Presentation to a conference celebrating Professor Rachel McCulloch: "Is Free Trade Still Optimal in the 21st Century?" Panel discussion: The State of the Global Economy/Current International Economic Policy Brandeis University, Waltham, Massachusetts By Janet L. Yellen, President and CEO, Federal Reserve Bank of San Francisco For delivery June 15, 2007, 12:20 PM Eastern, 9:20 AM Pacific

Good afternoon. I'm delighted to take part in today's program honoring my long-time friend, coauthor, and former colleague, Rachel McCulloch. In my remarks today, I would like to focus on some aspects of the global economy that are salient to me from the standpoint of monetary policy. On the one hand, there is much that is heartening. World economic growth has been robust during the last few years and, in 2006, according to the IMF's summary measure, performance was extraordinarily strong—the best in both overall and per capita terms since the early 1970s. China and India both grew at a blistering pace. But, importantly, growth was widely spread around most regions of the globe. At the same time, inflation was reasonably low among the advanced economies, and in most emerging markets and developing countries, it was quite moderate by historical standards.

Conditions in global financial markets have been supportive of growth. Real interest rates and risk spreads have remained relatively low despite monetary tightening by major central banks. Equity markets in many countries have hit new highs, and emerging markets have seen increasing private capital inflows.

These good outcomes across a broad range of countries might suggest that the world economy is not a very risky place. But monetary policymakers are paid to worry—to see dark clouds, not just silver linings. One worry, now longstanding, relates to the large imbalances in saving and investment flows among countries that underlie the current pattern of global growth. Standard debt dynamics suggest that the large and growing U.S. current account current imbalance is unsustainable. But theory offers little guidance on exactly how or when it may unwind. My concern here is that a sudden unwinding of these imbalances could be associated with sharp movements in exchange rates and asset prices that could produce destabilizing economic impacts around the globe. Given the enormous expertise of this audience on this issue, I will focus instead on a distinct but related worry, which concerns the possibility and potential consequences of an abrupt and disruptive shift in general risk tolerance in international financial markets.

At present, there are numerous indications that risk premia are notably low--in the U.S. and also globally. One indication is the low level of long-term bond rates compared with expected rates on short-term debt in the U.S. and other advanced economies. Of course, long-term rates have risen in recent weeks, but not by nearly enough to resolve what former Fed Chairman Alan Greenspan coined, "the bond rate conundrum." Another indication can be found in the very low options-based implied volatilities on most types of U.S. financial instruments, including equities, debt instruments, and exchange rates. Further indications are the narrow risk spreads on both foreign private and sovereign securities, which are near historic lows.

The phenomenon of low spreads may well reflect an environment wherein risk genuinely *is* reduced. The volatility of both output and inflation has declined substantially in most industrial countries since the mid 1980s, a phenomenon known as the "great moderation." Recessions have become less frequent and less severe in most industrial countries, and inflation has been low worldwide. Arguably, macroeconomic management has improved significantly. Moreover, structural changes may have improved the capacity of economies to absorb shocks. Since lower macroeconomic volatility reduces the degree of uncertainty facing households and firms, it may explain the lower risk premia.

In addition, a number of long-term structural developments associated with technological change and deregulation have reduced transactions costs, diversified and expanded the variety of credit providers, and fostered the creation of new instruments for allocating and pricing risk. For example, the providers of credit go well beyond insured depository institutions to include asset managers, private equity investors, and hedge funds. Some of the new instruments include collateralized debt obligations, which permit illiquid loan obligations to be securitized, and credit default swaps, which investors use as insurance against corporate default. Thus, financial innovations and deepening credit markets may have contributed to a wider dispersion and a more efficient allocation of risks in financial system and thereby to lower risk premia.

Finally, there may also be cyclical reasons for the decline in risk premia. Even as shortterm nominal rates have risen in the U.S. and elsewhere in recent years, low-interest-rate funds have remained available from other economies, notably Japan and Switzerland. In addition, corporate leverage has been low, and this has dampened credit market volatility because debt service costs are low and the threat of default has declined.

My concern, however, is that investors may be underestimating the risks in both in domestic and foreign markets as indicated by a number of investment strategies. For example, here in the U.S., the rapid rise of lending at variable rates in the subprime mortgage market may have reflected an unduly benign view of the underlying risks, and some lenders have paid a high price for this view. Inflows into hedge funds have soared and private equity firms are borrowing at low interest rates with favorable terms, resulting in a wave of leveraged buyouts in both the U.S. and abroad. Some observers question whether the supposedly sophisticated investors in these funds fully understand the complexities of the investment strategies pursued by fund managers and the risks to which they are exposed.

In foreign markets, investor demand for emerging market assets has continued to expand, with inflows into dedicated bond and equity funds in those countries, including instruments denominated in local currencies, without much increase in risk spreads. Low costs of borrowing have also attracted money into "carry trades," where investors borrow short-term at lower rates in one currency and invest, unhedged, in riskier, higher-yielding bonds in another currency. This strategy exposes investors to substantial exchange rate risk.

There is, of course, some research into why risk might be underpriced, but so far, the answers remain tentative. Some have pointed to the greater role of investment managers in this more deregulated, competitive environment. These managers may have incentives to herd with other investment managers in order not to underperform their peers, and they may also have incentives to take more "tail" risks, in cases where compensation is weighted more towards achieving positive returns, without sufficient regard for low probability negative returns.¹ In addition, the apparent confidence of investors that extreme events will not occur has fostered increased demand for higher yield in riskier assets, resulting in greater risk appetite.

As we know from past experience, of course, the possibility of a sudden reversal in risk perceptions cannot be ruled out. Some recent reversals have had fairly limited effects. For example, in May and June of 2006, rising interest rates increased volatility in advanced economies, sparking a period of turbulence in emerging markets. In late February of this year,

¹ R. Rajan, "Has Financial Development Made the World Riskier?" *The Greenspan Era: Lessons for the Future, A Symposium sponsored by the Federal Reserve Bank of Kansas City.* Federal Reserve Bank of Kansas City (2005), pp. 313-369. http://www.kansascityfed.org/Publicat/sympos/2005/PDF/Rajan2005.pdf

there were sharp movements in global financial markets, sparked by a drop in China's fledgling stock market, as investors reacted to news about fundamentals in the U.S. and elsewhere, but markets soon recovered.

But it does not take a very long memory to recall the serious consequences of the Asian financial crisis of 1997-98 which eventually escalated into one of global proportions. In that instance, an abrupt increase in investor risk aversion provoked sharp asset price declines and a frightening and sudden erosion of market liquidity. Fortunately, in the years since that crisis, the global financial system has arguably become far stronger. Many countries have taken advantage of the benign global environment and have reduced the ratio of public debt to GDP, improved the currency and maturity composition of debt, and increased international reserve holdings. They have also undertaken measures to increase the resilience of their financial markets, such as promoting the development of local currency bond markets. Their banking systems, too, have been buttressed by stronger supervision, thereby reducing the likelihood of devastating banking failures. Furthermore, the widespread adoption of more flexible exchange rate regimes creates greater scope for monetary policy and hence the potential to contain the economic spillovers of such turbulence.

From a policy perspective, a natural question is what, if anything, central banks, including the Federal Reserve, can and should do to address potential risks associated with the possibility of excessive risk-taking in global financial markets. To mitigate the risks of financial instability, I believe that policymakers must mainly rely on supervisory tools and prudential regulation to ensure that financial institutions are properly capitalized and that they carefully and comprehensively identify, assess and manage risks of all types—market, credit, and operational. At the same time, the Federal Reserve is actively collaborating with other supervisors in the United States and globally, and encouraging private sector initiatives designed to strengthen the resilience of the financial sector and to improve its ability to manage the stresses that might emerge in the event of an unanticipated shift in risk preferences. A recent example involves credit default swaps. The Federal Reserve Bank of New York has taken steps to promote private sector initiatives to correct a serious problem of confirmation backlogs in these contracts and to clarify the exposure of counterparties to them. In addition to mitigating potential risks, central banks must be prepared to respond to events that may have systemic effects. This requires understanding the nature of financial arrangements and their implications for risk. To this end,

the Fed supports research on financial markets, communicates with institutions well beyond those we directly supervise, and cooperates with financial supervisors around the world.

Some have espoused the view that central banks should go further--tightening monetary policy to dampen overly euphoric asset markets—to prick asset price bubbles before they burst. I do not espouse that view because it is exceptionally difficult to distinguish "bubbles" from fundamental-based booms and monetary actions impose certain short-run costs for very uncertain future gains. I therefore believe that central banks should stand ready to act to cushion the economy in response to shocks when and if they occur.

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