



# The back-scratching game<sup>☆</sup>



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## ABSTRACT

We develop a new experiment to study the emergence of welfare-reducing bilateral alliances within larger groups, and the effectiveness of institutional interventions to curtail ‘back-scratching’. In each of the 25 rounds of our experiments, a player (the ‘allocator’) nominates one of three others in a group as a co-worker (the ‘receiver’), which determines the group production that period to be the productivity of the receiver (which varies by round), but also gives the receiver a bonus and makes them the allocator in the next round. Alliances then form if two individuals keep choosing each other even when their productivities are lower than that of others, causing efficiency losses. We study whether particular interventions reduce the rate of alliance formation. Random allocator rotation policies were found to be ineffective, whether implemented prior to, or following, a Baseline treatment. Low bonuses did significantly reduce the advent of alliances. There hence seems to be some hope in preventing back-scratching via reducing the gain that can be made by alliances.

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## 1. Introduction

Lehman Brothers filed for Chapter 11 bankruptcy protection on September 15, 2008, triggering a collapse in financial markets. A lack of diligence by regulatory authorities in the United States, whose impartiality was undermined by the ‘revolving-door’ of personnel between private banks, lobbyists and regulators, was arguably a key element in the crisis (Roubini and Mihm, 2010; Levine, 2012; Matthews, 2014; Barth et al., 2012).<sup>1</sup> For instance, Rohit Bansal, a Goldman Sachs investment banker who had previously worked at the NY Fed, pleaded guilty to obtaining market sensitive information from a NY Fed employee, Jason Gross, that undermined regulatory oversight (Silver-Greenberg et al., 2014; Protes and Eavis, 2015).

Because alliances like the one between Rohit Bansal and Jason Gross are hard to observe and conduct policy experiments on, we test the effect of institutional designs to combat back-scratching in a new lab experiment that captures both the issue of how specific alliances emerge, as well as how they can be broken up. Whilst the existing literature has focussed on the circumstances in which matched pairs are prepared to cause large negative effects on society, we focus on the

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<sup>1</sup> Leaked recordings by Federal Reserve Bank of New York (NY Fed) whistle-blower Carmen Segarra provide evidence as to the degree of favoritism regularly shown between regulators and the regulated.

circumstances where individuals must first find their alliance partners and earn their trust. Our design adds to existing experimental approaches to corruption and costly reciprocity.<sup>2</sup>

In our baseline experiment, in each of the 25 rounds the allocator nominates one of the three others in the group as a co-worker (the ‘receiver’), which determines the group payoff that period to be the productivity of the receiver, and where the productivity of all potential receivers is randomly drawn each round (from the set {1,2,3}). The receiver also gets a bonus payment of 25 Experimental Currency Units (ECU) and becomes the allocator in the next round, allowing the receiver to return the favour of allocating the bonus payment, independent of the productivity of their partner. Alliances form if two individuals keep choosing each other as the receiver even when their productivities are lower than that of others, creating a cost to others in the group. A choice to allocate the highest productivity receiver in a round maximises the group payoff, which we label a ‘meritocratic’ choice, the frequency of which is the main variable of interest. The key innovation with regards to the existing literature is that it is not given before the experiment who will be harmed, who will form alliances, and who will benefit from alliances, allowing us to look at the dynamics and social norms involved in alliance formation, and the effect of policy intervention on both the emergence of new alliances and the break-up of existing ones.

Our first policy treatment is Rotation, which mimics a staff rotation policy by introducing a degree of randomness in who makes the discretionary decision each round by reducing the probability of the previous round receiver being the new allocator to 0.5. Rotation policies are common in sensitive areas of business and regulation. For example, professional bodies require accountants to rotate out of auditing roles after two years to ensure they do not form alliances. Similar policies could be implemented in areas of financial regulation that are prone to alliance formation. This treatment reduces potential long-run payoffs of alliances, and allows for countervailing alliances to form, and hence should reduce the rate of formation of new alliances, but it is not clear whether it will help break up existing alliances.

In our second policy treatment, the bonus payment each round is reduced to 3 ECU, an amount that is sufficient to make a meritocratic strategy, whereby every allocator chooses the highest productivity player each round as receiver, more profitable than being in an alliance, as long as everyone else is meritocratic. We interpret this treatment as reducing the level of individual discretion, which might in reality take the form of having strongly enforced rules, or as Congleton (2014) explains, the bureaucratisation of individuals into “cogs in an organizational machine”. Ohashi (2009) studies an example of such successful rule systems, where the introduction of qualifying rules for government tenders in Japan reduced the discretion of public officials in choosing who could bid for contracts, and reduced procurement costs by 8%. This treatment is also informed by rent-seeking theory which suggests that the size of rents available is a primary determinant of the efficiency cost of rent-seeking activity (Lambsdorff, 2002), and hence we call this a Low Rent treatment.

Each of the 70 groups of four subjects play a sequence of two treatments, allowing us to vary whether the implemented policy treatments come first or second, hence enabling us to see if particular treatments are useful in preventing alliances from forming and/or breaking up alliances that have formed earlier.

In all Baseline treatments, 38% of rounds are identifiable as alliance-play. The Low Rent treatment had 14% more meritocratic play, and fewer alliances, if it was the first treatment in the sequence, but had only small effects when it was preceded by a Baseline treatment. In contrast, the Rotation treatment provided no substantial increase in meritocratic choices regardless of the sequence and even resulted in more overall alliance combinations being observed in each group.

Our notion of back-scratching is wider than just corruption: like most instances of favouritism, Bansal and Gross’s case does not cleanly fit a definition of corruption of “acts which utilise the power of public office for personal gain in a manner that contravenes stipulated rules” (Jain, 2001). Because the public office holder in this case did not receive a personal gain, but merely provided a favour to another person by capitalising on a loose interpretation of the confidentiality rules, it is a clear example of how a degree of discretion within rule systems can give rise to implicit *quid pro quo* alliances formed on bases other than merit. Such alliances can be payoff-increasing for the insiders, yet come with efficiency losses that are hard to measure. For instance, Faccio et al. (2006) find that companies are more likely to be bailed out with public money when they have political connections, though the authors were not able to observe any favours returned to politicians.

## 2. Background

The closest experiment to ours is the repeated bribery game (RBG) that was pioneered by Abbink et al. (2002). Each stage in the RBG involves two players who have been assigned by the experimenter into the role of briber or public official, where the briber first makes a choice of how much to offer as a bribe (if any), after which the official makes the choice to accept the bribe (or not), and then makes an allocation decision that may favour the briber. A public official’s allocation choice in favour of the briber triggers a negative externality determined by the experimenter, either by subtracting earnings from other subjects in the experimental session (Abbink et al., 2002; Abbink, 2004), or by reducing the size of a charity donation by the experimenter (Lambsdorff and Frank, 2010; Schikora, 2011a,b; van Veldhuizen, 2011).

Many interventions have been tested in the RBG setting. A key finding by Abbink (2004) is that staff rotation is effective at reducing bribery and corrupt decisions, where rotation was implemented by randomly pairing bribers and public officials

<sup>2</sup> Our paper adds to the experimental literature on coordination with negative externalities, including Frank and Schulze (2000), Schulze and Frank (2003), Abbink (2004), Abbink and Hennig-Schmidt (2006), Armantier and Boly (2008), Schikora (2011, 2011), Büchner et al. (2008), Lambsdorff and Frank (2011), van Veldhuizen (2011), Barr et al. (2009), Barr and Serra (2009).

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