SIFI Designation of Insurance Companies—How Game Theory Illustrates the FSOC's Faulty Conception of Systemic Risk

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I. Introduction

On September 14, 2014, the Financial Stability Oversight Council ("FSOC") notified MetLife, Inc. ("MetLife") that it was the fourth nonbank financial company to be designated a systemically important financial institution ("SIFI").[1] This decision followed the FSOC's 2013 designations of Prudential Financial, Inc. ("Prudential"), American International Group, Inc. ("AIG"), and a General Electric Co. unit, GE Capital, as SIFIs.[2] The SIFI label will subject these nonbank firms to Federal Reserve oversight and more stringent capital restrictions amongst other regulations that are generally reserved for large banks and bank holding companies.[3] These regulations will not

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[1] Steve Schaefer, *MetLife Plans To Fight 'Systemically Important' Designation*, FORBES (Sept. 4, 2014, 4:40 PM), http://www.forbes.com/sites/steveschaefer/2014/09/04/metlife-tagged-with-systemically-important-designation/, *archived at* http://perma.cc/773A-6PXZ.

[2] K. Claire Compton, *Treasury Makes Final Determination on Prudential as Systemically Important*, Banking Daily (BNA) No. 184, at 9 (Sept. 23, 2013).

[3] Richard Newman, *Yellen's Thoughts Match Pru's*, N.J. REC., Nov. 19, 2013, *available at* 2013 WLNR 29099863; Compton, *supra* note 2; Schaefer, *supra* note 1.

necessarily be uniform across different nonbank SIFIs, though. In a September 18, 2013 press conference, the Federal Reserve Chairman at the time, Ben Bernanke, stated that regulators will "design a regime that is appropriate for the business model of the particular firm."[4]

However, some, including chairwoman of the Board of Governors of the Federal Reserve Janet Yellen and deputy U.S. Treasury Secretary Sarah Bloom Raskin, have expressed reservations about certain SIFI designations of nonbanks, particularly those of insurance companies.[5] Yellen acknowledged "there are 'critical differences' between banks and insurance companies," and that "one-size-fits-all should not be the model for regulation."[6] Raskin echoed this with more detail, explaining that "[i]nsurance companies have a very different set of asset liability structures than do banks. And to regulate them in terms of a one-size-fits-all approach is not going to be an effective form of supervision or regulation in my experience."[7] Additionally, in 2013 a bipartisan Senate pair proposed legislation that would exempt insurers from minimum leverage and risk-based capital requirements out of fear that imposing "a bank-centric regulatory framework on insurance companies" may be harmful.[8]

Expanding on these concerns, this note begins by presenting the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank" or the "Act") provisions that created the FSOC and provided the authority for this FSOC action. This discussion includes consideration of the FSOC's mode of analysis, as indicated by the FSOC's interpretive guidance and basis of decision for Prudential's designation as a nonbank SIFI.[9] After providing general criticism of this regulatory scheme, this note then reviews the fundamental economic justifications for systemic risk regulation in the banking industry. Next, this note critiques the FSOC's basis of decision for

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[4] *See* Compton, *supra* note 2.

[5] Newman, *supra* note 3; Sarah N. Lynch, *Update 1-Treasury Nominee Says Bank Regulations Won't Work for Insurance Firms*, REUTERS (Nov. 20, 2013, 12:48 PM), http://www.reuters.com/article/2013/11/20/senate-raskin-insurance-idUSL2N0J519B20131120, *archived at* http://perma.cc/5XB8-A2KX.

[6] Newman, *supra* note 3.

[7] Lynch, *supra* note 5.

[8] Ben Weyl, *Bipartisan Senate Pair Looking to Shield Insurance Companies from Fed Rules*, CQ ROLL CALL (Dec. 6, 2013), 2013 WL 6337586.

[9] The "basis of decision" is the document explaining the justification for the FSOC's designation of a firm as a SIFI. It could be considered the FSOC's "opinion."

Prudential, arguing that these justifications break down when extended to the business of insurance.

This note only views the Prudential decision because the focus of this note is the business of insurance, rather than companies engaged in the business of insurance among other business lines.[10] The case of Prudential serves as an example to begin the more fundamental discussion of the systemic risk of life insurance companies generally and how this risk compares to that of banks and other firms that offer "demand" accounts. This note proposes game theory as a more objective and capable method of systemic risk analysis and offers simple examples of the application of game theory to regulation aimed at systemic risk. The goal of this discussion is two-fold—first, to

[10] While AIG, for example, was also an insurance company during the time surrounding the financial crisis, it maintained a massive portfolio of credit default swaps ("CDSs"), which distinguished the company from Prudential. Jerome A. Madden, *A Weapon of Mass Destruction Strikes: Credit Default Swaps Bring down AIG and Lehman Brothers*, BUS. L. BRIEF, Fall 2008, at 15, 16 ("In 2008, AIG was the largest originator of CDSs and had CDS contracts on its books with a notional value (the face amount of the insured debt) of approximately $440 billion."). In a CDS, the buyer of the swap pays periodic premiums to the seller for a specified term in exchange for a payout from the seller if an instrument, usually a debt obligation, goes into default. Houman B. Shadab, *Counterparty Regulation and Its Limits: The Evolution of the Credit Default Swaps Market*, 54 N.Y.L. SCH. L. REV. 689, 690 (2009–2010). The basic structure of these contracts—premium in exchange for a conditional payout—draws clear parallels to the basic structure of insurance contracts. *See id.* (describing a CDS as "a type of insurance for credit risk"). However, compared with insurance contracts, especially life insurance contracts in which Prudential is primarily engaged, CDSs carry great uncertainty as to payment obligations and the frequency of those obligations. While a life insurance company can consistently predict the number of policies that will be collected over a certain period of time based on widely accepted and time-tested actuarial techniques, it is far more difficult to predict the number of defaults on bonds or loans sold as CDSs that will occur over a certain period. *See* Note, *Credit Scoring and the ECOA: Applying the Effects Test*, 88 YALE L.J. 1450, 1472 n.88 (1979). Because of these characteristics, the arguments asserted later in this Note regarding insurance do not apply to CDSs. Therefore, this Note makes no claims about the SIFI designation of companies with a large portfolio of CDSs such as AIG. This Note also does not examine the case of Metlife, although it is more similar to Prudential than AIG, because, as of the date of publication, the FSOC had not yet published its basis of decision for Metlife.

demonstrate that SIFI designation of standard insurance companies[11] is generally unjustified, and second, to provide an accessible platform for future and more exacting discussion of the systemic risk of the financial and insurance industries through the lens of game theory.[12] This note then addresses potential criticisms to the analysis presented herein and offers general recommendations regarding the FSOC's SIFI designation process. Finally, this note concludes with an overview of the important points covered herein.

II. Statutory Authority and the FSOC's Interpretive Guidance

Section 111(a) of Dodd-Frank created the FSOC,[13] which, under Section 111(b), consists of ten voting members and five nonvoting members.[14] The voting membership consists of the Secretary of the Treasury, who serves as chairperson; the Chairperson of the Board of Governors of the Federal Reserve; the Comptroller of the Currency; the Director of the Bureau of Consumer Financial Protection; the Chairperson of the Securities and Exchange Commission; the Chairperson of the Federal Deposit Insurance Corporation; the Chairperson of the Commodity Futures Trading Commission; the Director of the Federal Housing Finance Agency; the Chairperson of the National Credit Union Administration Board; and an independent member with insurance expertise appointed by the President.[15] The nonvoting membership, which serves only in an advisory capacity, consists of the Director of the Office of Financial Research, the Director of the Federal Insurance Office, a state insurance commissioner, a state banking supervisor, and a state securities commissioner.[16] According to Section 112(a) of Dodd-Frank, the purposes of the FSOC are:

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[11] This Note uses the term "standard insurance company" to refer to insurance companies that engage primarily in the business of insurance and do not maintain large portfolios of CDSs or other extremely short-term liabilities.

[12] This Note does not engage in complex or technical game theory calculations. Instead, it intends to lay out the important and relevant concepts from game theory in such a way as to be accessible to the general legal journal audience.

[13] 12 U.S.C. § 5321(a) (2012).

[14] *Id.* § 5321(b).

[15] *Id.* § 5321(b)(1).

[16] *Id.* § 5321(b)(2).

> (A) to identify risks to the financial stability of the United States that could arise from the material financial distress or failure, or ongoing activities, of large, interconnected bank holding companies or nonbank financial companies, or that could arise outside the financial services marketplace;
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> (B) to promote market discipline, by eliminating expectations on the part of shareholders, creditors, and counterparties of such companies that the Government will shield them from losses in the event of failure; and
>
> (C) to respond to emerging threats to the stability of the United States financial system.[17]

Section 102(a)(4)(B) of the Act defines a United States nonbank financial company as "a company . . . that is (i) incorporated or organized under the laws of the United States or any State; and (ii) predominantly engaged in financial activities."[18] A company is "predominantly engaged in financial activities" if eighty-five percent of the annual gross revenues of the company and its subsidiaries are "derived . . . from activities that are financial in nature (as defined in section 4(k) of the Bank Holding Company Act of 1956)," or eighty-five percent of the consolidated assets of the company are "related to activities that are financial in nature."[19]

Section 113 of Dodd-Frank grants the FSOC the power to subject certain nonbank financial companies to increased oversight and regulation.[20] This provision permits the FSOC to designate a nonbank financial firm as a SIFI if the FSOC "determines that material financial distress at the U.S. nonbank financial company, or the nature, scope, size, scale, concentration, interconnectedness, or mix of the activities of the U.S. nonbank financial company, could pose a threat to the financial stability of the United States."[21] The statute then provides ten factors for the FSOC to consider in making this decision:

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[17] *Id.* § 5322(a).
[18] *Id.* § 5311(a)(4)(B).
[19] *Id.* § 5311(a)(6).
[20] *Id.* § 5323.
[21] *Id.* § 5323(a)(1). In its interpretive guidance for Section 113, the FSOC explains that this provision provides two separate standards for SIFI determination. 12 C.F.R. pt. 1310, app. A § II (2014). The "First Determination Standard" is met if "material financial distress at the nonbank financial company could pose a threat to the financial stability of the United

> (A) the extent of the leverage of the company;
>
> (B) the extent and nature of the off-balance-sheet exposures of the company;
>
> (C) the extent and nature of the transactions and relationships of the company with other significant nonbank financial companies and significant bank holding companies;
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> (D) the importance of the company as a source of credit for households, businesses, and State and local governments and as a source of liquidity for the United States financial system;
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> (E) the importance of the company as a source of credit for low-income, minority, or underserved communities, and the impact that the failure of such company would have on the availability of credit in such communities;
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> (F) the extent to which assets are managed rather than owned by the company, and the extent to which ownership of assets under management is diffuse;
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> (G) the nature, scope, size, scale, concentration, interconnectedness, and mix of the activities of the company;
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> (H) the degree to which the company is already regulated by 1 or more primary financial regulatory agencies;
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> (I) the amount and nature of the financial assets of the company;
>
> (J) the amount and types of the liabilities of the company, including the degree of reliance on short-term funding; and
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> (K) any other risk-related factors that the FSOC deems appropriate.[22]

States," and the "Second Determination Standard" is met if "the nature, scope, size, scale, concentration, interconnectedness, or mix of the activities of the nonbank financial company could pose a threat to U.S. financial stability." *Id.*

[22] 12 U.S.C. § 5323(a)(2).

In its interpretive guidance for Section 113, the FSOC lays out its "analytic framework" for evaluating nonbank financial companies under this statute.[23] First, the FSOC defines "threat to the financial stability of the United States" as "an impairment of financial intermediation or of financial market functioning that would be sufficiently severe to inflict significant damage on the broader economy."[24] In determining whether this threat exists, the FSOC purportedly analyzes the systemic risk associated with the firm, or "how a nonbank financial company's material financial distress or activities could be transmitted to, or otherwise affect, other firms or markets."[25] The FSOC then evaluates three "channels" as most likely to facilitate the transmission of negative effects emanating from a nonbank financial firm's financial distress—the exposure channel, the asset liquidation channel, and the critical function or service channel.[26]

Under the exposure channel, the FSOC seeks to determine whether a nonbank financial firm's "creditors, counterparties, investors, or other market participants have exposure to the nonbank financial company that is significant enough to materially impair those creditors, counterparties, investors, or other market participants and thereby pose a threat to U.S. financial stability."[27] Within the asset liquidation channel, the FSOC determines whether the firm "holds assets that, if liquidated quickly, would cause a fall in asset prices and thereby significantly disrupt trading or funding in key markets or cause significant losses or funding problems for other firms with similar holdings."[28] For the critical function or service channel, the FSOC considers whether the firm will remain able "to provide a critical function or service that is relied upon by market participants and for which there are no ready substitutes."[29]

Next in the FSOC's analytic framework, the ten statutory considerations are grouped into six broader categories: size, interconnectedness, substitutability, leverage, liquidity risk and maturity mismatch, and existing regulatory scrutiny.[30] The first three categories intend to evaluate "the potential impact of the nonbank

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[23] 12 C.F.R. pt. 1310 app. A § II(d).
[24] *Id.* § II(a).
[25] *Id.*
[26] *Id.*
[27] *Id.*
[28] *Id.*
[29] *Id.*
[30] *Id.* § II(d)(1).

financial company's financial distress on the broader economy," while the other three "seek to assess the vulnerability of a nonbank financial company to financial distress."[31] The interpretive guidance provides the following organizational table to illustrate into which category each statutory consideration fits:

Statutory considerations:	Category or categories in which this consideration would be addressed:
(A) The extent of the leverage of the company.	Leverage.
(B) The extent and nature of the off-balance-sheet exposures of the company.	Size; interconnectedness.
(C) The extent and nature of the transactions and relationships of the company with other significant nonbank financial companies and significant bank holding companies.	Interconnectedness.
(D) The importance of the company as a source of credit for households, businesses, and State and local governments and as a source of liquidity for the United States financial system.	Size; substitutability.
(E) The importance of the company as a source of credit for low-income, minority, or underserved communities, and the impact that the failure of such company would have on the availability of credit in such communities.	Substitutability.
(F) The extent to which assets are managed rather than owned by the company, and the extent to which ownership of assets under management is diffuse.	Size; interconnectedness; substitutability.
(G) The nature, scope, size, scale, concentration, interconnectedness, and mix of the activities of the company.	Size; interconnectedness; substitutability.

[31] *Id.*

(H) The degree to which the company is already regulated by 1 or more primary financial regulatory agencies.	Existing regulatory scrutiny.
(I) The amount and nature of the financial assets of the company.	Size; interconnectedness.
(J) The amount and types of the liabilities of the company, including the degree of reliance on short-term funding.	Liquidity risk and maturity mismatch; size; interconnectedness.
(K) Any other risk-related factors that the Council deems appropriate.	Appropriate category or categories based on the nature of the additional risk-related factor.[32]

In applying this analytical framework to determine whether a nonbank financial company will be deemed a SIFI, the FSOC follows a three-step process.[33] First, the FSOC applies "a set of uniform quantitative metrics . . . to a broad group of nonbank financial companies in order to identify nonbank financial companies for further evaluation."[34] These metrics and their respective thresholds are $50 billion in total consolidated assets; $30 billion in gross notional credit default swaps[35] outstanding for which the company is the reference entity; $3.5 billion in derivative liabilities; $20 billion in total debt outstanding; a 15-to-1 leverage ratio, which measures total consolidated assets to total equity; and a ten percent short-term debt ratio, which measures total debt outstanding with a maturity of less than twelve months to total consolidated assets.[36] To receive further evaluation under the second step of the process, a nonbank financial company must meet the total consolidated assets threshold and any one of the other thresholds.[37]

Under step two, the FSOC seeks, using the six-category framework outlined above, "to evaluate the risk profile and characteristics of each individual nonbank financial company in the Stage 2 Pool based on a wide range of quantitative and qualitative

[32] *Id.* § II(d)(1) tbl.
[33] *Id.* § III.
[34] *Id.* § III(a).
[35] *See supra* note 10 (describing credit default swaps).
[36] 12 C.F.R. pt. 1310, app. A § III(a).
[37] *Id.*

industry-specific and company-specific factors."[38] This analysis is based on information already available to the FSOC through public and regulatory sources as well information voluntarily provided by the company under consideration.[39] The FSOC then contacts those companies that it believes warrant further consideration under step three and requests additional information directly from the companies.[40]

Under step three, the FSOC "focus[es] on whether the nonbank financial company could pose a threat to U.S. financial stability because of the company's material financial distress or the nature, scope, size, scale, concentration, interconnectedness, or mix of the activities of the company."[41] The FSOC uses the transmission channels discussed above as well as the six-category framework in making this determination.[42] At the conclusion of stage three, the FSOC may, by a two-thirds majority of its voting members (including an affirmative vote of the chairperson), issue a "Proposed Determination" of SIFI status to the company including an explanation of the basis for decision.[43] In response, the company may, as Prudential did, "request a nonpublic hearing to contest the Proposed Determination."[44] Following this hearing, the FSOC may again vote to designate the company as a SIFI, subject to the two-thirds majority and affirmative vote of the chairperson requirements, and provide an explanation of the basis for its decision.[45] Lastly, a company subject to this final determination may bring an action in federal district court seeking an order to have the determination rescinded.[46]

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[38] *Id.* § III(b).
[39] *Id.*
[40] *Id.*
[41] *Id.* § III(c).
[42] *Id.*
[43] *Id.*
[44] *Id.*
[45] *Id.*
[46] *Id.* No company has yet sought this judicial review, but MetLife appears prepared to if it cannot rid itself of the SIFI label prior to that point. *See* Schaefer, *supra* note 1 ("[MetLife] said it would pursue any avenues available under the Dodd-Frank financial legislation in order to fight the SIFI designation.").

III. General Criticism of the FSOC's Mode of Analysis and a Proposal

The FSOC's analytical process for SIFI designations is complicated, vague, redundant, and reliant on the subjective judgments of regulators. After reviewing the language of Section 113 in conjunction with the final rule and interpretive guidance, it is unclear what weight the FSOC intends to give the ten considerations provided by the statute, the six categories in which the considerations are grouped, and the three transmission channels used in making SIFI determinations for nonbank financial companies. Further, there is no indication of which companies should be judged under the First Determination Standard and which companies should be judged under the Second Determination standard, or whether that would even make any difference in the analysis.[47] The FSOC's basis for its Prudential decision highlights this confusion. In that document, the FSOC organizes its analysis around the three transmission channels and groups the statutory considerations into these channels instead of into the six categories laid out in the interpretive guidance.[48] In fact, the FSOC never once mentions the six categories in which the statutory considerations are grouped in the interpretive guidance, likely reflecting

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[47] This distinction between the two determination standards highlights the over-complexity of the FSOC's analytic framework. As the FSOC concedes, it is difficult, if not impossible, to think of a company that would satisfy the Second Determination Standard ("the nature, scope, size, scale, concentration, interconnectedness, or mix of its activities" pose a threat to national financial stability) that would not satisfy the First Determination Standard ("material financial distress" at the company would pose a threat to national financial stability). *Id.* § II(c) ("The Council expects that there likely will be significant overlap between the outcome of an assessment of a nonbank financial company under the First and Second Determination Standards, because, in many cases, a nonbank financial company that could pose a threat to U.S. financial stability because of the nature, scope, size, scale, concentration, interconnectedness, or mix of its activities could also pose a threat to U.S. financial stability if it were to experience material financial distress."). Perhaps for that reason, the three nonbank SIFI designations have been based on the First Determination Standard.

[48] Fin. Stability Oversight Council, *Basis for the Financial Stability Oversight Council's Final Determination Regarding Pr udential Financial, Inc.*, U.S. DEP'T OF THE TREASURY 7–11 (Sept. 19, 2013), http://www.treasury.gov/initiatives/fsoc/designations/Documents/Prudential%20Financial%20Inc.pdf [hereinafter *Prudential Basis*], *archived at* http://perma.cc/6CLD-H6SY.

the redundancy found between the statutory considerations, the six categories, and the three transmission channels.[49]

Further, the boilerplate language found in the Prudential decision reflects the vagueness and subjectivity of the process. This observation is especially apparent when one views the decisions for AIG and GE Capital alongside the Prudential decision.[50] If one took out the names of the companies from these opinions, it is unlikely that even a sophisticated financial analyst could discern which decision belonged to which company. The discussions are very general and the only mention of the statutory considerations is a list of those considered under each transmission channel.[51] There is no discussion of specific characteristics of the companies, quantitative or qualitative, that weigh on the considerations. For example, in its analysis of the asset liquidation channel for Prudential, the FSOC stated:

> A forced liquidation of a significant portion of Prudential's assets, possibly including separate account assets, could cause significant disruptions to key markets including corporate debt and asset-backed securities markets, particularly during a period of overall stress in the financial services industry and in a weak macroeconomic environment when liquidity dries up and price swings can be magnified.[52]

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[49] *See generally id.*

[50] *See generally* Fin. Stability Oversight Council, *Basis of the Financial Stability Oversight Council's Final Determination Regarding American International Group, Inc.*, U.S. DEP'T OF THE TREASURY (July 8, 2013), http://www.treasury.gov/initiatives/fsoc/designations/Documents/Basis%20of%20Final%20Determination%20Regarding%20American%20International%20Group,%20Inc.pdf, *archived at* http://perma.cc/M49J-CK8X; Fin. Stability Oversight Council, *Basis of the Financial Stability Oversight Council's Final Determination Regarding General Electric Capital Corporation, Inc.*, U.S. DEP'T OF THE TREASURY (July 8, 2013), http://www.treasury.gov/initiatives/fsoc/designations/Documents/Basis%20of%20Final%20Determination%20Regarding%20General%20Electric%20Capital%20Corporation,%20Inc.pdf, *archived at* http://perma.cc/QK4U-8L76.

[51] *See Prudential Basis*, *supra* note 48, at 7–11.

[52] *Id.* at 9; *see also id.* at 2 ("[I]f Prudential were to experience material financial distress, the company's derivatives portfolio could be a source of risk to its derivative counterparties, which could experience losses through unwinding bilateral derivative trades."); *id.* at 4 ("[W]hile the sale of large blocks of Prudential's business could limit the associated harm resulting from

These types of arguments can apply to almost any large financial company and represent very little thorough analysis by the FSOC. Even former Federal Reserve Chairman Ben Bernanke, a voting member of the FSOC, echoed the uncertain and subjective nature of this inquiry in his testimony before the Financial Crisis Inquiry Commission in September 2010:

> There's right now an active academic research literature looking at some of these things, trying to identify, for example, what some of the criteria are; how big; how interconnected, those sorts of things. . . . [T]o some extent it is going to ultimately remain subjective, and I think the systemic criticality of any individual firm depends on the environment.[53]

This arbitrary and subjective systemic risk regulatory scheme should be largely replaced by, or at least performed in conjunction with, a multiplayer decisional analysis, more commonly referred to as game theory. Game theory is a well-established mode of economic analysis that is able to address issues of systemic risk objectively and directly.[54] It does so by analyzing, in a rigorous and disciplined way, not simply the existence and number of choices available to different parties (in these cases, participants in large insurance companies), but also the way those parties are likely to reach their conclusions and take certain actions based on limited knowledge about what other participants may

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material financial distress at Prudential, selling sizable business lines could be difficult, especially in a period of stress in the financial markets and in a weak macroeconomic environment."); *id.* at 8 ("In addition, individual exposures to Prudential may be small relative to the capital of its individual counterparties. In the aggregate, however, the exposures across multiple markets and financial products are significant enough that material financial distress at Prudential could aggravate losses to large, leveraged financial firms, which could contribute to a material impairment in the functioning of key financial markets or the provision of financial services by Prudential's counterparties.").

[53] *Too Big to Fail: Expectations and Impact of Extraordinary Government Intervention and the Role of Systemic Risk in the Financial Crisis Before the Fin. Crisis Inquiry Comm'n*, 111th Cong. 100–01 (2010) (testimony of Ben S. Bernanke, Chairman, Bd. of Governors of Fed. Reserve Sys.).

[54] *See* JAMES D. MORROW, GAME THEORY FOR POLITICAL SCIENTISTS 2 (1994) ("After [the mid-1950s], the application of game theory to social situations became common.").

decide and act upon.[55] In the following section, this note considers the justifications for systemic risk regulation of banks through game theory. It then expands the conversation to include insurance companies and demonstrates that the justifications for systemic risk regulation break down when applied to insurance companies.

IV. The Justifications for Regulating Banks' Systemic Risk

The sort of thinking about financial regulation advanced in this note traces back to Douglas Diamond and Philip Dybvig's seminal article *Bank Runs, Deposit Insurance, and Liquidity*.[56] This Article provides the conceptual framework and justification for systemic risk regulation of banks. The authors first point out that banks act as intermediaries between savers seeking liquid deposit accounts and borrowers seeking long-maturity loans.[57] Consequently, bank balance sheets consist of illiquid assets (long maturity business and mortgage loans) and liquid liabilities (demand deposits).[58] Banks are able to make long-maturity loans while only keeping a fraction of the deposited cash on hand to pay any depositors who wish to make withdrawals because savers' unpredictable needs for cash are unlikely to all occur at the same time.[59] However, Diamond and Dybvig explain that this situation only remains as long as an individual depositor expects most other depositors to withdraw only according to need.[60] In this case, it is rational for the individual to also only withdraw according to need, and

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[55] *Id.* at 1 ("Game theory provides a way to formalize social structures and examine the effects of structure on individual decisions. To specify the structure of a game, we must specify what choices players face, how those choices lead to outcomes, and how the actors evaluate those outcomes.").

[56] Douglas W. Diamond & Philip H. Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, 91 J. POL. ECON. 401 (1983).

[57] *Id.* at 402 ("The model we present has an explicit economic role for banks to perform: the transformation of illiquid assets into liquid liabilities.").

[58] *Id.*

[59] *See id.* at 403 ("Banks are able to transform illiquid assets by offering liabilities with a different, smoother pattern of returns over time than the illiquid assets offer."); *id.* at 405 ("Banks have issued demand deposits throughout their history, and economists have long had the intuition that demand deposits are a vehicle through which banks fulfill their role of turning illiquid assets into liquid assets.").

[60] *Id*. at 403. The term "need" is used loosely. "Only according to need" means only that the withdrawal is for consumption purposes as distinguished from a full withdrawal with the purpose of moving the cash to a safer place.

thus all depositors benefit from holding their cash in a liquid, interest-bearing account.[61] However, because banks maintain fractional cash reserves, if a depositor expects most other depositors to rush to close their accounts, then it is in the depositor's best interest to also rush to close his account.[62] Therefore, the result is self-fulfilling—a depositor will run on the bank if he expects most other depositors to run on the bank.[63] This phenomenon is modeled below:

Figure 1

Bank Depositors		Player B	
		Keep Deposits	Run
Player A	Keep Deposits	**A** (1, 1)	**B** (3, 2)
	Run	**C** (2, 3)	**D** (3, 3)

In this matrix, the numbers represent ordinal outcomes rather than actual payoffs. In other words, "1" means "first best outcome," "2" means "second best outcome," and "3" means "third best outcome." Player A's outcome appears on the left and Player B's outcome appears on the right within each set of parentheses. Additionally, the model, and those that follow in this note, serves as a simplified, two-player proxy for situations that obviously involve a great number of actors in the real world.[64] Accordingly, Box A illustrates the outcomes when all

[61] *Id.* at 403 ("Under optimal risk sharing, this private risk implies that agents have different time patterns of return in different private information states . . . . If confidence is maintained, there can be efficient risk sharing, because in that equilibrium a withdrawal will indicate that a depositor should withdraw under optimal risk sharing.").

[62] *Id.* ("If agents panic, there is a bank run and incentives are distorted. In that equilibrium, everyone rushes in to withdraw their deposits before the bank gives out all of its assets.").

[63] *Id.* at 410 ("The problem is that once [depositors] have deposited, anything that causes them to anticipate a run will lead to a run.").

[64] Note that one of the players in the models in this Note can more accurately be conceived as "Most Other Depositors." This Note does not define "most" for these purposes. As stated above, the goal of this Note is not to engage in complex and technical game theory calculations, but rather just to provide a conceptual framework for considering regulation aimed at systemic risk. *See supra* note 12. The relevant point here is that as long as some firm-specific critical mass of depositors maintains its accounts with the bank, the bank will not face a liquidity crisis and will continue to be able to redeem deposits on demand.

depositors, or at least some firm-specific critical mass, maintain their accounts with the bank. Box A shows that this results in the best outcome for all depositors and, when viewed in the context of the rest of the matrix, that this is the only way for any depositor to achieve his best potential outcome.

Boxes B and C model the situation that occurs when enough depositors run on the bank so that less than the firm-specific critical mass of depositors is left maintaining its accounts and a liquidity crisis ensues.[65] These boxes assign the depositors who stay with the bank (Player A in Box B and Player B in Box C) their worst potential outcomes because they are left at a bank that has expended all of its cash reserves and is thus unable to redeem their deposits.[66] The Players that run in Boxes B and C, even assuming that they are able to reclaim the full value of their deposits, receive their second best outcomes due to the transaction costs associated with removing funds from an interest-bearing account and finding a new, "safer" place to hold them.

Finally, Box D presents a systemic panic situation in which all depositors run. Although not all depositors will face an equal outcome in such a situation, as those who are first to the bank may be able to reclaim their deposits, this presents the worst potential outcome for society as a whole. The actors that are not first to the bank will find themselves in the same situation as those who maintained their accounts in Boxes B and C, and the few who are able to reclaim their funds may be unable to find another place to deposit them. For these reasons, Box D assigns both Players their worst outcomes.

In theoretical terms, this is an example of a game with two equilibria—a "stable equilibrium," in which depositors withdraw only according to need (Box A), and a "run equilibrium," in which depositors rush to beat their fellow depositors to the bank to withdraw (Box D).[67] Games with multiple equilibria are known as coordination games, or stag hunts.[68] This framing is important because it illuminates

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[65] *See infra* note 75 and accompanying text (describing bank runs and liquidity crises).

[66] *See infra* note 80 and accompanying text (discussing incentives to run).

[67] *See* Ricks, *Regulatory Design*, *supra* note 24, at 1317–18 (discussing stable and run equilibria).

[68] The coordination game present in the banking scenario is slightly different than the standard stag hunt, in which the outcome for an individual defecting player is the same whether he defects individually or both players defect. In the banking situation, as Figure 1 illustrates, the outcome is worse for each individual if most depositors run than if a depositor withdraws his funds

the fundamental problem in bank runs as one of equilibrium selection.[69] Equilibrium selection in a coordination game is independent of any "fundamental aspect" of the game and often appears random or irrational.[70] In the Diamond-Dybvig model of bank runs, the authors observe that selection likely depends on "some commonly observed random variable in the economy":

> This could be a bad earnings report, a commonly observed run at some other bank, a negative government forecast, or even sunspots. [The observed variable] need not be anything fundamental about the bank's condition. The problem is that once [agents] have deposited, anything that causes them to anticipate a run will lead to a run. This implies that banks with pure demand deposit contracts will be very concerned about maintaining confidence because they realize that the good equilibrium is very fragile.[71]

This selection-influencing variable is sometimes referred to as a "clue" or "focal point," and it serves as an indicator of which equilibrium will

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individually. *See* Richard H. McAdams, *Beyond the Prisoners' Dilemma: Coordination, Game Theory, and Law*, 82 S. CAL. L. REV. 209, 220–21 (2009) (describing the stag hunt in the context of bank runs).

[69] *See* Ricks, *supra* note 67, at 1318 ("Which equilibrium will prevail? This question encapsulate what game theorists call the *equilibrium selection problem*."). This is not the fundamental problem in another type of game known as the prisoners' dilemma, as which bank runs are frequently but incorrectly conceived. *See* McAdams, *supra* note 68, at 219 & n.28 (citing as examples of this incorrect conception Daniel R. Fischel, Andrew M. Rosenfield & Robert S. Stillman, *The Regulation of Banks and Bank Holding Companies*, 73 VA. L. REV. 301, 307–10 (1987); Jonathan R. Macey, *The Business of Banking: Before and After Gramm-Leach-Bliley*, 25 J. CORP. L. 691, 696–97 (2000); Mark E. Van Der Weide & Satish M. Kini, *Subordinated Debt: A Capital Markets Approach to Bank Regulation*, 41 B.C. L. REV. 195, 201 (2000); R. Nicholas Rodelli, Note, *The New Operating Standards for Section 20 Subsidiaries: The Federal Reserve Board's Prudent March Toward Financial Services Modernization*, 2 N.C. BANKING INST. 311, 314–15 (1998)).

[70] Ricks, *supra* note 67, at 1318.

[71] Diamond & Dybvig, *supra* note 56, at 410.

result in a certain situation.[72] Historical observation suggests bank runs generally only initiate when there are "significant portfolio impairments" to serve as a focal point.[73] However, the level of impairment that will prompt a run at any given institution cannot be known in advance.[74] As Professor Ricks notes, "[a]t some point, initial withdrawals will mount, the institution's cash reserves will decline, others [sic] money-claimants will sense danger, and the institution will tip toward a self-perpetuating liquidity crisis."[75] The key takeaway from game theory in this context is that there is no collectively *rational* point at which this process begins, as it will always lead to the relatively inefficient run equilibrium.[76]

Further, if Diamond and Dybvig are correct that "a commonly observed run at some other bank" can serve as an equilibrium indicator, then a run on one institution may trigger systemic consequences throughout the banking industry.[77] This means that even healthy banks may be susceptible to crippling runs in the event of a run on another bank or any other negative signal that is observed by the healthy bank's depositors.[78] This is because bank runs are caused "by a shift in expectations, which could depend on almost anything, consistent with the apparently irrational observed behavior of people running on banks."[79] Further, because depositors know that they will be able to reclaim essentially all of their deposited cash if they are first to the bank but none of their cash if they are late to the bank, they have incentives to run at the first sign of trouble even if that trouble, or perceived trouble, is in no way associated with their bank.[80]

As this section demonstrates, using game theory to conceptualize bank runs makes apparent the systemic risk carried by banks. Banks' combination of illiquid assets, liquid liabilities, and

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[72] *See* Ricks, *supra* note 67, at 1318 (citing THOMAS C. SCHELLING, THE STRATEGY OF CONFLICT 57 (1980)).

[73] *Id.* at 1319; *see also infra* notes 110–124 and accompanying text (discussing article relating to effects of asset-impairment announcements in the insurance industry in the early 1990s).

[74] Ricks, *supra* note 67, at 1319.

[75] *Id.*

[76] *Id.*

[77] Diamond & Dybvig, *supra* note 56, at 410.

[78] *Id.* (explaining that the equilibrium indicator "need not be anything fundamental about the bank's condition").

[79] *Id.* at 404.

[80] *See* discussion *infra* Part V (modeling bank depositors' incentives by comparing banks with insurance companies).

fractional cash reserves results in a coordination game with an equilibrium selection problem for depositors.[81] Understanding that the systemic riskiness inherent in the business of banking, or that a bank's "material financial distress or activities could be transmitted to, or otherwise affect, other firms or markets," is the result of this equilibrium selection problem, this note will next analyze the applicability of these justifications for systemic risk regulation to insurance companies. Based on this analysis, this note concludes that SIFI designation of standard insurance companies, at least based on the given justifications for such designations, is not warranted.

V. The (Lack of) Justification for Regulating Insurance Companies' Systemic Risk

The theoretical structure of the decisions facing insurance policyholders mirrors that of bank depositors. Presumably, this point is undisputed by those in favor of SIFI designation of insurance companies as it is essential to the stance that SIFI designation should be extended from large banks to cover certain insurance companies. However, illustrating the theoretical decision structures will improve the clarity of the arguments going forward. The following figures are payoff matrices for both insurance policyholders and bank depositors.[82]

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[81] This is true only in a theoretical sense. As Diamond and Dybvig point out, deposit insurance provides an effective solution to the equilibrium selection problem in the banking context. Diamond & Dybvig, *supra* note 56, at 413 ("Deposit insurance provided by the government allows bank contracts that can dominate the best that can be offered without insurance and never do worse."). However, for the purposes of this Note, it is useful to discuss the business of banking theoretically in order to explain the ex ante justifications, rooted in systemic risk, for banking regulation. This allows for comparison between the business of banking and the business of insurance to determine whether a "bank-centric regulatory framework" makes sense in the insurance industry. *See* Weyl, *supra* note 8 (expressing lawmakers' concern that "impos[ing] a bank-centric regulatory framework on insurance companies . . . would be inappropriate").

[82] Again, the numbers in the grid represent ordinal values rather than actual payoffs. This diagram places a matrix for insurance policyholders next to the matrix for bank depositors used in Figure 1, *supra*. Also, this diagram assumes no mitigating factors. These factors will be considered later.

Figure 2

Insurance Policyholders		Player B	
		Keep Policy	Run
Player A	Keep Policy	A (1, 1)	B (3, 2)
	Run	C (2, 3)	D (3, 3)

Figure 3

Bank Depositors		Player B	
		Keep Deposits	Run
Player A	Keep Deposits	A (1, 1)	B (3, 2)
	Run	C (2, 3)	D (3, 3)

These matrices demonstrate that, like banks, insurance policyholders face a situation in which the best outcome for all occurs when most actors maintain their policies and the worst outcome for all occurs when most actors run on the insurance company. This is because insurance companies carry fractional cash reserves and illiquid assets, meaning that, like banks, insurance companies would not be able to pay every policyholder the full value of his policy if every policyholder surrendered in a very short period of time.[83]

In its decision for Prudential, the FSOC extended this similarity in decision structure to assert that Prudential may be subject to a panic-inducing run from its policyholders, writing that "[i]n the event of its material financial distress, Prudential could face pressure to

[83] Like banks, insurance companies will deploy most of the funds they receive through premiums into other investments, maintaining only as much cash on hand as their sophisticated algorithms indicate is necessary to satisfy expected withdrawal requests and benefit payments. *See* Penn Mut. Life Ins. Co. v. Barnett's Adm'r, 99 S.W. 228, 228 (Ky. Ct. App. 1907) ("The . . . Insurance Company, in common with all other standard life insurance companies, pursues the following course in regard to its policies: A level premium is charged to the insured throughout the period of the life of the policy. As the risk of death is constantly increasing, the level or average premium during the earlier years of the policy exceeds the amount of risk run by the company in any given year. During the latter years of the life of the policy the premium is less than the amount of risk in any given year. The difference between the premium charged in any one of the earlier years and the actual amount of risk run in that year is carried by the company into its 'reserve,' and thus a fund is created to meet the years when the premium is less than the risk.").

rapidly liquidate a significant portion of its general account assets to meet redemption and withdrawal requests."[84] Further, the FSOC stated that "[a] large number of withdrawal and surrender requests within a short period of time could strain Prudential's liquidity resources."[85] The FSOC then went on to predict that "other insurance companies could be exposed to second-order effects if asset liquidations at Prudential sparked a loss of confidence in the broader insurance industry because of their similar product or balance sheet profiles, potentially leading to policy withdrawals, surrenders, or redemptions at other major insurers."[86]

The FSOC failed, however, to properly consider potential mitigants to the possibility of a run—specifically, monetary penalties for early withdrawal and the right to defer payouts. Conceiving systemic risk in the insurance industry as a coordination game, we can analyze the effects these mitigants could have on equilibrium selection in insurance companies compared with banks. Simple hypothetical diagrams of insurance policyholders' decision structures demonstrate the importance of withdrawal disincentives and show that penalties for early withdrawal of policies make rapid asset liquidation at an insurance company less likely than at a bank:

Figure 4

Insurance Policyholders		Player B	
		Keep Policy	Run
Player A	Keep Policy	**A** (10, 10)	**B** (0, 5)
	Run	**C** (5, 0)	**D** (0, 0)

Figure 5

Bank Depositors		Player B	
		Keep Deposits	Run
Player A	Keep Deposits	**A** (10, 10)	**B** (0, 9)
	Run	**C** (9, 0)	**D** (0, 0)

[84] *Prudential Basis*, *supra* note 48, at 3.
[85] *Id.* at 9.
[86] *Id.* at 3.

In contrast to the earlier diagrams, the numbers in these matrices represent actual payoff values rather than ordinal values. The Players represent insurance policyholders with a policy that would be worth $10 if held to maturity in Figure 4 and depositors with $10 deposited in an interest bearing account in Figure 5.

While ten dollars held in a bank is fully redeemable to the depositor at the moment he demands it,[87] ten dollars held in an insurance policy is not fully redeemable to the policyholder until the end of an agreed upon term of the policy. If a policyholder decides to withdraw his policy before the term has matured, he will receive only the cash surrender value of the policy, the value of which "depends on the face amount of the policy, the length of time the policy has been in force, and the length of the policy's premium payment period," and is often far less than the face value of the policy.[88] This means that while bank depositors will be able to withdraw the full value of their deposits as long as they are first to the bank, and thus face pressures to run at the first perceived sign of trouble,[89] insurance policyholders will only be able to redeem the cash surrender value of their policy, even if they are first to surrender. This significant disparity in the amount of money a policyholder will receive if he rushes to terminate his policy early and the amount he, or a surviving beneficiary, will receive if he holds his policy until maturity serves as an equilibrium indicating focal point to insurance policyholders.[90] It incentivizes policyholders to maintain their

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[87] The diagram above assigns a small arbitrary decrease in value of the deposit to reflect any sort of transaction costs present in the decision to withdraw funds from an interest bearing account and then find a new place to hold them.

[88] *Illinois Insurance Facts*, ILL. DEP'T OF INS., http://insurance.illinois.gov/Life_Annuities/faqlife.pdf (last updated Jan. 2010), *archived at* http://perma.cc/G4GB-FYCV. The diagram above assumes the cash surrender value to be half the face value of the policy. Many life insurance policyholders would need to hold their policy for more than thirty years for the cash surrender value to reach this level. Further, most life insurance companies provide no cash surrender value for at least two years. *Id.*

[89] *See supra* Part IV.

[90] *See* George W. Fenn & Rebel A. Cole, *Announcements of Asset-Quality Problems and Contagion Effects in the Life Insurance Industry*, 35 J. FIN. ECON. 181, 184–85 (1994) (testing four alternative hypotheses for the effects of "[a]nnouncements of asset-quality problems by insurance companies" on their share prices, including the "bank-run hypothesis," which asserts that "if the announcements weaken policyholder confidence in all life insurance companies, they will cause share prices to decline independent of company asset or liability structure," and finding the bank-run hypothesis unlikely to

policies by significantly decreasing the benefits associated with being the first to run. This results in the maintenance of the stable equilibrium and is thus an effective solution to the equilibrium selection problem of coordination games, just as deposit insurance is in the banking scenario.[91]

Further, as the FSOC conceded in its decision for Prudential, the company's right to defer payouts on early withdrawals "could slow any asset liquidation."[92] This right of deferral provides even further incentive for policyholders to maintain their policies under circumstances that might prompt a run on a bank. Not only will a policyholder surrender a large portion of the face value of the policy for early withdrawal, but he will also have to wait to receive the money. Many states allow insurance companies to defer cash surrender payments for up to six months and do not require the companies to pay interest on the cash surrender value during this deferral period.[93]

Despite this, in its basis of decision for Prudential, the FSOC brushed aside the effects of insurance companies' payment deferral rights, contending that a "company could have strong disincentives to invoke this option because of the negative signal invoking such a deferral could provide," and that "[a]ctions to temporarily restrict customer access to withdrawable policies could also induce customer concern about access to funds at other insurance companies."[94] Even if this argument is accepted, it is of little help to the FSOC.

First, even if a large insurance company did find itself in a position where many of its policyholders were withdrawing their policies prematurely and the company used its deferral rights, it is unlikely that this would spur similar situations at other insurance companies.[95] This is because the deferral right makes an insurance

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occur in part "because insurance policies cannot, in general, be withdrawn on demand without financial penalties").

[91] While early withdrawal penalties and deposit insurance both solve the coordination game by decreasing the incentives associated with being the first to run, they do so in different ways. Deposit insurance significantly decreases the downside of being last to run, while early withdrawal penalties significantly decrease the benefit of being first to run.

[92] *Prudential Basis*, *supra* note 48, at 2.

[93] *See, e.g.*, *Illinois Insurance Facts*, *supra* note 88; *see also Prudential Basis*, *supra* note 48, at 2 (acknowledging that Prudential "has the right to defer payouts on a significant portion of policies").

[94] *Prudential Basis*, *supra* note 48, at 2–3.

[95] *See infra* notes 115–18 and accompanying text (summarizing results of the Fenn and Cole hypothesis tests and showing that they favor the policy-holder

company's liabilities, which consist of the cash surrender value of its outstanding policies, far less liquid than a bank's liabilities, which consist primarily of demand deposits.[96] The insurance company would have six months to call in its loans before it had to pay its policyholders. This should allow it to recoup a significantly greater proportion of the value of its assets than a bank in a similar situation, which would likely be forced to engage in asset fire sales. Despite this, the FSOC expressed fear that

> [e]ven if Prudential were able to avoid significant asset liquidations in response to surrender and withdrawal requests by invoking a stay, these requests, once started, could cause market participants to lose confidence in the financial strength of companies with similar product or balance sheet profiles. The erosion of capital and potential de-leveraging at Prudential and other similar firms could result in asset fire sales that cause significant damage to the broader economy.[97]

However, the FSOC provided no justification for this assertion, and did not even mention the potential effect that deferral rights could have on the probability of an asset fire sale.[98] While this note concedes that six months may not be enough time for a company to collect the full book value of its assets, a greater value can almost certainly be collected in a six-month deferral period than can be collected when payments are due immediately. Therefore, a liquidity problem at an insurance company would likely be less aggressive than a liquidity problem at a bank. This, combined with early termination fees, lessens the incentives of an insurance policyholder to run immediately upon the perception of trouble at a similar company.

Second, and more importantly, the FSOC only considered the effect of deferral rights in the event of their execution and paid no attention to the deterrent effect these provisions have on policyholders' incentives to withdraw early in the first place.[99] These deterrent

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response and asset-information hypotheses over the irrelevance and bank-run hypotheses).

[96] *See supra* notes 87–88 and accompanying text (discussing effect of insurance policy surrender values on liquidity).

[97] *Prudential Basis*, *supra* note 48, at 3.

[98] *See generally id.*

[99] *See generally id.*

effects[100] make it highly unlikely that the deferral rights would ever even be used on a large-scale basis. Therefore, the fundamental precondition of the FSOC's fear of unrest spreading throughout the insurance industry due to an insurance company's use of its deferral rights lacks persuasive support.

VI. Responses to Potential Analytical Criticisms

Game theory scholars may be quick to point out that when one actually solves Figure 4 and Figure 5 using simple mixed strategy calculations, one finds the same result in both the banking and insurance payoff structures, suggesting that runs at banks and insurance companies are equally likely. To demonstrate this, assume as a general matter that Player A believes that Player B, representing most other depositors or policyholders, will run with probability p and thus will maintain its accounts or policies with probability $(1-p)$.[101] Therefore, based on the payouts in the matrices above, the general formula for Player A's payoff from maintaining his account is $10(1-p) + 0p$ in both the banking and insurance contexts.[102] Conversely, the general formula for Player A's payoff from running is $9(1-p) + 0p$ in the banking context and $5(1-p) + 0p$ in the insurance context.[103] This is illustrated in the third columns below:

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[100] *See supra* notes 92–93 and accompanying text.

[101] *See* Ben Polak, *Handout on Mixed Strategies*, YALE UNIV. 1 (Oct. 4, 2007), http://oyc.yale.edu/sites/default/files/mixed_strategies_handout_0.pdf, *archived at* http://perma.cc/XYA7-DP6X (explaining mixed strategy calculations).

[102] *Id.* To articulate, this general formula is discovered by multiplying the payoff Player A receives from maintaining his account or policy if Player B also maintains his account or policy by the probability that Player B will maintain, multiplying the payoff Player A receives from maintaining his policy if Player B runs by the probability that Player B will run, and then adding these products together.

[103] *Id.* Again, to articulate, this general formula is discovered by multiplying the payoff Player A receives from running if Player B maintains his account or policy by the probability that Player B will maintain, multiplying the payoff Player A receives from running if Player B also runs by the probability that Player B will run, and then adding these products together.

Figure 6

Bank Depositors		Player B		
		Keep Deposits	Run	Payoff
Player A	Keep Deposits	A (10, 10)	B (0, 9)	E *10(1-p) + 0p*
	Run	C (9, 0)	D (0, 0)	F *9(1-p) + 0p*

Figure 7

Insurance Policyholders		Player B		
		Keep Policy	Run	Payoff
Player A	Keep Policy	A (10, 10)	B (0, 5)	E *10(1-p) + 0p*
	Run	C (5, 0)	D (0, 0)	F *5(1-p) + 0p*

Next, by setting the two general formulas for each context equal to each other and solving algebraically, one can find the probability of Player B running at which Player A is indifferent between the choices of maintaining his account or policy and running:[104]

> Bank depositors: $10(1-p) + 0p = 9(1-p) + 0p \rightarrow 10-10p = 9-9p \rightarrow p = 1$
> Insurance policyholders: $10(1-p) + 0p = 5(1-p) + 0p \rightarrow 10-10p = 5-5p \rightarrow 5p = 5 \rightarrow p = 1$

Therefore, under both of these models Player A is only indifferent between the options to stay or run if there is a 100 percent probability that Player B will run. If the probability that Player B will run is any less than that, these models suggest that Player A should maintain his accounts in both the banking and insurance contexts.

Opponents to the theory advanced by this note may use this to argue that all this note has demonstrated is that runs generally represent irrational behavior, which is not surprising.[105] There are two responses to this. First, it is important not to overlook the effects that the over-

[104] *Id.* at 2 (providing general formula as basis for values applied here).
[105] *See supra* notes 74–76 and accompanying text.

simplicity of the models may have on the outcome.[106] These payoff structures conceive the decision of whether to maintain an account or policy as one involving only two actors with symmetrical payoffs. The real scenario is obviously far more involved, with many actors, all holding varying financial products with varying terms and maturities, acting simultaneously. As stated previously, this note simplifies the models to improve the clarity and accessibility of the analysis, as the purpose of this note is only to frame the systemic risk discussion, rather than to develop the complex and technical models that will actually be necessary to engage in sophisticated systemic risk analysis for a particular company.[107]

Second, and more importantly, this note does not claim that runs are any "more irrational" in the insurance industry than the banking industry.[108] Instead, it argues that the relevant equilibrium indicators in the insurance industry make the irrational behavior of runs in that industry less likely to occur.[109] A 1994 article by George W. Fenn and Rebel A. Cole provides empirical support for this theory.[110] In this Article, written following several insurance company failures, the authors split a nationwide sample of insurance companies into two groups.[111] The first included "companies whose life insurance subsidiaries ha[d] a greater concentration of risky assets . . . than the industry average, and the other contain[ed] companies whose life insurance subsidiaries invest[ed] less than the industry average in risky assets."[112] Then, using sophisticated regression analysis to compare portfolio excess returns, the authors tested the effects of announcements of severe "asset-quality problems" by two life insurance companies on share prices across the industry.[113]

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[106] *See supra* note 12.
[107] *See supra* note 12.
[108] This Note could not make this claim as an action is either irrational or it is not. There are not degrees of irrationality.
[109] *See supra* notes 87–91 and accompanying text (discussing the equilibrium indicators, including disincentives for early withdrawal).
[110] *See generally* Fenn & Cole, *supra* note 90 (explaining how equilibrium indicators lessen the likelihood of the occurrence of irrational runs in the insurance industry). This article is distinguished scholarship in this area and deserves relatively through discussion because of its robust scientific structure and quantitative analysis, utilizing a natural disruption as a point of reference for comparison.
[111] *Id.* at 187.
[112] *Id.*
[113] *See generally id.*

The authors laid out four hypotheses under this test. The first, "the irrelevance hypothesis," asserted that "if the announcements disclose[d] no new information, and if they ha[d] no impact on how policyholders use[d] information to evaluate credit risk, they w[ould] have no effect on insurance company share prices."[114] This would be indicated by excess returns that were "not significantly different from zero" across both groups.[115] Next, "the asset-information hypothesis" asserted that "if the announcements convey[ed] unfavorable information about the quality of insurance company assets, they w[ould] cause insurance companies' share prices to decline in relation to their holdings of problem assets."[116] Similarly, "the policyholder-response hypothesis" asserted that "if the announcements affect[ed] the way policyholders use[d] publically available information to evaluate credit risk, they w[ould] cause share prices to decline for firms that ha[d] significant exposure to problem assets and offer[ed] liquid liabilities."[117] Both of these would be indicated by "excess returns [that were] significantly negative only for the portfolio of companies whose life subsidiaries h[eld] a high concentration of problem assets."[118] Lastly, and most relevant to this note, "the bank-run hypothesis" asserted that "if the announcements weaken[ed] policyholder confidence in all life insurance companies, they w[ould] cause share prices to decline independent of company asset or liability structure."[119]

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[114] *Id.* at 184.

[115] *Id.* at 188. "Significantly" here refers to the mathematically calculated concept of "statistical significance," rather than some subjective notion of significance. *See generally id.* (using "significan[t]" and "statistical[ly] significan[t]" interchangeably).

[116] *Id.* at 184.

[117] *Id.* These "liquid liabilities" often take the form of "guaranteed investment contracts" ("GICs"), which "are pension investment contracts paying a fixed return over a fixed maturity." *Id.* at 183. The average maturity of GICs is "approximately four years, offer[ing] greater liquidity than traditional insurance products." *Id.*

[118] *Id.* at 188. The authors include an additional test to further distinguish between the second and third hypotheses when this structure of excess returns occurs, the details of which are not important for this Note. However, the general conceptual distinction between these two hypotheses is important. The asset-information hypothesis assumes that the driver of a decrease in share prices would be the new information itself, while the policyholder response hypothesis assumes that the driver would be the companies' policyholders' anticipated response to the new information.

[119] *Id.* at 184.

This would be indicated by "excess returns for both [groups that were] significantly negative and of the same magnitude."[120]

After executing the tests, the authors found "that the response of an insurance company's stock price varies with the structure of its assets *and* liabilities," which most strongly supported the policyholder-response hypothesis.[121] More specifically, the likelihood of a fall in a company's stock price following the announcements increased as both the concentration of its investments in risky assets and the liquidity of its liabilities increased.[122] In speculating why the evidence did not support the bank-run hypothesis, the authors first explained that "[u]nderlying [the bank-run] model of depositor behavior [were] the assumptions that depositors [were] unable to identify financially troubled banks, and that they withdraw funds primarily in the self-fulfilling belief that other depositors will withdraw first."[123] They then concluded that a systemic panic situation did not occur following the announcements and eventual failures of the insurance companies in this study "because the available firm-specific information was sufficient to identify financially troubled firms and because insurance policies cannot, in general, be withdrawn on demand without financial penalties."[124] The concentrated, rather than systemic, harm that was observed in this study demonstrates the effectiveness of equilibrium indicators in the insurance industry, particularly early withdrawal penalties, in encouraging policyholders to maintain their policies with their company despite observed financial troubles at other insurance companies.

VII. Recommendations

For the preceding reasons, SIFI designation of companies engaged primarily in the issuance of life insurance policies is generally unjustified. These companies simply do not carry the same systemic risk as banks, and bank-centric systemic risk regulation places a regulatory burden on large insurance companies that is not matched by corresponding benefits to the safety and soundness of the financial sector. This is not to say that individual insurance companies are not susceptible to failure or even that companies engaged in life insurance

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[120] *Id.* at 188.
[121] *Id.* at 195.
[122] *Id.* at 189–94.
[123] *Id.* at 185 (citing Diamond & Dybvig, *supra* note 56).
[124] *Id.*

cannot pose significant systemic danger in the event of insolvency.[125] Instead, this note recommends that the preceding analysis of a general insurance company be only the starting point of the FSOC's analysis because, as experience has shown, widespread contagion, or a panic, should not be the presumed result of financial distress in the life insurance industry.[126] From there, if the FSOC is to designate an insurance company as a SIFI, it should work to demonstrate that particular characteristics of the company make it more susceptible to rapid asset liquidation than the typical insurance company. For example, some scholars suggest that life insurance companies that are significant issuers of guaranteed investment contracts may be more at risk of negative effects following adverse economic signals due to the short-term nature of these policies.[127] However, even if the FSOC could

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[125] These may include companies such as AIG in 2008; Integrity Life Insurance Co., General American Life Insurance Co., and RGA Reinsurance Corp. in 1999; and Executive Life Insurance Co., Mutual Benefit Co., and Kentucky Central Life Insurance Co. in the early 1990s. Michelle Brennan, *What May Cause Insurance Companies To Fail—And How This Influences Our Criteria*, STANDARD & POOR'S RATING SERVS. 5–7 (June 13, 2013), http://www.standardandpoors.com/spf/upload/Ratings_EMEA/2013-06-13_WhatMayCauseInsuranceCompaniesToFail.pdf, *archived at* http://perma.cc/A6QL-4SKN.

[126] *See supra* notes 110–24 and accompanying text (discussing the Fenn and Cole article, which explains that bank-run type effects did not occur following announcements of severe asset impairments in life insurance companies in the early 1990s, and that statistically significant negative excess returns only occurred in the group of companies that had concentrations of investments in risky assets above the industry average).

[127] Fenn & Cole, *supra* note 90, at 188; *see also* Brennan, *supra* note 125, at 6 ("These liquidity-related failures also highlighted to us the different ways in which certain types of policyholders react in times of stress. Withdrawal rates spike for certain types of products . . . . In the case of the U.S. failures, the primary liquidity strains came from accelerated institutional [g]uaranteed [i]nvestment [c]ontract (GIC) surrenders . . . ."). Fenn and Cole go further to point out that because the average maturity of GICs is four years, "approximately 25% of a firm's GICs come up for renewal each year." Fenn & Cole, *supra* note 90, at 188. Despite this lesson from historical experience, the FSOC's only mention of GICs in its basis of decision for Prudential comes in the following paragraph, reprinted in full:

> In the event of its material financial distress, Prudential could face pressure to rapidly liquidate a significant portion of its general account assets to meet redemption and withdrawal requests. In addition, although Prudential's separate account contract holders have

demonstrate persuasive evidence on factors such as these for a particular company, it would still need to show that failure of the company would lead to systemic harm. Experience suggests that contagion effects resulting from the failure of such a company, if any, likely would only spread to companies with similarly liquid liabilities.[128]

VIII. Conclusion

In 2010, Congress created the FSOC through the Dodd-Frank Act and empowered the FSOC to designate nonbank financial firms as SIFIs.[129] The statutory scheme and the FSOC's mode of analysis for these designations, however, are vague and arbitrary and invite the subjective judgments of regulators.[130] The generic, boilerplate language in the FSOC's basis of decision for Prudential exemplifies this.[131]

Further, the FSOC has misconceived systemic risk in applying the SIFI label, and thus a bank-centric regulatory scheme, to standard life insurance companies, such as Prudential. Simple ordinal outcome game theory models demonstrate that bank depositors and insurance policyholders both face coordination games, which present equilibrium selection problems, in deciding whether to maintain their account or policy or to run.[132] This is due to the fact that both banks and insurance companies have largely illiquid assets and fractional cash reserves.[133] However, when one replaces these ordinal values with actual payouts, it becomes clear that certain common characteristics of insurance policies, specifically monetary penalties for early withdrawal and the

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> disincentives for surrendering policies, a significant portion of Prudential's separate account liabilities also can be surrendered at or near market value. Therefore, separate account contract holders, particularly those with guaranteed contracts, also could choose to surrender policies, particularly if they lost confidence in Prudential's ability to meet its obligations.

Prudential Basis, *supra* note 48, at 3. This provides yet another example of the boilerplate language used throughout the FSOC's decision. The FSOC makes no mention of what portion of the company's liabilities consist of GICs or any other detail about their terms.

[128] *See supra* notes 121–123 and accompanying text.

[129] *See* discussion *supra* Part II.

[130] *See* discussion *supra* Part III.

[131] *See supra* note 48 and accompanying text.

[132] *See supra* notes 69–71 and accompanying text and Figures 2–3.

[133] *See supra* note 83 and accompanying text.

right to defer payouts, provide equilibrium indicators to policyholders, driving them away from the run equilibrium and toward the stable equilibrium.[134] These characteristics work by significantly decreasing the liquidity of an insurance company's liabilities, which in turn significantly reduces the payout associated with being the first to run on the company.[135] This, therefore, reduces the incentive to run, making runs less likely to occur at insurance companies than at banks.[136]

The analysis that this note employs should be only the first step in the SIFI determination process.[137] From here, the FSOC should work to identify specific factors that are likely to make insurance companies more susceptible to bank-run type scenarios than typical insurance companies, and further, to identify additional factors that then also create a likelihood that such a situation would spread systemically.[138] When the FSOC jumps straight to determining whether material financial stress at the company could potentially harm the broader economy before engaging in this extra analysis, it is essentially only considering the size and interconnectedness of the firm and making largely arbitrary decisions amongst the largest. It seems that in the FSOC's zealous attempt "to identify potential threats before they occur,"[139] it has failed to adequately acknowledge and analyze the fundamental preconditions of systemic risk as it applies to asset liquidation and instead may be unnecessarily designating certain insurance firms as SIFIs.

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[134] *See* discussion *supra* Part V.
[135] *See* discussion *supra* Part V.
[136] *See* discussion *supra* Part V.
[137] *See* discussion *supra* Part VI.
[138] *See supra* notes 126–27 and accompanying text.
[139] *Prudential Basis*, *supra* note 48, at 6.