Unedited Event Transcript

Conference: Spillovers of Unconventional Monetary Policy

Panel I: Theory and Evidence of Spillovers

Moderator: Joseph Gagnon, Peterson Institute for International Economics

Presenters: Steven Kamin, Federal Reserve Board
Prakash Loungani, International Monetary Fund

Discussant: Michael Klein, Tufts University

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Adam Posen: Welcome back to the Peterson Institute for International Economics. I'm Adam Posen, President of the Institute and it's my great pleasure to bring together some truly astute and experienced policymakers for a discussion of one of the hottest issues in macro, "What Are the Spillovers of Unconventional Monetary Policy". This conference is something Joe Gagnon and I conceived of a few months back. Joe has of course, been doing some leading work on this issue himself, but we all know that there is an interesting pair of divides in how the world sees quantitative easing.

The official sector and much of mainstream macroeconomics tends to view quantitative easing in the major economies much the same way we view any other form of macro stimulus that the main goal is stabilization and promotion of growth, that in the essence, whether it's US, China, Japan or the Euro area, even somebody piddling, like the Bank of England where I used to work, the net benefit for the world economy is positive, that you are doing better for the world by avoiding the bad outcomes and, particularly in the case of the US arguably, you on net are creating more global demand than you're substituting out through the exchange rate channel.

This view however is challenged or outright disbelieved and scorned by at least two other groups. There are, of course, the small open economies of the world who argue that they're minding their own business when walloped by American subprime and French, Greek bank loans and that this adds to the wallop, that there are huge spillover effects, particularly, but not solely, through the exchange rate channel.

There are, of course, also such [inaudible 00:02:07] with one of our guests participants this morning, there are market people who just have never quite understood the QE the way that central bankers understand QE and view the existence of and the persistence of it as extremely destabilizing through a number of channels. And on their assessment, not all of them, but many of these market economists or, even better market traders will tell you that the only way QE works is through exchange rate movements and beggar thy neighbor policies.

And so, what we're trying to do today is bringing together some of the best people from the official sector or with the direct experience in the official sector, particularly in the US and the IMF to present their views on what's going on and to bring in a bunch of discussants from emerging markets, from other points of view, from market, from market participants to contrast with that. And I'll leave it to Joe, who organized the conference, to say a bit more about the program and get beyond my generalities.

The final two things I would say is, first, we are planning a larger, more ambitious conference in the spring, probably with our friends from [inaudible 00:03:19] about the flipside of this. If you're a small open economy what are your monetary policy and exchange rate policy options? And there'll be more on that coming in the spring. And the second thing is just to mention that we are very grateful to all our participants who've engaged or willing to come out in public and talk in a constructive fashion. This isn't about whether or not the Fed's going to raise next month. It's good that something isn't about that. This may actually be more important in some ways, dare I say. So, we look forward today's conference.

So, again, let me turn over to my colleague Joseph Gagnon who organized today's event. Joe.

Joseph Gagnon: Thank you Adam and thanks to everyone for showing up today for what I hope will be a really interesting day. We have three panels as you can see. The first two are going to be presented in a similar format where we'll have two presenters of research based on underlying work or papers followed by a discussant. And the third panel is going to be a bit more free form and just reflecting on what we have learned more generally with hopefully a big policy element.

So, in the first panel, I will introduce the three participants from here right now and then they can come up and each speak, and when the third is done we'll all move up to the table and have a discussion, take questions from the audience also.

So, our first speaker today is Steve Kamin who is a director of International Finance Division at the Federal Reserve Board where I worked for many years. And he, of course, his job is actually monitoring foreign countries who indeed are receiving the spillovers from US monetary policy actions. So, he's certainly well placed to be able to answer questions about that and present us some findings.

The second speaker is Prakash Loungani who is at the International Monetary Fund and who just was the lead author of the IMF's 2015 Spillovers Report. So, we have directly from the major international institution who looks at this issue and we have copies of his report on the table outside as you came in if you'd like to take them with you. Finally, we have—discussing these two, we have Michael Kline who is a professor at Tufts University, who is an expert on international capital flows and has spent some time in Washington at the US Treasury Department in the international area.

So, a great group of people and I'd like to ask the discussants, the presenters to please no more than 20 minutes, less is better, and the discussant, no more then 15 minutes, less is better. I'll try to give you signals as your time is approaching. I'll give you a five minute signal and then a one minute signal. And then, we'll move to general discussion. Okay. So with no further ado, please Steve.

Steve Kamin: Thank you Joe. It's a great pleasure and honor to be speaking here at the Peterson Institute before such a distinguished audience on such an important topic. I should mention that Joe and I started at the Federal Reserve I think on the exact same day some decades ago, and we were both working for Ted Truman, who is in the audience. So, feels like you know, old friends day here.

Anyway, I'd like to acknowledge the assistance in my presentation of several folks from the International Finance Division, the Fed many of whom are around the table today. But stress of course, that these views will be my own and not those of the Federal Reserve. Okay.

So, as Adam is already discussed, international monetary policy spillovers are a very hot topic these days. There's a great deal of research on it, but so a lot of open issues. And so, what I'd like to do is kind of like provide a very broad brush overview of some of the salient issues in this topic and then provide my sense of some of the answers to the key questions.

So, we'll start by presenting a simple framework for understanding spillovers, talk about some very back of the envelope estimates of the effects of US monetary policy on foreign activity then, kind of broaden out to discuss whether monetary policy spillovers are stabilizing or destabilizing for the global economy, and then talk about some challenges posed for some countries by these spillovers.

So, to start with I want to talk about the broad framework for thinking about these issues and I want to talk about three distinct channels by which spillovers may take place. Let's start with the example of a monetary policy easing, okay, just in order to set ideas.

So, the first channel is the exchange rate channel and that's the one that receives a lot of intention, was identified by Mundell-Fleming and his model. And that of course, an easing of monetary policy lowers the home country's interest rates relative to those abroad and appreciates the currency. That boosts the home country trade balance, but at the cost of foreign countries trade balances and thus GDP. So, that's an expenditure switching kind of channel shifting expenditures from foreign countries to the home country. And that's what's associated with this beggar thy neighbor effect that was referred to by Adam.

But there are two other channels of spillover transmission and in the case of the monetary policy easing, those can actually be expenditure increasing for the foreign set for foreign economies. One of them is domestic demand. When the home country eases monetary policy that boosts domestic demand, that boosts home country imports and that therefore boosts foreign countries exports and GDP.

And then, finally, there is a channel that we're—and I guess other people—are calling the financial spillovers channel. When the home country eases monetary policy it lowers interest rates that boosts asset prices in the home country and, in general, eases financial conditions through portfolio balance effects. That leads to similar effects and a similar easing of financial conditions abroad that thus, again, boosts foreign GDP.

So, what are the effects of a monetary policy easing the home country negative or a positive for foreign economies? Well, it depends on whether the negative effect from the exchange rate channel is stronger or weaker than the combined positive effect from those other two channels. So, and with that, and whether that effect is negative or positive on net, is fundamentally an empirical question.

So, with that in mind let's talk about some very rough, back of the envelope estimates of these spillovers from a US monetary policy easing. Okay. And in this case we're going to assume a monetary easing shock that's enough to lower US Treasury yields, 10 year yields, by 25 basis points. We're going to ask: What should that do to the foreign economy? Well, let's first start with what it does to the foreign economy through the exchange rate channel.

The first thing of course, is by how much does the US easing lower the dollar? And as you can see here we're going to use as our assumption that such an easing lowers the dollar by about one percent. Where does that number come from? Well, there is a lot of studies that kind of like come up with an answer in that range, but just to give you an idea the flavor of the analysis, what we have here is a scatter plot that focuses on a bunch of Fed policy announcements in the period since the start of the global financial crisis.

On the *x*-axis you see the change in US yields from before to after each of these announcements. On the *y*-axis you see the movements in the broad or multilateral nominal dollar. And what you can see here basically is that on average for a decline in US yields of 25 basis points, you see a decline in the dollar of about 0.64% which we're rounding to one percent.

Then with that one percent fall in the dollar using conventional trade elasticities that should boost US net exports by 0.15 of GDP and therefore that by itself should lower foreign GDP by about 0.5 percentage points of their GDP as their trade balances get worse. So, that's the exchange rate effect, doesn't seem that large. Then, let's turn to the domestic demand effect. You know, an easing of US policy sufficient to lower US treasuries by 25 basis points based on the other studies of the US economy we think should raise US domestic demand by that one half percent. That in turn should raise US imports by about a fifth of a percent of US GDP and that in turn should now raise foreign exports and thus foreign GDP.

Now, let's turn to the third channel. Okay. Which is the financial spillovers channel. Now, this is the one that's pretty hotly debated and it has received a great deal of research in recent times, as Adam kind of alluded to. Okay. And what we're using for our back of the envelope estimate is an assumption that a shock that lowers US yields by 25 basis points lowers foreign yields by about 10 basis points. Where does that come from? Well, returning to our scatter plot we're now on the left—on the *y*-axis showing not the dollar but rather changes in German 10 year yields from before to after Fed policy announcements. And as you can see, you know easing shocks that are sufficient to lower US yields by 25 basis points tend to lower German yields by about 12 basis points.

And that estimate is very much in the range of estimates identified by Rogers et al. for other advanced economies and is also very similar to the average of estimates for emerging market economies estimated in a Bowman et al. study. And one of the authors [inaudible 00:14:02] Donough is here so he can answer any questions.

So, with that, we have, for our easing shock, foreign yields down 10 basis points and using the same kind of rules of thumb as for the US that should raise foreign GDP about 0.5%. So, now let's put all these effects together and what we can see of course is the exchange rate channel and the domestic demand channel tend to cancel out. And that leaves the financial spillovers channel as the main vehicle for spillovers. And that effect however, which is going to be the 0.25% of GDP is really not all that large and you can see this even more when by turning to the next slide here where what we've done is we've built the different estimates I just talked about into the international finance divisions channel equilibrium sigma model. Okay.

And so, here when we simulate the effect of a monetary shock that lowers yields by 25 basis points, we see that it raises US GDP about 0.6%, it lowers the dollar, it raises real imports and as a result of the higher real imports it actually boosts foreign GDP, but by only a small fraction of the amounts increased in US GDP. So, that kind of like gives you the broad brush picture of the spillovers.

Now, these positive effects of our spillovers are pretty much in line with a lot of empirical papers that have studied this that also find positive spillovers, but of course there are some other studies that have found negative spillovers. Now, that's not necessarily all that surprising, okay, that we'll find this lack of consensus because recall that the effect of these spillovers kind of depends on the net of three different channels. Okay. And so, that net [inaudible 00:15:55] waiting could well be different depending on the countries receiving the spillovers. It could also change over time.

Some analysts believe that our QE-1 was a lot more influential on the global economy than subsequent QEs because it happened at a time with a lot of uncertainty around the global financial crisis. And finally, it could also be true that effects are different depending on whether the study is looking at conventional or unconventional monetary policies, okay. So, there are a lot of studies that compare those different effects. Most of them seem—but not all—seem to find that conventional and unconventional monetary policies have similar effects and similar spillovers. Okay.

And that's actually what we find, again, in a very rough way. If you look at these panels, the left hand side is the effects of US Treasury yields and the dollar that I already showed you. Okay. But this is all for the unconventional monetary policy period. We redid the exercise looking at policy announcements during the conventional pre-crisis period, and you get somewhat smaller but broadly similar effects on the dollar. And then, when we do this exercise looking at the association between US Treasury yields before and after these policy announcements and German 10 year yields, we actually get very similar effects. So, by our reckoning conventional and unconventional policies have similar effects, but I think the jury is still out on that. Okay.

Now let's, having discussed these direct effects, yeah, spillover effects let's now widen out the scope a little bit and ask "Well, are these spillovers stabilizing or destabilizing for the global economy?" Now, based on our estimates for the States monetary policy spillovers don't seem all that large so this might appear to be somewhat of a new question, but I think it's still very much worth asking. And as to the question of, "Are these spillovers stabilizing or not?" well, it certainly depends.

First of all, of course, on the direction of these spillovers are they positive or negative, but more importantly it's important to understand that monetary policy shocks don't occur in isolation. They occur in response to economic shocks and depending on the distribution of those shocks to the global economy, you know the same monetary policy action can be stabilizing or destabilizing. To see this here is another sigma simulation example. And in this case what we're going to assume is that the United States, this is represented by the blue line, has a negative recessionary shock, okay, that lowers the dollar, lowers real imports and thus hurts foreign GDP.

Now, in this case we're assuming very little US monetary policy response. Okay. So, now let's see what happens when US monetary policy responds to the shock aggressively by lowering interest rates. In that situation, as you can see, the US GDP is now, falls by less, the dollar does fall by more, but US imports fall a lot less than the earlier example because of the positive effect of the monetary easing on domestic demand. And as a result foreign GDP falls by less than it did in the first case.

So, this is an example where US monetary easing in response to a negative shock is stabilizing for the global economy. And by the same token, such a monetary policy response will be stabilizing in the face of a common shock that affects lots of the world's economies such as took place during the global financial crisis. So in this case, the actions of the Fed and other central banks in easing were stabilizing, but that's not always the case, right.

There are times such as occurred in 2010, you know when the US and other advanced economies were still on a somewhat slow stage of recovery whereas the EMEs, the emerging markets, their growth had bounced back much more sharply. And on that situation positive spillovers from monetary easing might be less welcome. And that's the kind of example that we're going to now show with a sigma simulation here, where the United States has received a negative growth shock, but in this example foreign GDP is now a little bit above its zero baseline so they've had a positive, slightly boom shock.

In this case when the United States response by easing monetary policy thus lowering interest rates, US GDP falls by less, but foreign GDP now is higher than it was before even further above its baseline. And similarly for inflation it's higher than it was before even further above its baseline.

So this is a case where, in response to a shock, US monetary policy actually can be a little bit destabilizing. Now in that situation, where monetary policy spillovers may be stabilizing or destabilizing depending on what happens, that might seem very uncertain like the global economies in a very precarious situation, but there is one key equilibrating mechanism that I haven't talked about yet, and that, basically, is the power of independent central banks with floating exchange rates to respond to any type of shock, including, but not limited to monetary policy spillovers to equilibrate their own economies and that's really a very important aspects of the economy.

So, to now get back to this example that I showed you earlier where the US is in recession, the foreign economy's in a little bit of boom, now—and remember that when the US monetary policy easing took place so that that show foreign GDP higher, that's the green dash line, now we can allow foreign interest rates to rise higher. Foreign central banks respond to the destabilizing boom by raising interest rates and that pushes foreign GDP back toward equilibrium and that pushes foreign inflation toward equilibrium. So, this is the key facet of the global economy, the ability of central banks to respond.

Now, in the example that I'm showing you here, we have the US in recession, the foreign economies in boom. Now, of course, more recently, arguably, the situation has flip-flopped with US growth being kind of strong or really solid and foreign GDP languishing. So now, when concerns have been raised that spillovers from a future normalization of the US policy is going to adversely and in a destabilizing way affect the rest of the global economy—but keep in mind that all the considerations I just talked about still apply—the estimated effects of these spillovers are not all that great.

Foreign central banks can loosen and in fact are already loosening in response to this configuration of shocks. And then finally, this normalization of US monetary policy that people are talking about will not be a policy shock in the sense that I described earlier. Instead, it's going to be predicated on and in response to continued strength in US economy and that continued strength is going to support foreign GDP. And, in fact, this has already taken place. US net exports have already been subtracting almost a percentage point from US growth in the last three quarters and that's a shift of expenditure in demand from the US to other countries. Okay.

I'd like to start to close up by noting that, effective as independent monetary policy is, an equilibrating mechanism, there are limits to the ability to respond to spillovers. Obviously, there are lags in the monetary transmission process. Some countries are at the zero lower bound, some countries may have limited potential to use countercyclical monetary policy, and then finally, some countries may have multiple objectives. They may care not only about output and inflation, okay, but they may care about pursing export leg growth. So, exports are very important to them. They may care about capital flows and their effect on financial stability.
And in that situation monetary policy responses to spillovers can be more complicated. So, to return to this example I discussed earlier where the foreign central banks are tightening monetary policy in order to respond—to keep their economies in control in response to a US easing shock. What that does is that it actually boosts—that's the red line—foreign exchange rates, it makes them appreciate, and that appreciation can reduce their exports and derail in principle at lest their export led growth plans.

So now, of course, foreign central banks don't have to respond to US easing and its effects on their economies by raising interest rates, they could instead lower interest rates and by lowering interest rates keep their exchange rates from appreciating. But if that took place—this is not on the slide—then they would go back to experiencing economic overheating, inflation, possibly excessive credit growth and perhaps financial stability concerns. So, the bottom line here is if countries have multiple objectives, not just one and they don't have enough instruments to address their separate objectives then it may be more difficult for them to respond to monetary policy spillovers.

And of course, that is the situation that was faced by many economies in the pre temper tantrum period, although as this slide notes it's important to underscore that basically policies in the advanced economies was not the only factor leading to some credit growth in emerging markets. So, skipping a few slides in defense to Joe—this is actually a slightly premature slide. I do have a few ending remarks which is by way of summary.

To note first, to acknowledge that yes, monetary policy spillovers can indeed pose some challenges to some economies in some circumstances. So that's certainly worth acknowledging, but more generally it seems the evidence does not suggest that these spillovers are unduly large and in many cases spillovers can actually be stabilizing for the global economy.

And then finally as I've reiterated, the actions of independent central banks with floating exchange rate regimes are a critical mechanism for making sure that in a face of a plethora of shocks—internal, external and spillovers—that economies can be kept on track. So, thank you very much.

Prakash Loungani: Good morning everyone and thanks to Adam and Joe for this wonderful opportunity to showcase the IMF's 2015 Spillover Report. There's a lot of hard work that goes in from many staff members in this report so we are glad to draw some attention to it. One of the key people who worked on the report is in the audience, Esteban Vesperoni. You know, presenters often make a joke like they're going to leave the tough questions to their co-authors; in my case it's not a joke. I will need Esteban to jump in and you know, unlike the Fund where the staff have to pass handwritten notes to the person at the table and cannot speak, Esteban you can go up to the mic and make it clear that you are the boss here, so. Okay.

So, the Spillover Report, this time, was devoted largely to understanding the impact of the monetary policies of the major advanced economies on other countries. And we focus largely on the impacts that the monetary policy choices of the United States and the Euro area would have on other economies. And what we did was to carry out a structural analysis of what it is that drives the returns on long term bonds, 10 year bonds in these two, I've called them countries, one the US and the Euro area.

And our framework allowed these returns to be driven by three types of underlying shocks. So, I want to stress that these are not, you know these are things that our structural analysis try to uncover, what is it that's driving these things? So, these are not things we would get from the data it's something we identified through I guess our shared cleverness which you will see in a few minutes.

So, the first kind of shocks we called real shocks and these were shocks that are basically news about [inaudible 00:29:26] growth prospects for these two advanced economies. So, a positive real shock would be good news about the growth prospects in the US and the Euro area. The second was money shocks, which could be, for instance, an unexpected monetary tightening by one of these central banks. Okay. And the third shock was a change in risk appetite.

And the key finding of the report was that the spillovers on other economies depended critically on which of these shocks was driving the returns on US and Euro area 10 year bonds. Okay. So, if the underlying shock was a positive real shock that it was good news about growth prospects then we found that the spillovers on other economies were positive. Industrial production, for instance, went up. So, actually the capital flows which is an intriguing result that I'll talk about in a minute.

If, in contrast, the positive, the shock was a positive money shock which could be an unexpected monetary typing or, you know, other developments that just push the bond yields then the spillovers on other economies would be negative. So, what's going to transpire in the future? Well, that depends on what underlying shocks end up driving US and Euro area long term interest rates. Our baseline view at the IMF is that the monetary policy actions that these two central banks are taking are good for them. It would help them close output gaps and with the closing of output gaps unemployment will fall and investment will pick up.

So, it's something that's going to be a good development for them and our baseline scenario, again, is that it will also generate positive spillovers because these monetary policy actions are associated with a recovery in growth as well as improved growth prospects for the advanced economies, and therefore, will generate positive spillovers.

But the analysis does remind us that there are many possibilities depending on not just whether there are real and money shocks, but depending on whether … is it the case, for instance, that the shocks driving the US returns are different from what's happening in Europe? So, not do you only have real versus money shocks in the US as a potential threat to what happens to other countries or potential determinant, but you also have the possibility of what we call asynchronicity that is you could have real shocks driving the US, but money shocks driving what goes on in Europe.

So, that's kind of our bottom line. It depends on what the nature of the shock is and, at least under our baseline assumption, good news about developments in advanced economies is going to be good for others as well. Now, one other thing that we looked at in the report was that there is a potential divergence between the monetary policies of the US and the Euro area, which is generating, at least in part, a dollar appreciation.

Now, again to the extent this is all coming, is happening because of good news, it's already sort of factored into our calculations, so there's not an additional effect, but nevertheless we know that every channel is captured well in our models, there could be balance sheet effects or other nonlinearities that could play a role. And we do know that, in the past, dollar appreciation has often been associated with crisis in emerging markets.

So, I think analyzing whether things have changed on that front is prudent even if you buy my basic premise that if it's good news driving dollar appreciation that should not necessarily translate into bad news for emerging markets. So, in our spillover report we look at this and we point out that many emerging markets have increased their resilience over time to such dollar appreciation shocks, if you will. They've increased their exchange rate flexibility, they have higher exchange rate reserves, they've increased their reliance on FDI flows, there's more domestic currency external financing, and generally these countries have improved their policy frameworks.

So, all this is reason for some hope compared to the past that dollar appreciation, the effects of it could be withstood. But we also point out some areas of vulnerability of which the most notable one is the build up in corporate debt, and that has been highlighted not just in our Spillover Report, but in a more recent publication, our Global Financial Stability report has a chapter on this issue and I know that Jose and [inaudible 00:34:33] and others just issued a report on this as well.

The final thing—I haven't forgotten the PowerPoint, I'll come to it—the final thing I would mention is that our report was issued in mid-July so it's, in a sense, been only three months since it was issued, but things have happened in the three months. Generally, the environment for emerging markets is looking a bit softer, our forecasts have been revised down a bit, downside risks have increased.

So, everything that we say in the report and everything that I've summarized so far could be completely valid, and of course, we think it is, but the underlying environment has changed enough that the vulnerability could have increased for reasons that have nothing to do with US or Euro area monetary policy, it's just that you have a weaker patient you're dealing with now. So, the rest is PowerPoint and those are details.

So, here is …. Our motivation, just to introduce two acronyms which may not be well known outside planet fun. One is SAE, Systemic Advanced Economies which we use to refer to the US, Euro area, UK and Japan, but here I will focus only on two of those, the US and the Euro area. The other acronym is EMNS which refers to Emerging Markets and Non-Systemic Advanced Economies. I'll just call them "others" for now. So, these are all emerging markets.

So, the motivation for our analysis in the spillover reports was that there could be a divergence in the monetary policies of the US and the Euro area; it has been happening and it could continue to do so in the future. And that this has triggered, at least in part, the rise of the dollar relative to the Euro. And in the future, it could be that US liftoff brings about not just exchange rate adjustments, but could push bond yields up in Europe and what would the ECPD do in a situation like that.

Conversely, developments in Europe QE we can not just the Europe, but push down yields in the US and how will the Fed respond to that. So, this was the motivation to see what this divergence and asynchronous behavior could do.

Now, this is the methodology that we use. So, we go about it in two steps. In the first step, we take the stock prices and the bond yields for the US and the Euro area using daily data, and we estimate a bivariate model relating the stock prices and bond yields to the VIX which is our measure of risk. So, we are stripping out movements in these stock prices and bond yields that are attributable or associated with movements in the VIX and calling that stripping out kind of the risk factor. And then we take what's left and try to break that into these real and money shocks that I described. And how do we identify these real and money shocks?

Our assumption is that a real shock drives stock prices and bond yields in the same direction in either of these two economies. Money shocks, on the other hand, drive stock prices and bond yields in opposite directions. So, that is the assumption that we are using to get these three shocks: the risk, the real and the money. And then in the final stage of our analysis we take these shocks, the real and the money shock, and try to see what impact they have on industrial production in emerging markets and capital flows to emerging markets. So, that's the methodology.

This summarizes the assumptions I was describing. A real shock is one that drives stock markets and bond yields in the same direction. A money shock is one that drives them in opposite directions. This is for the US, a similar assumption for the Euro area. So, with that let's look at what has been driving ten year interest rates in these countries. On the left, shown for the United States, and on the right for the Euro area. And what you see is that for the US a lot of the increase over 2014 was due to positive real shocks. That is good news about growth prospects. More recently it's been risk appetite and actually developments spilling over from Europe.

In the case of Europe, the bond yields have been driven both by bad news about growth prospects as well as from money shocks. Now, our analysis also allows you to take these bond yields and to see how they're influenced, not just by their own factors, real and money, but by spillovers from the Euro area. So, these almost invisible lighter bars are the spillovers coming from the other economy. So, the solid bar tells you how much of US interest rates [inaudible 00:40:17] interest rates were driven by real shocks in the US and this is giving you the spillover from the Euro area. Same thing for the money shock.

Now, you might say, “All this is sort of going on behind the scenes. You’ve used some identification assumption to identify these real or money shocks. Do these shocks kind of pass a sniff test of driving other variables in the direction that you would expect?” And here we are showing you what happens to the dollar in the aftermath of one of these real shocks that we identified. And you get an appreciation of the dollar. In the other case you get the opposite. So at least, in terms of a very basic sniff test, these real and money shocks are driving the dollar in the direction you would expect.

Okay. So, this is the main slide of the report. What this is showing you is the impact on EMNS, Emerging Markets and Non-Systemic Advanced Economies, on others, from monetary policies in the advanced economies. And what this bar is showing you is that if the underlying shock is a real shock then that has a positive impact on industrial production in these other economies. And both the US and the Euro area are similar in this regard so that good news about growth prospects in either the US or the Euro area is good news for others.

As I said, one sort of intriguing result is that it also drives capital inflows into the emerging markets and that’s happening because good news about growth prospects are positive real shock is associated with an increase in risk appetite and that is actually channeling flows into these countries. If you were to shut of that risk appetite, increase in risk appetite channel, you would not get the capital flows results. You would still get the result on industrial production.

So this, as I said, is our baseline scenario that this is what is going to happen. Monetary policy in the advanced economies is going to boost growth prospects there, and therefore, this is what is likely to transpire. But we have to be prepared for the possibility that you could have what we call these money shocks, and if those happen those you can see have very different impacts, they have an opposite impact. So, if you have a money shock in either the US or the Euro area that drives down industrial production and drives capital flows out. So, this is the main result of the paper, of the Spillover Report. It depends on the shocks. We should be hoping for good real shocks.

In the interest of time let me skip over this. We also show what happens if there were asynchronous shocks, so that you had real shocks in country and monetary shocks in the other. As you can expect that’s going to moderate the positive spillovers. So if you had good things happening in the US, but a money shock in the Euro area that’s going to moderate the positive impact on other countries.

And I won't spend time on this, but simply to tell you that, as I mentioned at the outset in my summary, we do also look at the impact of dollar appreciation. I already summarized this. We think there had been changes that give you hope that there is greater resilience, but we do worry about the corporate debt, which many others have also highlighted as a problem. I actually didn't go over my allotted time. So, I take back my sorry.

Michael Klein: Hi. Well, I'll join Prakash and Steve in thanking Adam and Joe for inviting me today. This actually has special meaning for me because in this very room about four years ago that I was attending a Peterson event and Kristen Forbes was talking about capital controls and sort of something went off in my mind and I started thinking about sort of differentiating them in particular ways. And based on that and my work at Treasury at that time and subsequently I've done a lot of work on capital controls and I'll talk a bit about that today.

The main thing is this distinction between long standing and episodic capital controls. What I call walls versus gates and I think that someone important as we think about the policy issues here. As are some of the other things that Steve and Prakash alluded to, but I want to talk about those some more and also talk about some other aspects.

So, the main point is, how do we understand spillovers, what are the empirics of it and what are the policy responses? When we think about the way in which we understand it we can use just sort of basic Mundell-Fleming like theory, and this is, of course, one of the central topics in international macro, that's why it's international macro instead of closed economy macro. We think about consequences for one country when another country changes its policy in terms of exchange rates, what Steve called, and others, of course, have called expenditure switching. If you have a flowing exchange rate regime.

For interest rates if you have a fixed exchange rate regime. So, that distinction is important. Steve pointed to that, but I think that's underplayed a little bit. That really different sets of countries and it depends on the exchange rate regime importantly. What happens to growth and domestic demand in one country, how that effects another country and something I think we're just starting to come to terms with, the sort of financial market implications over and beyond the monetary or fiscal implications.

So, Steve and Prakash both did a nice job of presenting some evidence about the consequences of this. I'll talk a little about that and I also want to talk about policy responses in a variety of different ways. One is the trilemma, like what can or should one country do. Another is policy coordination. What can sets of countries do together? What are the issues—this is alluded to, but I think this is really important now—when countries are in different phases of the cycle what happens? So, that will complicate this idea of policy coordination. And then, finally, what is the scope for alternative policies?

People have been talking about capital controls a lot. There is you know, the choice of different exchange rate regimes, perhaps as a soft peg rather than a hard peg. So, I'll have something to say about that as well. So, this is a slide from the Institute for International Finance report that came out at the beginning of October that got a lot of attention because in this they point out that their projection for 2015 is that there'll be net outflows from emerging markets of capital on the order of like $540 billion. This is the first negative net outflow since 1988 according to their estimates. And this has caused a lot of people to pay a lot of attention to this, especially people in Peru in the last week or so.

But if you think about it this is you know, not that long ago people worried about net inflows. So, you had currency wars and things like that when policies reverse. So, if nothing else, you know this should tell you how this is a very volatile issue. Doesn't mean that we should be sanguine that things will turn around and you know, we'll worry about net inflows again soon. But it does say that you know, on either side these things can be problematic and they can shift relatively quickly.

So, the main results from the paper that Steve presented from work at people at the Fed has to do with: What happens when there is an easing of monetary policy, a 25 basis point decrease? Steve did a good job of presenting it. I would just point out that there's really a lot of heterogeneity of results and I think that's important when we think about this. Their overall result is there is a net positive. The exchange rate and the demand results kind of wash up, but then there's this financial market result that is a net positive. So, you think, "Well, if it's a net positive why are people complaining?" So, but of course you know the heterogeneity is really important here. And you know, it's led to like all this controversy about the taper tantrum and currency wars and so on.

Also there are differences across countries and structure. I already mentioned one: what exchange rate regime they tend to have. But there is also differences in the consequences for finance because of capital controls, the lack or presence of capital controls. There are differences in trade linkages which have implications for effect of exchange rate movements or demand changes. There are differences where countries are in the phases of their business cycle. And finally even if it's a net effect, there's a lot of uncertainty right now and that leads to harder world for policy makers.

So, one other thing, just a general point about what Prakash and Steve talked about is their experiments, these thought experiments where you think about an unanticipated permanent change in the money supply. This is a lot more complicated when everybody's anticipating stuff for months and months and quarters and quarters ahead of time, and it's not nearly as clean or as easy to discern because financial markets are going to start reacting to this very quickly and that will have real spillover effects as well.

Sort of the main takeaway I had from Prakash and Esteban's work is that you see, this is like their chart of what happens in the US to the Euro area—and also, thank you for introducing to me acronyms—this is what happens in the US to the Euro area, the SAEs and the Euro area to the US. Can you see it's very symmetric? So, the red lines are from the US to the Euro area, the blue lines are from the Euro area to the US. And pretty much you know, it's the same thing.

When you look at the effect on emerging markets you get sort of the standard Mundell-Fleming results. A real increase of positive shock to demand raises interest rates. Monetary shock, negative monetary shock also raises interest rates. And you get sort of what you would expect, but one thing that I found really interesting in what they presented—well, not, in the Spillover Report, is on the left side for United States you have much more homogeneity of consequences across these regions than you do for the Euro area. So, I wasn't quite sure why that happened.

Is it because in the Euro area there are more countries pegged to the Euro? So, the structure is different because you have more, you know not that many countries fixed against the dollar, you know if you have non-SAE countries is that's what's showing up here or is it something else? But again, this heterogeneity even when you have unanticipated monetary shocks and you're unassuming something about the asynchronous nature of the cycles, I think this is also an important aspect of this.

Oh, I want to go back. One thing I forgot to mention. So, as Prakash mentioned, what they do is they strip out sort of this risk appetite effect, but you know, that's kind of like Hamlet without the prince of Denmark according to Ellen Ray because she says that's the main way in which a lot of this stuff happens. It's like the changing in the views of risk appetite with US monetary policy. I don't completely agree with Ellen, but it's a serious argument that you have to think about. So, and you talked about this third shock but we didn't you know, see these results, but maybe the monetary shocks and the risk appetite shocks if Ellen is right are actually very intimately linked to each other.

So, just you know how do we think about this? So, this is sort of the standard policy trilemma triangle where as you know, probably all of you know we can choose two of the three. The monetary policy in unavailable for countries with fixed exchange rates, exchange rates can't managed if you want monetary autonomy.

And so, Jay Shambaugh and I have a paper that just came out this month in the AEJ Macrojournal where we look at this, and one thing that we find is that, you know, if you think about a country trying to, the monetary authority trying to follow a tailor role it works for countries with flexible exchange rates. It doesn't work for countries with fixed exchange rates because they can't. Their monetary policy is devoted, if they you know, don't have capital controls to maintain the fixed exchange rate.

And that goes back to a point that I guess, Steve made about, "Well, you know, they can do their own monetary policy." Well, not if they have a fixed exchange rate. So, that's more of an issue, not so much for the US, but countries that might be linked to the Euro, or countries that want some kind of fixity of their exchange rates.

So, the title of the paper by Jay and I is "Rounding the Corners of the Trillema". And this goes to this point of policy alternatives. So, what we considered in this paper was: To what extent do countries have monetary autonomy if they have some sort of policy that's not sort of standard?

In other words, capital controls or a soft peg rather than a hard peg. And in capital controls I think the point I'd introduce this with, the point that sort of came to me when I was listening to Kristen's talking, subsequently wrote a Brookings paper and a lot of other work on this, I think there's a really important distinction between countries that have longstanding capital controls in place and those countries tend to have capital controls on very wide range of assets. And countries that episodically try to use capital controls and typically over a smaller range of assets.

So, as a point of advertising, a number of co-authors and I have just put out a new data set where we have data from the IMF's annual report on exchange arrangements and exchange restrictions on capital controls across different categories of assets, separately for inflows and outflows for a 100 countries since 1995 and we plan to update this. We hope that this will be a nice resource for people.

So, Jay and I asked a question. Well, if you have in place capital controls do you regain monetary autonomy? Or if you have in place a soft peg do you regain monetary autonomy? And our main result is that capital controls don't really offer a way to regain monetary autonomy unless they are very pervasive. In the absence of that, like what Brazil tried to do, you don't have that much scope for regaining monetary autonomy. Soft pegs where the peg is what Jay defines in his work as a 5% ban instead of a 2% ban you do seem to regain some monetary autonomy.

But even when you look at that, you know, there is a correspondence between interest rates across countries. We don't have the textbook polar case where countries that float have completely divorced their interest rates from the interest rates of the base country. And there's a very nice paper by Jay, Maury Obstfeld and Alan Taylor where they sort of show with some simulations why this would be the case.

So, some final thoughts. Spillovers are clearly an important topic, not only for economic, but political debate. If you look at some of the numbers, the aggregate numbers, it might be a little confusing why this has generated such intense political debate. But then if you consider the possibility of heterogeneity of effects, then it's a little bit more clear why that's the case. The conventional sort of knowledge about beggar thy neighbor effects of monetary policy, and engine of growth effects of fiscal policy I think holds precaution. Steve showed that in their work. But there are also these financial effects, which I think we're just starting to really understand and explore in the detail that it deserves.

There are also challenges beyond—you know in the '80s there was this work on international monetary policy games. There are challenges beyond that because of for like this other sector financial kind of things which obviously we saw in 2008, maybe still we're seeing now, but also because of the asynchronicity of cycles. And there are these alternative channels that can exist. Importantly, like the work of Phillip Lane and Gian Maria Miles-Ferretti show about international integration in the ways in which there are these balance sheet effects and those might be very important as well.

And there's a lot of debate now about alternative policies or alternative channels. So, capital controls fits into this. Things like an international lender of last resort, the Fed stepping in and providing credit lines at the time of the crisis. So, all these are like new things that don't easily fit into sort of our back of the envelope Mundall-Fleming, but I think are going to become increasingly important as we think about greater financial integration and greater economic integration as well. So, thanks very much.

Joseph Gagnon: We'll have a chance for questions and we may … schedule says the session should end at noon, but I think we'll push maybe about 10 past noon at least so we have time, plenty of time for lunch. I'd like to start by giving Steve and Prakash each a minute or two if they would like to say anything, thoughts they had in response to the other panelists and then

Michael if you want you could take a minute if you had follow-ups. So, let me start with you Steve if you had anything you wanted to say in response to what you heard from Prakash or Michael.

Steve Kamin: Well, I would note that, as we discussed at the table, I think my remarks and Prakash's seem very much compatible with each other, very consistent. And I want to express my appreciation to Michael for you for your comments and which I thought quite useful. And I just want to expand on something you mentioned, Michael, which is that there are these financial spillover channels and in my presentation you know, that all got compressed into you know, 25 basis points on US Treasury yields turns into 10 basis points on foreign yields. But as Michael pointed out, that's an average effect over a lot of economies and that movement in yields kind of in some sense proxies for a whole bunch of things that are going on.

Changes in interest rates, changes in stock prices, in other asset prices, probably changes in credit availability as well. You know, and the fact that those effects can be much greater for some economies than for others indeed suggests that therefore some economies, you know the impacts on financial conditions could be demonstrable and I think that's something, well, that a lot of people are exploring and is worth exploring. Including, and I think this is interesting and definitely not consensus territory, the effects of these monetary policy actions on investors.

Joseph Gagnon: Okay. Thank you Steve. Prakash.

Prakash Loungani: Just a couple of points. First also to echo what Steve said, I think it's the analysis dovetails deals nicely with his focus on the US and our work on both the US and the Euro area and the possibility therefore of sort of asynchronous behavior in these two regions, changing the nature of the spillovers. But I think the basic, the thrust of the analysis is the same that you know, if it's good news that's driving both interest rates in both these advanced economies then that generates positive spillovers.

Michael asked two questions, well, first I want to thank you for your comments, but there were two specific things that, one, I don't know the answer, but I'm hoping at some point Esteban will take the floor and answer. This is your question about why there seems to be homogeneity of consequences for emerging markets when we look at the US spillovers, but not for the Euro. I don't know the answer to that, but we'll give Esteban some time to reflect and maybe if he has an answer he will take the floor at some point.

You also mentioned the fact that we stripped out the risk appetite shock in the first stage and then decompose the rest into real and monetary and there could be some interactions or risk appetite and other shocks could be linked. Indeed that's true. So, I think yeah, you have to kind of buy our identification assumptions to buy the rest of the analysis.

One thing I would say is that the analysis does allow these real and monetary shocks then to affect risk appetite. So, we do allow for changes in risk appetite then to have consequences on these emerging markets. And indeed that is the, that's what's behind the results on the capital flows is that good news for advanced economies increases risk appetite and actually drives capital flows into these countries. So, we are not totally stripping out risk appetite in the first stage and then forgetting about it completely, we do allow real and monetary shocks to change the risk appetite. So, I think that's it for now.

Joseph Gagnon: Michael did you want to …?

Michael Klein: So, I guess you know, to sort of kick off the discussion, I remember when I was at Treasury and Brazilians came by at a time when they were really concerned about inflows, and they said, "Well, what should we do?" and we didn't have a really good answer. And I remember even well before that in the early '90s talking to Guillermo Calvo and saying, "Well, what should countries do about capital inflows?" and you know this is one of the smartest guys around and he said, "I don't know. I'm not sure."

So, capital controls have been given as a possible answer. I myself don't believe that they really work, especially in what I call gates countries. That episodically you can't really do that. So, we are you know, after this discussion, we are kind of left with these results that are very consistent what the two of you presented and then the question is well, if you're in emerging market or you know, if you're not the US, but another country that's an SAE, what do you do in the face of this?

And then secondly I guess the other point I want to hear more about is this issue of this you know, there's a long lead up to these because people are anticipating the effects. So, in the absence of you know, an actual tightening, what do you do? Because the markets are going to start reacting very quickly to the prospect of that.

So, I don't have answers to this, but I think you know, these are natural sort of ways that the discussion could go forward.

Joseph Gagnon: Well, thank you Michael. That's actually sort of a first question in a way. Let me expand. I'll take my position as a moderator to expand on that and make that the first question to everyone and then I'll open it up to everyone else in here. But I would say, starting from what you just said, capital flows, Prakash, you showed a chart with net capital flows and

Michael, you talked about that. These must be net private capital flows, because if you look at the current accounts—especially of the countries that are doing the unconventional policy of the quantitative easing—they're not moving.

And my own work, which we'll talk about this afternoon, also says that there's not much effect on the current account. If anything countries that do unconventional policy see a decline in their current account which would mean they would have net capital inflows. Well, if they have net capital inflows and everyone else had net capital inflows what's going on? How is that possible?

So, obviously gross flows may be doing something interesting, but it gets a tougher story to tell. So, I would be curious to know you know, obviously, or Prakash first of all, is it net private that you're talking about and what about net total and to some extent countries, governments in these countries are taking the inflow money and actually just recycling it and send it back to the US? So, how do we think about these financial micro effects which seem to be so important when there's actually no net flow?

Prakash Loungani: Yeah. These are net private capital inflows.

Joseph Gagnon: That's what I thought, yeah. So, if anyone here has any thoughts on how to think about the gross flows in a way that matters as a macroeconomist I think of net flows.

Steve Kamin: Well, if I could just add on. A lot of times that I think, it's not obvious to me that capital flows whether net or gross are a sort of a sufficient, a summary statistic for financial condition spillovers. So, typically if any kind of shock pushes for example, US Treasury yields, you know up or down 20 basis points, you usually see a reaction to benchmark yields around the world, right, kind of like that day, maybe even that hour. And that's going to have impacts on credit costs availability around the world, but that's going to, certainly in very short timeframes, that's going to happen without any capital flows moving at all which are at a much lower frequency operation.

So, I'm just saying capital flows may do all kinds of things and in the end they may be very important. But it seems like you can get a lot of asset price adjustment without the capital flows per se moving and that ultimately is going to have impacts.

Joseph Gagnon: Anyone else? Prakash? Or Michael?

Michael Klein: One other thing to think about is that it's not just the flow, it's the stocks as well. And so, what we saw in 2008 was that the fact that these, what turned out to be toxic assets, were held widely across, especially Europe had a very big implication. So this is something that you know, we don't think about in these models, but you know, we saw was a really important thing that if there is a particular vulnerability to kind of asset class that's internationally held that's a different channel than what, you know talking about this morning for the most part. And that's something worth thinking about as well.

And then, you know the policy implication of that is a better job if supervision and regulation. And also, I guess, a better understanding of credit risk where you know, the credit agency really deeply failed in the United States and it had implications, not just in the United States.

Joseph Gagnon: Okay. Why don't we open it up to questions for answers? Microphone in the back and you're welcome to stand in line and I'll come to you. There's also a traveling microphone in front for those in front and we're then going to start with the first.

Speaker: Yeah. I'd like to follow up on Michael's point about the role of stocks. I mean, we're all conditioned to start thinking about this stuff, those of us who are old through the Mundell-Fleming lens. You know, interest rates, income, exchange rates and flows. And we know the flows cumulate into stocks and you know, as Michael's referring even going back before 2008, you know lots of crises were, there was a crisis on a balance sheet and the question was advanced thinking ahead whose balance sheet, what the problems was, where the bank was always the other side of the relationship.

So, Japan it was non-financial corporate businesses that were [inaudible 01:09:16] firms the way the problem. In the US it was the household sector that was the problem, the balance sheet problem arose. In the Asia crisis it was banks and governments who were borrowing abroad in foreign currency. Not least to the current crisis and I didn't hear much reference to it. I know the IMF's work is done really interesting work about the role of debt accumulated by non financial corporations in emerging markets. A lot of it's in China, lot of it's in Korea, a lot of it's in another countries as well.

And when we're all doing these scenarios about you know, back of the envelope thing and what's the effect of an increased [inaudible 01:09:52] interest rates on income and exchange rates and other countries, these wealth effects, these balance sheet effects aren't taken in account, at least the way that I've seen them. And that'd be interesting to do sort of on the one level stress test, the way that you have US banks and they do stress tests of interest rates were the certain amount what would happen? Do the same thing or is it possible to do the same thing to these non financial corporate entities around the world and come up with accumulative number and here you get 180 across the countries.

Some countries had serious effects and other countries less. You know, right now a level of risk I guess because it is hard to kind of come up with a magnitude number, but that's sort of a financial spillover of these wealth effects, balance sheet effects, you know currency is denominated in foreign currency and other margin of concern. You know, if you have to come up with [inaudible 01:10:33] to pay off your burden, in addition to paying higher interest rates, you know, you have a double whammy. So, balance sheet effects, particularly the corporate sector in these emerging markets currently can we put a handle on how serious this problem is?

Joseph Gagnon: I think we have several questions. So, why don't I take three and then –so, Ted, why don't you go next.

Ted Truman: Ted Truman here at the Peterson Institute for International Economics. I will make one comment. I'm not sure all people up there on the dais are pushing their microphones on when they're talking so we can all hear. Maybe I'm just reflecting my aged years. So, I felt all three presentations were very good. That means that they conformed with my priors. Of course. I think one of the most important questions here that you all touched on, but maybe Steve in particular, could give some more detail, is that there's differential impacts for different countries depending on where they are in general and where they are in terms of their own cycles.

I'd be interested Steve, and you showed these aggregate results, but your sigma model, if I'm not mistaken, has some differentiation among different groups of countries, right? And I've argued this myself that in some sense on average the effect may be either small or positive. Tiny or zero or positive, but presumably it has different effects on Canada and Mexico than on Thailand and Italy or something like that. So, do you have any richness in the model stuff that you've done that shows us something about that in terms of the United States?

It presumably also feeds back into the question of the policy advice that the Fund would be giving to these countries so, if there are issues about what's the United States doing then you presumably want to have those some countries be more prepared to adjust their policies either [inaudible 01:12:40] or at the time than others.

Joseph Gagnon: I think one more and then we'll turn to our panelists. Charles Collins in the back, why don't you come up to the mic?

Charles Collins: Thanks Joe. And thanks to the panelists. I'm Charles Collins from the Institute of International Finance, the source of the numbers that Michael threw up on the chart [inaudible 01:13:07] his comments. I have two quick comments and then a question to the panel.

First on the net capital flows chart. Those are net private flows, but it's striking how much they have moved over the past year so you can't say that they are going to be necessarily balancing. Of course, the balancing variable is not big movements in the current account because indeed the current account doesn't move very quickly, but it's its reserves. So, it's been a big shift from accumulation of reserves to a rundown of reserves which certainly has consequences for the emerging market countries.

Second comment. Going again, to reinforce comment that Michael made in his remarks, if you're looking to calibrate the impacts of shocks on capital flows, I think you've got to take into account the impact of risk aversion shocks. I think that is the major amplifier. The estimates that Prakash showed seemed very small relative to our own estimates of the size of shocks you can get. For example, for when there's a shift in US monetary policy, when it's an anticipated shift in monetary policy it doesn't have much impact on capital flows, but when it's a surprise and increases risk inversion then the impact is much bigger.

Then, my question to the panel. The discussion so far has largely been about what is the impact of what's happening in US and in Europe, but the big shifts that we've seen recently are from shocks from a different part of the world, in particular from China. It would be interesting to hear the panel's views on how to analyze the channels by which changes and expectations about Chinese activity or Chinese policy frameworks can impact on the global economy and on the capital flows? Thanks.

Joseph Gagnon: Okay. Why don't we turn to the panelists who can feel free to address those parts of the questions that you have something to say about. Alright, well, we'll start with you Steve.

Steve Kamin: All right. I won't answer all the questions thoroughly. So, I agree with [inaudible 01:15:11] remarks about the importance of stocks and about the importance of corporate balance sheets, including in EMEs and thinking about, you know future monetary policy developments. And I read an interesting report on that from the IMF on the way down to Lima.

So, I'll let Prakrash, maybe, answer that more thoroughly. But I will first address Ted's question about you know, which countries do we think would be most affected by US monetary policy actions. I believe that in our sigma general equilibrium model and Kris [inaudible 01:15:46] who's in the audience and who did all that work could you know, could correct me if I’m wrong or expand. We don’t really have the country detail to this broken out to identify which countries might be more impacted than others by monetary policy actions.

But just thinking about it logically I think you could, there might be some tendency to say, “Well, obviously those countries that trade more with the US ought to be more impacted by US monetary policy action.” But given the results we’ve shown that suggest that the kind of like trade balance effects net out as domestic demand and exchange rate effects you know, offset each other, you could imagine that the main, in some sense, the most impacts of US policies abroad, would therefore not be on those countries with trade most with us, but rather with those countries that either are most financially integrated with us or those countries who, for one reason or another, have asset prices that are most responsive to our monetary policy conditions.

And then, if you look at some work that was done by David Bellman, Juan Londono and [inaudible 01:17:04], both of the latter two I think are in the audience, they kind of suggest that for some countries like Brazil the response of their yields to our monetary policy actions is really big whereas other countries like Turkey and China the response is small.

So, I’m just saying that it could be that that’s what’s going on. But that’s just sort of a speculation. Maybe Chris or John [inaudible 01:17:26] who also helped work on my presentation might want to add something to that or not.

Joseph Gagnon: Just take the mic, but be brief please.

Speaker 2: Sure. So, we can use our model to get Ted’s question about whether we can model diversity in the responses across economies. In the simple model we’ve used here it’s just a two country variant to get essentially the average responses, but we could you know, look at a three country version and for instance, look at the consequences of different financial spillovers to the two regions. You know, as Steve was alluding to, alternatively look at the implications of say one of the foreign blocks pegging their exchange rate. Because that could have very material effects.

If the US lowered policy rates a lot and a country had, either a fixed exchange rate or had a strong preference for keeping exchange rate stable via the dollar, the spillovers could be quite different than the average spillover. So, we can certainly get at those effects in larger scale versions of the model than what we’ve used here. This is a little more tractable for this analysis.

Joseph Gagnon: Thanks for—and in my presentation will actually have a little information on cross country differences too.

Steve Kamin: And I should just note Charles raised some good question about the impact of China and obviously—well, I think we don't—the United States actually, China's not a huge share of our exports; it's about 8% for merchandise. But what happens in China affects lots of other countries besides China. So, obviously, you know in aggregate developments of China as we've seen can have very [inaudible 01:19:14] effects on global commodity markets, financial markets and through a number of channels on the States.

Joseph Gagnon: Prakrash?

Pakrash Loungani: Thanks. First on Ruben's question about the corporate debt build up in emerging markets and the possible vulnerabilities from that. That indeed is one of the things we talked about in the Spillover Report. The Spillover Report was backed up by two notes. One of which I presented today, but the other one is on the impacts of the dollar appreciation, including through vulnerabilities on the corporate debt side and we looked into the currency composition of the debt, is it dollar or Euro denominated, what is the maturity of it, to what extent, you know is it, what's the extent of leverage, what is the industrial composition? And so on.

So, I don't want to name and shame particular countries here, but you have the analysis in our second note. It's called "The Effects of Dollar Appreciation on Emerging Markets". And indeed, we carried out, just as you were suggesting, stress tests to see what would happen under various scenarios. And in the report at least we, you know talk about a few countries that would be vulnerable if there were more severe shocks than what we've seen so far. So, that is there, I just didn't happen to—I picked one not two to talk about and you sort of perhaps want the other.

On Ted's point, was aimed more at Steve, was we also talk about the differential impact on countries and indeed look at the trade and financial channels and that does throw up some intriguing results as well. I mean, you would think that the US is sort of more connected to most on average, but we find some interesting sort of vulnerabilities in some countries to the Euro area as well, perhaps coming from the operation of Euro area banks, that the fact that they are more prominent in some countries than the US.

So, I think that is there in our report as well, but again, as Chris was saying, we felt more uncomfortable showing kind of an average effect if you start breaking this down as Michael showed the heterogeneity becomes quite wide. If you look at, if you were to put the standard errors around those you really would be pretty uncomfortable saying that the impact on Turkey differs from Brazil and for this reason. But we do have a discussion to the extent that we can about that.

On Charles's, I don't have an answer. I have a cop-out answer which is that we kind of picked or we didn't pick the topics at the right time. We actually analyzed the impact of China and other emerging markets slowing down in last year's Spillover Report when it didn't get much attention. So, there at least, again, looking at the standard channels you find obviously much smaller impacts on other countries from slowdowns in China and other emerging markets. So, we looked at what we call spillbacks which is you know, spillovers in the other direction from emerging markets to others.

So, again, if you restrict yourself to the kinds of models Steve and I are being working with and you have the standard trade and some financial channels to the extent that we do, you do not get much huge impacts from developments in China elsewhere, and again, that's a discussion issue of whether it means that these models are not picking up things that people are worrying about in the real world or people in the real world are worrying about things they shouldn't be. So, that's it.

Joseph Gagnon: Michael.

Michael Klein: So, I have three quick responses to the good points that were being raised. One is that, when you're thinking about looking at differences across country, you know just sort of repeating what I said before, a key difference is the exchange rate regime because that effects the monetary policy response function. And so that has to be part of—you know, we don't know what the monetary policy response functions are for countries, but we do know that it's different if they're shadowing the dollar or if they're shadowing the Euro, or if they're actually pegged. So, that's one key difference.

A second point, in response to Charles's question, you know, if you think about China it's interesting that China's what I would call "a wall country" in terms of capital controls. So, there's a whole set of responses of countries that would be, or regions that would be like the same size of China having a slowdown. With China it would be different just because the capital flow mechanisms are going to be very different. So, I think China's a little bit *sui generis* in that way and it would be interesting to think about China differently because there's this one set of channels that's not completely cut off, but really diminished.

And finally, I'm going back to this issue of the heterogeneity. You know, the political aspects are really important to. Mantega got all this attention when he said there are currency wars. Roby Rajan got a lot of attention when he said that Fed was acting irresponsibly. So, I can give out you know, grades and the average will be a B+. I won't hear it from the people who get a B+, I'll hear it from the people who get a D. And you know, it's those people who are getting Ds in the world economy that are getting the attention and you know, disproportionately to maybe their size or something, shifting the debate.

Joseph Gagnon: Thanks Michael. Comments from a professor used to grading. We're really running into lunch hour now. So, let me, if I could just take—Bill, you've been waiting patiently so, and close it there, but if you wanted to ask a question—and Monica I see your hand up, but you'll be doing the next session so you can try to ask the other people in the next session. One last question before lunch. We will convene back at one o'clock promptly, but go ahead.

Bill: For Steve. This parameter of 25 basis points causing a half a percent of GDP increase in demands seems huge to me. If we got back to normal interest rates that's a 10%. I just wanted you to say a bit more about that. But for Prakrash I guess, your analysis seems to say if you've got a real increase in the interest rate, that's good for the other countries, if it's monetary that's bad. How do we think about what's happening now? Is this a real boost to the interest rate or is it monetary?

And if it's basically a good influence for the rest of the world why do we have yet again sort of a super taper tantrum and huge declines in emerging market currencies and in expectations. So, I guess the crux of that latter question is: If good things are happening to the US economy why is—and that basically should have a positive spillover effect, why is it, at the moment look like just exactly the opposite?

Joseph Gagnon: Prakrash, why don't you go and say something. The others can jump in if you want it, but don't feel obliged, we are waiting for lunch.

Prakrash Loungani: I mean, I think if you are to extend the decomposition of fields that I showed right up to the present, I think you would still get real shocks driving a lot of what's going on. So, I think our analysis would still say that these should be associated with positive effects. So, it's not as though we've suddenly had a switch in what's driving these bond yields, there may have been some changes on the margin. Clearly money shocks probably are playing a little more important role than what was shown in the slides, in the charts that I had up there, but it is from our perspective taking these results seriously a bit of a mystery why there are complaints and worries.

As I've said, one factor could be that for other reasons emerging markets and the global environment generally has worsened. I mean global emerging markets are in trouble for other reasons, country-specific in many cases. So, you could have exactly the same forces driving bond yields that I showed you, but you're just dealing with a much weaker environment in the emerging markets.

Joseph Gagnon: Okay.

Chris: Chris [inaudible 01:27:51] and I will address Bill's other questions. During right then before lunch in reference to it.

Joseph Gagnon: Okay. All right. So—and by the way Charles, I do have a comment in response to your question. In the interest of time I'm leading off after lunch so, I'll include it that presentation if you're still here. Thanks. Let's please thank our panelists.