CrossMark

Universal banking, asymmetric information and the stock market

Sanjay Banerji[a], Parantap Basu[b],*

[a] Finance Group, Nottingham University Business School, Nottingham University, Nottingham NG8 1BB, United Kingdom
[b] Department of Economics and Finance, Durham University Business School, Durham University, 1 Mill Hill Lane, Durham DH1 3LB, United Kingdom

ARTICLE INFO

ABSTRACT

This paper aims to explore the role of the universal banking system in contributing to the stock market bust in the wake of the financial crisis 2008–2009 when bankers might have incentive to hide information from shareholders. We set up a stylized model of consumption smoothing involving universal banks that undertake both investment and commercial banking activities. Banks have private information about the outcome of a project that it funds. In the wake of bad news about the project, the banker has an incentive to sell lemon shares in a secondary market with the pretence of a liquidity crunch. Our model shows that such an incentive results in (i) a sharp discounting of stock prices, (ii) greater loan demand (iii) higher fraction of bank ownership of the borrowing firms, and (iv) heightened consumption risk resulting in precautionary savings by households. The magnitude of these effects depends on the market's perception about the preponderance of lemons in the stock market. A credible punishment scheme implemented by the government in the form of fines may moderate the stock market decline and consumption volatility due to information friction. However, it imposes a deadweight loss on private citizens because of a fall in all banks' expected profit. On the other hand, a "ring-fenced" banking arrangement along the way suggested by the Vickers Commission may entail a first order welfare loss due to the lack of diversification opportunities.

1. Introduction

Following the financial crisis of 2008–2009, a wave of papers appeared in the finance and economics literature exploring the diagnostics of the stock market crash. The aim of this paper is to explore the role of universal banking arrangement in contributing to the collapse of the stock market and related economic activities. A universal bank combines investment and commercial banking by holding and underwriting securities of non-financial firms while performing its usual commercial banking operations. In recent times, functioning of all such activities under the umbrella of a single financial institution has been a subject of much heated debates. A prevailing notion is that such financial integration gave rise to a conflict of interest between retail and investment banking activities which manifested in terms of banks hiding information from its clients and selling lemon securities to ordinary citizens. In a recent book, Akerlof and Shiller (2015) argue that investment banks sold complex financial instruments that contained lemons. Since the public failed to perceive the quality of the mutual funds they were buying, it gave rise to a typical lemon problem in the stock market triggering a crash. Thus, a stock market

bust could be the end result of a potential conflict of interest between bankers and ordinary shareholders endemic to the universal banking system.

In this paper, we set up a stylized model of consumption smoothing and banking to demonstrate how such a lemon problem could contribute to a stock market bust. We first show that the institution of universal banking works best in the absence of any such information friction as it provides a perfect consumption risk sharing opportunity to the households. However, due to the universal bank's multifarious financial activities, the system potentially generates an agency problem in terms of bankers using private information to their own advantage. This happens because the banker/underwriter who has funded risky projects has private information about the potential success or failure of the projects. If hit by a bad shock, bankers sell off both these good and bad securities by bundling them together as mutual funds with a pretence of a liquidity crunch. On the receiving end, household/ shareholder cannot distinguish whether such a sale is triggered by the wake of bad news about the project outcomes or due to liquidity shortage suffered by the banks. Our paper shows that the perfect consumption risk sharing in the universal banking system breaks down

---

* Corresponding author.
  E-mail addresses: sanjay.banerji@nottingham.ac.uk (S. Banerji), parantap.basu@durham.ac.uk (P. Basu).

due to this conflict of interests stemming from private information. This leads to (i) a sharp discount in the price of stocks underwritten by banks, (ii) greater precautionary motive by households for holding more deposit, (iii) loan pushing by the banks.[1]

A novelty of our paper is that we investigate the impact of such information friction not only on the pricing of securities but also on commercial banking activities of the universal banks which comprise the volume of lending and the magnitude of depository activities. In addition, we also analyze the real output and welfare effects of such a conflict of interest. We show that the conflict of interest that manifests in terms of information friction has potentially harmful real effects on the aggregate economy.

Our stylized model provides insights about the chain reaction caused by the information friction in the universal banking system. First, as rational investors solve a signal extraction problem by assigning a probability that banks might be selling lemons, such securities sell at a discount. The model simulation suggests that this discount is quantitatively substantial and it depends on the probability of a sale of lemon imputed by investors. Second, the immediate effect of this sale of lemon securities disrupts the perfect risk sharing arrangements obtained under full information. This happens because losses incurred by the investors from buying a probable lemon security even at a discount are not fully compensated at the margin when securities turn out to be good. The unevenness in investor's income causes increased volatility in consumption across states of nature which inflicts a welfare loss on households. Third, to mitigate this consumption risk, households undertake more savings resulting in an increased volume of bank deposits. Fourth, banks make extra profit from selling lemon stocks which is channeled (via their balance sheet) towards greater loan pushing to households. Finally, the effect of holding and trading financial claims upon information spills over to both investment and commercial banking activities. This contributes to a decline in the aggregate investment and output because of a higher market interest rate.

The US experiences in the wake of the financial crisis and its aftermath are broadly in line with the predictions of our model. Commercial banking activities showed a spurt after 2004. During 2004Q1–2008Q4, the quarterly savings deposit:GDP ratio rose from 20.6% to 30% while the quarterly commercial and industrial loans also showed an increase from about 7.6% of GDP in 2004 to 11.3% until the onset of the credit crunch. This increase in commercial banking activity was accompanied by a sharp drop in the quarterly GDP growth rate from 1.5% to −0.2% and about a 30% decline in the real S & P index.[2]

Our paper does not aim to provide an explanation of the financial crisis because we do not model the banker's bankruptcy due to liquidity shock which is an important feature of the financial crisis. Nevertheless, our model provides useful insights about the tremendous risk taking incentive of the universal banks. An implication of our model is that the universal banking system could have possibly contributed to the crisis only to the extent that bankers had hidden information about the borrowing firms. This might have led to the lemon problem in the stock market that Akerlof and Shiller (2015) call a "phishing equilibrium". How much information was actually hidden in the banking system is an empirical question which is beyond the scope of this paper.

The policy implication of our model is that a universal banking system could work efficiently if there is full disclosure of negative information. A punitive tax on banks could moderate the lemon

problem due to information friction and lower the consumption risk of the households. However, such a tax entails some efficiency loss because the enforcement authority suffers from the same information friction as private citizens. Thus, it poses a burden on all banks regardless of their deviant status. In addition, our model also implies that in the presence of informational friction, even scrupulous rating agencies could make mistakes in rating securities because they face the same signal extraction problem as the household.

The issue still remains whether an effective "ring fencing" as suggested by the Independent Banking Commission in 2011 could perform better than the universal banking system. We show that an artificial separation between retail and investment banking in a "ring-fenced" system gives rise to a first order welfare loss due to lack of diversification opportunities. As a result, efficient consumption risk sharing breaks down when such "ring fencing" is implemented. The result is robust even when we allow for hidden information in the universal banking arrangement.

The paper is organized as follows. The following section is devoted to review the related literature on universal banking. Section 3 lays out the model and the environment. Section 4 solves a baseline model of universal banking with full information about states of nature. Section 5 introduces asymmetric information about the states and the consequent conflict of interest between banks and the stockholders. Section 6 reports results from a simulation experiment based on our model to test robustness of the key results when interest rate is endogenized. In Section 7, we report the results of a policy experiment when the government imposes a punitive tax on banks to ameliorate the lemon problem. Section 8 reports results of the comparison between universal banking and stand-alone banking systems. Section 9 concludes.

2. Background and literature review

Our paper contributes to the debate on the efficacy of the universal banking system vis-a-vis retail or stand-alone banking system. Investment banking activity primarily deals with the activity of underwriting of securities while retail banking engages in the business of taking deposits and making loans. Following the great depression in the US, the Glass–Steagall Act of 1933 separated these two activities. Consequently, financial intermediaries could not participate in both equity and bond markets. A series of financial reforms, starting in the late 1980s and culminating in the Gramm–Leach–Bliley Act of 1999 finally ended this separation between commercial and investment banking. This banking integration was envisaged to carry out efficient risk sharing in the financial services markets. Benston (1990, 1994), Barth et al. (2000), Kroszner and Rajan (1994, 1997), Puri (1996), Gande et al. (1997), Stigltiz (2009) among many others contributed to this lively debate in the 1990s.

In the aftermath of the financial crisis, universal banking arrangement started losing its virtues. There was widespread speculation that the integrated system posed greater risks for households because too much private information was held by a unified financial system to the detriment of the households. The regulators in the UK and the USA started contemplating to curb multifarious activities of these institutions, especially in areas where commercial banks entered the business of underwriting equities. In 2011, an independent commission on banking chaired by Sir John Vickers made a comprehensive assessment of the extant universal banks and suggested a protective 'ring-fence' around their high street banking activities. The UK banks are expected to implement these reforms no later than 2019.[3]

The extant literature on universal banking covers different features of the universal banking system which includes certification effects or

---

[1] In this paper, the sole focus is on the effect of lender's moral hazard problem on the stock market in the presence of information friction. In a separate paper, Banerji and Basu (2015) deal with the borrower's moral hazard problem.

[2] These data are reported from the quarterly database of the Federal Reserve Bank of St. Louis. The S & P index is deflated by the CPI (all items) to arrive at the real stock price index comparable to our model.

[3] See Financial Times (21 December 2012 and 21 April 2011). See also Guardian (12 September 2011).