The Economic Club of New York

The Honorable Stephen S. Poloz
Governor, Bank of Canada

December 11, 2014
New York Hilton Midtown
New York City

William C. Dudley: Good morning...if I could have your attention please. My name is Bill Dudley. I'm the Chair of the Economic Club of New York and I'm also the President of the Federal Reserve Bank of New York. I'm pleased to introduce our speaker this morning, my central banking colleague, Stephen Poloz. I've enjoyed his company on many occasions. I have found him not only a highly capable central banker but an astute observer with respect to financial market and economic developments. When we're at Basel and other places that central bankers meet, I always perk up when it's his turn to speak.

Now some background: He was appointed Governor of the Bank of Canada in June 2013 but he had plenty of prior central banking experience. He first joined the Bank of Canada in 1981 and occupied a range of increasingly senior positions over a 14-year span. In addition to his background as a central banker, he has over 30 years of public and private sector experience in financial markets, forecasting and economic policy. He served as managing editor of the publication, The International Bank Credit Analyst. He also had a long career at the Export Development, Canada where he was President and CEO before becoming Governor of the Bank of Canada. Born in Oshawa, Ontario, he graduated from Queen's University with his bachelor's degree in economics and he received a master's and PhD in economics from the University of Western Ontario. After Mr. Poloz' remarks, we'll pass the microphone into the audience for questions and then we'll conclude the program by 9:00 a.m. So Stephen, the floor is yours.

The Honorable Stephen S. Poloz

Thank you Bill. Well, good morning everybody. Thank you very much, Bill. It's a pleasure to be here. It's always a pleasure to be in New York, and it's a special treat for me to address this particular distinguished audience.

And what I'd like to do today is talk to you about the future of finance, speculate a little. Now I know I don't have to convince anybody in this room of the importance of financial intermediation. Just as you can't have lights without power lines, you can't have economic growth without financial intermediation. But as you all know well, our financial regulators have spent the last five years putting financial reforms in place in the wake of the 2008 financial crisis. There is absolutely no doubt that these reforms will affect the future of finance, but none of us really knows how, except possibly Bill.

But financial intermediation is already evolving in response to the reforms, and I think it's worth speculating on how these trends might develop in the future. So the only assumption that I take into this is this one: no amount of regulation can snuff out the forces of competition. Competition is a force of nature, and it is going to manifest itself in some way, for there's a lot of money at stake.

At the G-20 summit in Brisbane, leaders acknowledged that we've delivered on the core commitments that were made back in 2008 in response to the financial crisis. There are still

some important issues to address, particularly with respect to consistent implementation of those reforms. But for the most part the core of the world's financial system is far safer today.

Now depending on your perspective, these reforms are either overly harsh, or too lax. A systemically important bank sees the steep cost of these reforms firsthand while the unemployed worker still feels the steep cost of the crisis. My perspective as a central banker is primarily a macro one, and I can tell you this. By the end of last year, the cumulative loss to global output owing to the crisis was roughly $10 trillion, that's close to 15% of global GDP. That's a pretty big cost. Over 60 million jobs were destroyed in the wake of the crisis.

So we've rightly made a strong commitment to address the most serious fault lines exposed by the crisis, to reduce significantly the probability and severity of future ones. In short, we'd like to ensure that this never happens again. Now no doubt, the sweeping scope and complexity of these reforms has some people thinking that the new regulatory architecture is excessively tight, at least at first glance.

And of course, optimizing the scope and the intensity of regulation was never going to be easy. The new regulatory architecture is the outcome of a political process with made trade-offs and significant differences across international financial systems. Accordingly, it's the principles behind the reforms, the principles behind the reforms matter more than the rules themselves – principles complemented by a high level of supervisory vigilance.

The fact is, the financial world is a very dynamic place, where competition is inherent, regardless of market structure. Principles-based financial regulation sets a high bar under which competitive forces can still foster financial innovation, innovation that is more likely to be socially improving than simply evasive.

In Canada, active and vigilant supervision goes hand in hand with this principles-based approach to regulation. And to help monitor potential emerging risks, we have a comprehensive radar system that includes surveillance, guidance, and of course enforcement. Canadians have found this complementary approach to regulation and supervision is conducive to responsible financial innovation.

An important objective of these G-20 financial reforms is consistent implementation across jurisdictions, but of course in a manner that avoids unduly impeding financial innovation. But I see such innovation in financial intermediation as essential to fostering regulatory balance between maintaining financial stability on the one hand and facilitating competitive market forces on the other hand. As people in the financial industry create new ways to do business – some call that regulatory arbitrage, which of course sounds like a bad thing – their innovations help to reset that balance, prompting regulation to adapt to positive progress in financial intermediation.

Now there's a natural incentive behind financial innovation, of course, because there's a lot of money at stake for those who innovate successfully. Well, there's a lot at stake for the macro-economy too, because a return to sustainable economic growth around the world will require continued financial innovation. Regulation must allow these natural forces to manifest themselves, albeit in a safe way.

Given this context, let's speculate for a minute about the future of financial intermediation. How will these forces of competition manifest themselves in the years ahead?

Well, we can start with banks. Some may choose to shed business lines that have relatively low risk-adjusted returns. In particular, capital market activities could shrink as the risk weights associated with them increase. This has already started. Since 2007, global banks have already sold off more than $700 billion worth of assets and operations, of which foreign operations account for almost half. Furthermore, in response to the new resolution requirements, some large banks may simplify their organizational structures.

Now I'm not suggesting that large universal banks will disappear. There's a really strong reason to have them. They will likely persist, at least because of the significant economies of scale associated with payments and foreign exchange. And large banks will also remain because there will be an ongoing need to serve global clients. But for their part, smaller and less-complex banks will probably increase their focus on traditional banking.

Now, of course, we can't be definitive about these predictions, for we simply don't know how competitive forces will operate in this new environment. But it would be surprising to me if the net effect were not to reduce the availability of credit, measured in a traditional way. If financial markets had imperfections before, and I think most of us agree that they had some, some of those imperfections are likely to be even more evident under the new regulatory environment. And that's straight out of your first economics textbook.

It goes without saying that reduced availability of credit would be a headwind to economic growth. And, if there are funding gaps in our system at the best of times, and they turn out to be a little bigger under our new regulatory umbrella, those funding gaps will probably be found in all the usual places: lending for young businesses, small and medium-sized companies, trade finance, infrastructure, just to name a few.

These areas of retreat by banks could look like good opportunities for other financial intermediaries. And we can imagine several different channels where the forces of competition might emerge, all of which could occur at the same time.

First, there is market-based finance – shadow banking. As banks reign in their risk-taking, we can expect market-based finance will play a larger role than it currently does. We can, of course, see this happening already. But for starters, in some markets companies increasingly fund themselves by issuing bonds on the market. In the U.S., while bank dealers have significantly

reduced their inventories of corporate bonds, non-bank lenders have increased their holdings of corporate bonds. And whether they're structured as asset managers, or insurers, or non-bank financial firms or retail investors, these groups are opportunistically filling the void that traditional bankers have created.

Securitization is another market-based channel that could really expand in this new world. Although the very word securitization has been tainted by the crisis, I can imagine a new class of high-quality, low-risk securitization products could differentiate itself from the mistakes of the past. Such innovations are to be welcomed, provided that they are created in a manner that does not pose new or growing risks to the financial system itself, such as liquidity shortfalls in times of stress. Importantly, market-based finance can even be a source of economic stability, if such intermediaries react differently to market turbulence than banks. In effect, countries with diversified financing sources may be better placed to weather shocks to the economy.

But market-based finance is unlikely to erase all of the imperfections in our future financial system. In particular, market-based finance is not very effective in reducing information asymmetries, so it probably won't fill the funding gap for young, or small or medium-sized businesses.

No doubt, Mother Nature has a plan to fill all those gaps in time, and one probable source is private lending and equity, which is a second channel where competitive forces are very likely to

emerge. There have been significant advances in technology that are sure to influence the future provisioning of private capital. A notable example is peer-to-peer finance, which directly connects private lenders with borrowers via the internet. An important element of this model is that there's no middleman. There's no liquidity or maturity transformation taking place as there is in traditional banking or market-based finance.

And while P2P finance is still in its infancy, it's already transforming private capital provision and growing fast in pockets in the U.K., the U.S., and in China. Although it originally focused on pooled funds from smaller investors, P2P finance is increasingly being dominated by big institutions, hedge funds and so on, with about two-thirds of the funds loaned coming from institutional investors. So that's already changing the face of P2P finance in very important ways.

Now P2P finance has an impressive cost advantage over traditional banking and since there's a lot of money at stake, as usual, competitive forces are certain to manifest themselves. With automated credit checks, no skin in the game, the operating expenses of P2P lending, for example, run about a third of traditional banks. With that kind of advantage, P2P lending provides the opportunity for both savers and borrowers to get a "better" deal. Well, we all know there's no such thing as a free lunch. The cost of that better deal is there is a different risk in the package, a significant risk that participants take on.

But despite those risks, we can easily imagine a world in which P2P finance actually thrives. It has already begun to spread to a wide variety of new sectors: student loans, real estate, hedging, auto loans, equipment finance, medical loans, B to B lending, and so on. And over time, we could see P2P finance become much more global, and could also see the development of a deep secondary market in securitized P2P loans.

But if I'm right that there will be less credit available from traditional banks, it's not a stretch to think that the young, the small and the medium, and the risky companies, will begin to tap into this P2P finance channel to meet their credit needs. So this evolution could be key to an eventual return to sustainable economic growth, as I'm convinced that a return to natural growth – as I've called it – as opposed to policy induced growth which we're becoming very familiar with – will require a resumption of new firm creation, sustained by financial intermediation.

Now will a surge in P2P finance mean new risks to the financial system? You know, maybe. Or will those risks be systemic in nature? Well, we don't have a clear answer yet, and that is the key question. Of course with the increasing participation of institutional investors in this space and increasing market shares of P2P finance, there could be financial stability implications.

And what if Mother Nature does not fix all the imperfections that we can point to in our financial system through market-based or private finance? Well, the third channel that we might expect to play an enhanced role in a credit-constrained world is public finance. Public financial

intermediaries are active in such areas as lending to small and medium-sized enterprises, trade finance, and these demands could rise in the years ahead. But the bigger need for a public sector solution is more likely to be in the area of infrastructure investments. So-called "green infrastructure" is particularly susceptible to market failure, as it suffers from both the basic free-rider problem as well as societal mis-pricing – if you like that's a double market failure. And public-private partnerships or P3s have proven to be an increasingly effective tool for funding these investments, but they certainly have not been a panacea. The P3 space is not exempt from our call for more financial innovation.

Innovative ways of risk-sharing in investment projects – for example, governments offering more innovative guarantee structures where they take on a contingent fiscal risk as opposed to laying out large expenditures up front – are clearly worth experimenting with. Private sector intermediaries, pension funds, sovereign wealth funds should be actively encouraged to develop and propose such innovations. Once again, there's a lot of money at stake.

It should be clear by now that I am a pretty big fan of market forces. The returns from successful financial innovation in market-based finance and P2P finance are likely to be very large, from the perspectives of both the innovator and the macro-economist. Allowing those competitive forces to flourish, within principles-based regulation aimed at protecting the financial system, is essential for future economic growth. Tweaking public financial intermediation should take care of the rest of our market imperfections.

But all of those market structures that I've mentioned exist already, so speculating on their future is not that big of a stretch. And that makes me wonder if we're missing something big. How blue-sky do we want to get this morning? Does anybody here besides me wonder what the banking system looks like in the background of Star Trek? I seriously wonder about that.

Or, what about the corporatist model of finance, this lies at the background of Margaret Atwood's novel, *The Year of the Flood*? Now that's blue-sky thinking: people work for a massive corporation, they live in the corporate compound, they go to corporate restaurants and corporate events, and they bank with a financial intermediary wholly-owned by their employer, which in turn invests the funds in growth for the corporation. And I suppose that model is far-fetched, but I present it as an illustration that the sky really is the limit in this space. I've offered you just a range of possibilities, but obviously there are many other possible futures for finance.

Now a bright future is one where the financial system is safe and efficient, and innovative. Financial regulation needs to be designed to allow those competitive forces to work, and allow innovation to happen. Now I said earlier that it is very difficult to strike this perfect balance between regulation and innovation. And indeed, public authorities cannot strike this perfect balance on their own. That balance is the product of regulation and the underlying forces of competition that I've talked about. And the simple fact is that financial intermediation, for the most part, is a scale business. Operating at scale creates the risk of market failure, or market

imperfections, as we well know. Accordingly, operating at scale demands that the financial intermediary do so under a social license which, of course, goes hand in hand with regulation.

In short, that's a contract. All contracts function best when the two parties live not just by the letter, but by the spirit underlying the agreement. Now I've asked you to imagine some possible financial futures; now, can you imagine one where regulated financial players upheld not just the letter, but the spirit of the new global regulatory framework?

So what I'm suggesting is that the industry be at the vanguard of positive change, and voluntarily embrace the spirit of financial regulation. Use this positive response as a brand to rebuild trust in the street, and especially Main Street. And, in the process, demonstrate the effectiveness of principles-based financial regulation that allows competition and innovation to facilitate economic growth.

So let me wrap up. Financial regulation, it's costly, but that cost pales compared with the fallout from the economic and financial crisis. We are still paying for it. Global regulatory reform was absolutely essential. So let's work together to make it better. Thankfully, the balance between regulation and innovation is dynamic, not static – competitive forces, the forces of nature ensure this.

We are at a critical juncture for the global economy. We have been through a destructive, truly

destructive business cycle, and policies will need to remain stimulative until the legacy headwinds subside and the rebuilding phase truly gets underway. That rebuilding phase will require substantial pickup in new firm creation, young firm survival in particular, which will foster new job creation. And creative financial intermediation is a necessary ingredient for this rebuilding process.

Now in Canada, as you know we had a less difficult cycle than most other countries, in part because of the resilience of our financial system. Even so, we saw significant destruction in our export sector, the backbone of our economy. Now we've been waiting for a resumption of export growth, to be followed by a rekindling of animal spirits, investment in new capacity and new firm and new job creation, and it looks like that natural sequence may have finally begun. We have plenty of room to grow, however, so it will take another couple of years before our economy can enjoy steady, natural growth with inflation sustainably on target. And it's that return to natural growth that we all want to see regardless of where we live. But it simply will not happen without vigorous and innovative financial intermediation. We need to embrace our new regulatory architecture and get on with the job. Thank you.

QUESTION AND ANSWER PERIOD

THE HONORABLE STEPHEN S. POLOZ: And now it's time for questions from the floor. We have a microphone or two I guess and so just raise your hands. And Bill promised to pay me a

dollar for every question that we get...they're U.S. dollars too...which as we know are worth way more than a Loonie now. Okay, Bill is going to ask the first question. Oh, sorry, this fellow was ready to ask his question.

QUESTION: I'm going to ask a macro question. The big decline in oil prices, how are you thinking about that in Canada? And how are you thinking about that from a global economy perspective?

THE HONORABLE STEPHEN S. POLOZ: Yes, there's a lot of math involved because as you know, Bill, it's a very complicated question. And we won't be fulsome of this probably until our next forecast which is in a couple of months, six weeks away I guess, in January. But first of all, we know it's positive for the global economy, that's a given, because the world is a net user of oil. So that tax on growth is reduced. So that's a good thing for Canada as well as good for other countries. But taking that into account, it's always a net negative for Canada because we're such a major oil exporter. So there's a significant hit that's on its way to our national income, if you like, which comes from being an exporter of oil, which will be proved significant over time. We don't really know exactly how big. But when we take all those nets, the fact the Canadian dollar tends to go down with oil prices which is a natural response gives us a bit of an offset. If the U.S. economy of course strengthens, that gives us a bit of an offset. But those are things that temper the effect as opposed to cancelling it. So net, net, net, we think that in 2015, it'll take perhaps a third of a point off of our growth, which since we're forecasting, give or take somewhere

between 2 and 2 ½ % growth, it's not a trivial impact. But our starting point is a little stronger so the whole dynamics of our inflation outlook will be affected in both directions by the shock. Obviously inflation will be driven down, total inflation, at the beginning. And there's some consumer power, purchasing power boost at the very start. So all that, it's a complicated, as I said a complicated question, but roughly speaking it's obviously a negative force. And we have to figure what it does to our outlook over the next two years for inflation before we really understand what it means for us. And you know a lot can happen in six or eight weeks. So, you know, we obviously have to reserve judgment until we know what shock we're really dealing with. Yes, sir...

QUESTION: Governor, thank you for joining us this morning. Financial intermediation means bringing savers together with borrowers. The savings in this world is occurring perhaps outside the regulatory sphere that you're describing. You know, lots of savings in China, current account deficits in the United States, newly in Japan, the U.K., now coming to Canada. How do regulators deal with that? Is Canada open to financial inflows coming from abroad? Are the G-7 partners open to the shift of savings coming from abroad? And how do we protect ourselves from institutions that may not meet our regulatory standards, lending money from outside our regulatory sphere?

THE HONORABLE STEPHEN S. POLOZ: Well, I think that again we're heavily influenced by the principles as opposed to, you know, a thick rule book. And I think that along with bigger

supervision as opposed to, you know, a massive set of rules, is a more, if you like a more intuitive way to go about it. And so then you're in a position to decide, well, is this development actually putting any risks into the core of the financial system which is what it's all about. You know is the risk of contagion and therefore payment system disruption or that sort of thing, you know, bank runs and all that sort of stuff, if we put enough of this architecture in place we reduce those risks to the core and then you're always asking that critical question, are we shifting risks to somewhere else? If so, is that a case of whack-a-mole because it's too dangerous? Or is it a case of, well, that's a better place to have that risk and it's a place which is less likely to be a problem for the core of the system? So it's more of a judgment as opposed to a precise concrete rule book. And I think all that would allow us to continue to be quite open to international flows. We've always been quite, you know, that's always been quite important to the Canadian economy and we expect our recovery, our rebuilding process, to be heavily investment-based, and it needs to be. And so all of those ingredients have to come together in that way. So the key ingredient there to me is having a supervisor with that kind of broad line of sights, the ability to take all those things into account. And in our system it seems we're reasonably – I'm knocking on wood up here – capable of doing exactly that. But the system gets more and more complex so it's not, it's not like an easy job. There's question over here...yes, sir...

QUESTION: Hi, there. William Abecassis, Black Rock. You've spoken in the past about the need to build competitive industries in Canada and the hollowing out that's happened previously. I'm just wondering, do you believe there's been a change in Canada's beta to an upswing in the

U.S.?

THE HONORABLE STEPHEN S. POLOZ: Yes, absolutely that's happened. So the experience of the last three years or so, two years I guess is more accurate, as the U.S. economy began its rebuilding phase, we, like everybody else, expected Canada's exports to move up like train tracks with it. And it didn't happen. And so that realization began to dawn, I would say about, say close to 18 months ago or, you know, more than a year ago anyway. We were concerned that this error term in our forecast was getting bigger and bigger and we needed an explanation. So the explanation in short form is this. During the destructive phase of the cycle, which was not just a down cycle in demand but as the Canadian dollar was rising all at the same time because of the rise in price of oil, so you kind of had this two shocks to the core of the export sector. The only thing that was booming, was growing naturally, was the energy sector and everything else was getting this major adjustment. So between 8,000 and 10,000 Canadian exporting companies went out of business during this period. And so if you have, to put it simply, if you have a model of non-energy exports, it's just a simple equation that describes the behavior through time and it only depends mainly on the U.S. and some small weights in other countries, and the Canadian dollar. Well, there's most of the model, but the model wasn't working. So all we know is we've lost share of the U.S. market and I think it's not because we do a bad job or anything, but simply because companies that were there before are no longer present and the model doesn't know that. And so we took that analysis as far as you could go and analyzed 2,000 export product categories and discovered that around 500 of them had export levels today that are at least 75% lower than

they were ten years ago. And so it's not just the crisis, but the rise, you know the whole story. And then we did a massive search through a media database to try and match those key words to see if we could find out, you know, what's going on. And out of that database you get these matches that say, you know, such and such plant closes its doors, such and such plant is shrinking and moving its production to Mexico, or you know those kinds of stories. And so we now think we can explain about $30 billion which to us, think of it as $300 billion, okay, because of where we are. It's a lot of money. So $30 billion worth of missing exports and we only have an error term that's sort of, it's $80 or so, or less than $100 billion to kind of keep track of. So it explains, you know, 40% of what was missing. And the rest primarily we think it's because we've got, the composition of the U.S. up cycle. You know it's not just GDP, right; it depends on where it is. And now we see the machinery and equipment category is connected to the investment upturn in the U.S. starting to go. So we are getting manufacturing in those categories and employment being created in those sectors. So we think we understand the story. But that just means that probably permanently, or at least until such time as new firms are created in that space and we regenerate a new and different, I guess, export sector, we will have the usual beta issue you described. So that's a long answer to a very key question for us because two years ago we thought by now everything would be fine. But our output gap simply hasn't really closed, especially measured as, in the labor market space, and that's the reason why. So the backbone of the economy has been damaged and we've got to go through a longer rebuilding phase. It's why we talk about a couple of years. It's not something that's measured in, you know, a short, short time frame. Thanks for your question. Who else has a great question like that? Okay, right over

here. Give me one that I know the answer to, just like that one. That was a good one.

QUESTION: Thank you so much for your comments. My name is Nili Gilbert. I'm a co-founder and portfolio manager at Matarin Capital. You spoke about the role of non-bank actors impacting financial stability and one area where non-bank lending is coming to the fore today is in the high yield bond markets. In particular, most recently from some of the lower grade or speculative grade debt of energy companies in North America. I wonder what risks do you see when you look at the environment coming to the economy or financial system from high yield credit markets, or from other sources? Thank you.

THE HONORABLE STEPHEN S. POLOZ: Okay, so let's start with, you know in a regulated banking system, you know, you hope that some of the candidates for high yield credit have a place to still, you know, put forward their business plan and have someone say, I'll lay a bet on that business plan. So that's our starting point. We want to have that kind of ability. But the question is, what sort of risk does that pose perhaps for the rest of the system? If, you know, if things start to move and it's in an adverse way. So the question that might arise from that, what's the liquidity in that system? If you've got exchange traded funds tapping into that market, as well as direct investors, and you decide, well, now I need to go liquid, can they? Alright, and if they have some trouble executing that, how does it affect the rest of the system? So that would be in general the linkage that would merit any further study as we go along in monitoring. And, you know, look, that market's never actually been liquid. So, you know, saying it's not liquid today

is not really much of a revelation because it was never really that liquid before. But we're more sensitive to it now because of what we've been through. And so you think, well, if that's one of those loose ends, there could still be a problem, you have to think about, well, what sorts of architecture could help make that work better in a time of stress. And that's, I think, one of the reasons why the regulatory folks have moved on to stress testing as their favorite tool. So these kinds of table top exercises are very helpful in understanding how things will work, you know, on a horrible weekend which we all, none of us wants to have. We would rather have nice weekends in Basel, Bill, as opposed to those kinds of weekends. And so the point of that is that the stress test that we put into the system you would not believe just how tough to survive those stress tests are. I mean we're not putting little nickle and dime stress tests into the system. They are serious stress tests like '81 and '91 happening all at the same time. That kind of stress test is what we're talking about. Whether it's, if you're looking at performance of mortgage books or corporate books or those markets. So, that all gives you some assurance that I think that the system fundamentally has evolved in a safer way. And so now we're in the sort of second order edge of things. What else hasn't been taken care of? As I'm arguing here, it's a highly dynamic thing for a good reason. It's not an evasive reason. It's fundamentally a good thing for us to have that adjustment and find a more natural resting place for the balance between risk taking and healthy supervision. Next question...I'm only up to like 4 bucks. It's not much. Well, they're U.S. dollars so that's a lot more. Go ahead.

QUESTION: Thank you for taking my question. I'm Kenneth Kim with RBC Capital Markets.

And in your speech you mentioned how competition would foster innovation and you talked about peer to peer lending and how it cuts out the middleman and lowers cost. And then you also mentioned Star Trek – I'm actually a Star Wars fan but that's okay.

THE HONORABLE STEPHEN S. POLOZ: Well, that's okay. Well, that's a much more modern concept.

QUESTION: And you mentioned how it would be interesting to see what would be happening behind the scenes. But coming back to the present, behind the scenes there's Bitcoin which is a virtual currency and it's, you know, found some followers backing it. And I was wondering, you know, it also cuts out the middleman and it's regarded to be a lower cost avenue. So I was wondering if the Bank of Canada is monitoring Bitcoin and whether principles-based regulation might be necessary in the future.

THE HONORABLE STEPHEN S. POLOZ: So that's a great question too. So we are heavily interested in this. We've actually created a special place on our website to portray the research that we have ongoing and a bit of a Canadian network. Actually Canadians, it's an international network of people we know who are engaged in research on that. It's a good place for you to visit to get a better snapshot than I can give you here. But I think an important thing to bear in mind is ask yourself like what of these things satisfy the actual basic requirements that we demand of money because that's really the perspective we look at it from. And I'm old enough to

have, you know, read Hayek, you know, as I was a grad student. So when you think of the concept of money, money competes for a place in our wallet. You know if you didn't think your money was reliable, you'd find another form. That's what we see in a dollarized economy for instance, as a simple example. So does Bitcoin have the characteristics, you know, with lower transaction costs and so on to satisfy that and say forget it, I'm not carrying these dollars, I'm going to carry Bitcoins. And the clear answer is no. It's a very unreliable currency in many of the ways we measure. And yet it may still be just the right vehicle for you if you wish to have a part of your investments in Bitcoin, if you think of it as an investment as opposed to money. But e-money more generally offers the scope for, you know, reduced transaction costs and so on which is a good form of competition. And so I think it's a positive thing, something we have to watch. And again on the other side of it, are we seeing, say risks to the consumer? Well, that's not necessarily the central banks' job, but it's somebody's job to ensure that those kinds of criteria are still in the picture. And does it pose any kinds of risks to our core payment system or the financial system? Those are the kinds of things you want to match. And so again it's an example where the positiveness around it which is it's delivering more value to the economy, has to be front and center when you're deciding whether you need to do anything about it. So it's a risk-based kind of thought process as opposed to I don't understand that, or that looks risky so we need to do something about it. No, it's a much more enlightened, I think, kind of thought process. So anyway, Bitcoin doesn't yet in my view present the characteristics of an alternative money that would make it hugely popular. But I know it does have a core popularity for other reasons. And the underlying technology is absolutely brilliant. So, you know, there's a lot to take

in there. My thing is flashing zero, Bill, what does that mean? It means nothing, okay. So there's no rules, I love that. It's the principle, a principle-based supervision, I love it. So who else, who has a question because the money is just rolling in now...that's good.

QUESTION: Nancy Kyte, from Export Development, Canada.

THE HONORABLE STEPHEN S. POLOZ: Oh, that's my old firm. How are you?

QUESTION: Good morning, Governor. So housing prices in Canada overvalued by as much as 30% combined with high debt levels, it's a question we get a lot from investors. You're predicting a soft landing. I'd be interested in your comments on that.

THE HONORABLE STEPHEN S. POLOZ: Sure, so yes, yesterday we published our financial system review which we do twice a year. It's an important complement to our monetary policy report so they're kind of bookends, if you like. And it just shows you how financial stability has entered into that space when we talk about monetary policy and in a very big way. And one of the things we addressed this time around was there's lots of talk about the Canadian housing market being overvalued and measured by a variety of ways, you know, the ratio of prices to rents, the ratio of prices to income, and so on. Lots of ways to do this. And all the kind of numbers that get thrown around – some are like 10 or 20 or sometimes as high as 30% overvalued. So in the bank they did some work on this which takes, basically constructs – it's

high tech stuff – a logit model which covers 43 housing corrections globally. So in Canada we only have a couple in the data set so that's not much to give you insight into its behavior around housing. So you can vastly expand that data set by making the assumption, you know housing markets aren't that different from country to country. It's regular folk buying a house, maybe you get a speculative element at times, and then you get a bubble and it pops. So analyzing 43 such episodes in a single model – now a model that can't take everything into account, so it's just a model – suggests that something like, somewhere between 10 and 30% is the estimate you would give as overvaluation relevant to fundamentals in the Canadian economy. So that's a highly uncertain kind of thing. I don't want to be overdoing what the number really means. But what it does is it kind of supports these more back of the envelope kind of things that suggest, you know, it's a bit overvalued. Well, I'm not sure what you would expect. Normally in a business cycle when the economy, you know, slows down we cut interest rates to cushion the blow. We cut interest rates hoping somebody somewhere will borrow some money and spend it, right? That is what monetary policy does. And then nine months or twelve months later when things go back to normal, things go back normal and no one ever talks about financial stability risks. But the things that have happened is somebody bought a house when they shouldn't have perhaps, or they bought it ahead of time, or you know, something like that has happened. But it all works out okay because it's not a really big or a long lasting shock. This one has been really long. And so those financial stability side effects of monetary policy begin to accumulate once we get into the years which we are now. And so those things build up and so we have to do a better job of understanding them and what happens next. So two insights and I'll leave it at that.

One is that, that model, if you believe that 10 to 30% number, then you have to look at the rest of the model. And it says the probability of a correction in the market is really low right now which is exactly what we said. It says it's far lower than it was in the 1981-82 cycle and lower than it was in 1991-92. So that's reassuring. Secondly, when you think ahead, this is our main story which is that we never thought that these risks around the housing market would just go away all by themselves. What we expected was as the economy got stronger, as we got closer to a normal equilibrium, then those stresses would gradually dissipate. And our view is that's exactly what is happening. The economy is finally starting to put the pieces together as I described before and so that's going to result in higher employment, higher incomes, and therefore it's going to put that bottom underneath that and give you a more comfortable equilibrium which is less stressful. And the last thing I'd say is that in both the other two correction cycles we had, there was what amounts to the left-hand side of an Eiffel Tower, a very quick run-up in housing prices in the context of rising inflation expectations. The central bank quite naturally leaned into those expectations, raised interest rates, the economy slowed down, actually went into a recession both times, and unemployment rose. So you have all the ingredients for a housing correction, right, with the rising interest rates, rising unemployment, slowing economic growth. And we have none of those at present. And the icing on the cake is if you believe this, it means that we've been overvalued for actually several years by at least 10%. And that means we've gone like four or five years with this status of overvaluation. It means it's not a fundamentally dangerous thing. It's well supported by the fundamentals that are on it. So all those to say, while this is an important insight, Nancy, we don't think if we suddenly became overvalued like, you know, in a

bubbly type way, we don't think of this as a bubble in any way. Does that help you? Nancy probably owns a house in Canada and she's got a very good reason to ask that question. So right up here...

QUESTION: Hi. Jonathan Lewis from Samson Capital. When we think about avoiding another global financial crisis and we reflect on your comments about moving towards principle-based regulation, and of course the need for the world and these major players to embrace greater transparency and openness, how do we reconcile that with the fact that there are major economic players, nations, that in fact are not democratic, they don't respect the rule of law, are not transparent, and don't respect principles?

THE HONORABLE STEPHEN S. POLOZ: Well, that's, okay next question. (Laughter) No seriously, next question. Okay, so, obviously that's a very hard question and it's a good one. And the answer is you fundamentally; if you're going to be pure about it you can't reconcile those things. So to me, the whole point of the G-20 exercise, which is the umbrella under which we did all this, is that everybody agrees, everybody signs onto the communique and says, yes, this can never happen again so here's what we're all going to do about it. And why it took several years to do is because of the cross-country differences in systems, cross-country differences in what drives things around and they're negotiating, you know, principles and rules that allows everybody to say, yes, we'll do that. Now is all that transparency there as you're hoping for? Well, no, but what's the best way to create that? If you ask me, it's from inside the tent. So it's,

you know, everybody's in the tent...so like, by the way, you know, your system is not very transparent, I can't understand this or I don't understand what's going on there, and a conversation takes place. And so there's that sense of, well, yes, maybe we should do a better job with that. So that's better than, you know, it's not going to be like night and day, or foggy and not foggy. It's going to be a little less foggy, I think. And I think that's a worthwhile longer term project. We don't have to get too hung up on it. But I agree with you that it remains a risk. Anything that you don't really understand or don't really know represents something that's around there that adds to your risk pile. And so we have to identify it and find out as best as we can and then go in knowing...there's something we don't know. So this is an important thing that we've done in the last year is to try to ensure that people understand where uncertainty goes when we actually have a conversation about policy at the Bank of Canada. And they all wrote a little paper on it to try and help people formalize where it goes because the typical answer is, well, okay, that's uncertain, thanks for telling me, now back to business. You know, and you're kind of focused on what's the midpoint of everything as if uncertainty no longer matters. And that's not how we think of it because now we have that uncertainty in that fundamental sense, a Knightian sense right on the table. We don't know this, so if we don't know that, it could be this or it could be that, so let's make sure that the policy we've got will work okay, it not perfectly, on both of those ends of the spectrum, which is a very, and you admit it in public that, you know, we're uncertain about this. That's a very big difference from what we, as central bankers, we tend to sound pretty sure of ourselves and we're like, this is what's going to happen, go ahead and do your business. I think sharing that uncertainty with the market, what that does essentially,

it puts some of that uncertainty off our shoulders back into the marketplace and ensures more two-way trading and let the market digest all that information. Anyway, that's a bit of a digression to your question, but thank you. And it was a hard question. It's worth 2 bucks, Bill. Yes, sir...

QUESTION: Jose Fernandez, Gibson Dunn. Canada is part of the negotiations on the Trans-Pacific Partnership with the U.S. but it's not part of the European Free Trade Agreement negotiations. If those two things are signed, how do you expect the economic relationship between Canada and the U.S. to change?

THE HONORABLE STEPHEN S. POLOZ: Well, next question. Okay, so, well first of all, we have just signed a comprehensive agreement with Europe ourselves and so I think that a lot of those principles that were in there are kind of like helping to pattern what's being discussed. So all these things are kind of, I think in the end they'll fit together not badly. But I think that, if you think of these as opposed to one shot things, think of them instead of as a process of gradually spreading stronger precepts of free or liberalized trade with certain pockets not quite nailed down or others taken care of perfectly, a kind of a range of outcomes, it means that we kind of, we kind of do what the WTO would love to do, but we do it in a gradual way, in bits and pieces. Like building blocks as opposed to one great big transaction. And I think that's just the reality that's very hard to do one big trade liberalization because of incredible range of interests and characteristics around the table. So the more that we're able to do these kinds of deals, even

small ones are worth doing because of the, first of all, their economic benefits, you know we do a free trade deal with Chile for example, it's been like 20 years now, I forget exactly what year that was off the top of my head, but it's like a long time, and that's been really good for trade. So you say, well, if you do enough of those, what happens is people realize there are a lot of benefits to trade liberalization by demonstration, not by theoretical argument which is usually where we end up, convincing people that this joint leap is going to be just fine. And it's very hard first to convince them or to handle the uncertainty that's around it. Economists believe it fervently but the general public, you know, regular folks with jobs are worried about, well, what does it mean for me? And it's very hard to do. So anyway, that's a long way of saying I think it will all work out in the end, but there could be inconsistencies and those things are living documents. Usually you come back to them and you say, well, we need an amendment or something like this. So it's more of a process than a one shot thing. I see Bill coming. He's only got $12 in his pocket so...they're all mine I think.

WILLIAM C. DUDLEY: Here's $10.

THE HONORABLE STEPHEN S. POLOZ: Oh, $10...that one was $2...Thank you Bill. Thank you very much. (Applause)

WILLIAM C. DUDLEY: Thank you very much Governor Poloz. I just want to; he's going to do a press conference in the Rotunda Room of the hotel immediately after this event. That's why I

had to cut it off on time. Our next event for the Economic Club of New York will be on Monday, a luncheon with George Osborne who has the sexy title, Chancellor of the Exchequer. Wouldn't that be a job you'd like to have? So he'll be speaking on Monday, December 15. So thank you all for coming.