

HAIR OF THE DOG THAT BIT US: THE INSUFFICIENCY OF NEW AND IMPROVED CAPITAL REQUIREMENTS

Edward J. Kane
Boston College

ABSTRACT

Government safety nets give protected institutions an implicit subsidy and intensify incentives for value-maximizing boards and managers to risk the ruin of their firm. Standard accounting statements do not record the value of this subsidy and forcing subsidized institutions to show more accounting capital will do little to curb their enhanced appetite for tail risk. In this paper, I propose new accounting and ethical standards that would reclassify the legal status of the financial support a firm receives from the safety net and record it as an equity investment. The purpose is to recognize statutorily that a safety net is a contract that promises to deliver loss-absorbing equity capital to firms at times when no other investors will. The explicit recognition of the public's stakeholder interest in economically, politically, and administratively difficult-to-unwind firms is a first and necessary step toward assigning to their managers enforceable fiduciary duties of loyalty, competence, and care *towards taxpayers*. These duties are meant to parallel those that managers owe to shareholders, including the right to share in the firm's profits and to receive information relevant for assessing their investment. The second step in this process is to change managerial behavior: to implement and enforce a series of requirements and penalties that can lead managers to measure and record on the balance sheet of each subsidized firm-- as a special class of equity-- the capitalized value of the safety-net subsidies it receives from its 'taxpayer put.' Incentives to report and service this value accurately in corporate documents – and in government reports making use of them—should be enhanced by installing civil sanctions such as a call on the personal wealth of managers and officials who can be shown to have engaged in actions intended to corrupt the reporting process and by defining a class of particularly vexing acts of safety-net arbitrage as criminal theft.

**HAIR OF THE DOG THAT BIT US: THE INSUFFICIENCY OF NEW AND
IMPROVED CAPITAL REQUIREMENTS¹**

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Boston College

“We don’t need much capital. We are a moving company, not a storage company”
...Apocryphal Bear Stearns executive

Regulators define a financial institution’s capital as the difference between the value of its asset and liability positions. The idea that capital requirements can serve as a stabilization tool is based on the presumption that, other things equal, the strength of an institution’s hold on economic solvency can be adequately proxied by the size of its capital position.

This way of crunching the numbers shown on a firm’s balance sheet seems simple and reliable, but it is neither. It is not simple because accounting principles offer numerous variations in how to decide which positions and cash flows are and are not recorded (so-called itemization rules), when items may or may not be booked (realization rules), and how items that are actually booked may or may not be valued (valuation rules). Accounting capital is not a reliable proxy for a firm’s survivability because, as a financial institution slides toward and then into insolvency, its managers are incentivized to manipulate the application of these rules to hide the extent of their weakness and to shift losses and loss exposures surreptitiously onto its creditors and, through implicit and explicit government guarantees creditors might enjoy, onto the government's safety net.

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These perverse incentives are rooted in the allegedly ethical norm of value maximization and reinforced by the reluctance of government lawyers to prosecute managers of key financial firms in open court. This paper rejects this norm. In particular, I challenge the view that any strategy for reducing regulatory burdens and extracting subsidies from the safety net is ethical as long as it is not per se illegal. I hope to convince readers to question the claim that managers owe fiduciary duties of loyalty, competence, and care to their stockholders, but only covenanted duties to taxpayers and government supervisors. By covenanted duties, I mean those established by explicit legislative and regulatory requirements.

I argue that safety-net abuse is at heart a form of theft and that the meta-norm of fair play requires the law to recognize and penalize it as such. A straightforward way to accomplish this would be to amend corporate law to recognize taxpayer's stake in the protected institutions as a form of loss-absorbing equity funding. This would give managers and directors an explicit duty to measure, disclose, and *service* this stakeholding fairly. To overcome short-term benefits from ducking these responsibilities, managers, board members, and outside watchdogs must be subjected to stricter legal liability for performing fiduciary duties owed to taxpayers.

Behavior of Capital Ratios During the Crisis

It is important to recognize that compliance with regulatory constraints need not imply economic solvency, especially when those setting and enforcing the restraints are being lobbied relentlessly. Efforts to enforce meaningfully risk-weighted capital requirements in Basel III (see Basel Committee on Banking Supervision, 2014) promise to founder on the same political shoals that wrecked Basel I and II. As the economy strengthens, political pressure will undermine the standards, will lead key assets (such as residential mortgages and sovereign debt) to be

deliberately underweighted, and will see to it that accounting rules used to assess compliance allow too much leeway.

The crisis shows that well-defended managers of giant firms believe that they can overstate their accounting capital and fudge their stress tests (Rehm, 2013) without suffering timely or severe repercussions. Although this taxpayer-as-victim equilibrium is unstable, managerial exploitation of the safety net can support a long-lasting flow of subsidies that is shared not only with stockholders, but --through the classic subsidy-shifting process-- with creditors and selected customers as well. When problems finally emerge, capable lawyers can use the insurance paradigm to sculpt exculpatory ways of recharacterizing managers' unethical or negligent behavior.

Recognizing how easily financial engineers can conceal even huge losses makes it irrational to allow accounting capital and self-administered scenario analyses (i.e., "stress tests") to remain the centerpiece of the world's strategy of financial regulation. In a crisis, the information requirements for regulators to enforce risk-sensitive capital requirements at the world's megabanks can never be satisfied. Only by turning a blind eye to their clientele's finely tuned taste for lawful (and unlawful) deceit, can regulators portray capital requirements as a powerful medicine that will be taken in the spirit it is prescribed. This medicine --as concocted in the pharmacies of Basel I and II (see Lubberlink, 2014) --not only failed to prevent the last crisis, it helped to inflate the shadow-banking and securitization bubbles whose bursting triggered the Great Recession (Caprio, Demirgüç-Kunt, and Kane, 2010; Barth, Caprio, and Levine, 2012); Admati and Hellwig, 2013).

Stress-tests protocols and enhanced resolution regimes envisioned in Basel III seek to increase the dosage and complexity of capital-requirements medicine and to prescribe it for a

larger range of firms. But to suppose that a higher-proof bottle of “hair of the dog” can by itself confer sobriety on the financial sector is wishful thinking. Capital requirements are not a disincentive. They do not sanction regulatory arbitrage. They are merely a constraint whose enforcement has turned out to be toothless whenever and wherever their enforceability has been tested by a spreading crisis.

Using quarterly data for 1974-2010, Hovakimian, Kane, and Laeven (2012) study capital ratios at US bank holding companies that meet two conditions: (1) their balance sheets are in the Compustat database and (2) their daily stock prices are reported in CRSP. Figure 1 shows that the mean value of Basel’s Tier 1 capital ratio at these banks moved very little between 1993 and 2010 and, implausibly, even at the height of the crisis exceeded 10 percent. In contrast, Figure 2 shows that HKL’s synthetic estimates of asset value indicate that the mean ratio of equity capital to total assets in these same years fluctuated between -5 and +20 percent. These authors also show that taxpayers would have benefited substantially if authorities had restricted or reduced dividend payouts from undercapitalized banks as soon as they fell into distress. Refusing to document the capital shortages that began to emerge in 2007 has allowed regulators to permit some of the world’s largest financial institutions to operate for years as zombie firms and to petition insolently for the right to pay dividends.

The root problem is twofold: (1) the existence of government safety nets gives protected firms an incentive to conceal leverage and to arbitrage risk-weighting schemes to shift responsibility for funding their tail risk to taxpayers, and (2) regulators have insufficient vision and incentives to stop this. Asking firms to post more capital than they prefer to post lowers the return on stockholder equity their current portfolios can achieve. This means that installing tougher capital requirements has the predictable side effect of simultaneously increasing a firm’s

appetite for risk, so as to increase the contractual rate or return on its assets enough to establish a more satisfying portfolio equilibrium. As Basel III becomes operational, aggressive institutions can and will game the system until it breaks down again. Aided by the best financial, legal, and political minds that money can buy, they will ramp up their risk-management skills and expand their risk-taking over time in clever and low-cost ways that, in the current ethical and informational environments, overconfident regulators will find hard to observe, let alone to discipline. In the metagame of controlling regulation-induced risk-taking, regulators are outcoached, outgunned, and always playing from behind.

It is not Going to be Easy to Change this robust Multiparty Equilibrium

Difficult-to-unwind institutions see themselves as playing a game whose rules let them build political clout and hide salient information from other players in both time-tested and innovative ways. They are also allowed to have more skill, more information, and fewer scruples than other players.

Regulators join in a partial coalition with the Regulated, not only to help them with concealment, but also to cooperate in overstating the effectiveness and fairness of their own play. By this I mean that regulators express too much confidence in damage-control strategies (in capital requirements in particular) and enforcement capabilities.

Taxpayers are deceived and are made to play from a poorly informed, disequilibrium position. When the economy is strong, the value of taxpayer puts is relatively low. This makes it easy to keep taxpayers unaware of their commitment to an antiegalitarian crisis-management policy. The widespread unpopularity of generous bailouts suggests that it is reasonable to assume that voters would reject this policy if they were adequately informed of its consequences.

To my mind, excessive financial-institution risk-taking traces to a deliberate avoidance of the rights and duties that *should* be conferred on managers of firms protected by a governmental safety net. This is the ethical root of the world's most-stubborn financial-instability problems. Meaningful reform must rebuild the governance structure and internal control systems of covered firms and regulatory agencies (cf. Frankel, 2012). An essential step is to change the informational and ethical environment to make it unlawful for aggressive firms to extract and conceal uncompensated benefits (i.e., to expropriate or “steal” value) from taxpayer-funded safety nets and for regulatory officials to turn a blind eye to the process. Around the world, authorities fear the knock-on effects of temporarily nationalizing mega-institutions, especially in disorderly situations. This fear conveys responsibility for covering the tail risk of such firms to taxpayers on disadvantageous terms. Governments could improve the ethical environment of the financial sector by improving the training and recruitment of top regulators (Kane, 2013) and by passing legislation clarifying that, in the future, corporate law and financial accounting principles will recognize that national safety nets give taxpayers an ‘equitable interest’ in any firm that threatens to be politically, administratively, or macroeconomically difficult to fail and unwind. The purpose of this clarification would be to establish fiduciary duties of loyalty, competence, and care to taxpayers for managers of such firms and to give regulators and the courts the right to classify and recapture compensation stolen from the safety net as ill-gotten gains.

In British and American common law, an equitable interest is a balance-sheet position that gives its owners a right to be compensated for actions that other parties take that damage it. Thieves are said to operate more effectively where the light is poor. To shine light on taxpayers’ stake in financial firms, its value deserves to be estimated honestly and recorded explicitly on the corporation’s balance sheet as a contra-liability.

The value of taxpayers' credit support deserves to be recorded as a contra-liability because as an important firm falls deeper and deeper into distress, implicit and explicit government guarantees absorb much of the markdowns in asset prices that would have to occur. As long as a government's unused debt capacity is strong, these guarantees are knock-in options that supply implicit "safety-net equity capital" that substitutes one-for-one for shortages in on-balance-sheet stockholder capital. They do this by transferring responsibility for financing the deep negative tail of profit outcomes from stockholders and creditors who contractually volunteered to be paid a premium for taking on these risks to ordinary citizens who did not even know they were in the game. This shadowy transfer occurs through the political, bureaucratic, and contractual underpinnings of government-administered safety nets.

How Rescuing Rather than Resolving an Insolvent DFU Institution Harms Taxpayers

Table 2 illustrates what happens when a DFU firm suddenly has to acknowledge ruinous losses. In this example, assets decline to 50 percent of the value previously shown on the firm's books. Authorities' decision to rescue creditors in full without taking over the firm transfers all but 2 percent of the decline in asset value to taxpayers. This represents the value of taxpayers' knock-in call on the assets. In a firm that is too difficult to fail, taxpayers' call is rendered valueless by authorities' refusal to exercise it. This value accrues instead to shareholders. Worse still, if managers of this now-zombie firm are allowed to maximize shareholder value going forward, they will load up with long-shot loans and investments that will increase market capitalization when they are booked and increase returns to shareholders even more over time if the gamble for resurrection succeeds.

Figure 3 illustrates the benefits that AIG's 2008 rescue conferred on its shareholders. Its stock price approached zero only for the few days that the possibility of a government takeover was on the table. As takeover became increasingly unlikely, AIG shareholders and managers reaped the benefits of the firm's resurrection strategy going forward.

Of course, not every government's guarantee is as valuable as that of the United States is today (Schich, 2013). The value of a government guarantee increases with a bank's weakness and with the sovereign's financial strength and declines with the extent to which changes in the condition of the two parties are positively correlated.

Are Safety Nets Insurance or Equity Contracts?

In policymaking, framing is crucial. It is well-known that limited liability creates incentives to take risks that one's net worth cannot fully support. Bear Stearns failed because the volume of dicey loans it was securitizing expanded its inventory of in-process deals. The size of this inventory relative to Bear's equity capital placed its shareholders and unwary taxpayers into the storage business in a dangerous way. The next few paragraphs explain how and why characterizing a nation's safety net as an insurance scheme rather than a source of loss-absorbing equity funding provides inappropriate ethical cover for managers of difficult-to-unwind firms to pick the pockets of other citizens.

Safety nets protect selected financial firms and their counterparties by absorbing potentially ruinous losses in stressful situations. In *voluntary* contracting, loss protection can be crafted using any of a number of contractual forms. But the various forms assign different rights and duties to protection buyers and sellers. This means that changing the way that policymakers

and difficult-to-fail firms frame the safety-net contract changes the pattern of information flows and the division of responsibility for controlling the agency costs the contract generates.

In particular, conceiving of the safety net as either an insurance contract or a credit default swap puts the task of minimizing agency costs entirely on the protection seller. As a supposed expert in managing risk, a protection seller must fashion contract terms (such as margin requirements, bonded representations, and warranties) and information flows that shelter it from profit-driven adverse selection and moral hazard. To price its residual exposure and to enforce contract terms, the seller must monitor the client both before the deal is sealed and while the contract is in force.

In an insurance scheme, taxpayers would demand that government supervisors assess risk exposures and protect them from deception-based moral hazard by exercising their right to force the firms they supervise to correct instances of deceptive accounting when and as they uncover them. Casting taxpayers as insurers makes it seem both wise and lawful to put the onus on professional regulators to understand the risks and to develop and enforce accounting standards and behavioral covenants intended to stop protected parties from gaming the safety net. Cousy (2012) notes that, while ancient insurance laws imposed a duty on the insured party to disclose relevant information on its circumstances, modern insurance law has increasingly focused on protecting the policyholder rather than the insurer. The sanction of termination and forfeiture is now often limited to “serious cases where some high degree of intention and culpability is involved” (p. 131).

Conceiving of taxpayers as nonexpert equity investors in protected firms suggests that they should have a legal standing similar to that of explicit shareholders. One way to think of this is to reimagine taxpayers’ stake in protected firms as a portfolio of *explicit trust funds*. This

perspective suggests that each nation's most highly subsidized firms might be required to establish an independent trusteeship to manage taxpayers' equity position for them. The balance sheet shown in Table 1 shows that, at the outset, each fund would be liable for the trust fund corresponding to the short side of a protected mega-institution's taxpayer put. The fund's assets would consist of the capitalized value of the net dividends (after trusteeship expenses) that the trustees would collect from the firm on behalf of taxpayers each period (say, each calendar quarter) for the value of implicit and explicit government guarantees. The more safely and soundly the firm operates in a given period, the lower the trust's dividend revenue would be.

Managers would owe covenanted duties to the trustees and fiduciary duties to taxpayers including those of disclosure and nonexpropriation of trust-fund positions. Banking organizations routinely establish and manage trusteeships for investors in private-label securitizations. But in a securitization, trustees have recourse against the issuer whenever the assets fail to meet the issuer's representations and warranties. Recourse against deception would help bond management's duty to report taxpayer's stake in an unbiased fashion.

Unlike simple swaps and insurance contracts, a nation's financial safety net is a multilateral deal. An institution's counterparties receive explicit and implicit guarantees that are administered by government officials and backed by the taxing authority of the state. Taxpayers' side of this contract is a coerced position in a contingent equity contract. This contract transfers to taxpayers de facto ownership of the losses that a firm's shareholders cannot cover and a contingent call on firm assets. But when firms are allowed to operate in an insolvent state, the shareholders continue to own the deep upper tail of possible future returns.

In effect, the safety net makes taxpayers disadvantaged equity investors in difficult-to-unwind firms. Unlike a voluntary insurance, guarantee or swap contract, taxpayers' contingent

equity position in difficult-to-unwind firms is coerced, poorly disclosed, potentially unlimited on the downside, and cannot be traded away. Fair play demands that taxpayers be paid a fair dividend for letting politicians put them into so severely disadvantaged a contract. To provide fairness in a world where other stakeholders have more knowledge, more decision-making power, and more political clout, taxpayers should be accorded rights of disclosure and redress much like those that United States and United Kingdom corporate law grants to minority shareholders. Taxpayers --and the regulators who play their hand for them-- resemble overmatched players in a long-running poker game. Specific ethical justification for rewriting the rules of this exploitive game can be found in Immanuel Kant's second categorical imperative, which forbids using other parties (here, taxpayers) merely as means to a personal end (here, the private enrichment of managers, stockholders, creditors, and selected customers of protected firms).

For shareholders, the value of safety-net capital has two sources: (1) the lower weighted-average cost of capital with which stock markets discount its aggregate cash flow, and (2) the incremental reduction in debt service the guarantees support. Because safety-net capital contributes to a firm's stock-market capitalization, time-series estimates of its value and per-period opportunity cost can be extracted synthetically from the behavior of a firm's stock price and return volatility [see, e.g., Brewer and Jagtiani (2013) and Eberlein and Madan (2010)]. Making it a fiduciary duty to estimate these values honestly would not stop institutions from gaming taxpayers, but sanctioning this behavior would make the game fairer. This is because thinking of systemic risk as taxpayer exposure to loss whose value is determined by how well or how poorly safety-net officials manage a portfolio of disadvantaged equity positions reframes regulators' financial-stability mission. This reframing promises to help officials to strike a better

balance between duties they owe taxpayers and those they owe to clientele firms. In any case, this portfolio perspective would also help the Financial Stability Oversight Council and its counterpart in other countries to distinguish quantitatively between the stand-alone risk of a firm and the risk exposure that difficult-to-unwind firms pass through to taxpayers.

Rights and Duties that Might be Assigned to Trustees

How to define and bond regulators' and/or private trustees' duties to taxpayers is an additional problem. Bonding seeks to improve an agent's incentive to serve a principal's interests and to enhance accountability by exposing trustees to financial penalties and driving them into the market for directors and officers insurance where this exposure can be explicitly monitored and priced.

In a trusteeship, the trustees would be asked to target a zero end-of-period net worth for the trust fund and let trust income in each period vary as needed to meet this target. To allow for underestimation, supervisory mistakes, and regulatory capture, a precautionary element might be added to the zero net-worth target. This precautionary balance might be funded jointly from the mega-institution (whose contribution could be framed as a capitalized allowance for the estimation risk created by the complexity of its affairs) and the Treasury. The size of each trust fund's precautionary balance might increase with the size, complexity, and estimated riskiness of its counterpart firm.

If the device of a taxpayer trust fund were expressly written into corporate and even criminal law, a mega-institution's ability to pay dividends might be abridged rather than enhanced by safety-net abuse. To bring this about, regulators or trustees must be empowered to

reduce or suspend dividends and to receive treasury stock from the protected firm in circumstances that indicate the onset of financial distress.

The twin threat of dividend suspension and automatic dilution would improve the incentives of institutional shareholders to monitor the behavior of managers and directors. It would also make it easier for regulators and the courts to punish managers for embracing dishonest accounting schemes and nontransparent forms of risk-taking that pilfer value from the safety net. As long as the fear of timely and effective *individual* (as opposed to *corporate*) punishments remains low, the temptation to circumvent or evade regulatory efforts to restrain abusive risk-taking will be extremely strong. The \$6.2 billion mess that surfaced in JPMorgan Chase's London office in 2012 shows that post-crisis risk limits are easy to circumvent.

Froot and Stein (1996) show that bank-level risk-management can help to price risks that cannot be hedged. To reduce their tail risk, reinsurers AON and Swiss Re purchase put options on their own shares that are exercisable on the occurrence of stipulated adverse events (Duffie, 2010, p. 52). Each trust fund could hedge its tail risk in a similar manner. For example, each firm-specific trust fund might invest most of its precautionary funds in a compound option strategy: holding warrants on treasury stock in the mega-firm whose exercise would be triggered by designated liquidity or solvency events and buying knock-in puts conditioned on these same events whose strike price would be well in excess of the exercise price on the warrants. With the help of the Office of Financial Research, the Treasury could review the appropriateness of the hedging program and guarantee performance for the warrant half of the deal. Even better, the issuing firm could be required by law to pledge the treasury stock as collateral for the trust fund's warrant position. Ideally, the collateral agreement could convey to the trust all rights of

ownership, except that the stock could only be transferred to a third party if the warrant became exercisable.

Such programs could lay off much of the tail risk that the safety net now imposes on taxpayers.² This hedging strategy would ensure that shareholders of firms that abuse the safety net face automatic dilution in adverse circumstances. At the same time, the prices paid for the trust fund's puts and calls would generate individual-firm data that could sharpen estimates of the value of taxpayer equity.

Advantages of Conceiving of Systemic Risk as a Portfolio of Taxpayer Puts

Conceiving of systemic risk as a portfolio of coercive Taxpayer Puts likens it to a disease that has two symptoms. Official definitions and blame-shifting crisis narratives have focused almost exclusively on the primary symptom: the extent to which authorities and industry managers sense a *potential* for substantial “spillovers” of defaults across a national or global network of leveraged financial counterparties and from this hypothetical cascade of defaults to the real economy. This first symptom combines exposure to common risk factors (e.g., poorly underwritten mortgage loans) with a jumble of debts that institutions owe to one another.

But these definitions and narratives neglect an important second symptom, the one that inserts taxpayer interests into the financial-regulation game: the ability of difficult-to-unwind institutions to command bailout support from their own or other governments. Using consultation, public criticism, campaign contributions, and implicit promises of high-paid post-government lecture opportunities and employment (i.e., the ‘revolving door’) to align their self-interest with that of top regulators conveys to politically and economically well-connected firms and sectors a subsidized Taxpayer Put.

² I am indebted to Robert Dickler for clarifying this compound hedging strategy.

The net value of a particular firm's taxpayer put and the taxpayer's contingent call on firm assets comes from a combination of its own risk-taking and authorities' propensity to exercise what we may think of as an "Option to Rescue" its creditors in stressful circumstances. Large banking organizations endeavor to convert authorities' side of their particular firm's rescue option into something closely approaching a "Conditioned Reflex." They do this by undertaking structural and portfolio adjustments designed to create interindustry connections and regulatory turf wars (see Bair, 2012) that make their firm harder and scarier for authorities to fail and unwind. These adjustments correspond to flows of accounting profits and managerial incentive compensation from enhancing their firm's political clout, size, complexity, leverage, connectedness, and/or maturity mismatch. To make these antisocial strategies less attractive, authorities need to install a strong counterincentive such as a governmental right to review and claw back stock-based incentive compensation distributed during (say) the three years preceding the date a firm first receives any form of active safety-net intervention.

In the United States, the FDIC, the Federal Reserve, and the Office of the Comptroller of the Currency are accountable for supervising stand-alone or microprudential risk in banks and bank holding companies. Because they create value, even highly risky deals lower a bank's leverage at the instant they are booked. But this incremental contribution to capital will disappear and turn negative when and if the deal goes bad. On the other hand, the value of the taxpayer put will rise initially and rise even further if losses develop. Safety nets subsidize the expansion of "systemic risk" in good times both because stand-alone risks seem small and because the accounting frameworks used by banks and government officials do not actually make anyone directly accountable for measuring, reporting or controlling the flow of safety-net subsidies until and unless markets sour.

Safety-net managers should monitor, contain, and finance safety-net risk, but --with no accounting requirements for difficult-to-fail firms to recognize the value of their access to safety-net capital and no one even tasked to develop ways to report it-- growth in a protected firm's Taxpayer Put lacks visibility good times. Then, in crisis circumstances, the sudden surfacing of this value leads safety-net managers to fear the knock-on effects of calling firm assets and encourages protected firms to reinforce rather than to calm their fears (cf. Sorkin, 2010; Bair, 2012).

From a multiparty contracting point of view, an important institution's Taxpayer Put is not an external diseconomy. It is a loss-absorbing contingent claim whose short side deserves to be lessened by a prompt exercise of the knock-in call and serviced at market rates. Drawing on the deposit-insurance literature, firms and officials can estimate the annual "Institutional Premium Percentage" (IPP) that a protected firm ought to pay on each dollar or euro of its debts.

Looking at data covering 1974-2010, Hovakimian, Kane and Laeven show that stopping dividends when IPP is large would greatly reduce the cost of bailouts. They also find that the mean IPP for large banks is sometimes very high, but seldom falls below 10 basis points. Multiplying the IPP appropriate to each time interval and an institution's average outstanding debt over the same periods would define a "fair dividend" for taxpayers to receive: E.g., $(.0010)(\$50 \text{ Bill.}) = \$50 \text{ million per year from a bank with } \$50 \text{ Billion in liabilities.}^3$

The IPP resembles a tax, but it is *not* a tax. It is a user fee. It would be imposed only on firms that use implicit safety-net support and only in an amount equal to the value of that

³ HLK do not estimate an IPP for Fannie Mae or Freddie Mac. As Frame, Wall and White (2012) point out, the adverse effects that the collapse of these firms had on housing assets go far beyond the merely financial risks the HLK method evaluates. While external real (i.e., nonfinancial) effects that are threatened by the failure of a megabank may be smaller and more diffuse, policymakers need to take these into account separately.

support. Unlike proposals that have surfaced in Europe, it would not be levied against or distort the volume of securities trading.

Rules Are for the Unruly

Economists' efforts to establish a value-free system of non-normative "positive" economics inevitably communicates an amoral view of incentive conflict. This is especially true in the relationship between regulators and regulatees, where public-choice theory presumes the appropriateness of (and therefore ignores the morality of) perfectly opportunistic behavior by regulated parties. Top executives of difficult-to-unwind firms feel *entitled* to game the system by misrepresenting their firms' financial condition and loss exposures even though the prevalence of golden parachutes suggests that they are aware that gaming the safety net may benefit their shareholders only in the short run.

The inevitability of industry leads and regulatory and legislative lags make it foolish to subject all very large banks –as Basel I and II did-- to a fixed structure of premiums and risk weights for long periods of time. For market and regulatory pressure to discipline and potentially to neutralize incentives for difficult-to-fail firms to ramp up the value of their taxpayer put and lower their distance to default, two requirements must be met: Stockholder-contributed capital must increase with increases in the ex ante volatility in their rate of return on assets and the net value of a firm's side of the taxpayer put and call must not rise with increases in the volatility of this return. Simultaneous increases in capital and volatility can greatly reduce a firm's distance to default and increase taxpayer loss exposure.

Logically, each requirement is in itself only a necessary condition. The first is the minimal goal of the Basel system and usually holds. But the second condition, which

summarizes many less-visible elements of a limited-liability firm's risk appetite, is met at best only for small banks. Why? Because small banks are small and have relatively straightforward business plans, their positions can be unwound with little damage to counterparties or the real economy. On the other hand, it is hard for outsiders to understand how the many affiliates and portfolios of giant firms fit together. As long as megafirms are not required to report and service their taxpayer put and as long as regulatory arbitrage and accounting gimmickry allow them to expand without punishment their organization's tail risk in hard-to-observe ways, capital requirements will never prove as risk-sensitive as they are advertised to be when they are installed.

Cross-country differences in the costs of loophole mining help to explain why the current crisis proved more severe in financial centers and other high-income countries. As the bubbles in shadowy banking and securitized credit unfolded, large financial firms in high-income countries were able at low cost to throw off most of the burdensomeness of capital requirements. Because creditors understood the workings of the taxpayer put and call, they allowed globally important financial firms a degree of covenant leeway that they were unwilling to convey to institutions from peripheral countries whose taxpayers' pockets could not be so reliably picked. Moreover, globally significant firms could transact in a rich array of lightly regulated instruments at low trading costs with little complaint from taxpayers, regulators, and politicians (who were in different degrees unable to sense the implicit government guarantees imbedded in these positions) or from customers (who recognized that the rescue reflex limited the downside of their contracts).

During the crisis, the sudden surge in nonperforming loans simultaneously increased market discipline and panicked regulators. Demirgüç-Kunt, Detragiache, and Merrouche (2011)

show that Basel's risk-weighted capital ratios failed to predict differences in bank health or to signal the extent of zombie-bank gambling for resurrection. This experience should have driven home the conceptual and ethical poverty of Basel's attempts to risk-weight broad categories of assets in the face of political pressure to assign unrealistically low weights to sovereign and mortgage debt.

Policy Implications

Theft is theft. Around the world, the cover taxpayers provide to difficult-to-unwind instructions is not being priced and serviced fairly. But it could be. In principle, the "cover" a firm extracts from the safety net can be computed from option surfaces tied to stock shares and other underlying assets that a megainstitution might issue.

In the current information and ethical environments, efforts to regulate accounting leverage cannot adequately protect taxpayers from regulation-induced innovation. Authorities need to put aside their traditional capital proxies for risk and measure, control, and price the ebb and flow of safety-net benefits directly. This requires: (1) changes in corporate law aimed at establishing an equitable interest for taxpayers in at least the most important of the firms the safety net protects and (2) conceiving of regulators and supervisors as a layer of trustees, responsible for seeing that taxpayers' position in these firms is accurately reported and adequately serviced. To carry out this task, regulatory officials must redesign their information, training and incentive systems to focus specifically on tracking the changing value of their portfolio of taxpayer puts and calls and be empowered to sanction *individual managers* who deliberately and materially misrepresent information these systems collect.

Large financial firms should be obliged to build information systems that surface the value of the taxpayer puts they enjoy and auditors and government monitors should be charged with double-checking the values reported. Regulatory lags could be reduced if data on earnings and net worth were reported more frequently and responsible personnel were exposed to meaningful civil and criminal penalties for deliberately misleading regulators.

In the interim, expected tail-loss exposure calculations could be made for safety-net capital. If the value of on-balance-sheet and off-balance-sheet positions were reported daily or weekly to national authorities, rolling regression models using stock-market and other financial data could be used to estimate and capitalize changes in the flow of safety-net benefits in ways that would allow society's watchdogs to observe --and regulators to manage-- surges in the value of taxpayers' stake in the safety net in a more timely manner.

Table 1. Bare-Bones Balance Sheet and Income Statement for Taxpayer Trust Fund Established for a Hypothetical Mega-Institution

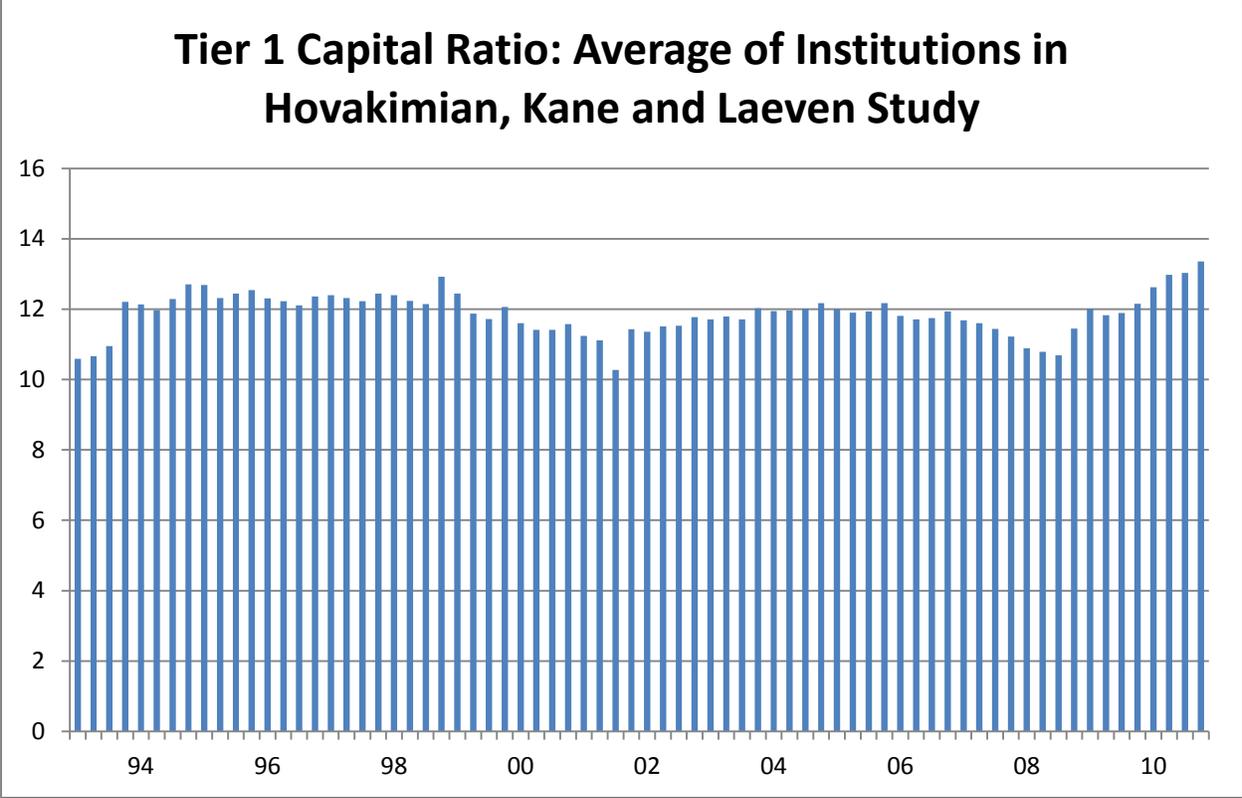
TRUST FUND BALANCE SHEET	
<u>Assets</u>	<u>Liabilities</u>
Capitalized Value of Dividends due from Mega-Institution on Taxpayer Equity Call on Mega-Institution Assets in the Event of Insolvency	Value of Mega-Institution's Taxpayer Put <i>Ideal Net Worth</i> Zero
TRUST FUND INCOME STATEMENT	
<u>Revenue</u>	<u>Expenses</u>
Dividend Income Received from Mega-Institution	Operating Costs Incurred by Trusteeship <i>Ideal Net Income</i> Would be Positive or Negative as Needed to Establish an End-of-Period Net Worth of Zero

Table 2. Balance Sheet Illustrating How Ruinous Losses Affect a Firm Such as AIG that is Too Difficult to Fail and Unwind (TDFU), Assuming No Creditor Haircuts.

Assets	100	Liabilities	90
Surfacing Losses	(50)	Stockholder NW	2
Taxpayer Put	≈ 48	Taxpayer Call = 0	(if authorities refuse to exercise it)

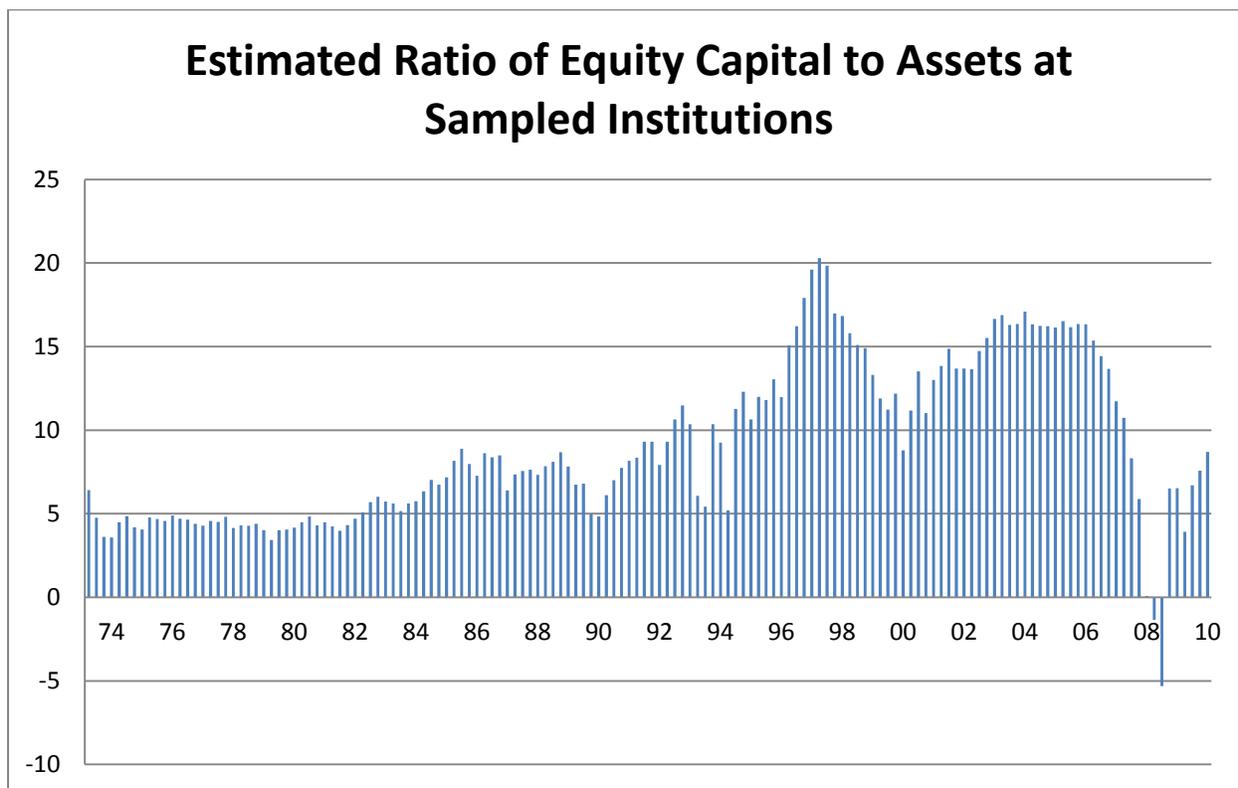
N.B. Continuing stockholder value comes from the unexercised call. Creditors are made whole. The Stock price Remains Positive: Shares and Preservation of Job Opportunities resemble Lottery Tickets given to stockholders and managers of this Zombie firm, but the value of these tickets can be increased by further risk-taking.

Figure 1. Mean Ratio of Tier-1 Capital to Assets for a Large Sample of U.S. Bank Holding Companies, 1993-2010 (quarter by quarter in percentage points)



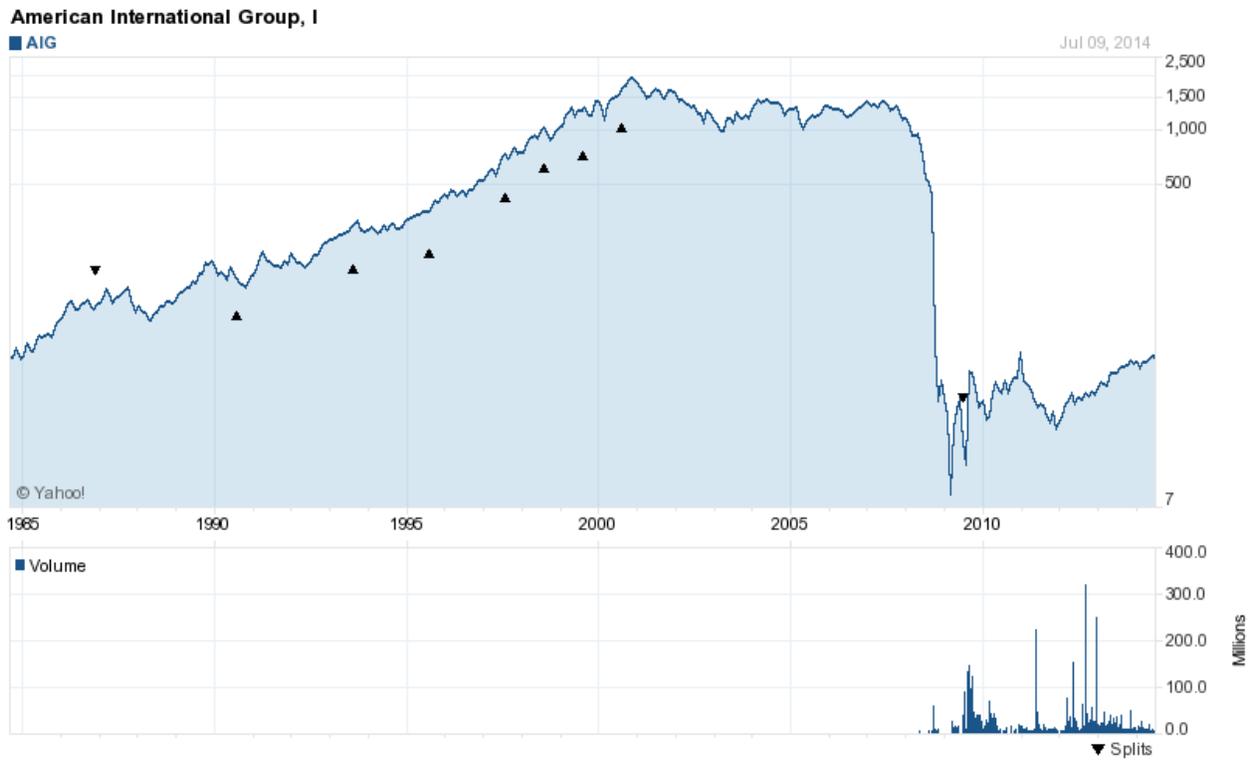
Sources: Hovakimian, Kane and Laeven (2012).

Figure 2. Mean Ratio of Estimated Equity Capital to Assets for the Hovakimian, Kane and Laeven Sample of U.S. bank holding companies, 1974-2010 (quarter by quarter in percent)



Sources: Hovakimian, Kane and Laeven (2012).

Figure 3. Behavior of Stock Price of American International Group (AIG), mid-1984 to 2014.



Source: Google Finance Website, July 9, 2014.

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