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Reputation, risk-taking, and macroprudential policy ☆

David Aikman, Benjamin Nelson, Misa Tanaka *

Bank of England, United Kingdom

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ABSTRACT

This paper examines the role of macroprudential capital requirements in preventing inefficient credit booms in a model with reputational externalities. In our model, unprofitable banks have strong incentives to invest in risky assets when macroeconomic fundamentals are good in order to avoid the stigma of being assessed as low ability by the market. We show that across-the-system countercyclical capital requirements that deter such gambling are constrained optimal when fundamentals are neither extremely weak nor extremely strong.

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1. Introduction

> A ‘sound’ banker, alas! is not one who foresees danger and avoids it, but one who, when he is ruined, is ruined in a conventional and orthodox way along with his fellows, so that no one can really blame him.
>
> -John Maynard Keynes

Interest in the application of macroprudential tools to safeguard financial stability has increased markedly since the global financial crisis. The severity of the economic contraction that followed the crisis has stimulated a substantial body of research and policy work seeking to articulate how macroprudential tools—that is, capital and liquidity requirements on leveraged financial intermediaries and loan-to-value and margin restrictions on leveraged borrowers—could be used in the upswing to restrain the factors that lead to systemic risk.[1] The most prominent example of this approach to date is the countercyclical capital buffer, introduced by the Basel III framework, whereby risk-based capital requirements are to be raised above normal levels during periods of excessive credit growth.[2]

While central banks have made significant strides in recent years in their efforts to operationalize macroprudential tools, economists are some way off formulating an accepted set of theoretical foundations for using macroprudential tools in this way. The development of such a theory is an urgent task. To paraphrase Michael Woodford in his tome on the foundations of monetary policy, *Interest and Prices* (Woodford, 2003): a theory of macroprudential policy is necessary in order for central banks to know how to act systematically in a way that can serve their financial stability objectives; it is also necessary in order for them to communicate those systemic commitments to the public.

This paper attempts to outline the beginnings of such a theory. To do so, we set out a simple model of the credit cycle based on strategic complementarities in risk-taking by banks. Our focus throughout is on the application of higher capital requirements

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* Corresponding author at: Bank of England, United Kingdom. Tel.: +44 2076013938.

E-mail addresses: david.aikman@bankofengland.co.uk (D. Aikman), Benjamin.nelson@bankofengland.co.uk (B. Nelson), misa.tanaka@bankofengland.co.uk (M. Tanaka).

[1] See *inter alia* CGFS (2010), CGFS (2012), IMF (2011), Bank of England (2011), BCBS (2012), Aikman et al. (2013), Hanson et al. (2011) and Goodhart et al. (2011).

[2] BCBS (2010); see also Bank of England (2013). The countercyclical capital buffer has recently been applied by the Swiss and Norwegian authorities to increase the resilience of their respective banking systems in the face of housing credit booms (see SNB (2013) and Norges Bank (2013)).

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in the upswing of the credit cycle; that is, the time series dimension of systemic risk rather than cross section issues related to the too-big-to-fail problem (Borio and Crockett, 2000). In addition to maximising profits, bankers, in our model, are assumed to care about the stock or labour market's perception of their abilities, as in Rajan (1994). We assume that banks' portfolio choices are not visible to the market, so that inferences over bankers' ability are based on their current profitability. Bankers are able to manipulate their profitability in the short run by investing in high-risk projects, which succeed with some probability, but have negative expected net present value.

A key feature of this model is that the incentive to gamble by investing in high-risk, negative expected return projects goes up when macroeconomic fundamentals strengthen. This is because those bankers with genuine high ability are more likely to earn strong returns when fundamentals improve. The stigma attached to reporting weak returns therefore increases, creating powerful incentives for low-ability bankers to take on additional risk in a desperate, but ultimately futile attempt to "gamble for reputation".[3] A banker's incentive to gamble also goes up with the proportion of other bankers who gamble. Playing safe and reporting low returns in such an environment encourages the market to assess the bank as having low ability. Under perfect information, the presence of such strategic complementarity typically gives rise to multiple equilibria. We use the global games modelling framework, in which bankers have incomplete information about economic fundamentals, to analyse the unique equilibrium in this model.[4] At a macroeconomic level, the implication is a socially inefficient credit boom as banks collectively undertake excessively risky investments.

The main contribution of our paper is to study the optimal setting of macroprudential capital requirements within this framework. When the policymaker raises capital requirements systemically across the banking system, this increases banks' funding costs with two resulting effects: first, being a blunt tool, it reduces the profitability of all banks, even those that have chosen not to gamble, which all else equal reduces welfare; second, it makes it more costly for banks to finance the negative net present value gamble, reducing its attractiveness. Optimal policy balances this trade-off by equating these costs and benefits at the margin.

We find three noteworthy results. First, optimal macroprudential policy is countercyclical: welfare-maximising capital requirements are high when macroeconomic fundamentals are strong and low when fundamentals are weak. The rationale follows from the result, described above, that gambling incentives are stronger in a boom; given this, the policymaker optimally hikes capital requirements, even though this imposes higher costs on gamblers and non-gamblers alike. Second, the countercyclical nature of optimal policy holds only up to a point: when fundamentals are either very strong—such that there are overwhelming incentives to gamble—or very weak—such that gambling is extremely unattractive—it is optimal for the countercyclical capital buffer to be switched off as it has little impact on gambling incentives. Given this limitation, our analysis emphasises the importance of developing additional macroprudential tools that can target more directly the source of excessive risk-taking, to support the role played by the countercyclical capital buffer. Third, the impact of a hike in capital requirements on risk-taking behaviour may be disproportionate to its direct effect on banks' funding costs. In particular, if strategic complementarities are strong, then risk-taking incentives will be tempered significantly by a rise in capital requirements, even if the direct effect on funding costs is small. This result will be of interest to policymakers, given the need to better understand the macroprudential transmission mechanism.

The key friction in our model is an agency conflict between bank managers and investors, driven by managers' concern for their reputations in the market, which manifests itself as a concern for relative performance.[5] Such agency conflicts have been studied extensively for mutual fund companies, where there appear to be significant incentives to avoid generating returns that are lower than ones' competitors, particularly for young, small funds (Chevalier and Ellison, 1997). Relative performance considerations are likely to apply with just as much force in the banking sector. Compensation, promotion and dismissal, as well as their ability to secure another job, may be implicitly or explicitly linked to their performance relative to others in the industry.[6] Moreover, there is a greater likelihood that policymakers' will bail out banks when they fail together—due to their concerns about systemic risk associated with multiple bank failures—and this may give bankers the incentive to avoid failure by gambling when other banks are also gambling.[7]

A quote by Paul Tucker, a former Deputy Governor of the Bank of England, paints a vivid picture of the potency of the collection action dynamic we emphasise in this paper:

> During that upswing…there is a potent collective action problem in getting off the dance floor. Not a few senior market participants felt from at least 2006 that financial risk was underpriced, and that conditions in, for example, the leveraged loan market were silly. But they also had no conviction about when, or indeed whether for sure, the music had to stop, and so feared individually that stepping away from the dance "too early" would crystallise business risk, as the dance would simply go on without them and their franchise would be undermined as customers migrated to their competitors.
>
> -Tucker (2009)

Our paper is related to a number of existing papers which analyse the impact of strategic interdependence on banks' risk-taking incentives, including Acharya (2009), Acharya and Yorulmazer (2008). Our main contribution to this theoretical literature is to characterise optimal countercyclical regulation within a framework that offers a plausible account of one of the determinants of procyclicality in risk-taking. The underlying distortion we model—a procyclical, non-pecuniary externality (reputational concerns)—closely follows Rajan (1994) in particular, but see also Gorton and He (2008), Scharfstein and Stein (1990), Froot et al. (1992), Thakor (2006). This rationale is related to, but distinct from, those articulated by Bianchi (2010) and Lorenzoni (2008), who suggest that countercyclical capital requirements—or higher risk weights on assets with higher correlation with macroeconomic shocks—could be desirable if private agents' failure to internalise the pecuniary cost of increasing leverage on *ex post* asset prices and others' collateral constraints leads to *ex ante* overborrowing. It is also distinct from macroeconomic rationales that emphasise the hedging benefits derived from the issuance of outside equity by banks in general equilibrium, as in Gertler et al. (2011).

This paper is organised as follows. Section 2 provides the basic set-up of the model, in which banks receive noisy signals about the

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[3] The cover story of *The Banker* magazine in May 2006, at the height of the most recent credit bubble, sums up this dynamic perfectly: it was titled "Keeping up with the Goldmans".

[4] See Morris and Shin (2003) for a discussion of the theory of global games, and Morris and Shin (2000) for applications to macroeconomics.

[5] See Morris and Shin (2014) for a recent application of a model based on similar foundations to study the over-reaction of asset prices to shifts in monetary policy stance.

[6] Holmstrom (1982) argues that relative performance evaluation is useful if agents face some common uncertainty, such that other agents' performance reveals information about an agent's unobservable choices that cannot be inferred from his or her own measured performance. Relative performance evaluation appears to be a significant factor in executive compensation in the financial sector (see Murphy, 1999).

[7] For example, Acharya and Yorulmazer (2008) and Farhi and Tirole (2012).

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