Examining Federal Reserve Reform Proposals

Paul H. Kupiec
Resident Scholar
American Enterprise Institute

July 22, 2015

The views expressed in this testimony are those of the author alone and do not necessarily represent those of the American Enterprise Institute.
Examining Federal Reserve Reform Proposals

Chairman Huizenga, Ranking Member Moore, and distinguished members of the Subcommittee, thank you for holding today’s hearing and for inviting me to testify.

I am a resident scholar at the American Enterprise Institute, but this testimony represents my personal views. My research is focused on banking, regulation, and financial stability. I have included my full resume as an appendix to my testimony, but to summarize my background, I have extensive experience working on banking and financial market policies at the Federal Reserve Board (FRB), the International Monetary Fund, the Federal Deposit Insurance Corporation (FDIC), and the Bank for International Settlements. It is an honor for me to be able to testify before the subcommittee today.

I will begin my testimony with remarks regarding proposed legislation H.R. 2912.

1. The Centennial Monetary Commission Act of 2015

Since its founding in 1913, the Federal Reserve has evolved into an institution with responsibilities and powers that would scarcely be recognized by drafters of the original authorizing legislation. The Federal Reserve is among the most powerful government institutions both in terms of its ability to set monetary policy, to engage in emergency lending relationships and as a regulator of individual financial institutions, clearing and payments systems, and financial markets. Since the Centennial Monetary Commission Act is focused on the Fed’s role in carrying out monetary policy, for the moment I will ignore the Fed’s evolution as a financial regulator and focus on recalling some of the more important changes that reshaped the Federal Reserve’s monetary policy operations since 1913:

- In 1913, the Federal Reserve was restricted to discounting self-liquidating 90-day commercial and agricultural paper; it now owns nearly $2.5 trillion in long-term US government notes and bonds and $1.75 trillion of 30-year mortgage backed securities.¹
- In 1913, the Fed’s operations were constrained by a fixed exchange rate system and the international gold standard. Today, the Federal Reserve owns no gold, and the Fed’s standard operating procedures use the exchange rate as an indirect monetary policy tool.

• In the early 1920s, the Fed welcomed deflation as the best means of rebalancing a war-inflated economy. Today the Fed argues that a constant 2 percent inflation rate is the best target for achieving “price stability” because the economic risks of deflation are so grave.

• In the early 1930s, in response to the onset of the Great Depression, the Congress gave the Fed new powers. The Banking Act of 1933 (the so-called Glass-Steagall Act) created the Federal Reserve Federal Open Market Committee, which allowed US Treasury securities to serve as collateral for Federal Reserve Notes, and gave the Fed the power to set the maximum rates banks could pay on deposit accounts. It also accorded the Fed the authority to set margin requirements for loans made to finance securities, and empowered it to set the reserve requirements on Federal Reserve member banks.

• Controlled by the US Treasury for the first 40 years of its history, the Fed gained its “independence” from the US Treasury and the executive branch in March 1951 following a contentious public debate with the US Treasury and President Truman. The so-called “Federal Reserve Treasury Accord” relaxed President Truman’s demand that the Fed continue to monetize public debt by pegging long-term interest rates. In more recent times, the Fed has tried to argue that its “independence” extends to its dealing with the US Congress.

• After experiencing high inflation and unemployment in the mid-1970s, in 1977, Congress gave the Fed a new dual mandate to maintain stable prices and maximum employment.

• In 1980, Congress revised the Federal Reserve’s powers and phased out its power to cap interest rates on all accounts except demand deposits.

---


5 Today, the Fed set’s the minimum rates banks’ earn on their reserve deposits at the Fed and the Fed hasn’t used margin requirements or reserve requirements as a policy tool for decades.

In 2010, Congress again revised the Federal Reserve’s powers. It modified the Fed’s power to lend in “unusual and exigent circumstances”; it gave the Fed new macroprudential powers to be used to prevent the formation of assets bubbles and future financial crisis; and it removed interest cap on demand deposit accounts.

While the short-run monetary policy decisions of the Federal Reserve should not be dictated by the US Congress, the Federal Reserve is not independent of the Congress. The Fed exists because of legislation enacted by Congress, and Congress has a duty to exercise oversight over the Federal Reserve, including modernizing the Federal Reserve Act when appropriate. Congressional duties include setting the Federal Reserve’s long-run goals that guide the Fed when it formulates short-run monetary policy strategy and determining what other financial sector duties are best discharged by the Federal Reserve System.

From my abbreviated history of Congressional changes to Federal Reserve Act, it is clear that, from time to time, the US Congress finds it necessary to re-examine the Fed’s mandate, powers, and responsibilities, and to revise legislation appropriately. Given the dramatic changes in Federal Reserve monetary policy operations following the financial crisis, and the apparent waning power of traditional monetary policy instruments, it is apropos to reassess the operating mandate, powers, structure, and strategy of the Federal Reserve System. My only reservation is that the Centennial Monetary Commission Act of 2015 may not allow sufficient time and is insufficiently aggressive in the scope of Federal Reserve powers and operations it proposes to review.

The 1907 National Monetary Commission met for a number of years (1909-1912) and produced a number of influential reports. The Centennial Monetary Commission is scheduled to finalize a report by December 2016, and to cease all operations by the following June. Given that the Commission has not yet been authorized, let alone organized, this life span seems unnecessarily abbreviated if the goal is to complete a substantive report.

The scope of the Centennial Monetary Commission should be expanded to require the commission to consider the merits of modernizing the structure of the Federal Reserve System and to consider whether Federal Reserve duties should be concentrated on monetary policy, monetary policy and financial stability, or in fact whether its current mandate of
monetary policy, financial stability and extensive responsibilities for individual financial institution supervision best serves the public interest. It is not clear that the public interest is served by a Federal Reserve that is heavily involved in supervision of banks and bank holding companies, especially when the Fed is vocal about using its Dodd-Frank expanded macroprudential powers to keep financial activity from “leaking out” of the banking sector into the “shadow banks.”

As part of its charter, the Centennial Monetary Commission should be asked to formulate an updated mandate for Federal Reserve for monetary policy. In 1977, the Congress amended the Federal Reserve Act to set the Fed’s mandate:

"The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices and moderate long-term interest rates."

Price stability and maximum employment are appropriate Federal Reserve mandates in the abstract, but the wide latitude given to the Federal Reserve to interpret these goals has given rise to controversy. The movement to require the Fed to assess their policies relative to a benchmark, such as the Taylor rule, is an example of this controversy. Perhaps the desire to push the Fed in the direction of using an explicit monetary policy rule could be attenuated if the Fed’s monetary policy mandate was stated with greater specificity in its authorizing legislation.

Moreover, in decades since the 1977 Humphrey-Hawkins legislation, the Federal Reserve has gained importance internationally and currently fills a role that is very close to one that can be described as the “central banker for the world.” Given this evolving role, the Fed will, at some point, undoubtedly face pressures to undertake monetary policy operations that will immediately benefit foreign nations or large institutions but may not obviously be in the

---

8 Indeed the controversy began with the Humphrey-Hawkins bill itself. Senator Humphrey wanted to give the executive branch a greater role in formulating monetary policy. He proposed that the president should submit his policy recommendations to the Federal Reserve, and the Fed should have 15 days to explain why monetary policy cannot follow the president’s proposed strategy. See, Aron Steelman (2011), Federal Reserve Bank of Richmond Economic Brief 11-12.
long-term best interest of promoting domestic price stability and maximum employment. The Centennial Monetary Commission is an appropriate body to examine these important issues and update the Federal Reserve mandate to reflect modern developments.

2. The Federal Reserve Reform Act of 2015

The “Federal Reserve Reform Act,” as proposed by Chairman Huizenga, includes 13 separate sections. Some of these sections involve relatively small amendments to Federal Reserve responsibilities that should, in my view, generate little controversy. These noncontroversial sections include: (§3) the mandatory FOMC public comment “blackout period”; (§6) increasing the frequency of Congressional briefings by the Federal Reserve Chairman and/or Vice Chairman; (§9) allowing each Federal Reserve Board member at least two Board staff to assist the governor in administering his/her duties and disclosing the salaries of highly compensated Federal Reserve system staff; and (§12) moving the responsibility for setting interest rates paid on reserve balances from the Federal Reserve Board to the FOMC. I will concentrate my testimony on the sections that are likely to generate more debate.

2.1 Requirement for Policy Rules of the Federal Open Market Committee (Sec 2)

Based on §2 of the draft legislation, my understanding is that the law requires three things:

(1) It requires the Federal Reserve to specify a so-called “directive policy rule”—the monetary policy rule that the FOMC uses to determine the open market operations directives it gives to the New York Federal Reserve bank open market desk. This directive instructs the desk to carry out specific policy operations to achieve a policy target. The directive policy rule should be in the form of an equation. The variables in the equation should be well-defined including an explanation of how and by whom these variables are calculated. The equation must explicitly include the values of any coefficients that generate the policy directive. The Fed must also explain how the outputs from the policy directive rule are translated into specific monetary policy operations using the instruments available to conduct market interventions. The Fed may deviate from its directive policy rule if market conditions have changed from those that prevailed when the FOMC formulated its directive policy rule.

(2) It requires the Federal Reserve to calculate the policy directive that would be generated by a so-called “reference policy rule” which is defined as a specific simple formulation of a
Taylor rule for setting nominal interest rates under an inflation targeting regime. The Fed must explain how the operations directive generated by its directive policy rules differs from the operations directive that would be generated by the reference policy rule, and explain to Congress why this difference is appropriate given prevailing economic conditions.

(3) After each FOMC, the GAO will verify whether the Fed’s open market operations directive is consistent with the Fed’s directive policy rule. If the directive policy rule does not appear consistent with the policy directive given to the New York market desk, the GAO must confer with the Fed and report any apparent changes in the Fed’s directive policy rule to appropriate Congressional committees. If the GAO detects a change in the directive policy rule, the Fed must appropriately update the directive policy rule and appear before the appropriate Congressional committees to explain the changes. If the Fed does not make these changes in a timely manner (within 7 days) and explain them to Congress, the Congress may instruct the GAO to audit the Fed’s processes for determining its directive policy rule.

Discussion: This legislation would require the FOMC to provide Congress and the public with a transparent statement of the methodology which the FOMC is using to set short-run monetary policy targets. It does not restrict the Fed regarding the form or function of the directive policy rule it may adopt, and it may change its directive policy rule at will, should conditions change or the best practice “science” of monetary policy evolve. In this respect, the new requirement leaves the Fed’s independence to set short-term monetary policy completely intact. However, this change would significantly improve the transparency of the process the Fed uses to determine short-run monetary policy objectives.

The requirement that the FOMC also produce a reference monetary policy directive using the Taylor rule does not appear to be an overly burdensome requirement. No doubt the Fed already produces such a calculation internally as the FOMC policy makers would certainly want to know what interventions are recommended by standard monetary policy targeting rules. The formal reporting of alternative baseline monetary policy prescriptions to appropriate Congressional committees would only enhance the quality of the discussions when the Federal Reserve Chairman appears before Congress in the newly-mandated quarterly briefing schedule. Any clear difference in policy recommendations between the reference policy rule and the
directive policy rule will undoubtedly generate lively discussion and the Fed will be required to defend its policy actions to the Congress. This seems fully appropriate and an intended goal of the legislation.

The third feature of this proposal seems sensible enough. The GAO is merely called upon to validate that the Fed’s instructions to the New York operations desk are consistent with the recommendations of the FOMC’s directive policy rule. If the GAO finds an inconsistency that the Fed cannot explain to the GAO’s satisfaction, the Fed may have to revise its directive policy rule and explain the new rule to appropriate Congressional committees.

There is nothing in this proposal that restricts the Fed from choosing any directive policy rule that meets the FOMC’s needs and objectives. Fed independence is only compromised to the extent the FOMC’s monetary policy decision processes would be made more transparent and therefore more easily monitored by Congress and the public.

2.2 FOMC Membership (Sec 4)
This legislation would change the FOMC voting rights of Federal Reserve district bank presidents. Instead of 4 bank presidents voting on an unequal rotating basis, and the president of the New York Federal Reserve bank always voting, 6 bank presidents would have FOMC votes each year. On odd-number years, the presidents of the reserve banks in Boston, Philadelphia, Richmond, Chicago, Minneapolis and Dallas would vote. On even-numbered years, the president of the reserve banks in New York, Cleveland, Atlanta, St. Louis, Kansas City, and San Francisco would vote.

Discussion: This change is appropriate. The uneven voting representation of some Federal Reserve districts may have, in the past, been justified by differences in regional contributions to aggregate financial and economic activity, but such differences no longer persist. Some reserve banks that currently enjoy favored voting rights are far less important today than they were in the 1930s.

Another potential problem with the proposal as it is currently written is that it does not designate any change in the method for selecting the vice chairman of the FOMC. Currently, the president of the New York reserve bank is designated as the FOMC vice chairman. Congress might consider specifying a process to select the FOMC vice chairman position should Congress desire
that this position rotate among the voting district bank presidents. Alternatively, Congress could continue the current practice and keep the New York reserve bank president as the permanent FOMC vice-chairman even though this vice chairman would only vote on even-numbered years.

2.3 Stress Test Transparency and Disclosure of Supervisory Correspondence (Sec 5)

This legislation would require the Federal Reserve Board to issue formal regulations that govern its mandated Dodd-Frank Stress testing process, including the CCAR stress test, and disclose the models that the Board uses to estimate losses on “certain assets.” It would also require the Board of Governors to disclose the number of supervisory letters it has sent to bank holding companies and specify how many of these were “Matters Requiring Attention” and “Matters Requiring Immediate Attention.”

Discussion: This new requirement is badly needed. The Federal Reserve Board’s stress test process is highly opaque. The legal language should be amended to require that the Federal Reserve Board disclose the models it uses to estimate stress test losses on all material asset classes examined in the stress test.

The Federal Reserve Board is likely to argue that a requirement to disclose the stress test models that the Board uses to generate loss estimates on individual asset classes will allow bank holding companies to “game” their stress test results. I do not think that this is a legitimate concern, provided the Board’s models are accurate. However, if the Board’s models significantly understate the losses on some asset classes, and the banks identify the Fed’s mistake, then banks may find it advantageous to overweight asset classes for which the Board’s models understate risk.

This feature of the stress testing process is not a reason to avoid the disclosure recommended in the legislation—rather it is a reason to avoid the use of stress testing results for the supervision of individual financial institutions. Stress test models are inherently inaccurate, and some of the Federal Reserve Board’s models will undoubtedly be wrong. Still, there is no valid reason for keeping the Fed’s stress testing process opaque and allowing the Board to penalize banks for “inaccurate” loss estimates or “inadequate” qualitative and governance processes when the Federal Reserve Board will not reveal its own internal loss models.
2.4 Cost-Benefit Analysis and Review of New Regulations (Sec 8)

This legislation has three parts. Internal Federal Reserve Board regulations, regulations related to monetary policy, or any emergency actions are expressly exempt from this proposed regulation.

(1) Before issuing any new regulations, the Federal Reserve Board must clearly assess:

(i) the source, nature and significance of the problem that the proposed regulation will address, and assesses whether any new regulation is warranted; (ii) the costs and benefits of the proposed regulation; (iii) and the costs and benefits of exempting some groups from the regulation; and (iv) identify other possible remedies and compare these remedies to the proposed regulations.

(2) The Federal Reserve Board must choose the approach that maximizes net benefits including meeting the objective without imposing undue burden on credit availability or economic growth or unintendedly disadvantaging any particular business or entity or disadvantaging job creation, global competitiveness or other enumerated factors.

(3) Once a regulation is in place, the Federal Reserve Board must conduct a study to evaluate whether the regulation is meeting its intended objective without creating negative, unintended, and unanticipated consequences. The evaluation must be completed no later than 2 years after the rule is adopted unless the Board publishes a notice of extension in the Federal Register explaining why an extension is necessary. After making and publishing the assessment, the Board must publish a notice for public comment stating that it intends to amend, rescind, or take no additional action regarding the regulation.

Discussion: The Federal Reserve has been exempt from regulations that require it to perform cost/benefit analysis to justify the issuance and formulation of new regulations. This proposal fills a loophole in exiting regulatory law. If this proposal advances, Congress should consider applying a similar regulation on the FDIC as that agency is also currently exempt from a requirement to perform cost-benefit analysis as part of its regulatory process.

As the proposal is currently drafted, the Federal Reserve Board must undertake a cost-benefit analysis to justify a new regulation, but it is unclear if, when and how this cost-benefit analysis is to be made public. Only two public disclosures are mentioned in the proposal: (i) “the Board shall explain in its final rule the nature of the comments it
received and provide a response to those comments in its final rule….”; and, (ii) disclose in the Board’s postmortem assessment two years after the regulations is implemented.

The proposed legislation lacks any mechanism for assessing the adequacy of the Federal Reserve Board’s cost-benefit analysis. Must the analysis be vetted in an appropriate Congressional committee? Must it be made public on the Board’s website? Can its adequacy and conclusions be challenged in a court of law and, if so, what parties have standing to challenge the assessment? Perhaps the legal modalities associated with mandatory cost-benefit analysis are already established elsewhere in legislation or in case law. If so, I am not aware of the rules that apply. Still, language could be added to clarify these issues.

Another consideration is the length of time involved in the implementation of many banking regulations. Many banking regulations are phased in over an extended period of time to minimize market impact. The proposal’s requirement for a Federal Reserve Board assessment two years after the implementation of a regulation might be modified to account for the length implementation periods commonly adopted by regulators.

2.5 Notification of Intent to Engage in International Standard Setting Bodies (Sec 10)

This legislation would require:

(1) The Federal Reserve Board, the FDIC and the US Treasury to notify the public and appropriate Congressional committees 30 days before any staff of these agencies enter into negotiations or consultations with international standard setting bodies like the Financial Stability Board, the Basel Committee on Banking Supervision, the International Association of Insurance Supervisors or other similar organizations. These agencies must solicit public and Congressional comment on the topic matter, goals and scope of the negotiations or consultation. After the consultation, the agencies must issue a public report describing the topics that were discussed at the meeting and any policy changes or new rulemaking that may result from these meetings.

(2) The Federal Reserve Board, the FDIC and the US Treasury to notify the public and appropriate Congressional committees 90 days before any staff from these agencies enters into an agreement with international standard setting bodies like the Financial
Stability Board, the Basel Committee on Banking Supervision, the International Association of Insurance Supervisors or other similar organizations. These agencies must solicit public and Congressional comments on the proposed agreement, its goals and its anticipated economic effects, and any new domestic rules making or policy changes that will be required as a result of the agreement.

Discussion: This proposal should be implemented at once. The language should be tightened to ensure that the public and appropriate Congressional committees are made aware of all international standard setting body meetings that have material implications. This may require further specifying the meaning of “negotiation” and “consultation” to ensure that the agencies satisfy Congressional intent.

It is curious that the proposal excludes any mention of the Securities and Exchange Commission, the Commodity Futures Trading Commission and their participation in international standard setting negotiations and agreements [e.g., International Organization of Securities Commissions]. Unless this omission is intentional, perhaps the proposal should be expanded to include these agencies as well.

2.6 Federal Reserve Special Lending Powers (Sec 11)
This segment of the proposed law would modify the Federal Reserve’s §13(3) special lending powers. Instead of being able to lend to nonbank financial firms under “unusual and exigent circumstances,” if the proposal becomes law, these unusual and exigent circumstances would also have to “pose a threat to the financial stability of the United States.” The loan would also have to be approved by at least 9 presidents of district Federal Reserve banks. Furthermore, the provision precludes the Fed from taking equity securities as loan collateral, and requires the Fed to establish rules that restrict its lending process by specifying: acceptable collateral, collateral valuation methods, a process for setting collateral haircuts, and a penalty lending rate. The proposal also adds a requirement that the assisted firm meet the Dodd-Frank definition of a financial firm. The Fed is also prohibited from lending, “until such agency has certified in writing to the Board that the person is not insolvent.”
Discussion: This proposal goes a long way toward removing concerns that the §13(3) provisions in the Dodd-Frank Act are sufficiently permissive that the Fed could once again legally lend to stop an individual distressed and potentially insolvent financial firm from failing.

Two issues merit further clarification. One issue is that the proposal is directed at the Federal Reserve Board, but it is the Federal Reserve district banks that actually do the lending. Perhaps the language should be amended to make clear that any lending under “unusual and exigent circumstances” by the Federal Reserve System district banks must meet these requirements.

A second issue requiring additional clarification is the phrase, “until such agency has certified in writing to the Board that the person is not insolvent.” The proposal, as far as I can tell, does not specify which specific agencies are empowered to make the required solvency determination. Further clarification is needed.

2.7 GAO audits (Sec 13)
This legislation repeals exiting prohibitions for GAO audits of the Fed’s monetary policy functions. Specifically, Section 13 removes the following language from exiting law [31 U.S. Code §714]:

[GAO] Audits of the Board and Federal reserve banks may not include—

1 transactions for or with a foreign central bank, government of a foreign country, or nonprivate international financing organization;
2 deliberations, decisions, or actions on monetary policy matters, including discount window operations, reserves of member banks, securities credit, interest on deposits, and open market operations;
3 transactions made under the direction of the Federal Open Market Committee; or
4 a part of a discussion or communication among or between members of the Board and officers and employees of the Federal Reserve System related to clauses (1)–(3) of this subsection.

Discussion: This provision is necessary to allow the GAO to validate that the FOMC’s policy directive is consistent with the FOMC’s directive policy rule reported to Congress. This provision is merely enabling legislation for Section 2 of the proposed legislation.
Appendix: Paul Kupiec Resume (June 2015)

Current Position
2013- Resident Scholar, American Enterprise Institute

Prior Experience
2004-2013 Director FDIC Center for Financial Research (CFR) and, Associate Director, Center for Financial Research Branch, Division of Insurance and Research, Federal Deposit Insurance Corporation

2010-2013 Chairman, Research Task Force Subcommittee of the Basle Committee on Bank Supervision

2000–2004 Deputy Division Chief, Banking Supervision and Regulation, Monetary and Financial Systems Department, International Monetary Fund


1985-1988 Assistant Professor of Finance, North Carolina State University, Raleigh, NC.

Professional Service


Associate Editor, The Journal of Risk (1998-present)


Associate Editor, Journal of Investment Management (2013-present)

Director, Southern Finance Association (2013-present)

Referee for many academic journals

Education
The University of Pennsylvania
Ph.D in Economics, 1985. Specialization in Finance, Theory and Econometrics

Publications

(Chronological)


“Commitment is the Key,” Risk, September, 1996. (joint with Jim O’Brien).


**Other Publications**

**AEI Outlooks and Commentary**

“When governments direct bank credit, the economy suffers,” AEI, March 4, 2004.


Published Editorials

“Negative Interest Rates Threaten the Banking System” Wall Street Journal, March 6, 2015

“3 easy fixes to Dodd-Frank,” Wall Street Journal, November 6, 2014.


“SIFI designations aren’t meant to last forever.” American Banker, October 8, 2014.


“Why taxpayers will be on the hook when it’s time to raise rates,” American Banker, August 27, 2014.

“Why the ‘living will’ process sets banks up for failure,” American Banker, August 11, 2014.

“The real ‘systemic risk’ is the FDIC’s broken resolution process,” Real Clear Markets, August 6, 2014.


“Guess who makes more than bankers: Their regulators,” The Wall Street Journal, April 21, 2014.


“The worst fears about Dodd-Frank’s FSOC are being confirmed,” Forbes, Nov. 26, 2013.


Congressional Testimony

“Assessing the impact of the Dodd-Frank Act four years later,” Testimony before the House Financial Services Committee, July 22, 2014.

“What makes a bank systemically important?” Testimony before the Senate Committee on Banking, Housing, and Urban Development, July 16, 2014.

“Government financial policy and credit availability,” Testimony before the House Financial Services Subcommittee on Monetary Policy and Trade, March 12, 2014.
“Federal Reserve Accountability and Reform,” Testimony before the Senate Committee on Banking, Housing, and Urban Development, March 4, 2015.

Co-Author IMF Country Reports


Iceland FSAP Update, No. 8/369, 2008.

Netherlands FSAP, No. 11/144, 2011.


Ireland, Selected Reports on Irish Banking System Developments under the IMF Program (2013).

Recent Unpublished Working Papers


**Professional Conference Organization Committees**

Program committee member, Southern Finance Association Annual Meetings, (2005-12).

Co-organizer (with Haluk Unal), the FDIC-JFSR Fall Banking Research Conference (2004-2012).

Co-organizer (with Robert Jarrow and Stuart Turnbull), the annual Derivative Securities and Risk Management Conference (2005-2012).

Program Committee and organizer for the 2007 Basel Research Task Force Workshop held at the FDIC.


Program Committee for Basel Research Task Force on Stress Testing (Amsterdam 2008).

**Other Professional Service**

**2009-**

The Financial Stability Institute (FSI), a service organization supported by the Bank for International Settlements and Basel Committee on Bank Supervision member institutions.

---Lecturer at multiple FSI Workshops on various topics in risk measurement, regulatory capital, stress testing, deposit insurance, financial sector crisis management, and Basle capital and leverage regulations.