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# Prudence as a competitive advantage: On the effects of competition on banks' risk-taking incentives

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ABSTRACT

This paper builds on the notion that corporate borrowers care about the overall riskiness of a bank's operations as their continued access to credit may depend on the bank's ability to roll over loans or to expand existing credit facilities. A key implication of this observation is that increasing competition among banks should have an *asymmetric* impact on banks' incentives to take on risk: Banks that are already riskier will take on yet more risk, while their safer rivals will become even more prudent.



## 1. Introduction

Deregulation and financial innovations have increased the options available to borrowers, leading to more intense competition among banks as well as between banks and alternative sources of finance (cf. Boot and Thakor, 2000). However, for corporate borrowers who shop for better deals the price (loan rate) should not be all that matters. Will they later be able to refinance a maturing loan and at what conditions? Will the existing lender roll over the loan, extend a credit facility, or provide additional finance at short notice in the future? In particular for businesses that are less mature, smaller, or more opaque, it could become quite costly (or even impossible) to replace an existing lending relationship at short notice. In fact, the existence of such "relationship capital" is a key notion in the large literature on relationship lending (cf. Boot, 2000).

Empirically, this is documented, for instance, in Slovin et al. (1993), who found that borrowers from Continental Illinois suffered an average 4.2% loss in their stock market value after the bank failed. Likewise, Djankov et al. (2005) show that bank closures in Indonesia, Korea, and Thailand decreased borrowers' stock prices by 3.9%, while Yamori and Murakami (1999) document a 6.6% decrease for those borrowers who named the failed Japanese bank, Hokkaido Takusyoku, as their main lender. While outright bankruptcy is an extreme event, borrowers may also be adversely affected if liquidity problems force their main lender to call back loans or to refuse the expansion of existing credit facilities. To the extent that an existing relationship involves some degree of "lock-in", e.g., due to an informational advantage of an existing lender, the borrower may not receive adequate funding elsewhere.

Based on these observations, this paper starts from the presumption that the riskiness of a bank's existing operations, as well as its leverage, represent a key *quality* attribute in the eyes of potential borrowers. Banks that are perceived as being less aggressive in undertaking (on- and off balance sheet) risk would then be regarded by borrowers as a superior

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choice. As I show, this can play an important role in making banks more "prudent", i.e., conservative in their risk taking. In fact, unless they are levered up sufficiently, e.g., through their deposit-taking activities, they may even choose to forego positive-NPV "gambles". The focus of this paper is, however, on the interaction of risk-taking and changes in competition.

I find that competition (e.g., through deregulation that limits the scope for horizontal differentiation) has an *asymmetric* impact on banks' risk-taking incentives. As competition becomes more intense, it is likely that some banks become more prudent, while their rivals undertake riskier strategies. In particular, if banks already differ in the riskiness of their existing operations, more competition induces less (additional) risk taking by an already more prudent bank, while it has the opposite effect on rivals that already took on more risk.

What is crucial for results to hold is that borrowers can discern a bank at which they are less exposed to the risk of not receiving funding in the future. To some extent, as we discuss, banks that are less engaged in other, risky activities may be more willing or able to commit future funding. In addition, borrowers may be able to tell from banks' overall activities whether they are exposed to different risks, e.g., arising from their underwriting or proprietary trading activities. In the recent financial crisis, some large universal banks were highly exposed to the subprime market through their own trading and investment activities (e.g., UBS) or through guarantees that they provided to special purpose vehicles that made such investments (e.g., German Landesbanken). Admittedly, the crisis also showed that some if not much of this exposure either was not adequately observed by market participants or it was not perceived as being highly risky. Then, the mechanism that is at work in my model cannot be active: To the extent that this cannot be credibly communicated to the market or to the extent that the market is not sufficiently wary of it, banks cannot gain competitive advantage in the lending market by being otherwise more prudent.

The recommendation to increase transparency if regulators are concerned about too much risk taking is not new and, in fact, a key pillar of the Basel 2 requirements. The findings of this paper have, however, additional implications for banking supervision in an increasingly competitive environment. They would support neither the view that supervision must be *uniformly* stepped up as competition increases nor the view that competition *uniformly* reduces the need for supervision. Instead, as competition for loans increases, I find that (additional) risk-taking decreases for banks that are already more prudent. To obtain this result, the strategic interaction of banks in the market for borrowers is important. Put differently, the paper's results do not simply follow from the observation that banks may remain prudent so as to take advantage of future profit-making opportunities.[1] As competition increases, I identify a tendency towards more "vertical differentiation", given that in the model banks' commercial borrowers care about how much risk banks take on through other operations.[2] The asymmetry in risk-taking behavior that this paper identifies is also supported by recent evidence in Gropp et al. (2011). Though there the reason for why some banks become "less risky" is exogenous, as it depends on the existence or withdrawal of government guarantees, their finding that these guarantees "strongly increase the risk-taking of the competitor banks" would be predicted by our model.[3]

*Relation to the literature*: In a recent study, Beck et al. (2003) find that different measures of competition, e.g., based on concentration or the degree of deregulation, predict different relationships between competition and the stability of the banking industry. Boyd et al. (2006) have shown that a more concentrated banking sector may be associated with less stability (cf. also De Nicolò and Loukoianova, 2007). This contrasts with earlier work as well as, more recently, with the findings of Jiménez et al. (2007) for a large sample of Spanish banks (cf. also the references therein). The theoretical results in this paper, though not being tied one-to-one to the hypotheses in the aforementioned empirical papers, suggest a rationale for why different studies may not find a robust relationship between competition and risk taking. We find that for a priori (and observationally) identical banks, competition may affect risk-taking incentives orthogonally, reflecting the increased benefits from vertical differentiation.

In terms of theory, much of the extant literature would assert a *positive* correlation between competition and banks' incentives to take on (more) risk. Following Keeley (1990), one suggested channel works through a reduction in banks' charter value.[4] Perotti and Suarez (2002), by comparing a monopoly with a banking duopoly find that in the latter case banks are more prudent as either bank hopes to enjoy monopoly profits by being "the last bank standing", once the other bank has failed.

It should also be noted that the paper focuses on banks' *incentives* to take on risk. Clearly, holding all else constant, a reduction in banks' profitability may also mechanically imply a higher risk of becoming insolvent. Another channel through which competition affects banks' riskiness *without* affecting their own risk-taking incentives was identified in Boyd and De Nicolo (2005), where a lower interest rate induces less risk taking by *borrowers*, which in turn makes loans and thus banks' balance sheets less risky (cf. also more recently Martinez-Miera and Repullo, 2010 for an extension and

[1] Cf. also Allen et al. (2009) on banks' holding of capital buffers for competitive reasons.

[2] This tendency may counteract the risk of "herding" that has been identified in other papers. For instance, such herding may follow from the expectation that the regulator will more likely bail out individual banks if more of them find themselves in a crisis (cf. Acharya and Yorulmazer, 2007 for such a "too-many-to-fail" argument).

[3] Cf. also Flannery and Rangan (2008) on banks' incentives to hold more capital when, as government guarantees are weakened, markets impose greater discipline.

[4] This has been confirmed and extended by a number of other papers using dynamic models, e.g., Hellmann et al. (2000).