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**SEMINAR ON STRATEGIC ISSUES LINKED TO THE MEASUREMENT OF
INTERNATIONAL TRANSACTIONS**

SESSION I: POLICY DRIVERS

**STRATEGIC ISSUES LINKED TO THE MEASUREMENT OF INTERNATIONAL
TRANSACTIONS**

Note by Nathan Sheets, U.S. Federal Reserve Board¹

I. INTRODUCTION

1. I'd like to thank Steve Landefeld and Rob Edwards for their kind invitation to address this session. As requested by the organizers, my remarks will focus on some current international policy issues of concern to analysts at the Federal Reserve, with a particular focus on where the available data inform our discussions and where the data are lacking in important respects.
2. Before turning to that, though, I would like to remind the group that the Federal Reserve is not just a consumer of international statistics; we are also a producer—with important oversight responsibilities for most of the data on U.S. portfolio capital flows and positions. As such, I can truthfully say that “I feel your pain.” Collecting quality and useful data on international

¹ The author thanks Charlie Thomas and Jaime Marquez for their work in preparing these remarks.

transactions raises knotty methodological and practical questions. While I will brush past most of these in my remarks, I realize that such issues are indeed lurking in the background.

3. A good share of the international policy issues facing us today fall under the broad umbrella of “External Adjustment.” It is a little hard, however, to call this merely a current issue, as we at the Fed have been looking at it intensively since at least 1987; nonetheless, the U.S. current account deficit was more than 5% of GDP last year, and there are still many unanswered questions. In addition, I’ll use the term external adjustment to connote a very large umbrella of issues, which will cover more than what you may at first associate with the term.

4. To organize things a bit, I suggest that we think of this umbrella as having three panels: One that includes the measurement and determinates of trade prices; a second that covers trade flows, including increased trade in services and intellectual property; and a third that covers the measurement of cross-border financial flows, positions, and rates of return. To spice things up some, we’ll call this last piece the “dark matter” section.

5. Before going further, I should issue the standard disclaimer: The views that I will express are my own and should not be interpreted as reflecting the views of the Federal Reserve Board or of any one else associated with the Federal Reserve.

II. TRADE PRICES

6. With respect to the data on trade prices, some of our concerns are quite narrow and some are very broad. But both types of concerns have become more acute in recent years, largely because of the increased role of emerging economies in global trade.

A. The narrow view: measuring U.S. import prices

7. Analysts at the Federal Reserve are interested in the measurement and determination of import prices for a number of reasons. Import prices both influence the general level of prices in the United States and play a crucial role in the process of external adjustment. We are interested in the extent to which changes in foreign prices and exchange rates are passed through to import prices and the extent to which import prices influence general domestic prices.

8. For some time, we have been puzzled by the apparent low responsiveness of U.S. import prices to changes in foreign prices and exchange rates. That is, measured pass-through seems quite low. Now it could be that this just reflects the way the world now works: The United States is a big important market and foreign producers may set the prices they charge there based primarily on what domestic producers are charging. But if this is the case, we would expect to find a significant role for the general domestic price level in our import price equations.

9. Unfortunately for the story, the results we obtain on this score are mixed at best. Our empirical work, at least at the aggregate level and using conventional measures of foreign prices, doesn’t find a clear role for domestic prices in explaining the recent behavior of import prices. But this leaves us with an important question: what underlying factors then do determine the evolution of U.S. import prices? Certainly, the evidence suggests that import prices depend some on what foreign prices in dollars are doing, but we have little else to tie them down.

10. My colleague John Rogers and his co-authors have been doing some work that indicates this result could reflect, at least in part, how we measure import prices rather than how foreign producers actually price their products. Under a special arrangement with the BLS, Rogers et al. have been able to look at the import price data at their most disaggregated product level and track the details of how these measures are built up.

11. One of these details is how the BLS handles the situation in which a good used in a basket must be dropped because it is no longer imported or because significant quality improvements have occurred. When this happens, a new good is typically added to the basket. The BLS takes some pains to make sure the introduction of the new good itself does not unduly influence, or disrupt, the price series. What Rogers and his coauthors find, however, is that across categories of goods there is a *negative correlation* between estimated pass-through and the frequency with which goods have to be replaced. That is, pass-through seems to be lowest in those categories where the goods in the basket have to be replaced most frequently. The concern here is that exchange rate moves, which might have given rise to a change in price, instead lead to quality changes or an exit from the survey and that the price implications of these developments may not be captured in the index. The data Rogers is examining also seem to suggest that when, for example, imports of cheaper Chinese textiles replace imports of similar goods from other countries, these Chinese goods may often enter the import price index as new goods with normalized index values that do not fully reflect the lower level of the price of these newly sourced imports.

12. Now I admit that I am not quite sure what to make of all this. Some of my colleagues suspect that the chaining and weighting that the BLS does to insulate its price aggregates from disruption when new goods come on line may in fact be masking some of the influence that the new products are actually having on the *level* of import prices.

13. So what are we to do? First I commend the BLS (and the International Price Program) for the improvements they have made in both collection and methodology over the years. The price series they produce are indeed a vast improvement over the old unit value series. Second, I would hope the BLS and other compilers will continue their practice of remaining open to new ideas about how their raw data can be aggregated. This is a case where we may not need to collect more raw data but instead to consider the possibility of doing some additional or alternative things with the data that we have.

B. The really wide view: Competitiveness

14. The second data issue I would like to discuss also deals with aggregation, but on a somewhat larger scale, specifically, how we measure real exchange rates or competitiveness in an environment where emerging market economies account for a rapidly growing share of world trade.

15. A commonly used measure of a country's competitiveness is the real effective exchange rate. This measure is constructed either by chaining (or averaging) indexes of real bilateral exchange rates so that the value of the measure in a given period indicates how much prices have changed since the previous (or base) period. This approach to measurement is ideal if the objective is to track average changes in bilateral real exchange rates. But if the objective is to

measure the level of a country's prices relative to prices elsewhere, say because of an interest in measuring competitiveness, then this conventional approach has some drawbacks.

16. A simple example illustrates the point. Suppose all bilateral exchange rates are fixed. And suppose that the average cost of producing traded goods differs across countries, but that within each country costs and prices remain constant. Now what happens if a relatively low-cost country (let's just call it China) significantly expands its capacity to produce traded goods? As these goods come on the market China's share of world trade increases and other producers of similar goods are displaced. Now what will happen to our measure of the real exchange rate? Nothing—it does not change. In this example neither prices nor exchange rates have changed. All that has changed is the weight of China in our trade. Neither the chain aggregate nor the average of indexes will reflect the fact that the low-cost producer is now a more significant competitor.

17. So how can we capture the fact that the competitive position of China's trading partners has changed? My colleagues Charlie Thomas, Jaime Marquez, and Sean Fahle use bilateral relative price levels—PPPs—from the Penn International price comparison project along with varying trade weights to construct a Weighted Average of Relative Prices (WARP).² They argue that this type of measure yields a fundamentally different view of U.S. international competitiveness than do real effective exchange rates. The following few slides show what they have done.

18. The first slide shows the ratio of U.S. prices relative to foreign prices (based on the PPPs) for selected industrial countries. A ratio higher than one indicates that the level of U.S. prices is above the level of the other country's prices, when the other country's prices are converted to dollars using market exchange rates. Notably, most of these ratios are in the neighborhood of one.

19. This next slide shows U.S. relative prices for a selection of emerging market economies. It shows much more dispersion, and most of the measures are unsurprisingly well above one—indicating that the absolute price level in the United States is higher than that in these EMEs.

20. The next slide shows a selection of trade weights. The point here is that the share of U.S. trade associated with the emerging market (low cost) economies (the solid black line) has increased rapidly since the late 1980s. Okay, now on to the punch line.

21. This last figure shows the WARP measure (in red) and compares it to the real effective exchange rates from the Federal Reserve and the IMF; a rise means that U.S. prices are increasing relative to the average of foreign prices. The three measures move in near lockstep between 1971 and the early 1990s. Thus, neither the choice of aggregation method nor the measure of bilateral price has a noticeable effect on the aggregate measure of U.S. international relative prices through the early 1990s. Since then, however, the aggregates diverge. Specifically, the WARP shows a sustained increase and, by 2002, reaches nearly the same value it had in 1985;

² See "Measuring U.S. International Relative Prices: A WARP view of the World," Federal Reserve Board International Finance Discussion Papers, Number 917, January 2008.

even today, this measure remains quite strong from a historical perspective. In contrast, the other measures remain well below their 1985 peaks and are now near historical lows.

22. Charlie, Jaime and Sean have used the WARP to take a fresh look at the U.S. trade price and volume equations. They find that it gives a somewhat different view of pass-through and helps to explain the persistently wide current account deficit even after the dollar has depreciated so much by conventional measures. That is, it helps us think about external adjustment.

23. Okay, but aside from trying to convince you that I work with some clever folks, what's the point of showing the WARP here? The reason is that it is still a very crude metric for what we are trying to measure, and I would hope that the statistical community would continue to put some effort into collecting, or maybe just organizing, the data needed to improve it.

24. Specifically, WARP employs the Penn PPP measures as a proxy for how much production costs differ across countries. That is, WARP uses GDP baskets in devising its measures of relative prices. My WARP crew has convinced me that there is some merit to this approach. But, it is still clear that for a measure of competitiveness, it would be better to have relative prices that target the production costs of traded goods and services. (Again, we need the levels and not just indexes of changes through time.) I don't know if these data already exist in some non-published databases. They, or something like them, may very well be buried within the internal calculations that Penn makes in producing its PPP calculations. What I do know is that as the productive capacity of the emerging economies increases and as they become further integrated in the world economy, the usefulness of such data to researchers and policymakers will continue to rise.

III. TRADE VOLUMES

25. Now I would like to move on from trade prices to volumes. Many of the most important points on this topic are old and have been said many times before. For example, we still seem to do a much better job of measuring goods imports than exports; and bilateral data reconciliation is a powerful tool for improving quality and coverage. But another point I'd like to make is that we really need to do a better job in measuring services trade, especially trade in those services that embody a good deal of intellectual property. Unlike goods trade, which largely goes through ports or other natural choke points where data can be collected, services trade is dispersed and often the delivery requires no physical contact. As a practical matter, the only way to collect these data is to survey the providers and end users of the services. Relative to goods trade, this imposes a heavy burden both on compilers and reporters.

26. This raises the question of whether the benefits of these data are worth the effort. I think so, but to explain why we need to take a detour to look at a couple other data issues that fall under the sustainability umbrella.

IV. DARK MATTER AND EXORBITANT PRIVILEGE

27. I am sure all of you are familiar with at least some of the work on so called dark matter and the exorbitant privilege. There are many strands to these literatures, but what they have in

common is a desire to explain, or draw out the implications from, two puzzling features of the U.S. data.

28. The first feature is that although the U.S. net international investment position is measured at roughly negative \$2.5 trillion, the United States still enjoys an annual net investment income balance of positive \$80 billion. That is, in terms of current income, the rate of return that the United States earns on its \$13.75 trillion in claims on foreigners is so much higher than the rate of return that it pays on its \$16.25 trillion in liabilities to foreigners that we still come out ahead in terms of current income.

29. The second feature is that if you look at the current account deficits that the United States has run over the past 17 years, they sum up to over \$5 trillion. But if you look at the net investment position, it has only declined by about \$2 trillion. This is illustrated in the next slide, where the cumulated current account deficits are marked with Xs and the investment position is the solid line at the top. The line marked with circles incorporates the statistical discrepancy and standard estimates of valuation adjustments.

30. The puzzle is the gap between the line with circles and the recorded position. Some have interpreted all of this difference between the cumulated current account deficits and the change in the U.S. net investment position as reflecting capital gains on our claims and capital losses on our liabilities. And, if you add these capital gains and losses to the current income differential mentioned earlier, it appears that the total rate of return on our claims is much higher (indeed, exorbitantly higher) than the rate of return on our liabilities.

31. In a pair of papers, my colleague Stephanie Curcuru and her coauthors have looked carefully at these data and have shown that something else must be going on.³ In particular, for the portfolio data (by that I mean everything other than direct investment), the capital gains returns implied by the above analysis are simply implausible. Curcuru et al. are able to come to this conclusion because they look very closely at what portfolio claims and liabilities in the measured investment positions data actually were. Their work indicates that the size of these capital gains was likely much smaller than what the exorbitant privilege explanation would suggest.

32. For direct investment things are not so clear. For DI, the favorable returns differential is entirely in current income (receipts and payments) rather than capital gains and losses. And these receipts and payments are directly reported by the parent and affiliate firms.

33. So how can it be that U.S. affiliates abroad earn a so much higher rate of return than do foreign affiliates operating in the United States? This is where we circle back to the unmeasured trade in services, with a particular focus on the intellectual property component. One explanation for the DI returns differential is that foreign firms are transferring large amounts of services and intellectual property from their U.S. affiliates, and booking these transfers at either no cost or using transfer prices that tend to shift the location of taxable income outside the

³ See Curcuru, Dvorak, and Warnock, "Cross-Border Returns Differentials," *Quarterly Journal of Economics*, 2008 (forthcoming), and "The Decomposition of the U.S. External Returns Differential," unpublished working paper, 2008.

United States to countries that have lower corporate tax rates. It is hard to know how much of this is going on, but the cases that have gone through the U.S. tax courts indicate the dollar amounts may be large.

34. As I understand it, BEA has recently completed a new benchmark survey of services transactions, and the results will be folded into the annual revisions of the international accounts to be released later this month. Let's hope they shed some light on this likely source of dark matter.

35. I would like to briefly mention a few other data issues that draw on the work by Curcuru et al. When they found that portfolio capital gains and losses cannot explain the difference between cumulated current accounts and the change in the position, they went off to see what other gaps in the data might be responsible for the difference. Some of what they found was unmeasured current account transactions, such as under-reported U.S. exports. They also found some evidence of unmeasured financial account transactions, where the data initially did not capture some U.S. investment flows abroad, but we later realized that the stock of U.S. claims on foreigners was actually larger than we had thought.

36. So in conclusion, I will simply note that we see a number of places where further improvements in the data would be quite beneficial. The good news for this group is that such issues will almost certainly keep data compilers fully employed for some time to come.

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