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The size of banking crises in credible fixed exchange rate regimes

Victoria Miller^{a,*}, Luc Vallée^b

^a Université du Québec à Montréal, P.O. Box 8888, Station A, Montréal, PQ, Canada H3C 3P8

^b Canada Economic Development, 1255 Peel Street, #900, Montreal, PQ, Canada H3B 2T9

ABSTRACT

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Since monetary policy is constrained in fixed exchange rate regimes, we should observe fewer banking crises due to moral hazard in countries with credible currency pegs. However, three countries with seemingly credible pegs in the nineteen-eighties and -nineties, namely China, Hong Kong and Argentina, still suffered crises in their domestic banking sectors. The present note illustrates that bank incentives to take on excess risk still exist in countries with currency peg credibility and that the size of that risk exposure (and thus the potential for crisis) may be positively related to the level of central bank foreign exchange reserves.

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1. Introduction

The world economy has been pummeled by a series of banking crisis over the last few decades. Recently, the International Monetary Fund estimated that the costs of the United States sub-prime mortgage melt-down could reach almost one trillion US dollars. That amount exceeds the Asian financial crisis, the US savings and loan crisis and even the Japanese banking crisis of the nineteen-nineties! As financial crises are in no way a new phenomenon for the world economy, researchers and policy-makers have long grappled with the question of how to increase bank accountability and reduce bank incentives to take on excessive risk. The present paper focuses on the potential role a currency peg may play in determining such incentives.

* Corresponding author. Tel.: +1 514 987 3000x3147; fax: +1 514 987 8494.

E-mail address: miller.victoria@uqam.ca (V. Miller).

The primary reason that banks take on excess risk is moral hazard: They expect a bailout should things turn sour. Such expectations increase expected profits from risky ventures and therefore bank incentives to adopt excess risk. However, if financial markets are immature or incomplete and money creation is the only way the government can finance a bailout, then a currency peg may be an effective tool to eliminate moral hazard: Since monetary policy is constrained when exchange rates are fixed, central banks may be able to eliminate expectations of money-financed bailouts by adopting credible currency pegs. Domac and Martinez Peria (2003) demonstrate empirically that fewer banking crises occur in fixed exchange rate regimes; and, in a similar vein, Miller (2003) shows that a negative shock to bank solvency generates bank runs in credible currency pegs as no bailout is expected.¹

However, banking crises have still occurred even in countries with seemingly credible currency pegs. The nineteen-nineties' crises in China and Argentina and the nineteen-eighties crisis in Hong Kong are evidence of this.² The present paper illustrates that currency peg credibility is not an antidote for moral hazard and that the risk and potential size of a banking crisis in a credible fixed exchange rate regime may be an increasing function of the level of foreign exchange reserves in the central bank. Given China's massive accumulation of foreign exchange over the last few decades,³ this may explain why the costs of its nineteen-nineties banking crisis have been estimated to reach 47% of GDP!⁴ Moreover, as the paper demonstrates that large volumes of foreign exchange provide incentives for heightened risk taking in countries with currency pegs, the paper lends support to policies aimed at limiting reserve growth and prescribes vigilance for investments in banks in emerging markets that are awash with foreign exchange.

The idea for the paper is the following: While it is true the central bank cannot use money creation to bailout banks when the exchange rate is pegged (i.e., inflation and a reduction in borrowing costs), it can still finance a bank bailout using excess foreign exchange reserves. Moreover, the size of the peg-sustainable bank bailout will depend on the level of foreign exchange reserves: The larger those reserves, the larger the bailout a central bank can finance without compromising its peg. As expected bank profits are greater when a bailout is expected than when none is anticipated and increasingly so with the level of risk, banks will choose the highest level of risk that will both elicit a crisis-contingent bailout and maximize their utility. Thus, assuming that the central bank will finance a bailout when there is no consequence in terms of exchange rate instability, the optimal risk profile chosen by banks will be an increasing function of central bank foreign exchange reserves over certain levels of foreign exchange. That is, even in infinitely credible fixed exchange rate regime, moral hazard still exists and the size of bank risk, and thus the potential crisis, will be positively related to the level of central bank foreign exchange reserves. The following paper models these arguments. Section 2 presents the basic model and Section 3 treats the optimal risk decision of banks. A discussion and conclusion are included in Section 4.

2. Model

Banks' attitudes toward risk depend on whether they expect a bailout in the event of a crisis. They will favor risky loan exposures if a crisis-contingent bailout is expected and less risky portfolios if no bailout is foreseen. Those expectations depend on whether policy-makers *can* bail them out and whether they *will* bail them out if a crisis occurs. To assess this ability and willingness, we adopt the following simplified version of Miller (2006, 2008).⁵

¹ McKinnon and Pill (1999) argue that a "good" fix (i.e., a peg that is sustainable) limits moral hazard and international borrowing.

² Many other Asian countries with fixed exchange rates also experienced banking crises in the nineteen-nineties: Malaysia, Indonesia, Thailand and Korea are four examples (Caprio and Klingebiel, 2003). However, their consequent currency crises may indicate that their pegs were not really credible.

³ At the end of 2006, China's foreign exchange reserves stood at around 40% of GDP!

⁴ Caprio and Klingebiel's (2003) estimate that the costs of that crisis would rise to 47% of GDP.

⁵ Miller (2008) studied which banking sectors are most susceptible to runs and Miller (2006) investigated the plausibility of the Bank of China's response to its banking woes.

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