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Dinner Address by

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Bank of Canada – Norges Bank Workshop on

Microstructure of Foreign Exchange and Equity Markets

Bonsoir tout le monde. Good evening everyone.

On behalf of the Bank of Canada and our co-hosts, the Norges Bank, I would like to welcome you to this second workshop on the "Microstructure of Foreign Exchange and Equity Markets". I am very pleased to welcome this distinguished group to Ottawa, particularly at this time of year when the leaves are falling but the snow is not.

You know, this is not the first time I personally have been involved with the Norges Bank and academics in partnership. Back in 2003, I partnered with Asbjorn Rodseth of Olso University to write a critique of the content of the staff's briefing of the Norges Bank's policy board. I enjoyed that experience and I am glad that our cooperation with the Norges Bank in engaging academics in discussion has continued.

The topic of market microstructure is one that has interested the Bank and its researchers for some time. As you may know, we held a major conference on this theme in November 2001. I am happy to hear that some of the same faces are back again five years later, such as Rich Lyons, Asani Sarkar, and our former Bank colleague Shafiq Ebrahim.

Unfortunately I was unable to attend the sessions as I was in Montreal talking about our *Monetary Policy Report* that was released yesterday. I know, however, that you have been discussing some quality research that is very valuable for the Bank. I want to take a few moments to explain how we use such research and provide some insights on how it informs our policymaking at the Bank of Canada. I won't have time to talk about all the papers on the program, but will only touch on a few examples to provide you with our perspective. My apologies if I mispronounce any names.

Microstructure is concerned with how the structure of the market, the information available to different participants, and the heterogeneity of actors affects the efficiency, liquidity and stability of these markets. We view efficient and stable capital markets as key factors contributing to a successful economy. Through its core functions, the Bank of Canada is an active participant in the fixed income and foreign exchange markets. The Bank works through these markets when conducting monetary policy and when managing the Government of Canada's debt and foreign exchange reserves. We also analyze bond, foreign exchange, equity, and derivative markets as part of our financial system function. While we are not directly involved in equity markets, we monitor them as a leading indicator of economic activity and as a measure of how changes in our policy instrument are influencing the behaviour of firms and households. With respect to all financial markets, we are interested in studying how efficiently and quickly information is reflected in prices, whether it is macroeconomic information related to GDP growth and inflation, or micro-level information related to liquidity, risk preferences, and portfolio rebalancing by investors.

The exchange rate is obviously a key variable for Canada as we are a small, open economy and our fortunes are tied closely to our external environment. There are a number of papers on the program that focus on different aspects of the exchange rate. On the macro side, the paper by Rime, Sarno and Sojli demonstrates how the information in foreign exchange order flow can be used to provide better out-of-sample forecasts of the exchange rate than a random walk. As someone who wrote his PhD thesis at MIT under Rudi Dornbusch on the Canadian experience with floating exchange rates in the 1970s, I am glad to see that researchers are finally becoming more able to demonstrate a convincing link between the exchange rate and underlying macroeconomic fundamentals. The Bank is most interested in longer horizons such as the 12 to 18 month period over which monetary policy affects the economy. I understand that the keynote address by Rich Lyons over lunch tomorrow will discuss work with Martin Evans that links order flow at longer horizons with macro variables such as inflation, output and money supply. This work is very interesting and suggests that we can improve our knowledge of the macro economy by monitoring and studying foreign exchange order flow. As one who was involved in exchange rate modelling when the flow variable -- called the basic balance (the sum of net long-term capital inflows and the current account balance) -- seemed to enter exchange rate equations significantly, I have often wondered whether that was for "order flow" related reasons, given the key participants in FX markets in the 1970s.

Another policy instrument that is available to central banks is foreign exchange intervention. While the Bank of Canada has not intervened in its currency since 1998, we are always interested in understanding this channel and how microstructure factors may affect the short-term effectiveness of intervention. Vitale's paper provides a microstructure model of intervention and shows that in extreme circumstances large scale foreign exchange intervention can destabilize the foreign exchange markets. Another implication of the model is that the route chosen for the implementation of official intervention has important implications for its impact on exchange rates. These insights may be useful should we ever need to intervene again in the future.

Turning to the fixed income markets, the Bank is very interested to see if the findings from the extensive equity microstructure literature extend to this asset class. It seems that there are both similarities and differences with equity markets which are due to the different microstructure and transparency of bond markets. The paper by Menkveld, Sarkar and van der Wel studies the information content of end-customer order flow on the price discovery process for U.S. treasury bond futures. Their work suggests that some customers have superior information about macroeconomic announcements and this information leads their trades to have greater price impact. At the Bank we use asset prices and the yield curve to extract the market's expectations for future monetary policy. We also speak to large market players through our offices in Toronto, Montreal and New York.

Financial markets can be very volatile at times, and understanding the causes and consequences of this volatility is important for a central bank. While Canada has largely avoided the worst of the financial instability that affected many countries in the 1980s and 1990s, our economy has been affected either directly, through the exchange rate, or indirectly, through the impact on global demand for our exports. We therefore actively monitor the stability of the financial system in Canada and abroad. Several papers at the workshop address this dimension. For example, the paper by Bjonnes, Holden, Rime and Solheim looks at speculative attacks in foreign exchange markets. The authors model the interaction of a large player and small players and show that the stage at which a large player enters the market depends on the strength of the economic fundamentals. This paper provides a framework for understanding how these attacks may occur and the role of different actors in causing them.

From a financial stability perspective, the work on liquidity is particularly interesting as we seek to understand how shocks from abroad may be transmitted to our markets. The paper by Brockman, Chung and Perignon shows that there is a common global factor in liquidity that is transmitted across stock exchanges in different countries. The economic importance of this global factor varies by region. In the same direction, the paper by Chollete, Naes, and Skjeltorp estimate three orthogonal, market-wide liquidity variables that capture variations in market wide liquidity over time. These findings suggest that policymakers may be able to monitor financial stress more effectively by looking at markets at home and abroad simultaneously, rather than focusing narrowly on domestic markets in isolation.

In conclusion, the Bank of Canada promotes microstructure research because it provides us with a better understanding of how financial markets operate. Topics such as price discovery, liquidity, and transparency are crucial, both during normal times and during stressful episodes. What is special about the format of this workshop is that it provides a platform for researchers working in different fields of microstructure research – whether on equity, foreign exchange, or fixed income markets – to come together and share their insights. From our point of view, the Bank and its researchers benefit from your work and this type of interaction. We learn from your models and it affects how we go about our monitoring and our research at the Bank. For this reason we will continue to be interested in this work, and look forward to the next instalment of this workshop next year.

Thank you very much and enjoy your dinner.