter the megabyte economy. Now that money has become just another form of information, who would know better about how to control, manipulate and create it than the this software pioneer, America's richest man?

To make this foray into the megabyte economy, Microsoft recently agreed to purchase the Intuit Corporation for $1.5 billion in stock. The deal still must be approved by the U.S. Justice Department to make sure it does not violate anti-trust law. Intuit, which was founded by Scott Cook, a California entrepreneur educated at the Harvard

Business School, is the software developer that created Quicken. Quicken is a program for managing money that now has about 70 percent of the American market. It keeps track of an individual's income and expenses, writes and prints checks, pays bills and even helps prepare a user's tax returns. And it can be automated so that it can pay bills on time, by deducting money electronically from an individual's account and depositing it into another account on the same days each month.

But Quicken is also more. It is a network that connects people directly to their bank's computer. By doing so, a user can pay bills electronically using the same system, called Fedwire, that the nation's largest banks and the Federal Reserve use to transfers money electronically. Fedwire connects all 14,000 American banks with thousands of foreign banks. It links the Federal Reserve with these banks and every night, it clears two billion checks. It is a the *internet* of money.

Fedwire is not what they call "user friendly." In fact, an individual using Fedwire would be a little like a child riding down the high-speed Autobahn on a tricycle. Quicken allows anyone with a PC to tell his bank's computer what to do.

But Quicken will not stand alone. It will become part of the Microsoft empire and Mr. Cook, Intuit's founder, will report directly to Mr. Gates as Microsoft's new Executive Vice President for Electronic Commerce.

One new element in Microsoft's empire is a private electronic network -- called Microsoft Network -- which will be run by the Digital Electronics Corporation. Microsoft's newest version of its popular Windows software, called Windows '95, which will debut next Spring, will be sold with a communications package that will enable users to access Microsoft Network.

That high-speed network will link individuals with companies around the world. One of its goals is to provide a messaging service -- E-Mail -- to its subscribers. But by purchasing Intuit, the network will do even more. Potentially, it can become the world's first private financial network for making purchases, paying bills, buying stocks and bonds, and even paying taxes. Through agreements Mr. Gates recently concluded with Chase Manhattan Bank and Visa International, Microsoft Network will have direct links to most of the world's financial system.

Now put Microsoft's new financial network together with Citicorp's concept for a new form of electronic money. In that case, the world would really have something new, Matsushita-san. It would have a new, private form of money that travels along a new, private, information highway. The money and the highway would be designed to work together. Their infrastructures would be automated. The new system -- instead of the old floating non-system -- could be designed to automatically pay every member's bills, when they are due. It could pay their taxes and even deposit their salaries directly into their banks. It could be used for the purchase of stocks and bonds and the automatic conversion of one currency into another. It could pay fines and traffic tickets. It would make the use of cash and checks obsolete. And new encryption technology could make monetary transfers along this network secure and private.

Think of the new world that will be arriving during your tenure as the head of the Bank of Japan, Matsushita-san. It is a world that will be extremely complicated, perhaps even comprised of several parallel -- *and competing* -- electronic economies.

Some of these economies would be entirely private while others would be public. Some of these networks would trade private forms of money, along with governmental

forms of money. Some networks would undoubtedly be set up to mediate between the private and governmental money networks. Watchdogs would have to be put in place to oversee the networks as they become ever more automated.

And who would regulate this global, network of networks? Who would guarantee the value the old and new currencies that move through the world's computers?

For the world's central bankers to lead, they must -- as Chancellor Schmidt said -- understand the world that is emerging. They must become *futurists*, as well as bankers. And they must move from thinking in long, geological-time segments, to thinking in electronic terms. Nothing in the history of world banking or global economics has prepared the world's central bankers for what they will soon encounter. You, Matsushita-san, must take the lead in moving your central-bank colleagues from around the world into the megabyte world.