



## Monitoring, cross subsidies, and universal banking<sup>☆</sup>



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### ABSTRACT

We formalize the idea that a financial conglomerate may utilize commercial banking activities to cross-subsidize investment banking through bundled offers. The investment banking sector entails supra-normal profits due to incentive problems with security underwriting. Universal banks may aim to capture (some of) those profits by providing discounts on commercial loans. This practice has an adverse effect on commercial banks' monitoring incentives, encouraging the pursuit of private rents by entrepreneurs. It also leads to lower underwriting fees and a lower probability of successful public offerings. The social welfare effects of universal banking can be either positive or negative.

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“Did we lend money in hopes of getting lots of other deals? Absolutely...”

[—An anonymous managing director at JP Morgan Chase<sup>1</sup>]

### 1. Introduction

Since the passage of the Gramm–Leach–Bliley Act in the U.S. in 1999, which removed most of the barriers between commercial and investment banking, financial conglomerates have dominated the U.S. investment banking market. This is similar to previous developments in the United Kingdom, where after the legalization of financial conglomerates in 1986, most pure investment banks merged with commercial banks (Smith and Walter (2003)). Some executives comment that commercial lenders often focus on snatching business from investment banks because underwriting activities are more profitable than giving commercial loans (Economist, 2002, Association for Financial Professionals,

2004). However, after the onset of the Great Recession in 2008, several economists have also argued that large financial conglomerates, which engage in a broad range of diverse activities, can be socially harmful and may need to be dismantled by the authorities (Johnson and Kwak, 2010, Duffie, 2010, 2011). Thus in recent years the mechanics and the social welfare implications of universal banking are an important issue in economics.

This paper presents a theoretical industrial organization model that analyzes the interplay between commercial and investment banking activities and formalizes the popular (among practitioners) idea that a financial conglomerate may engage in commercial banking to strengthen its position in investment banking through bundled offers of financial services. We also study the welfare implications of universal banking. In particular, in the model the investment banking sector is characterized by supra-normal profits that cannot be competed away due to incentive problems inherent in the security underwriting business; excessively low underwriting fees are unacceptable to entrepreneurs because they discourage investment banks from exerting a sufficient effort in underwriting.<sup>2</sup> We argue that engaging in commercial lending activities through universal banking provides a cross subsidization channel to secure profits in the investment banking sector. This mechanism provides unilateral incentives to form financial conglomerates if, of course, the

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<sup>1</sup> As quoted in Beckett and Sapsford (2002).

<sup>2</sup> Similarly, in labor economics supra-normal “efficiency wages,” which are not eroded by competition, are often offered to workers so that workers are provided with incentives to work harder (e.g., Akerlof and Katz, 1990, Gächter and Fehr, 2002).

legal framework, such as the Gramm–Leach–Bliley Act in the U.S., allows such conglomerates. However, since in equilibrium all investment banks establish commercial bank divisions, they experience a neutralization of the advantages of a unilateral move toward universal banking and an erosion of (some of) their profits.

We show that commercial banks' equilibrium monitoring incentives in a universal banking system are weaker than in a financial system with functionally separated commercial and investment banks. In particular, since the equilibrium terms of commercial loans are more favorable to entrepreneurs (and less favorable to commercial banks) in a universal banking system, universal banks are less motivated to monitor their borrowers' projects. Borrowers obtain greater private rents in equilibrium, and corporate governance deteriorates. The model also predicts lower underwriting fees and a lower probability of successful underwriting in the investment banking sector under a universal banking regime. This lower probability stems from commercial banks' reduced monitoring incentives under a universal banking regime and from the effects of such reduced monitoring on investment banks' underwriting efforts.

The overall social welfare effects of universal banking stem from the changes in the amount of monitoring. If there is socially insufficient equilibrium monitoring on a local scale in a functionally separated banking system, the universal banking system is welfare-reducing because it exacerbates the inadequacy of monitoring. If, on the other hand, there is socially excessive equilibrium monitoring on a local scale in a universal banking system, the universal banking system is welfare-increasing because it eases the excess of monitoring. Otherwise, the social welfare effects of universal banking are ambiguous.

On the business front, several analysts point out that the use of lending relationships for the advancement of investment banking is often an important part of a universal bank's strategy (Economist, 2002, Association for Financial Professionals, 2004). Our paper formalizes this idea by presenting a mechanism for cross subsidies between commercial and investment banking. Our conclusions are consistent with the empirical findings of Drucker and Puri (2005) that the joint provision of lending and underwriting services increases a universal bank's probability of obtaining underwriting business, leads to discounted loan yields and decreases underwriting fees for clients. Our analysis also implies that the joint provision of commercial and investment banking services reduces the probability of success of public offerings or of underwriting campaigns. An empirical implication that is unique to our model is that the joint provision of lending and underwriting services leads to an increase in entrepreneurs' private rents and thus to a deterioration of corporate governance in borrowing enterprises. This implication has not been tested in the empirical literature yet.

In the theoretical literature, Kanatas and Qi (1998, 2003) examine universal banking in the presence of informational economies of scope. A financial conglomerate incurs a one-time fixed cost to establish a relationship with a client; the client may obtain multiple services from the conglomerate at no additional informational cost. Then, universal banks have weaker incentives to apply costly efforts to a client's underwriting campaign because they know that they will still be able to profitably serve the client's credit needs if the underwriting campaign fails.<sup>3</sup> Laux and Walz (2009), on the other hand, argue that the effect of universal banking on underwriting can be the opposite. A universal bank may have stronger incentives to apply efforts to underwriting because a failed underwriting campaign may have an adverse effect on the value of the client's outstanding loans that the universal bank has already given. Loranth and Morrison (2012) point out that a universal bank's private decision about whether to offer lending and underwriting services jointly, as well as the socially optimal decision, may

be non-monotonic in the investment banking surplus. Furthermore, more intense investment banking competition may make the joint provision of lending and underwriting services less likely.<sup>4</sup>

Our paper has a different focus from the literature, examining moral hazard and the related monitoring role of commercial banks. Moral hazard stems from the pursuit of private rents by entrepreneurs after financing is obtained. The effects of universal banking on welfare and the market structure stem from changes in such equilibrium monitoring. Kanatas and Qi (1998, 2003) and Laux and Walz (2009), on the other hand, examine adverse selection (rather than moral hazard) and the related screening role of banks; banks may screen the quality of an entrepreneur's projects before financing is given.

## 2. The model

Our model contains four classes of agents, namely, an entrepreneur, commercial banks, investment banks and outside investors. All agents are assumed to be risk neutral. An entrepreneur has two consecutive long-term projects,  $X$  and  $Y$ , which need to be funded; he first seeks financing for project  $X$  and then, shortly thereafter, for project  $Y$ . We normalize the upfront cost of projects  $X$  and  $Y$  to \$1 and \$ $K$ , respectively. The entrepreneur has no funds of his own and thus needs to seek financing from outside sources.

Project financing is subject to moral hazard. In particular, once the long-term projects are funded and initiated, the entrepreneur may seek to abandon the projects and obtain private rents instead, — i.e., a rent  $V_X$  from project  $X$  and a rent  $V_Y$  from project  $Y$ , — at the expense of the banks or the outside investors that have financed the projects (in the spirit of Boot and Thakor (1997), Holmstrom and Tirole (1997) and Freixas and Rochet (2008)). If the entrepreneur succeeds in obtaining private rents, both projects yield a payoff of 0 with probability 1, and thus banks or outside investors obtain a zero payoff (although the entrepreneur obtains a private rent  $V_X + V_Y$  with probability 1). The pursuit of private rents is an entrepreneur-specific, rather than a project-specific, endeavor. Such a pursuit is either successful in all the entrepreneur's activities (i.e., in both projects  $X$  and  $Y$ ), or unsuccessful across the board.

If the entrepreneur does not obtain private rents, project  $X$  is successful and yields a payoff  $x$  with probability  $\gamma$ . With probability  $1 - \gamma$ , on the other hand, the project fails and yields a payoff 0. Thus, the failure of the project does not constitute foolproof evidence of wrongdoing on the part of the entrepreneur.<sup>5</sup> We assume that the payoff of a project is observable and verifiable. Similarly, if the entrepreneur does not obtain private rents, project  $Y$  is successful and yields a payoff  $y$  with probability  $\lambda$ . With probability  $1 - \lambda$ , the project fails and yields a payoff 0.<sup>6</sup> For simplicity, we assume that the success of project  $X$  is independent of the success of project  $Y$ . However, our results carry through to any level of correlation between projects  $X$  and  $Y$ . We assume that  $V_X > \gamma x - 1$  and  $V_Y > \lambda y - K$ , which implies that the entrepreneur prefers to pursue private rents  $V_X$  and  $V_Y$  after he obtains financing. We also assume that  $\gamma x > V_X$  and  $\lambda y > V_Y$ , which implies that the pursuit of private rents is socially inefficient.

There are two commercial banks, CB1 and CB2, which can give loans for a project to the entrepreneur. A loan contract specifies the repayment rate,  $r_B$ , that the entrepreneur is required to pay to the commercial

<sup>4</sup> In a different vein, Greenbaum, Kanatas and Venezia (1989), Rajan (1992), Marquez (2002) and Anand and Galetovic (2006), among others, examine the role of long-term client relationships in banking. Barros (1999) focuses on multi-location competition in commercial banking.

<sup>5</sup> Our results carry through when project  $X$  yields a payoff  $x$  with probability  $\gamma'$  and a payoff 0 with probability  $1 - \gamma'$  when the entrepreneur obtains a private rent, where  $\gamma' < \gamma$ .

<sup>6</sup> Similar to note 5, our results carry through when project  $Y$  yields a payoff  $y$  with probability  $\lambda'$  and a payoff 0 with probability  $1 - \lambda'$  when the entrepreneur obtains a private rent, where  $\lambda' < \lambda$ .

<sup>3</sup> Puri (1999) also examines a universal bank's trade-off between informational economies of scope and conflicts of interest, deriving implications for the prices of underwritten securities.

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