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## FEATURES

## ADB's Distinguished Speakers Program Measuring the Connectedness of the Financial System: Implications for Risk Management\*

Robert C. Merton  
1997 Nobel Prize Winner

Macro financial risk propagation and its implications on financial stability have emerged as major concerns of governments and financial institutions, particularly those with large financial asset pools. The global financial crisis in 2008–2009 was essentially centered on credit risk involving money markets, and the propagation of such risk across and among financial institutions and sovereigns is related to how connected they are.

To understand the concept of connectedness, Merton provides a brief review of the concepts of credit, credit risk, and guarantees. He asserts that risk-free credit is essentially risky credit coupled with a guarantee of payment in the event of a default. That is, risky debt is nothing but risk-free debt less a guarantee of repayment. We note that in complete contingent markets, the holder of debt always has the option to purchase insurance on the debt, pretty much like the credit default swaps that are available in advanced financial markets today. The guarantee could be issued by a financial institution or a sovereign government, and effectively transfers the risk of default from the borrower to the guarantor. From the perspective of the lending institution, however, the instrument or asset it is holding is now essentially risk-free debt. Merton stresses that the guarantees attached to risky debt are in fact insurance on the risk of default, and are akin to put options on assets of borrowers, with maturities similar to those of the debt instrument being guaranteed and a strike price equivalent to the promised payment of debt.

\* Robert C. Merton. 2014. Measuring the Connectedness of the Financial System: Implications for Risk Management. *Asian Development Review* 31(1): 186–210. Cambridge, MA: MIT Press.

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**FEATURES**

**Measuring the Connectedness of the Financial System: Implications for Risk Management**

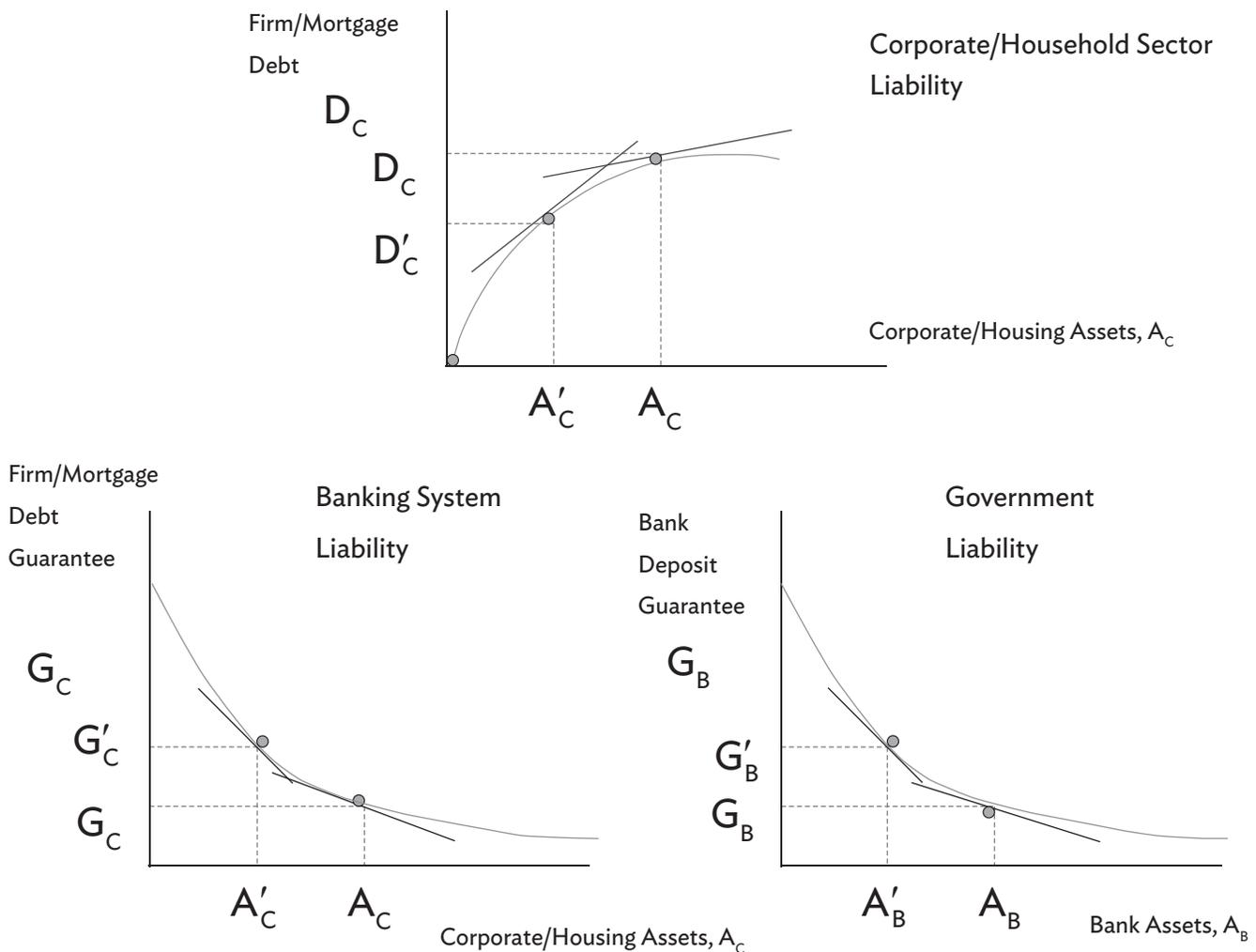
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It is a common practice in all debt contracts for lenders to seize the assets of borrowers should the latter default on his or her debt obligations. The recovery value of the seized assets is typically less than the total value of outstanding debt at the time of default, and the value of the guarantee is the difference between the amount of outstanding debt minus the recovery value of the seized assets. The pay-off from the debt guarantee is therefore similar to that of a put option:  $\text{Pay-off} = \max(0, B - A)$ ,

where B is the outstanding value of the debt being guaranteed, and A is the recovery value of the defaulting borrower's assets.

The relationship between the value of the underlying asset of the borrower and the guarantee is depicted in Figure 1. The two charts at the bottom place the value of the guarantee on the vertical axis, and the value of borrowers' assets on the horizontal axis.

Figure 1 **Non-Linear Macro Risk Build-up**



Source: Merton (2014).

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## Measuring the Connectedness of the Financial System: Implications for Risk Management

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The shapes of the curves in Figure 1 are no one's particular theory, but holds in general. The concavity of the chart on top relating the value of debt to a borrower's assets is related to the convexity of the bottom charts relating the value of guarantee to assets of the borrower. Merton stresses that, "all the action in the debt valuation comes from the put option component," which is essentially the guarantee attached to its debt. The plots for the guarantee against assets of the borrower are downward sloping and convex.

Everything that is known about put options can be used to value credit. For example, the value of a put option goes up when the volatility of an underlying asset increases, even if the value of the asset does not change. This will also hold for guarantees attached to credit—increased riskiness of the credit increases the value of the guarantee.

The convexity of the guarantee relative to asset values implies that the incremental unit declines as the value of assets raises the value of guarantees in a non-linear fashion since the slope of the curve gets steeper. In the case of bank borrowings, for example, the rate of change of guarantees is steeper when the asset value is at  $A'_c$  than at  $A_c$ . What would this mean for a bank? If asset values of the bank's borrowers fall, then the riskiness of the bank's debt goes up, and the guarantees on borrowers' assets goes up as well. What happens to the bank's capital then? It will fall as well, and the riskiness of the bank goes up because it becomes more leveraged. All banks must therefore ask themselves how by doing this loan and as a result of writing this guarantee, to what extent it is exposed to the risk associated with the assets that support the debt.

Banks borrow from each other, and also have guarantees written against their respective asset holdings, but what about the role of the sovereign? Sovereigns almost always guarantee their banks, either explicitly or implicitly. What is its liability? When a sovereign guarantees its banks, it is writing a put option on its banks' assets. These bank assets are composed of bank loans to the private sector, which may be regarded as a combination of risk-free lending and a guarantee on the assets of its borrowers. Hence, if one pierces through the layers of credit and guarantees, the government is actually guaranteeing the guarantees of its banks – the sovereign is holding a put option on a put option, making it doubly convex and more sensitive to changes in the value of private sector assets.

Note also that when the sovereign issues bonds, it is borrowing from the private sector. Since sovereign bonds are also held by banks that are being guaranteed by the sovereign, we now have a case of guarantors writing guarantees of their own guarantors.

The connectedness between banks and sovereigns is a potent propagation channel of macro financial risk. To measure connectedness, Merton and his co-researchers used monthly credit data and estimated Granger-causality equations of put option price to risk free debt price ratios of a large sample of financial institutions and sovereigns over January 2001–March 2012. Significant parameters of the estimated Granger equations are then interpreted as a directional impact of one institution to another institution or a sovereign. Using network mapping software, the extent of connectedness of institutions and sovereigns from July 2004 to June 2007 is shown in Figure 2.

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FEATURES

### Measuring the Connectedness of the Financial System: Implications for Risk Management

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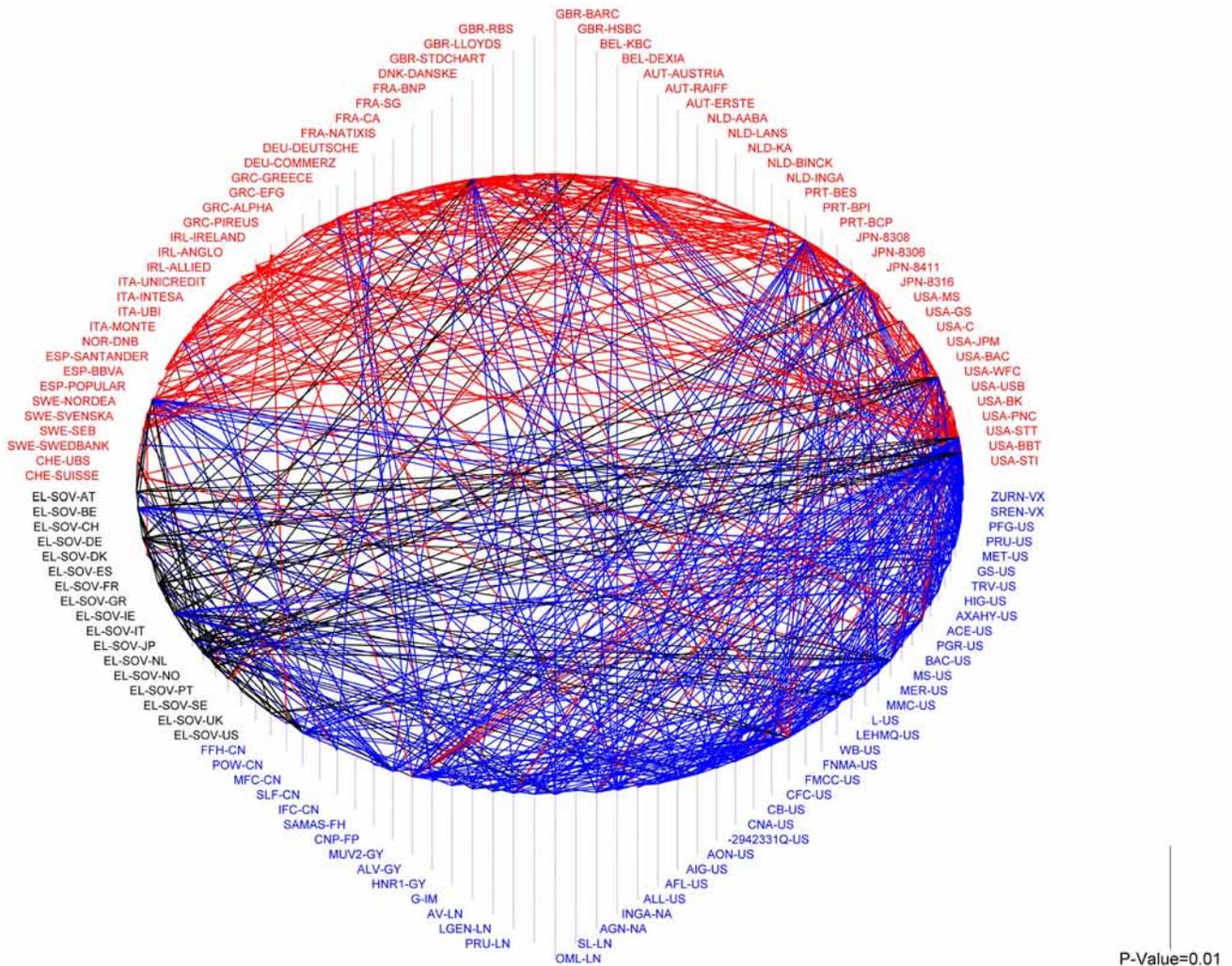
The red lines are connections from banks, the blue lines are connections from insurance companies, and the black lines are from sovereigns. What are plotted are only the statistically significant, “average” connections that prevailed from July 2004 to June 2007. Note the extent of clustering and density of the lines in the period prior to the global financial crisis. A similar estimation procedure is employed for the period covering April 2009 to March 2012, which is then plotted in Figure 3.

There are more significant connections between banks, sovereigns and insurance companies after the global financial crisis. Since each line represents how

one institution’s or sovereign’s put option price affects the put option price of another, the above implies connectedness and increased channels of macro financial risk propagation.

As a final exercise, the centrality of the estimated parameters is also calculated, such that the degree of connectedness between each pair of entities can be spatially mapped and clusters of closely connected institutions and sovereigns can be easily seen. In this manner, financial institutions that are systemically important will appear in center of risk clusters.

Figure 2 Connectedness between Sovereigns, Banks and Insurance Companies, July 2004–June 2007



## Measuring the Connectedness of the Financial System: Implications for Risk Management

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Merton stresses that the above could be useful in dynamically tracking the evolution of macro financial risk, and could be useful tools in the conduct of risk management.

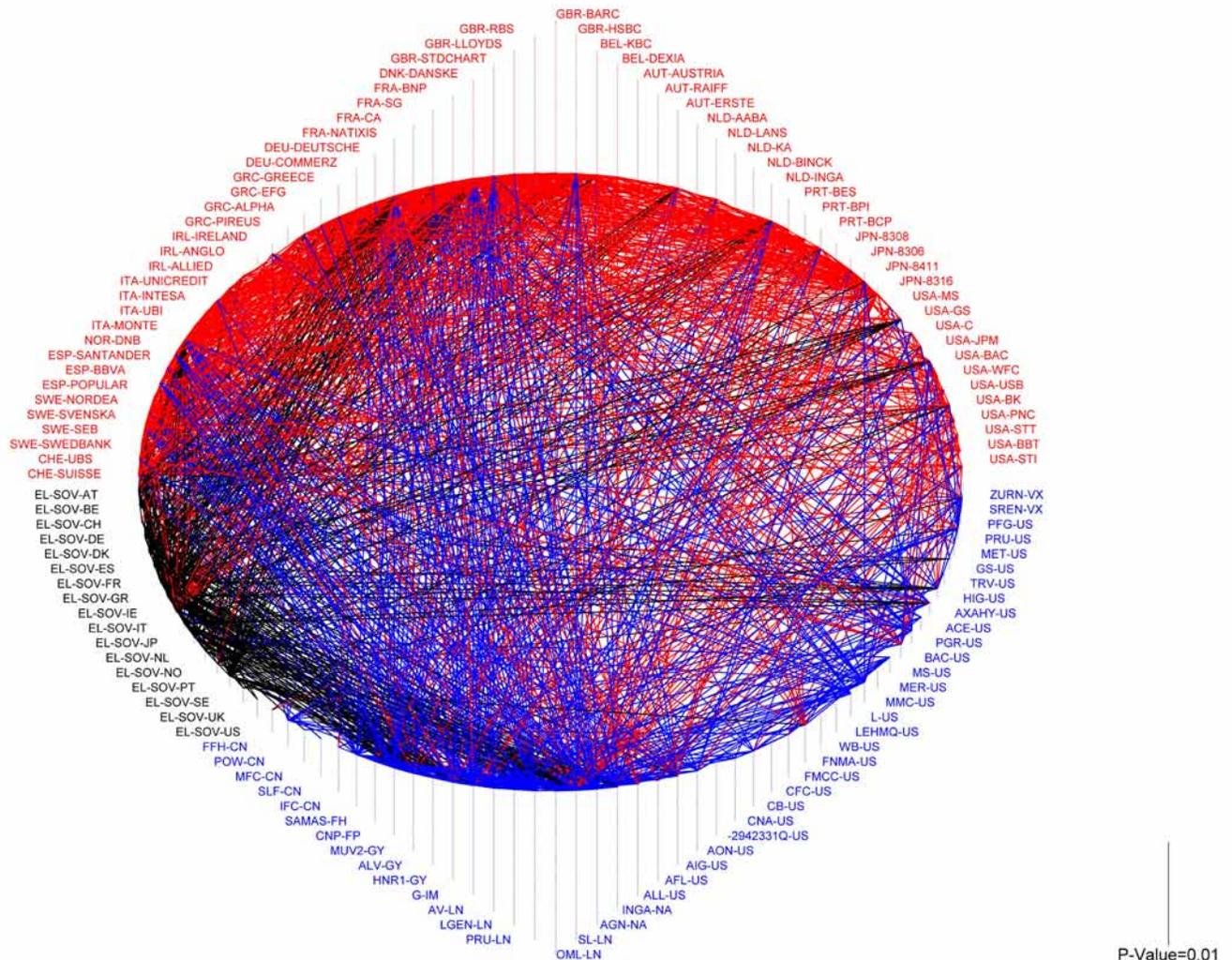
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and Insurance Credit Spreads: Connectedness and System Networks. Presented at the G-20 Conference on Financial Systemic Risk. 27 September, Istanbul, Turkey.

Merton, Robert C., 2014. Measuring the Connectedness of the Financial System: Implications for Risk Management. *Asian Development Review* 31(1): 186–210. Cambridge, MA: MIT Press.

Figure 3 Connectedness between Sovereigns, Banks and Insurance Companies, April 2009–March 2012



Source: Billio et al. (2012).

FEATURES

# Yen's Trade Spillover

Benno Ferrarini

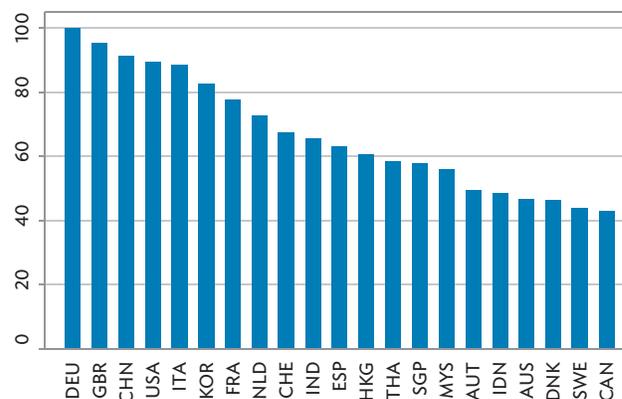
There is no escaping Japan's competition in the global markets for goods, particularly in the automotive and electronics industries. Countries exporting substitutable products to these markets are bound to feel the competitive pressure from a drop in the value of the yen. However, while some exporters may be hurt by a cheaper yen, others will benefit from lower input costs, to the extent that they source parts and components from Japan for processing, assembly and re-export.

A recent paper (Ferrarini 2013a or b) formalizes these intuitions and tests them against a data set covering more than 90% of world trade at the product level, between 2000 and 2011. The analysis uses a finely detailed global trade matrix and a suitably defined index to identify and rank the key products, destinations and exporters facing Japan's competition in global merchandise trade. For example, competition is assessed in terms of the Republic of Korea's contention of Japan's export share in the Chinese markets for imported photographic paper and related chemicals. Similarly assessed are each combination of the 1,215 product categories, 117 exporters and 53 importing countries included in the analysis, covering more than 90% of world trade.

The US and Europe compete intensely with Japan in the world merchandise markets (Figure 1). Germany ranks as the strongest challenger of Japan's products across markets and is thus associated with a cumulative competitiveness index equal to 100, its normalized maximum. Several developing member countries (DMCs) are among the top group of countries competing with Japan, namely People's Republic of China (PRC); the Republic of Korea; India; Hong Kong, China; Thailand; Singapore; Malaysia; and Indonesia. Other DMCs are less exposed to Japanese exports, such

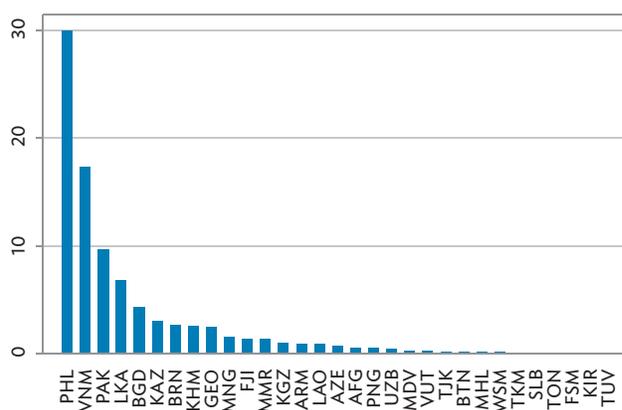
as the Philippines and Viet Nam, or virtually not at all, such as the Pacific island economies (Figure 2). DMCs also represent most of the destinations which Japan competes most fiercely for, foremost the PRC, followed by the Republic of Korea; Thailand; and Hong Kong, China (Figure 3).

Figure 1 Top Exporters Competing with Japan



Note: Includes countries with a competitiveness index above median.

Figure 2 Other DMCs Competing with Japan



Note: Includes DMCs with a competitiveness index less than the median.

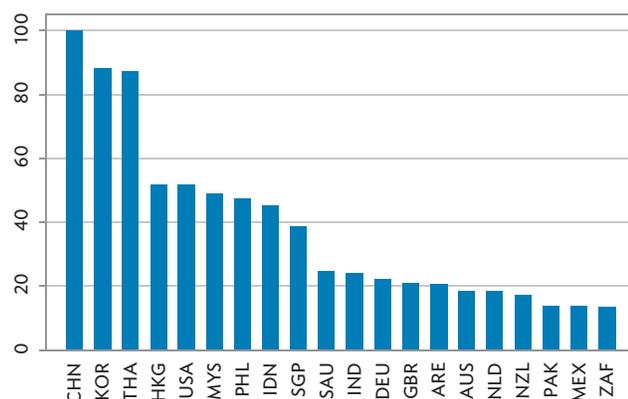
\* Benno Ferrarini is senior economist at the Economics and Research Department at Asian Development Bank.

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## Yen's Trade Spillover

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Figure 3 Top Destinations Japan Competes In



Note: Includes countries with a competitiveness index above median.

Motor vehicles and related parts and accessories are products with the strongest competition between Japan and other exporters, followed by instruments, machinery, electrical and electronic components. Japan's main competitors are thus economies with a strong foothold in the automotive or electronics industries, such as Germany, the United States, and the Republic of Korea.

To measure the yen's impact in terms of competition with Japan, the competitiveness index by exporter–importer country–pairs and products is merged with data on yearly average exchange rates of the yen against the currencies of the economies Japan and its competitors export to. For example, one such exchange rate is the yen to the renminbi vis-à-vis the won, to determine the impact of exchange rate movements on the Republic of Korea's exports. The ensuing data set spans over nearly 10 million observations. It is suitable for the application of a fixed-effect panel estimation technique involving more than one million indicator variables, in an attempt to avoid estimation bias from the likely presence of endogeneity, or indeterminacy as regards the causal relationship between exports and exchange rates.

Regression analysis yields robust evidence of the yen exchange rates impacting global trade flows. This finding is consistent and statistically significant across various model specifications. However, the estimated magnitude of the yen's impact on trade suggests that while this matters for countries and market segments facing Japan's strongest competition, it does less so for the bulk of world trade. That is, for the top 5% competing products and destinations serviced by both Japanese and competing exporters, a 10% depreciation (appreciation) of the yen against the local currency at destination lowers (raises) competing export flows by about 3.2% on average. For the remaining 95% of observations in the data set, the relationship is statistically irrefutable but practically irrelevant.

The regressions also confirm that a depreciation of the yen works to the advantage of countries that import, assemble and re-export Japanese parts and components. Indeed, when vertical trade is accounted for in the regressions, the net effect of a change in the value of the yen turns out to be negligible on average, because competition in the final goods markets and complementarity through trade in intermediates roughly cancel each other out.

Notwithstanding a strong impact for certain industries and products competing with Japan in certain markets, the findings in this paper suggest that the recent depreciation of the yen does not pose a particular threat to the economies in the region. Of greater importance for developing Asia will be Japan's capacity to revitalize its economy, in the context of which the yen's depreciation ought to be considered as a temporary symptom and not necessarily an indication of success.

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# Invisible Trade Barriers: Trade Effects of US Antidumping Actions against the People's Republic of China

Minsoo Lee\*

In the modern world economy, the increase in productivity in one country usually undermines other countries' overall welfare. International trade is not likely to promote the welfare of all trading nations, but rather cause the conflict of interest among the trading partners (Gomory and Baumol 2000). The trade policy in one country is inevitably designed to protect its domestic industries. The wave of trade protectionism has never been fully dissipated in the past decades; however, the means of trade protection are becoming apparently subtle and diversified.

In recent years, invisible trade barriers have been frequently implemented to protect specific industries in the local economy. There are three different categories of invisible barriers: antidumping, technical barriers, and environmental barriers. Antidumping refers to measures taken by one country against the dumping of products from foreign countries or regions in its domestic market. Based on the Antidumping Agreement covered by the World Trade Organization (WTO), dumping is defined by three significant characteristics: (i) dumping should be the behavior of selling products at the price less than the normal value of these products; (ii) this behavior brings substantial harm or threat of substantial damage to the relevant industries in the importing countries; and (iii) the low-cost sales and damage to the industries should have a causal relationship.

In principle, the use of antidumping measures should be limited to instances where a trade partner

is engaging in dumping; nevertheless, it is regarded as a new and effective form of trade protectionism. Aggarwal (2004) shares the view that antidumping is a protectionist tool *and is not directly related to unfair trade practices of foreign companies*. Antidumping measures, if incorrectly applied, becomes a major obstacle to free and fair trading relations (Prusa 2005). The United States (US) antidumping law, for example, was intended to prevent foreign companies from selling goods at unfair prices in the US domestic market and ensure the fairness of competition; notwithstanding, the antidumping law has become an excuse to shield some special interest groups at the expense of consumers and other businesses (Mankiw and Swagel 2005). The US seldom initiates investigations against the main importers of US products or those who adopt and use antidumping measures actively. On the contrary, lower US export penetration in a particular country and a weaker capacity to take retaliatory antidumping actions, increases the likelihood of a US antidumping action (Blonigen and Bown 2003). Over the past decade, there has been an increase in antidumping cases against the People's Republic of China (PRC) filed in the US. The asymmetry of capabilities to use antidumping measures between the US and the PRC might be contributory to a fair amount of US antidumping cases against the PRC.

The trade impacts of antidumping include (i) the investigation effect; (ii) the trade restriction effect; and (iii) the trade diversion effect. Antidumping investigation and measure generally have significant restrictive impact

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## Invisible Trade Barriers: Trade Effects of US Antidumping Actions against the People’s Republic of China

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on the trade from the targeted country (the trade restriction effect); however, trade can be diverted to other countries as a result of the antidumping action (the diversion effect). The overall effect is uncertain since the direction of the change of domestic products’ market share depends on the total change in imports from both the targeted country and non-targeted countries. If the magnitude of diversion of imports from the targeted country to non-targeted countries completely offsets any protective effect, antidumping measures are ineffective.

### Investigation effect and trade restriction effect

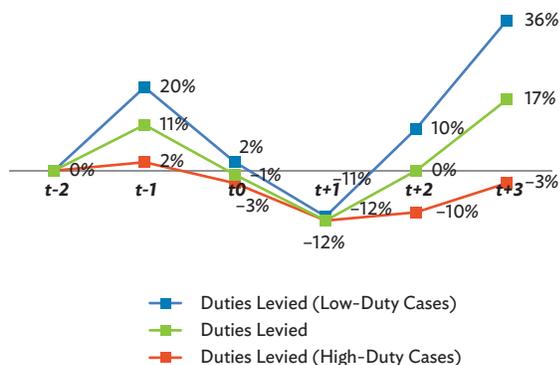
During antidumping investigations, the trends of the US imports from the PRC have already been affected. Such effects are most apparent for high duty cases, consistent with Staiger and Wolak (1994), and Prusa (1996). Since there is an expected imposition of antidumping duties, exporters in the PRC face an incentive to reduce their exports to the US and increase the price to avoid the punitive duties. It is clear from Figure 1 that the year  $t-1$  is an inflection point on the trend in US imports from the PRC. After the year  $t-1$ , the import quantity from the PRC begins to decline sharply. This decline is sustained beyond to the year  $t0$  that the preliminary decision is made, and continued up to the year  $t+1$ , the

year after antidumping measures are imposed. However, the restriction effect is quite short lived and feeble, with the trend in import volumes from the PRC seeing a reversal in year  $t+2$  despite the continued imposition of antidumping duties.

### Trade Diversion Effects

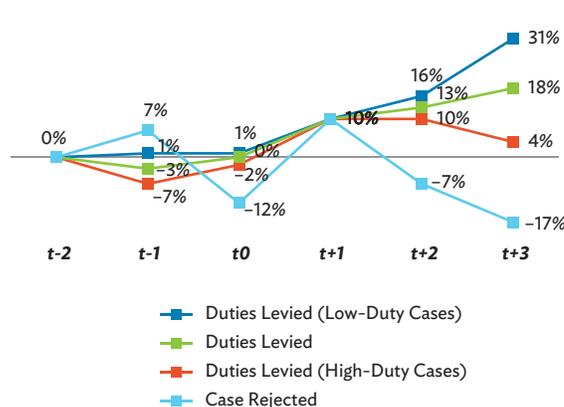
Although US antidumping actions restrict US imports from the PRC, they can lead to increases of US imports from other countries which are not targeted in the imposed antidumping measures. These largely offset the trade remedy effects and the overall impact of antidumping measures becomes insignificant on the total imports by the US. The trade diversion effect occurs even before antidumping duties are imposed. Figure 2, for example, shows the trend in the volume of US imports from non-targeted countries. When duties are levied at  $t+1$ , the quantity of imports from non-targeted countries substantially increased. The impact of the antidumping investigation is more obvious for the rejected cases. In year  $t-1$ , the investigation year, the quantity and value of imports from non-targeted countries grew significantly. However, after the antidumping measures are imposed, the imports fall back to, or less than, their level in year  $t-2$ .

Figure 1 Duties Levied (Low-Duty Cases)



Source: [http://www.wto.org/english/tratop\\_e/adp\\_e/adp\\_e.htm](http://www.wto.org/english/tratop_e/adp_e/adp_e.htm)

Figure 2 Quantity of US Imports from Other Countries (5 years)



Source: [http://www.wto.org/english/tratop\\_e/adp\\_e/adp\\_e.htm](http://www.wto.org/english/tratop_e/adp_e/adp_e.htm)

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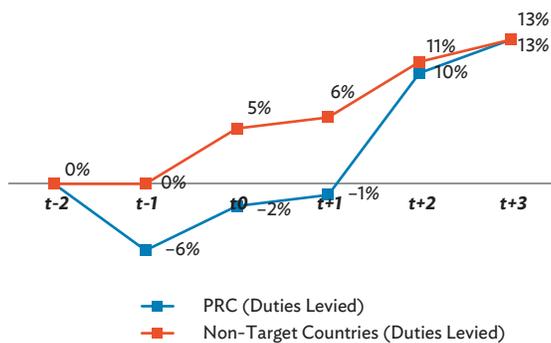
## Invisible Trade Barriers: Trade Effects of US Antidumping Actions against the People's Republic of China

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### Terms-of-Trade Effects

In another aspect, antidumping measures do achieve some purpose: They effectively increase the prices of products affected by the antidumping measures, especially those of imports from the PRC, which could also induce price increases from exporters from non-targeted countries (see Figure 3). The imposition of antidumping measures, in other words, has effects that surpass what is intended by policymakers, end up raising the overall import price and negatively affecting US consumers. If the US consumers' loss dominates the US producers' benefit, the antidumping measures turn out to be inefficient.

Figure 3 Unit Value in Duty Levied Cases (PRC vs. Other Countries)



Source: [http://www.wto.org/english/tratop\\_e/adp\\_e/adp\\_e.htm](http://www.wto.org/english/tratop_e/adp_e/adp_e.htm)

Other factors could significantly affect the impact of antidumping measures, such as the level of antidumping duty, the PRC's position in domestic US markets, and the importance of US markets to the PRC. Higher duties could lead to stronger trade restriction effects and diversion effects. A larger market share of PRC exports in the US market, the weaker the restriction effects could be. Lastly, a larger proportion of the US share of global imports from the PRC's, the weaker the restriction effects could be.

There is little doubt that US enterprises will continue to frequently use antidumping laws to reduce competition from the PRC's exporters. The real effects of the US antidumping measures, however, fall short of their expectations. The protection effect of antidumping actions is quite limited. For the PRC, the results suggest that increasing the market share the PRC exports and enhancing the PRC's market position in the US by legal means is one way of weakening the impacts of US antidumping measures against the PRC.

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# Why Do Asian Firms Hold Cash?

Charles Yuji Horioka and Akiko Terada-Hagiwara\*

In many, if not most, economies, sharp declines in household saving rates have been offset by sharp increases in corporate saving rates for the past two decades (see, for example, Karabarbounis and Neiman, 2012). Furthermore, changes in cash holdings, the most liquid component of corporate saving, have played an especially important role. The existing literature concludes that cash remains “king,” at least for certain groups of firms, and that debt capacity does not provide the same degree of downside protection as cash does (Almeida et al. 2013).

Figure 1 shows trends in changes in cash holdings (as a share of total assets) for 11 Asian economies during the 2003–2011 period, and as can be seen from this figure, changes in cash holdings were almost always positive throughout this period, which indicates that cash holdings increased throughout this period. This supports the view that there was a “saving glut” in Asia. However, some variations can be observed across time, with a slight dip in changes in cash holdings in 2008 and a sharper drop in 2011.

Figure 1 Trends Over Time in Changes in Cash Holdings in Asia



\* Akiko Terada-Hagiwara is Senior Economist in the Economic and Research Department at ADB, and Charles Yuji Horioka is Professor of Economics in the School of Economics at the University of the Philippines, Diliman; Research Associate of the National Bureau of Economic Research; and Invited Professor in the Institute of Social and Economic Research at Osaka University.

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## FEATURES

**Why Do Asian Firms Hold Cash?***(continued from page 11)*

Despite the importance of corporate saving in general and changes in cash holdings in particular, relatively little research has been done on the determinants of corporate saving and changes in cash holdings. Our research tries to fill this gap by considering why firms hold cash and what determines how much cash firms hold, with particular attention to Asian firms.

**Why Firms Hold Cash**

A firm that is not financially constrained will not necessarily increase its cash holdings in response to an increase in its cash flow and may use the entire increase in its cash flow to finance current investment because it knows that it will be able to finance future investment using external funds without any difficulty. However, a firm that is financially constrained will use at least part of the increase in its cash flow to increase its cash holdings so that it will be able to increase its future investment without relying on external funds. Thus, an increase in cash flow will cause financially constrained firms to save more in the form of cash (that is, the “cash flow sensitivity of cash” of financially constrained firms will be positive)—the hypothesis discussed in Almeida, Campello, and Weisbach (2004).

**Previous Empirical Studies**

This hypothesis is supported by existing empirical studies, but the results appear to be sensitive to the estimation method used. For example, Almeida, Campello, and Weisbach (2004), using a large sample of US manufacturing firms for the 1971–2000 period, regress the increase in cash holdings on cash flow and other variables and finds that the coefficient of cash flow is statistically insignificant for unconstrained firms but that it is positive and statistically significant for financially constrained firms, regardless of what criterion (payout ratio, asset size, bond ratings, commercial paper rating, and index of firm financial constraints) is used to

partition firms into constrained and unconstrained firms. Khurana, Martin, and Pereira (2006) obtain empirical support for the Almeida, Campello, and Weisbach (2004) hypothesis using firm-level data on 35 countries from throughout the world, while Riddick and Whited (2009) find, using firm-level data for Canada, France, Germany, Japan, and the United States, that the results are sensitive to the estimation method used and that the results based on the preferred estimation method fail to support the Almeida, Campello, and Weisbach (2004) hypothesis.

**Results for Asian Firms**

To the best of our knowledge, Horioka and Terada-Hagiwara (2013) are the first to test Almeida, Campello, and Weisbach’s (2004) hypothesis focusing on Asian economies while also addressing the econometric issues identified by Riddick and Whited (2009). Moreover, they include several economies not included in previous studies such as the People’s Republic of China, Hong Kong, and Vietnam. They estimate the cash flow sensitivity of cash as in Almeida, Campello, and Weisbach (2004) using firm-level data for 11 Asian economies (Australia, Indonesia, Japan, the Republic of Korea, Malaysia, the Philippines, Singapore, Thailand, and the three aforementioned economies) for the 2002–2011 period. They find that the impact of cash flow on the increase in cash holdings is positive and statistically significant and that its impact is larger and more highly significant in the case of smaller firms than in the case of larger firms in both the developed country sample and the developing country sample. Since smaller firms are more likely to be financially constrained than larger firms, these results suggest that Almeida, Campello, and Weisbach’s (2004) theoretical analysis is applicable in the case of Asia as well. Moreover, these results suggest that Asian firms, especially smaller ones, are financially constrained and that they save more when their cash flow increases so that they will be able to finance future investments.

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## Why Do Asian Firms Hold Cash?

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### Policy Implications

Turning to policy implications, the findings of Horioka and Terada-Hagiwara (2013) suggest that the saving and investment behavior of Asian firms is heavily influenced by financial constraints and that financial sector development would reduce the need for liquid saving in the form of cash holdings, especially in the case of smaller firms. It is important to note that the financial sector development to which we are referring here should not be limited to traditional markets such as debt and equity as “liquidity” is of central importance to efficient investment, as noted by Almeida et al. (2013). Recent studies have documented that the existence of more liquid instruments such as credit lines and derivatives-based hedging can add substantially to a firm’s liquidity. Firms that hold undrawn credit lines are found to hold some cash, but firms without access to credit lines are found to hold significantly more cash than the average firm. Relaxing the financial constraints of firms through the introduction and expansion of such instruments would allow firms to invest cash flows more efficiently in physical assets when there are profitable projects by reducing the need for cash holdings. This, in turn, would cause the saving and investment gaps of firms, which have been largely positive in many of the countries in our sample, to narrow.

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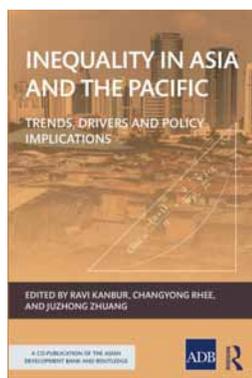
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Books/Reports



### Asian Development Outlook 2013 Supplement: Firming Industrial Economies to Support Asia's Outlook

Developing Asia is set to benefit as further signs emerge of growth momentum in the advanced economies. The region is poised to meet the 2013 and 2014 growth forecasts in *Asian Development Outlook 2013 Update*, though the subregional contributions to growth have changed.



### Inequality in Asia and the Pacific: Trends, Drivers and Policy Implications

Edited by Ravi Kanbur, Changyong Rhee, and Juzhong Zhuang

Asia's rapid economic growth has led to a significant reduction in extreme poverty, but has been accompanied by rising inequality. This book addresses three questions: What have been the trends of inequality in Asia and the Pacific? What are the key drivers of rising inequality in the region? How should Asian countries respond to the rising inequality?

## ADB Economics Working Paper Series

- **384–Governance and Development Outcomes in Asia**

Kunal Sen  
January 2014

The paper finds that governance has a systematic positive effect on development outcomes such as human development, gender equality, infant and maternal mortality, poverty, access to sanitation, literacy levels, and infrastructural provision, but that the relationship between governance and development could be strengthened in developing Asia.

- **385–A Factor-Augmented Vector Autoregression Analysis of Business Cycle Synchronization in East Asia and Implications for a Regional Currency Union**

Hyeon-seung Huh, David Kim, Won Joong Kim, and Cyn-Young Park  
January 2014

The paper assesses the potential for a monetary union in Asia by evaluating the progress of business cycle synchronization among 10 major East Asian countries.

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## ADB Economics Working Paper Series

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- **386–Asian Development Outlook**

- **Forecast Skill**

- Benno Ferrarini

- February 2014

This paper assesses the accuracy of Asian Development Outlook forecasts against actual outcomes for the years from 2008 to 2011 and against the benchmark of International Monetary Fund’s World Economic Outlook forecasts.

- **387–Public–Private Service Delivery Arrangements and Incentive Schemes in Developing Asia**

- Joseph J. Capuno

- February 2014

This paper explains the rationale for and the factors that account for the successes or failures of public–private service delivery arrangements, in selected case studies in developing Asian countries focusing on the role of monetary and nonmonetary incentives used.

- **390–Vertical Specialization, Tariff Shirking, and Trade**

- Alyson C. Ma and Ari Van Assche

- February 2014

Using export data from the People’s Republic of China, the paper demonstrates that vertical specialization allows firms to more easily circumvent antidumping measures by relocating their manufacturing to another country.

## EVENTS

### March

- **Key Indicators 2014 Workshop**  
10–11 March, ADB Headquarters
- **Final Consultation Workshop and Meetings: Myanmar Country Diagnostic Study**  
11–14 March, Nay Pyi Taw and Yangon, Myanmar
- **Eminent Speaker Forum, Former Minister Jung-Kyung Choi “Sharing Korean Development Experience: From an Insider’s View”**  
16 March, ADB Headquarters
- **Inception Workshop: Economic Analysis for Gender and Development**  
31 March to 01 April 2014, Seoul

### April

- **Joint UNECE/Eurostat/OECD/ESCAP/ADB Meeting on the Management of Statistical Information Systems (MSIS 2014)**  
14–16 April, ADB Headquarters
- **Workshop on Urbanization in the People’s Republic of China and India**  
15–17 April, PRC
- **ADO 2014 Dissemination**  
April, DMCs and North America

### May

- **ADB-IMF Joint Seminar at ADB Annual Meetings**  
02–05 May, Astana, Kazakhstan
- **Launch and Dissemination: Myanmar Country Diagnostic Study**  
14 May, Nay Pyi Taw, Myanmar

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Arvind Panagariya and Megha Mukim

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Robert J. Flanagan and Niny Khor

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Robert C. Merton