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**Preventing the Next Crisis:
The Nexus between Financial Markets, Financial
Institutions and Central Banks**

Speech at the London Stock Exchange

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Preventing the next crisis: The nexus between financial markets, financial institutions and central banks

Ladies and Gentlemen,

I. Introduction

It is a great honor to have the chance today to present my views at the London Stock Exchange right at the heart of the City of London. This is the first opportunity for a Governor of the Bank of Japan to speak in the City. Let me extend my gratitude to the three hosts that have made it possible: International Financial Services, London, the London Stock Exchange, and the Japan Society of the United Kingdom. They have all played and are continuing to play critical roles in the development of the City as the world's premier financial center.

Both Japan as a country and the Bank of Japan have had a close relationship with the City since Japan entered the modern era. Japan issued its first government bond here in London in 1870, only two years after the Meiji Government was established. This was to raise funds to build its first railroad between Tokyo and Yokohama, which naturally was built by a British gentleman, Mr. Edmund Morel. The Bank of Japan was established in 1882 and its first overseas office was set up here in the City of London in 1904 at 120 Bishopsgate. At the time of its establishment, assimilating expertise on modern banking business was essential for the Bank of Japan, and young staff members were sent to commercial banks here in the City as trainees. Two of them returned to later become Governor of the Bank of Japan.

Over the years, the Chief Representative of our London Office has continued to report back to Tokyo on developments in the London financial market which is an epitome of the global financial markets. Reading the reports in our archives one cannot be but surprised by the fact that financial crises are not necessarily rare events. They have occurred quite often and unfortunately the lessons are also frequently forgotten.

Our most pressing challenge today globally is to resolve this crisis and to get the economy onto a stable growth path. But we also simultaneously need to think about how we can prevent the next crisis. On this point, the United Kingdom is

demonstrating its leadership as the Chair of the G20, hosting and leading the discussions at the recent financial summit. In March, the Financial Services Authority issued its Turner Review¹ which examines the factors behind the crisis and presents broad-based regulatory and supervisory responses to create a stable and effective banking system. Today, I would like to present to you my views on steps necessary to prevent the recurrence of financial crises, reflecting upon the history of past crises and the interlinkages between financial markets, financial institutions, and central banks.

II. Current conditions

To set the stage, I will briefly explain the current condition of the Japanese economy and financial system, and then touch upon the global landscape. Japanese banks had relatively limited exposures to complex securitized products and thus the Japanese financial system retained its stability even after the initial shocks during the summer of 2007. However, conditions changed dramatically after the collapse of Lehman Brothers, although stress levels in Japan's financial markets were milder than those in US, UK, and the euro area. For example, three month Libor-OIS spreads, a signal for assessing tension in money markets, increased in the yen market only to twice the levels seen before the failure, while those in the US dollar, euro and sterling markets spiked to levels three to four times higher. In sharp contrast, when one looks at the impact of the global financial crisis on the real economy, Japan's real GDP fell the sharpest among the major economies, falling -12.1% on an annualized basis during the last quarter of 2008, though annualization might be misleading in this rapidly changing environment. In any event, the Japanese economy literally fell off a cliff. This large drop is a simple reflection of the fact that the export oriented industries, namely automobiles, electronics, and IT and capex related areas, which were impacted the most by the fall in global demand, have roughly a 50% share of Japanese industrial production. This is much larger than the US and UK where these sectors only have a share of approximately 20%. More recently, we have seen some positive signs as industrial production has increased for the first time in six months. Although we expect the pace of deterioration in economic conditions to moderate gradually and the economy to start to level out towards the end of this year, we are closely watching developments.

Why has the global economy weakened so sharply since last autumn?

First and foremost, excesses had built up during the high growth period earlier in this decade. Credit bubbles had emerged in several regions of the world which began to unwind rapidly as the financial turmoil unfolded. In this process, the adverse feedback loop between financial and real economic activities has compounded the damaging effects. Second, this was further aggravated by the sudden and severe erosion of confidence in financial markets triggered by the collapse of Lehman Brothers. This further restricted the flow of funds from the financial system to the real economy, and also sharply cut back capital flows to emerging economies.

As I mentioned, the Japanese financial markets have been relatively calm compared with US, UK and the euro area. But, still, the effects of the global financial turmoil have been felt through multiple channels. Foreign banks retreated from certain business areas in Japan. Their presence diminished in the yen money market where they had accounted for more than half of turnover before the crisis. In some cases, the Japanese operations of foreign banks faced difficulties in their yen funding. Additionally, the spillover of the shocks from the global financial markets basically froze our CP market and corporate bond market. On another note, as foreign banks came under capital constraints, Japanese banks faced increased demand for foreign currency denominated funds from both foreign and domestic firms.

This crisis has once again shown that conditions in the financial markets and financial system strongly influence the real economy, and that financial markets and the financial system are globally interlinked.

III. Humbly learning the lessons of history

I would like to review a bit of history to pick out what I believe to be commonalities of past crises.²

Financial crises have occurred repeatedly in history. In Japan, we experienced a major financial crisis shortly after World War I as an asset price bubble collapsed. Following many years of relative calm in the financial system, we experienced our next major financial crisis during the latter half of the 1990s. The total cost of dealing with non-performing loans in this episode was over 100

trillion yen or roughly 20% of nominal GDP. 12.4 trillion yen of public funds was injected into the banking system as capital. In the UK, in 1890, the bursting of an overseas investment bubble resulted in the Baring Crisis, and more recently, the Secondary Banking Crisis occurred during the 1970s after the collapse of a commercial real estate boom.

In view of such historical episodes, we all have to be humble in avoiding complacency. To be specific, we must be mindful of the fallacy of the following two unsubstantiated views. One is that benign economic conditions will continue for an extended period into the future. The other is that policy-makers can deal effectively with the bursting of the bubble through aggressive ex-post monetary and fiscal policy.

The key common element of all financial crises is that they are preceded by a period of positive economic performance. For example, in the case of Japan, during the late 1980s, real GDP grew at an average annual pace of over 5% for four years, while CPI remained generally stable staying in a range between slightly negative and 1%. This bred a conviction that the Japanese economy had entered a new era, and in this environment, equity and real estate prices boomed. Globally, after the mid-1980s, the so-called *Great Moderation* led to a substantial decline in the volatility of output and inflation in many major industrial nations including the UK. I will not get into the debate today about the reasons behind this seemingly great moderation, but this change in the macro-economic environment may have lulled many of us, including central bankers into a false sense of stability.

Of course, warnings are raised even during such times. In the late 1980s, senior officials of the Bank of Japan often used the expression "we are sitting on dry fire wood" to explain the precarious situation. The Bank of Japan, to send out a not-too-subtle warning, also published a research paper in 1990 on the UK's Secondary Banking Crisis and its lessons for the Japanese financial community. Here in the UK, for example, before the current crisis, the Bank of England repeatedly pointed out its concerns in its Financial Stability Report regarding the unusually low risk premia prevalent in the markets and the possibility of sudden drop in asset prices due to a sharp change in the assessment of risks. Nonetheless, the mentality "*this time it's different*" always

seems to win out, supported by supposedly credible arguments. Warnings often go unheeded and are drowned out by the party music to which everybody is dancing.

What hinders us from learning the lessons from past crises despite the fact that crises occur repeatedly?

First, memories fade away. As I mentioned, in the current financial crisis, the condition of Japanese financial institutions has been relatively resilient. Fortunately, not much time has passed since Japan's crises during the 90s and senior management still vividly remembers the painful experience. This has led them to be cautious about taking on complicated forms of risk. This might not be the case in the future.

Second, though people may witness the bursting of a bubble and the shocks of a crisis in another country or perhaps read about it in reports or history books, it is difficult to really learn the lessons of the crises and to be able to actually take the necessary steps to prevent them, unless one has directly experienced it. Much has been written and presumably read about the Japanese crisis. But whether the lessons have been truly appreciated seems to be a different story.

Third, crises are never exactly the same, and each crisis has its own unique characteristics. Japan's crisis and the current global crisis have many common elements, but there are also a number of differences. In Japan's case, the non-performing loans were mostly commercial real estate loans extended by banks and the crisis was basically concentrated in the domestic banking sector. On the other hand, the current crisis is global in nature and covers both capital and banking markets. The tools involved, such as CDO squared and off-balance sheet vehicles, are much more complex, thus making the nature of the crisis more complicated.

Additionally, before the current crisis, the pervasive view among policy-makers and academia was that, even if a bubble were to burst, aggressive ex-post monetary easing could prevent a sharp deterioration in economic conditions. I personally was skeptical of this view. Now, the proponents of this view seem to have dramatically decreased as the crisis persists. Central bank policy rates

are close to zero and balance sheets have expanded substantially at many central banks. Some central banks have embarked on credit easing policies as well. Nonetheless, the adverse feedback loop between the financial system and real economy stubbornly remains, though there are some slight signs of improvement. I wonder how many still unconditionally embrace the aforementioned naïve optimistic view.

In short, policy-makers, private sector entities and academics all need to be humble. We can never say we fully understand the dynamics and interlinkages between the financial and economic systems.

IV. Perspectives toward reshaping the global financial system

The root cause of problems at financial institutions can be wide-ranging. But, the symptoms typically emerge through the lack of liquidity or capital. The problem is that, when we look back at the summer of 2007, there were no visible signs and the financial environment seemed quite resilient. The capital ratios of the twenty largest commercial banks by asset size in the world, mostly US, UK, Euro area and Japanese banks, were in the range of 10 to 14 percent and were concentrated between 11 to 12 percent, well above regulatory minimums. On the liquidity side, the sense of abundant liquidity persistently remained, as was evidenced by very low Libor-OIS spreads and the narrow bid-ask spreads for complex securitized products.

However, since then, the landscape has changed in a way which was almost unthinkable. Of the twenty banks, more than half have received injections of capital from their government. Many banks have also faced liquidity difficulties, as raising funds in money markets became restricted reflecting the sharp drop in market liquidity. Some even have experienced outflows of deposits.

Why did both market participants and authorities let their guard down against impending risks? Why couldn't they recognize the problems beneath the surface and take mitigating actions? Let me raise three facets which I believe are relevant.

First, the careful assessment of both funding and market liquidity is essential in today's financial markets. This has two dimensions. One aspect is the

interaction between liquidity and capital. For example, with regard to complex products such as certain securitized instruments, pricing, and as a result, necessary levels of capital to cover risks, are dependent on both market and funding liquidity. Due to their limited market size, when market liquidity drops, prices fall rapidly, putting pressure on banks' earnings and capital levels. The shortage of capital then constrains the market-making activity of key dealers, further reducing market liquidity. Required capital levels are strongly dependent on the assessment of market liquidity risk, not just the underlying credit risks. There is also the risk emerging from crowded trades, where market participants accumulate similar positions in benign market conditions. When market conditions deteriorate, everyone rushes to close their positions, exacerbating market strains further, hence the fall in prices. The second dimension is the risk of liquidity mismatches when short-term funds cover long-term assets. Although this is fundamental risk of the banking business, it seems to have been underestimated. Before the crisis, market participants assumed that CP and interbank markets would always function and would provide access to sufficient liquidity. This led to the build-up of large liquidity mismatches, for example in SIVs. They also believed in the valuation of AAA-rated assets and assumed little risk was involved. They expected that, when cash liquidity was needed, they could promptly sell such assets regardless of the complexity or the size of the market. This led to a further build-up of liquidity risks.

Second, understanding the mechanisms through which leverage builds up and the impact of the unwinding of such leverage is essential. Before the outbreak of the turmoil, leverage had built up both through traditional channels such as repos and through non-traditional channels such as off-balance sheet vehicles and structured credit products. Much of the leverage was parked outside traditional financial institutions and also embedded in complex products held worldwide by various investors. As a result, no one could confidently estimate the overall leverage in the financial system, and thus the depth and breadth of its negative impact, once the cycle went into reverse.

Third, assessing the effectiveness of diversification and hedging strategies are important. Market participants need to understand that some risks cannot be truly diversified or hedged away. For example, mortgage backed securities cannot avoid the risks of a macro shock such as a nationwide drop in residential

house prices. Hedging often involves taking on counterparty and basis risks. AAA-rated counterparties are not risk free. Hedging strategies tend to lose their effectiveness during times of extreme stress. The risks which seem to have been neutralized under normal market conditions, would reemerge once the conditions sustaining the benign market environment collapsed.

The causes of the global financial crisis are multifaceted and there are many lessons to be learned and improvements to be made. If I may repeat what has already been raised by many, the lessons are: market participants must improve risk management; disclosure and transparency must be enhanced to improve the effectiveness of market discipline; authorities must revamp prudential rules and strengthen supervision; and cross-border cooperation among authorities must be further strengthened.

Recognizing the importance of all of this, from a central banker's perspective, let me offer two perspectives which I believe are essential in reshaping the global financial system.

Assessing risks on a system-wide basis.

The first perspective is the assessment of risks on a system-wide basis. As a starting point, it is imperative that overall risks in the financial system are assessed on a macro basis. Risks in the financial system and ultimately in the economy as a whole are not simple sums of the risks held by individual financial institutions.

During the build-up of the excesses, senior management of financial institutions did not sufficiently take into consideration, interlinkages among financial markets and the interactions between the real economy and financial markets. Authorities tended to concentrate on regulation and supervision at an individual firm level rather than system-wide analysis which is critical for the stability of the financial system.

System-wide risks need to be assessed in two ways³. As a starting point, they need to be evaluated on a cross-sectional basis at a specific point in time. Both financial institutions and authorities need to look beyond individual products, risks and institutions. The dispersion and concentration of various types of risks

together with how they interact within financial markets need to be evaluated. Additionally, system-wide risks need to be reviewed dynamically as it evolves over time. This is the pro-cyclicality problem, I will touch upon next. Risk exposures which may seem to be reasonable under benign economic and market conditions, may increase dramatically during times of stress. The fluctuation of risks as they change along with macro-economic environment needs to be carefully assessed as well. These steps are quite challenging, but have become essential in this globalized and fast changing financial system.

Mitigating pro-cyclicality

The second perspective concerns pro-cyclicality, the feedback mechanisms between the financial and real sectors of the economy.

Can we expect financial institutions to take into consideration system-wide implications in making their business decisions? Probably not automatically. Financial institutions face strong competitive pressures. Procyclicality is human nature. Such tendencies could be exacerbated, for example, by short-termism built into compensation schemes.

Another element which influences pro-cyclical behavior is the macro-economic and financial environment. Looking back at bank behavior since the beginning of this decade, interest rates fell in a low inflation environment, banks and other market participants initially increased duration risks, by increasing their holdings of longer-term assets. Then they took on more credit risk investing in a wider range of products. As profits pressures increased, they additionally used more leverage to enhance returns. Considering the competitive pressures in the markets, behavior of individual entities was quite rational. This is what “search for yield” is all about. Even though risk management at the institution level regarding individual risk factors may have been appropriate, risks were accumulating on a system-wide basis.

What is necessary to avoid such accumulation of risks through pro-cyclical behavior?

To begin with, proper incentive structures need to be incorporated into rules and market practice. For example, senior management requires incentive structures

which have time horizons that are consistent with the risk profile of the institution. The recently published Financial Stability Forum's Principles for Sound Compensation Practices⁴ highlights this point and such perspectives are also generally relevant in the areas of accounting and disclosure.

Not only micro-level incentives, but macro-level incentives also matter. Behavior of economic agents is importantly influenced by overall economic and market conditions. When rival firms are generating excess returns through new strategies in a low interest rate environment, the incentives are clear. As in the now famous remarks, it is difficult not to join the party, if everybody is dancing to the music. This is where policy tools to mitigate procyclicality become essential.

Excellent work has already been carried out in various fora such as the Basel Committee on Banking Supervision and the Financial Stability Forum, the new Financial Stability Board, to assess possible pro-cyclicality in current rules, and key areas for further work have been identified such as capital requirements, provisioning, and valuation. Developing a framework whereby banks build up buffers or cushions during good economic times which can be used to absorb shocks during times of stress is required. Policy tools which would enable authorities to steer bank behavior in this direction are called for. Work is continuing but naturally the devil lies in the details. Policy tools need to be dynamic and flexible enough to reflect evolving financial and economic conditions and also deal with the unique condition of each institution. At the same time, they also need to be transparent and market participants would need to be confident in both their effectiveness and fairness. These are challenging conditions, but I am confident the discussions among experts will provide positive results. The important thing is to provide the experts with sufficient time to dig into the heart of the issue and to come up with lasting solutions.

V. Actions by central banks

Finally, I would like to discuss the roles of central banks which are relevant in preventing financial crises. The central bank is the sole provider of unlimited liquidity and responsible for maintaining the stability of the economic and financial environment. Though the specific details differ across individual central banks, this is traditionally understood to include the following roles: conducting monetary policy aimed at maintaining price stability, acting as a

lender-of-last resort, operating and overseeing the payment and settlement system, and in some cases, supervising banks. Today, I would like to talk about the role of central banks from four slightly different angles.

Central bank as providers of system-wide analysis

First, the central bank is a provider of system-wide analysis. In order to develop a system-wide analytical perspective, both hands-on knowledge of the institution as well as the ability of the central bank's staff to engage in a constructive dialogue with management of financial institutions are crucially important. In the Bank of Japan's experience, micro-level supervision, such as on-site examinations and off-site monitoring has been a valuable tool. The Bank of Japan began its on-site examinations in 1928. This was founded on the experiences of the financial crisis during the latter half of the 1920s. The legal basis for on-site examinations was clarified when the Bank of Japan Law was completely revised in 1998. In practice, periodical on-site examinations are complemented by off-site monitoring, including daily liquidity monitoring, which enables the Bank of Japan to continuously assess risks on a system-wide basis. Regardless of which public institution is ultimately responsible for macro-prudential policy, the central bank naturally has a role to play given its unique functions. The central bank has accumulated skills and experience in macro economic analysis and maintains an engrained institutional culture emphasizing the importance of research. The central bank also has access to information through its contacts with market participants and has built up expertise on payment and settlement systems in the course of their banking operations. All of these elements provide a strong foundation for effective system-wide analysis.

Central banks as a plumber

Second, the central bank is a *plumber*. When people think about the functions of the central bank, they tend to focus on monetary policy, which is, in recent years, often narrowly defined as the adjustment of short-term interest rates. However, as central bankers have emphasized over the years⁵, in order to effectively implement monetary policy and maintain the stability of the financial system, reliable *plumbing* including a robust payment and settlement system, is necessary. Markets need an infrastructure, where liquidity flows smoothly and efficiently across products, market participants, time zones and regions. As I

mentioned earlier, the current crisis has reemphasized the importance of liquidity. Naturally, central banks need to provide liquidity as the lender of last resort. But it does not stop there. The role of central bank as a *plumber* is indispensable, even though this is not fully recognized during normal times. For example, the currency swap market is used by banks to access foreign currency funds, especially US dollars. Although it receives little media coverage, the existence of CLS (Continuous Linked Settlement) minimized so-called Herstatt risk which arises when conducting foreign exchange transactions across different time zones, during this crisis. This is a critical risk factor for a country like Japan where markets open first on the globe everyday. Without this system, disruptions in the financial markets during the recent turmoil could have been more severe. Major central banks played a quiet but key role in the establishment of CLS. In other areas, enabling the efficient use of banks' assets as central bank collateral ensures that sufficient liquidity is available to market participants. Having such infrastructure in place becomes ever more important in stress situations. Foreign currency liquidity operations, typically the US dollar, by non-US central banks are also ways to ensure that liquidity flows to where it needs to go when markets are dysfunctional.

Central banks as a global network

Third, central banks have become a part of a tight knit global network. Though needless to say there is no single global currency. But financial markets have become globalized. The Nobel Prize winning British economist Sir John R. Hicks made a keen prediction forty years ago. He predicted that in a globalized financial market "a national central bank will no longer be true central bank", but will become "single banks in a world-wide system"⁶. Of course, each central bank still needs to fulfill its traditional roles within its jurisdictions. But in this globalized financial system, central bank cooperation has become ever more critical, such as the exchange of information and the harmonization of central bank services.

Central banks as an entity guided by long-term interests

Fourth, economic and financial market conditions evolve continuously and it is impractical for us to foresee all future developments and thus predetermine detailed rules. Central banks are in a position to supplement the limitations of such rules. Recent experiences in monetary policy offer a good example. All

central banks have the long-term goal to maintain price stability which is a prerequisite for sustainable growth of the economy. The key is how we define and attain price stability. Almost all central banks have a numerical expression of price stability as they understand, define or target. In the case of Japan, the Bank of Japan has provided its “understanding of medium- to long-term price stability.” The UK has an inflation targeting framework. These numerical expressions play an important role, since independent central banks have to be accountable with respect to their conduct of monetary policy. However, to the extent that a specific number fosters the social presumption that a central bank is expected to focus narrowly on price inflation alone, especially in the short run, it may have the unintended effect of assisting the creation of bubbles when low inflation coexists with an excessive boom in economic and financial activity. If this is the case, it may hinder the central bank’s longer term goal of maintaining stable prices and a stable financial system.

A fundamental issue arises when credit bubble emerges in an environment of general price stability. Do central banks hesitate to tighten monetary policy because prices are generally stable? Just as it is important for senior management of financial institutions not to succumb to short-termism exemplified by short-term ROE targets, central banks need to focus on long-term price and financial stability. Needless to say, price stability is essential. But if central banks see the economy only through a lens of narrowly interpreted price stability, they sometimes may overlook much more crucial imbalances. Milton Friedman explained in his famous presidential address to the American Economic Association in 1968, that the role of monetary policy is two fold; maintaining the smooth functioning of financial markets and the financial system, and price stability⁷. What is intriguing here is that Friedman used the term monetary policy in a much broader context than we define now. Would it be appropriate to clearly detach the two objectives of the central bank, and as a result use two separate set of tools to attain them? Simply put, would we use interest rate policy to maintain price stability and introduce separate macro prudential tools to maintain the stability of the financial system? In my view, the two objectives of central banks are closely interlinked. One cannot be achieved without the other on a long-term basis. Thus separating two set of tools also would be impractical. Central banks need one large toolkit to achieve the two inseparable long-term objectives. It is a daunting task for a central bank to act with a long-term

perspective while explaining its intention and rationale in a society which is liable to be influenced by short-termism. It is a real challenge.

VI. Concluding remarks

Let me conclude.

International discussions to develop a new financial architecture and new rules which would prevent future crises are underway. However, new architectures and rules in themselves are not sufficient. There is no doubt that through advances in technology and innovation, financial products, institutions, and markets will continue to evolve rapidly. Rules, especially global rules, which require due process before implementation, will inevitably be behind the curve. Using expert judgment to adapt present rules to a new environment will always be important. No amount of rules can guide the ideal response among economic entities, especially against unforeseeable future events. Central banks, through their skills and experience in macro economic policy as well as their unique position in financial markets, can help steer the policy debate in areas such as macro-prudential policy.

Central banks, with their macro-perspective towards both the real economy and financial system, expertise as plumbers of payment and settlement system, and real time market intelligence obtained from interaction from market participants can and must play a key role in preventing future crises. This also entails huge responsibilities for central banks and we will need to work extensively both individually and jointly to be in a position to fulfill such a role, together with other authorities. Close cooperation with financial institutions and other market participants will also be crucial.

Thank you for your attention.

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⁷ Milton Friedman (1968), "The Role of Monetary Policy," Presidential Address to the American Economic Association.