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Corporate Bond Clawbacks as Contingent Capital for Banks

In an effort to avoid the severe liquidity problems that banks faced during the financial crisis of 2008, researchers and policymakers are considering the use of contingent convertible capital (CoCo) as a way to recapitalize financial institutions during a future crisis, and thus mitigate the risk of becoming capital constrained. CoCo is a debt security that automatically converts to equity after a triggering event. However, the viability, design, and use of CoCos has been the subject of intense debate among academics in recent years, primarily because certain features of CoCos can significantly distort the risk-taking incentives of banks' shareholders.

In this study, we propose a clawback-type security called contingent clawback bond (COCLA); it establishes the conditions needed for an endogenous clawback provision that addresses the problem of such risk distortion. We develop a simple model where a bank manager maximizes her expected utility by determining the supply of loans, the level of effort exercised to screen loans, and the amount of junior debt issued. We show that upon low cash flow realizations, a bank manager optimally exercises the clawback provision and converts a fraction of the junior debt into equity to reduce the probability of costly financial distress, which, in turn, raises the bank's capital adequacy ratio (CAR) above the regulator's minimum requirement.

Our model is based on the trade-off the manager faces when maximizing own utility function between the private benefits of control, cost and benefits of exercising effort to increase the loan quality, and bearing the burden of expected costs of financial distress imposed upon bankruptcy or liquidation. One important result is that the bank manager voluntarily exercises the clawback provision, and there is no need for a trigger mechanism. Furthermore, the bank manager chooses her level of costly effort in screening the quality of the loans. The manager can use the incentive to exercise costly effort, given that it increases cash flow realizations, in turn, reduces the probability of default and, thereby, increases the bank's performance and the manager's salary. Another novelty of the proposed model, compared to the recent developments in the CoCos literature, is that the manager controls the amount of loan provided from an originally exogenous deposit base and chooses the amount of junior debt that is issued by the bank. Other features of the model include an early conversion at par for a given fraction of the debt issued and the reduction in the probability of financial distress as a result of exercising the clawback option, which is a standard characteristic of models that explain the convertibility of hybrid debt. Thus, our model is very flexible and representative of today's bank conditions and environment.

In the table, we show the optimality of our proposed security for different levels of conversion ratio, from 20% to 40%. The clawback conversion rate that maximizes the manager's expected utility is around 25%, a level that is similar to the conversion rate of popular clawback corporate bonds, commonly called initial public offering clawbacks (IPOCs). Interestingly, such conversion rate also maximizes the level of effort exerted by the manager and the stock holder´s return

We propose a contingent clawback bond (COCLA) as an alternative source of contingent convertible capital (CoCo).

The solution presented through this model sheds light on the controversy about automatic trigger mechanisms based on book value CARs. During financial distress, the book value of loans and value of deposits are reduced, and therefore the book value CARs might remain above the minimum requirement, even if, at market value, the capital of the bank may be much smaller. We can avoid this situation because both the value of the loans and the deposits, as most of the other balance sheet items, are endogenous in our model.

-Fernando Díaz

	COCLA (Minimum CAR = 15 %)			
	(1)	(2)	(3)	(4)
Redemption Variables				
Fraction of Debt Converted to Equity (Gamma)	20%	25%	30%	40%
Fraction of the banks equity that bondholders receive upon conversion (Alpha)	8.9%	13.2%	12.3%	12.9%
Stock holders' payoff				
Equity Investment	96.08	96.96	96.08	92.76
Pay Off for Old Equity Holders	133.86	136.39	134.20	129.84
Stock Holders' Return	18.0%	18.6%	18.2%	18.3%
Capital Adequacy Ratio				
CAR at t = 0	21.64%	21.36%	21.64%	21.37%
CAR at t = 1 after high cash flow realization	25.18%	24.99%	25.18%	24.84%
CAR at t = 1 after low cash flow realization	25.24%	25.89%	26.74%	27.50%
Loans and Debt				
Number of Loans	21	22	21	20
Total Value of Loans (L)	210	220	210	200
Junior Debt (B)	48	57	48	41
Managers Effort and Payoffs				
Level of Effort (J)	17.17	17.40	17.17	17.02
Probability of full repayment (p)	0.929	0.932	0.929	0.928
Expected Utility of the Manager	186.01	187.30	186.35	184.33

Fig. 1. The performance of a COCLA contract under high capital requirements

Responsible Research and Innovation: An Agent-Based Model Approach

In a recent case study, Stilgoe et al. [1] propose a characterization of RRI governance as consisting of the following dimensions: (a) anticipating the potential positive and negative outcomes of research and innovation agendas; (b) reflecting on the internal norms and institutions in place to conduct RRI; (c) including internal and external stakeholders; and (d) responding to internal and external stakeholders including CSOs. The four dimensions listed above can be construed as the construct of RRI governance.

The behavior of a project consortium is influenced by the constraints of an RRI governance model. Such a governance model can be adopted by the consortium as a result of the internal policies and the decisions of the governing board or can be imposed on the consortium by external stakeholders. Consortium members at the micro level might participate in this decision-making process either directly or indirectly, depending on the internal governance model implemented by the consortium. Thus, RRI emerges as a result of: (i) the interactions of consortium members at the micro level, (ii) the interactions of a complex ecosystem of external stakeholders such as CSOs via a process of mediation with the governing bodies of the consortium and the consortium members at the meso level, and (iii) the interactions of consortium members and their governing board with the research-funding agencies and regulatory bodies that monitor the activities of the project at the macro level, which can dictate macro level constraints of RRI governance upon the consortium members. The flow chart shown in Figure 1 describes a calibrated agent-based model of the dynamics of RRI. In this flow chart, the white rectangle with rounded corners represents the initialization module, white rectangles represent inputs, grey rectangles represent outputs, white diamonds represent decision gates, circles represent decisions gates with two possible outcomes (pass and fail), white ellipses represent alternatives, grey ellipses and circles represent objects, and grey rectangles

Responsible research and innovation (RRI) is a research field that has gained importance in recent years, as evidenced by the efforts of the European Commission to propose a framework for RRI. Although closely connected with the field of corporate social responsibility (CSR), RRI has not yet been exposed to public scrutiny in the same way CSR has. In this article, an agent-based model of responsible research and innovation (RRI) was proposed. The model can be used by policymakers and corporations to simulate the effect of different RRI governance models on innovation output and the role of so-called civil society organizations (CSOs) in RRI governance.

with rounded corners represent actions. The first part of this agent-based model is based on the dynamics of other agent-based models based on SKIN [2, 3]. This part of the model encompasses an initial stage comprised of three main activities: consortium formation, proposal writing, and proposal evaluation. The second stage is the most relevant one in terms of simulating processes of RRI governance. The main activities of this second stage are: RRI sensitivity computation, RRI construct computation, deliverables creation, and CSO mediation. CSO mediation plays a central role in modeling the process of CSO intervention during processes of RRI governance and is modeled using

group decision-theoretic models based on multiple criteria and different weight vectors assigned by stakeholders to such criteria.

The agent-based model put forth in this article is the first to include multicriteria decision analysis methods to deal with these complex trade-offs and can serve as a tool: (i) to evaluate ex ante of the effect of public policies around RRI governance and (ii) to guide strategic decision-making by innovation strategists. The reader is referred to [4, 5] for a description of how to extend agent-based modeling through multicriteria decision analysis to simulate more complex social phenomena.
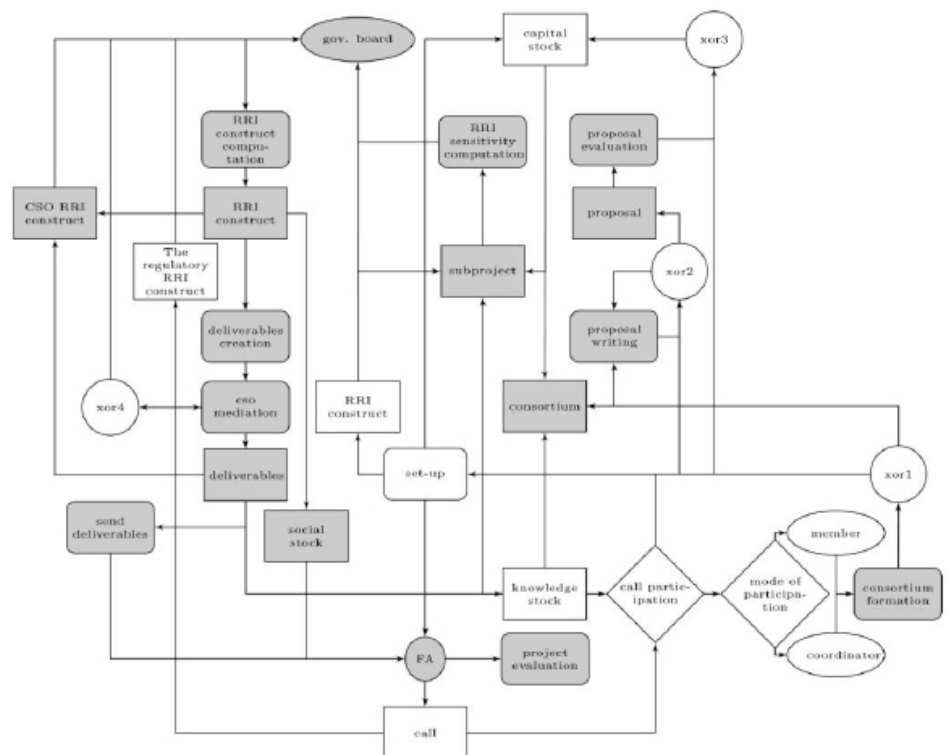
-Harold Paredes

Fig. 1. The agent-based model of RRI governance (based on the model of Ahrweiler, P., Gilbert, N., Pyka, A., 2011)

A key role for stimulus-specific updating of the sensory cortices in the learning of stimulus–reward associations

To achieve successful adaptive behavior, humans need to learn to associate specific stimuli and choices with the value of potential outcomes, a process that requires the continuous monitoring and incorporation of feedback information from the environment. Learning such associations could, for example, facilitate predicting whether one will like a product based on previous experience with a particular brand, or give clues to choose between a risky or a more conservative approach in business. Previous research has reported that the way in which the brain pays attention in an economic environment can bias choice behavior and is influenced by the history of outcomes that is associated with a particular sensory stimulus. However, the neural updating processes that create these attentional effects have just begun to be understood.

Here, we used EEG recording to investigate these processes, while participants performed a probabilistic decision-making gambling task. On each trial, participants were asked to bet between two stimuli (a face and a house), after which they were given feedback indicating that they would receive either a monetary gain or loss on that trial. Within each 20-trial set, either faces or houses were more likely to lead to a gain (probability bias in each set was randomly chosen between 0.50 and 0.75), with the participants instructed to try to learn the likelihood in that set and thereby improve their reward-gaining performance. To identify spatially discernable signals related to face processing, we used a separate localizer task from which we delineated scalp regions that reflect differential processing for faces vs houses. Additionally, we analyzed the power changes in oscillatory EEG activity in the alpha band as an inverse index of cortical activations. In particular, modulation in alpha activity was used as a marker for face-selective cortical activation to index the trial-to-trial updating of stimulus-specific reward associations during learning.

Behaviorally, the results indicated that participants were able to learn which

Successful decision behavior in many settings requires the learning of associations between stimulus-specific choices and rewarding outcomes. Our results delineate the neural processes underlying the updating of stimulus–reward associations during feedback-guided learning, which then guide attentional allocation and decision-making.

Fig. 5. Stimulus-specific feedback-related processes—frequency spectra: (A) cortical updating of stimulus-reward associations: time-frequency plots of the differential activity to the feedback stimulus following gains vs losses (note the subtraction direction here) over occipital channels in the face ROIs (previously delineated by the localizer task), shown separately following having chosen a face vs having chosen a house. The plots reveal a difference in alpha power in these ROIs between 800 and 1800 ms following the feedback for gains vs losses, with the later part of this effect being significantly larger when participants had chosen a face as compared to a house. (B) This late, cortically specific, alpha-power effect over the face areas can be seen more directly in the double subtraction (interaction) of activity, namely gains-minus-losses for faces minus gains-minus-losses for houses.

Table 2. Cluster-based statistics related to the updating of stimulus-specific-reward associations in the alpha (8–14 Hz) frequency range

	ROI timewindow, P					
	Inferior-lateral occipital		Midline occipital		Superior occipital	
Choosing × feedback	1400–1750 ms	P = 0.042	1300–1850 ms	P = 0.004	1400–1750 ms	P = 0.008
Chose house: gain vs loss	950–1150 ms	P = 0.098	—	No sig. clusters	—	No sig. clusters
Chose face: gain vs loss	900–1900 ms	P < 0.002	1000–2000 ms	P = 0.004	1150–1850 ms	P = 0.012

stimulus yielded a higher probability of reward in each 20-trial set. Neurally, this learning was marked by a cascade of changes in the brain electrical responses. First, feedback evaluation was most quickly reflected at ~250 ms by the FRN, a canonical negative fronto-central EEG deflection, which was then followed by a modulation of the, also canonical, centroparietal positive P3 deflection (~400 ms), likely reflecting a general increase in cognitive resources. Both of these cortical activations were larger for losses compared to gains. Subsequently (see Figure 1) (~900–1400 ms after feedback onset), we observed either a decrease (for gains) or increase (for losses) of stimulus–non-specific posterior oscillatory alpha activity that was mostly stimulus–non-specific, but this was then followed by a strongly enhanced stimulus-specific activity for gains compared to losses (~1400–1800 ms) over the sensory face areas when the participant had chosen a face, an effect that was mostly absent when they had chosen a house. Then on the
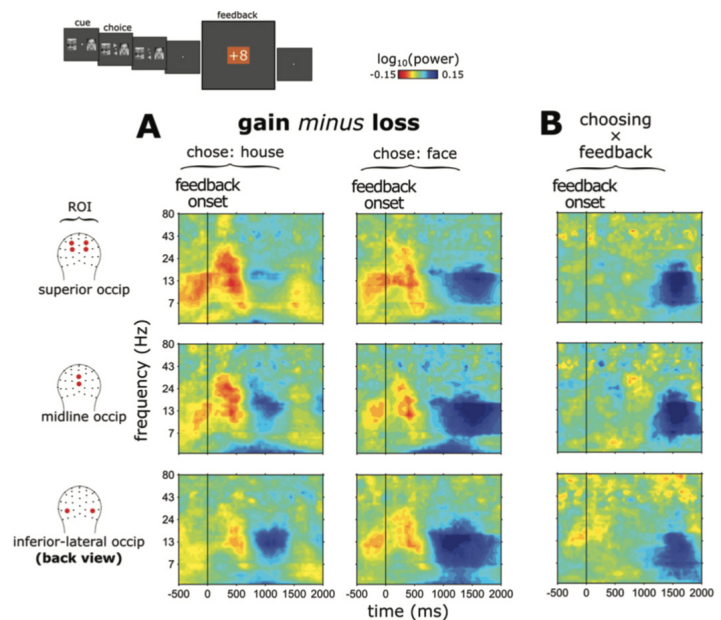
next trial, the learning was further marked by a rapid attentional orienting towards the more-likely-to-be-rewarded stimulus when these stimuli were later presented as a cue pair, an effect that increased across the 20-trial set. These results expand our understanding of the cortical mechanisms by which stimulus-specific regions are activated during feedback learning in service of establishing and/or updating stimulus–reward associations that will be later used to adapt decision-making to the environmental contingencies.

-René San Martín

The Role of a Longevity Insurance for Defined Contribution Pension Systems in Latin America

According to data from CELADE, 50 years ago there were 7 people over 65 years old, in Latin America for every 100 people of working age, between 15 and 64 years. By contrast, today the number of people older than 65 has increased to 11, and it is expected that in the next 50 years the figure will be around 30 people over 65 for every 100 of working age. Meanwhile, the life expectancy of those who reach 65 years of age has increased significantly from 77 years, 50 years ago, to 83 today: an increase of almost 8%.

Funding pensions can therefore be seen as a savings scheme for old age or as an insurance mechanism for longevity risks. To some extent a pension system combines these two instruments and, depending on the type of funding and the formula for calculating the benefits, may have a greater or smaller component of savings and insurance, as also more or less solidarity.

When an event is highly likely to occur, the idea that it can be funded through an insurance mechanism loses force, and it is possible to think that such an event will need savings in order to cover its cost. This is due to the fact that funding through a pool of people, which enables idiosyncratic risk to be diversified, is less effective when that event is highly probable.

Longevity risk can be separated into what is diversifiable and what is not. The first is individual risk, where the person does not know how long he/she will live. In this sense, a pool that is sufficiently large will allow this risk to be diversified and benefits to be paid on the basis of average life-expectancy, so that regardless of the length of the life of a particular person, it is possible to guarantee the payment of a lifetime benefit, because that benefit is funded partly with the contributions of those who live less that the average (mortality credits). Meanwhile, systemic risk, which is not diversifiable, is that which affects the whole population, making it impossible to generate a pool to share this risk. In the case of longevity this has to do with the uncertainty regarding the increase in life expectancy of the population as a whole. Basically, advances in medicine have allowed life expectancy to increase considerably, and forecasting these increases accurately is very complex. In the

This study presents the potential role of a Longevity Insurance in Pension Systems in Latin America, taking the cases of Chile, Colombia, Mexico and Peru. This analysis attempts to contribute to the search for an efficient way of funding retirement benefits in a context of increased longevity.

case of defined benefit, this longevity risk is assumed by the sponsors of the plans, while in the case of defined contribution it is shared between the individual, who receives a lower pension depending on life expectancy at retirement and the insurance company, when there is a life annuity market through which these retirement products are offered.

On considering this situation, an analysis was made of the potential of longevity insurance under a deferred life annuity structure, in order to obtain the greatest possible advantage by using mortality credits to fund pensions. In defined benefit pay-as-you-go systems, these mortality credits are generally kept within the system, financing the various benefits. However, those benefits are often high survivorship pensions, for example, or high benefits for particular segments of the population, this being an implicit part of the system. The defined-contribution systems, meanwhile, often fail to take complete advantage of these mortality credits in funding pensions, because it is often that nobody is obliged to take out a life annuity.

In this context, the present study evaluates an increase in the contribution rate in the cases of Chile, Colombia, Mexico and Peru, compared with an alternative in which this additional contribution is earmarked for longevity insurance. For these purposes, the cost of longevity insurance is calculated in each case according to the characteristics of the pension systems and the respective life expectancy in each country. Then the efficiency of raising the contribution to be put into savings is compared with that of raising the contribution earmarked for mandatory longevity insurance, in order to evaluate how much the pension increases in the two cases.

In the analysis it was seen that mandatory longevity insurance makes it possible to optimize the funding based on contributions in the active stage in order to finance life annuities that start at an advanced age. This scheme avoids selection and generates a large "pool" for funding pensions at advanced ages. At the same time, the resources collected through this increased contribution are not assigned to survivorship benefits or inheritance. In the case of programmed withdrawal, which currently has no coverage for longevity risk, this scheme enables this coverage to be incorporated.

The longevity insurance analyzed here consists of a premium paid throughout the active life which finances the purchase of a Deferred Life Annuity. The main source of funding for this Deferred Life Annuity would be the mortality credits generated between 65 and 85 years of age, with the credits after the age of 85 also being important and, to a lesser extent, those generated between 20 and 65 years of age.

In addition, pensions at regular retirement age also increase because the extended longevity period is funded by the insurance. This increase is greater than would be allowed by raising the contribution rate by an amount equivalent to the cost of the insurance. The changes in the initial pension under programmed withdrawal and life annuity are between 26.95% in the case of programmed withdrawal for a woman with beneficiary in Chile and 13.63% in the case of a life annuity for a man with beneficiary in Peru (the scenario assumes an insurance coverage of 70% of the initial pension as from age 85). The increase in the first programmed withdrawal payment is 40% higher than would be achieved by an increased contribution rate, in addition to a floor as from age 85, unlike what happens

with this pension option today, where the amount continues to fall, with the possibility of exhausting the balance altogether. The impact is greater in programmed withdrawal with beneficiary, because on the one hand the mortality credits of the retirement stage are used to pay pensions and on the other, resources are not assigned to paying more survivorship pensions but are directed towards providing a better amount of pensions for retirees. In the case of life annuities, the contribution of the longevity insurance is less, because in this option the mortality credits are already being used. In the case of Peru, of the 13.63% increase in the life annuity for a married man, 12% of the increase can be attributed to the insurance. The main source allowing this greater increase in pension compared with an increase in contribution rate in this case is that the insurance premium is not dedicated to increasing survivorship pensions, unlike an increase in contribution.

-Marco Morales

Private equity investments in emerging markets

The importance of emerging markets in the world economy is unquestionable. As a result of increasing economic activity in these markets, private equity and venture capital firms have been increasing their participation in previously unexplored regions. Because of the nature of the private equity and venture capital industry, these firms operate globally. The academic literature has developed constructs and theoretical frameworks that have helped us to understand under which conditions firms enter foreign markets and what governance mechanisms they use when they go abroad. Most of this academic work, however, has been focused on multinational firms, which tend to operate in different ways when compared to private equity and venture capital firms. This is one of the main motivations my coauthors and I had when we started the research project that led to the article titled "The interplay of national distances and regional networks: Private equity investments in emerging markets" that was published in the Journal of International Business Studies in 2018.

In this article, we study the investment strategy followed by private equity (PE) firms in emerging markets. We integrate social network theory with the literature that has developed the theory and has shown the empirical evidence regarding the effect of national distances on the decisions made by firms. Specifically, we analyze the interplay between two types of national distances— institutional and geographic—and the firm's centrality in the regional syndication network. There is strong empirical evidence regarding the effect that institutions have in the decisions of firms. Factors linked to the quality of the laws and regulations have been shown to affect how firms behave. Geography also plays an important role in firms'

decisions. In the US, for instance, research studies show that PE firms are less likely to invest in ventures and companies when the geographic distance between them is high. We
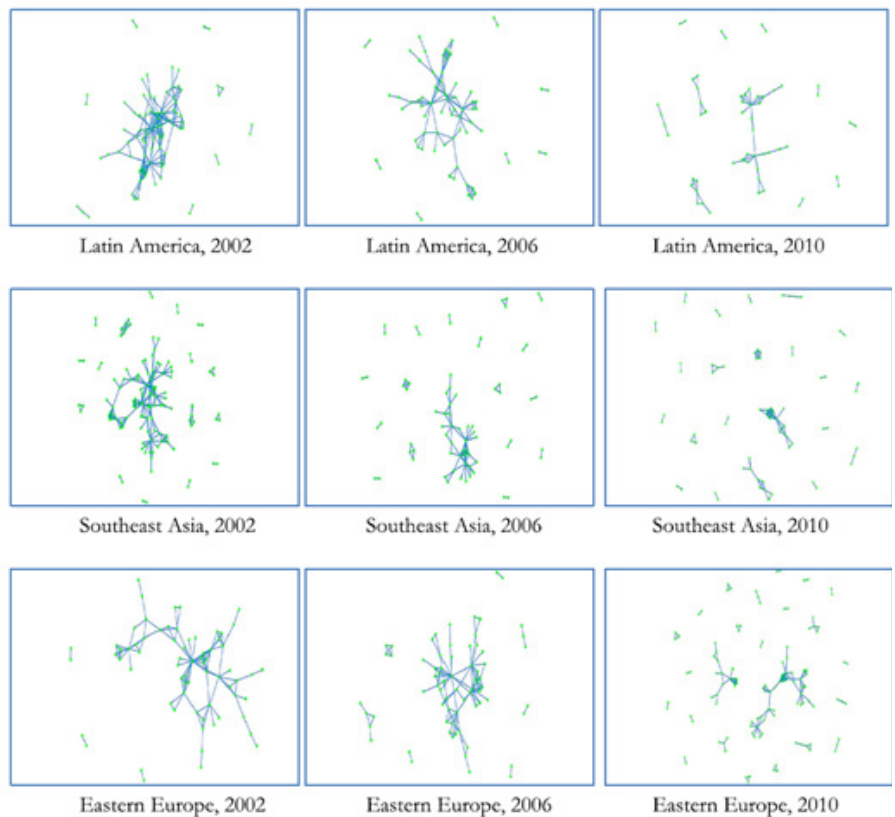

Fig. 1. Evolution of the co-investment networks in emerging market regions.

contribute to this literature by arguing that different types of national distances operate in different ways depending on firm-level characteristics and the nature of the firm. In particular, we argue that (1) the firm's network centrality in the regional network and (2) whether the firm is from an emerging market (EM) or a developed market (DM) can change the way that institutional and

geographic distances affect the decision of a PE firm to invest in an emerging market.

The results of our study show that effect of institutional and geographic distance depends on (1) the centrality of the PE firm in the region in which it is investing (see Figure 1 for a sample of the co-investment network's structure), and (2) the nature of the firm: whether it is an EM firm or a DM firm. The main contribution of our study is to show that the effect of different types of national distances depends on a firm-

level factor (i.e., centrality in the regional network) and the nature of the PE firm (EM or DM nature). First, we find that geographic distance may operate in a different way as compared to other distances given the relevance that geography has for face-to-face communications and physical presence (which are two important aspects of the private equity and venture capital industry). Second, we find that the effect of geographic distance and institutional distance depend on whether the firm is from an EM or a DM. Overall, we show that DM firms tend to depend on their position in the regional co-investment network to overcome the challenges posed by national distances when they invest in emerging markets.

-Francisco Morales

Modeling the governance of cooperative firms

Cooperative firms and the behavior of their members have been extensively studied following neoclassical economic approaches that base their analysis on the characteristics and behavior of the capitalist firm and its owners (McCain 2008; Borgen 2004). This literature has identified a number of disadvantages of cooperative firms such as their lack of economic efficiency. It is argued that this lack of efficiency is due to the ownership and control structure and the focus on mutual cooperation of cooperative firms. These authors rarely consider in their analysis the positive aspects of cooperative firms (Novkovic 2008) such as their strong associative element (Jones and Kalmi 2009) and their ability to minimize negative market externalities and create social capital (Craig and Pencavel 1992, 1993; Jones and Kalmi 2009; Maietta and Sena 2008; Monzón et al. 2009; Novkovic 2008; Pencavel et al. 2006; Pérotin 2006; Vitaliano 1983). The consideration of alternative approaches allows us to rethink the opportunities of cooperative firms in terms of improving the well-being of people.

The approach we take in this article not only constitutes quite a departure from previous neoclassically oriented approaches but also extends other approaches to modeling cooperative firms by proposing an entirely

Most studies of cooperative firms have been conducted using neoclassically inspired economic models that consider the characteristics and behavior of capitalist companies and their owners, thus failing to accommodate the wide range of criteria that motivate the creation of cooperative firms. These models have traditionally been at odds with the real objectives of cooperative firms due to their inability to accommodate a series of often conflicting criteria. We put forth a set-theoretic model of governance of cooperative firms that allows us to investigate how different models of cooperative governance can be implemented and how cooperative decision-making can be solved using a multicriteria decision analysis approach.

novel approach. In order to introduce this fundamental distinction, let us quote Hart (2011) and the question he posed "as to whether the study of organizations should be based on an objective function common to different organization forms or whether different organization forms should denote different objective functions." We answer this question by taking the latter position and go even further by proposing that even within a given organization form different objective functions should often be implemented not only for cooperative firms but also for other organization forms.

Based on recent contributions in the area of cooperative firms (Borgen 2004; Burdín and Dean 2012; McCain 2008; Ostrom 2000, 2002; Tabellini 2006), we put forth a generic model of cooperative governance. This generic model is able to generate different classes of cooperative governance that implement the fundamental principle

of cooperative participation in different ways. Thus different generic classes of cooperative governance can be defined in the model depending on the different ways in which they implement a bottom-up, democratic approach toward strategic decision-making. Our model is able to accommodate a wide variety of criteria for strategic decision-making in cooperative firms and is generic enough to include different sets of criteria that go above and beyond maximizing individual economic profit. We also show how this formal model of cooperative governance is flexible enough to accommodate different governance structures of cooperative firms by allowing the definition of different sets of criteria often found in a wide variety of cooperative firms and by accommodating different rules for cooperative decision-making.

-Pablo Nachar and Harold Paredes

Medicaid and Household Savings Behavior: New Evidence from Tax Refunds

The US health reform, internationally known as "Obamacare", was passed in 2014. It is ruled by the Patient Protection and Affordable Care Act (ACA), which extended subsidized health insurance coverage through Medicaid to an additional 16.3 million people. About 21% of the U.S. population now receives health insurance through Medicaid. Access to subsidized health insurance may not only affect a household's utilization of health care but also its finances and, thereby, its incentives

to save and consume. The expansion of Medicaid coverage under the ACA and the current policy debate around "Medicare for all" has enhanced the importance of understanding if and how subsidized health insurance affects household financial decisions. To evaluate the effect of Medicaid on household savings, we employ a unique dataset on 57,000 low-income tax filers and their self-reported plans to save from their tax refunds. More broadly, we seek to better understand the extent to which the expansion of public safety net programs, such as Medicaid, may interact with current bankruptcy protections to influence personal savings behavior.

We bring three innovations to the literature. First, we evaluate the effect of Medicaid on a low-income household's self-reported intention to save or pay down debt (to not consume) from the tax refund. A cash infusion that represents 10.7% of households' annual income. Second, we exploit the, politically disputed, expansion of Medicaid to the broader low-income adult population through the ACA to generate quasi-random variation in Medicaid eligibility. The savings response to Medicaid may vary based on whether the insurance is directed at the primary income earner or her dependents. Finally, we test for possible heterogeneity in the effect of Medicaid on savings according to

Using data on over 57,000 low-income tax filers, we estimate the effect of Medicaid access on the propensity of households to save or repay debt from their tax refunds. We instrument for Medicaid access using variation in state eligibility rules. We find substantial heterogeneity across households in the savings response to Medicaid. Households that are not experiencing financial hardship behave in a manner consistent with a precautionary savings model, meaning they save less under Medicaid. In contrast, among households experiencing financial hardship, Medicaid eligibility increases refund savings rates by roughly 5 percentage points or $102. For both sets of households, effects are stronger in states with lower bankruptcy exemption limits – consistent with uninsured, financially constrained households using bankruptcy to manage health expenditure risk. Our results imply that expansions to the social safety net may affect the magnitude of the consumption response to tax rebates.

the degree of financial hardship facing the household.

Our first result is that Medicaid eligibility does not have a significant effect on the propensity of the average low-income household to save from its tax refund. Neither refund savings nor liquid assets respond, on average, to changes in Medicaid eligibility. This is true both in the reduced form and in the two-stage instrumental variables (IV) approach. Relevant to policymakers, this result suggests that any aggregate crowding out of private savings among low-income households from the Medicaid expansions is likely to be economically small. As we now discuss, however, this finding masks substantial heterogeneity across households.

We differentiate households based on extent of financial constraint (henceforth "hardship") with an index constructed using five indicators of financial difficulty.

We find that low-income households in the top tercile of hardship express an intention to consume a greater share (6.7 percentage points) of their tax refund payment than those in the bottom tercile of hardship. This result is consistent with the literature on how financial constraints affect consumption from transitory income shocks. Importantly, hardship appears to separate the savings response to Medicaid. Our IV estimates indicate that, among households in the top tercile of financial hardship, being eligible for Medicaid increases the refund savings share by roughly 5 percentage points or $102 dollars on average.

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-Jorge Sabat