Policy Memo

Non-Core Liabilities Tax as a Tool for Prudential Regulation

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19 February 2010

Introduction

The Obama administration has proposed a tax of 15 basis points (0.15%) on the non-deposit liabilities of leveraged financial institutions in the United States with assets of more than 50 billion dollars. The stated purpose of the financial crisis responsibility levy (commonly known as the “Obama Tax”) is to recoup the cost to public funds of government intervention during the recent financial crisis. As such, the tax is intended as a temporary measure, put in place only as long as necessary to recoup the cost to public funds.

However, a tax on non-core liabilities has many advantages as a prudential tool in dampening the procyclicality of the financial system, especially for emerging economies. The purpose of this memo is to outline the case for a tax on non-core liabilities as a more permanent tool of financial regulation.

Compared to other devices for the mitigation of procyclicality, such as time-varying capital requirements or expected loss provisioning, a tax on non-core liabilities is easier to implement, is less distortive, and is suitable for both advanced and emerging economies. A non-core liabilities tax will be especially effective as a tool for mitigating the risks from sudden reversals of foreign capital flows in emerging economies.

A globally coordinated introduction of a non-core liabilities tax (perhaps through the G20 process) would maximize its effectiveness and minimize the distortions through possible circumvention or shifts in the pattern of capital flows.

However, even in the absence of global coordination, the local imposition of a non-core liabilities tax can be expected to reap substantial benefits in dampening the financial cycle, provided that the tax wedge is not so high as to distort payment flows associated with real sector transactions and provided that the tax is used in conjunction with other conventional tools of prudential regulation.
Background

The financial system channels funds from savers to borrowers. Some of the funding flows directly, such as through the direct sale of marketable securities to households, but much of the credit is channeled through the banking system.

Far from being passive entities, we have seen in the recent financial crisis that banks instead serve as the engine of the financial cycle through the active management of their balance sheets. During boom times when measured risks are low, banks expand lending giving impetus to the boom. But when boom turns to bust, banks shun risks by shedding assets or restricting the growth of credit, giving further impetus to the downturn. In this way, banks amplify the financial cycle through their lending decisions.

The most important source of funding available to the banking sector is retail deposits of household savers. However, retail deposits grow in line with the aggregate wealth of the household sector. In a boom when credit is growing very rapidly, the pool of retail deposits is not sufficient to fund the increase in bank credit. Other sources of funding must then be tapped to fund the increased bank lending. In this way, the state of the financial cycle is reflected in the composition of the liabilities of the banking sector.

Figure 1 shows the composition of the liabilities of Northern Rock, the UK bank whose failure in 2007 heralded the global financial crisis. In the nine years from 1998 to 2007, Northern Rock’s lending increased 6.5 times. This increase in lending far outstripped the funds raised through retail deposits (in yellow), with the rest of the funding gap being made up with wholesale funding (in red and light blue).

Although Northern Rock was an outlier in terms of the aggressive use of wholesale funding to increase lending, Northern Rock’s case illustrates the general lesson that during a credit boom, the rapid increase in bank lending outstrips the core deposit funding available to a bank. As the boom progresses, the bank resorts to alternative, non-core liabilities to finance its lending. Therefore, the proportion of non-core liabilities of
banks serves as a useful indicator of the stage of the financial cycle and the degree of vulnerability of the banking system to a downturn of the financial cycle. The larger is the proportion of non-core liabilities, the greater is the boom, and hence the greater is the vulnerability to a setback.

Moreover, the composition of liabilities provides a better early warning signal of vulnerability than conventional asset side indicators such as non-performing loans or Basel-style capital ratios. Remember that for Northern Rock, such ratios were perfectly healthy even on the eve of the crisis.

The role of non-core liabilities in signaling the stage of the financial cycle can also be seen at the aggregate level. Figure 2 plots data from the United States. It charts the stock of repurchase agreements of US primary dealers\(^1\) plus the stock of financial commercial paper expressed as a proportion of the M2 money stock.

Figure 2. Repos and Financial CP as Proportion of M2
(Source: US Federal Reserve)

M2 consists of retail deposits and holdings in money market mutual funds, and thus can be regarded as retail depositors’ claim on the broader banking system. It is apparent from Figure 2 that as recently as the early 1990s, repos and financial CP were only a quarter of the size of M2. However, the ratio rose rapidly and reached over 80% by August 2007, only to collapse with the onset of the financial crisis.

The growth in non-core liabilities is often accompanied by the shortening of maturity of the liabilities. Figure 3 plots three series: the size of the \textit{overnight} repo stock, the total stock of financial commercial paper and M2, all normalized to equal 1 on July 6th, 1994.

\(^1\) US primary dealers are US banks and securities firms that have a daily trading relationship with the Federal Reserve, and which are permitted to bid at the auctions of US Treasury securities.
We see that the stock of M2 grew by a factor of 2.4 since 1994, but the stock of overnight repos grew almost seven-fold up to March 2008, before collapsing with the onset of the Bear Stearns crisis in 2008. Indeed, the use of overnight repos became so prevalent among US investment banks that, at its peak, the five Wall Street investment banks were rolling over a quarter of their balance sheets every night.

![Figure 3. Overnight Repos and M2 (weekly data)](image)

If the ratio of non-core liabilities (repos) to core liabilities (such as M2) were tracked more closely, its rapid increase prior to the crisis may have sounded earlier alarm bells.

**Twin Crises in Emerging Economies**

The ratio of non-core to core liabilities of the banking system is equally informative for emerging economies, if not more so.

For countries that operate with open capital markets, the bulk of non-core liabilities are short-term funds raised in foreign currency, so that the downturn in the financial system manifests itself as a “twin crises” in which a banking crisis and currency crisis reinforce each other. The Asian financial crisis of 1997 and the turmoil in global financial markets in the autumn of 2008 are glaring instances of the vulnerability. Such crises are particularly dangerous due to the mutually reinforcing nature of the two crises, and the rapid deterioration of economic fundamentals caused by the amplification of the crisis.

Although twin crises show many different forms across countries, the common thread is the balance sheet mismatch at the aggregate country level arising from excessive short-term debt denominated in foreign currency.
Take the example of Korea. The aggregate nature of the mismatch is important in understanding the Korean experience during the financial crisis of 2008. From 2005 to 2007, Korean banks and the foreign bank branches in Korea increased lending rapidly, financed with short-term foreign currency liabilities (see Figure 4 below). But the increase in lending far outstripped traditional funding available to banks from retail deposits. The gap was filled with short-term wholesale funding, especially from international capital markets denominated in foreign currency.

Although Korean banks also held dollar assets, such assets were claims on Korean firms, and hence not usable to meet maturing dollar liabilities. Non-financial firms in Korea had dollar receivables, such as the receivables of the shipbuilders, but they were long-term dollar receivables. By hedging the exchange rate risk in these long-term dollar receivables, the non-financial companies could transfer to the banking sector the long-term dollar claims, but the banks then would engage in maturity transformation by borrowing short in dollars. In this way, although the currency mismatch could be eliminated, there was still a maturity mismatch.

Foreign bank branches in Korea played an important role in channeling foreign currency funding to local borrowers. Figure 4 plots the foreign currency liabilities of the foreign bank branches in Korea. Foreign bank branches raise funding either from their headquarters through the interoffice account or by borrowing unsecured in the interbank market. They then enter the currency swap market in Korea, thereby selling dollars to buy Korean won on the spot market and simultaneously buying dollars in the forward market. Before the swap matures, foreign banks buy Korean government bonds, Bank of Korea bonds and other fixed income instruments denominated in won to engage in the “carry trade” of lending at the higher Korean interest rate by borrowing at the lower dollar or yen interest rate.

**Figure 4. Foreign currency liabilities of foreign bank branches in Korea**

(Source: Bank of Korea)
As seen in Figure 4, short-term liabilities increased almost five-fold between 2005 and 2008, before falling rapidly with the onset of the financial crisis after the Lehman Brothers bankruptcy.

The severity of the financial crisis in Korea in 2008 can be attributed largely to the rapid deleveraging that took place by the banking sector (both domestic and foreign) with the onset of the 2008 financial crisis. Figure 5 shows the capital inflows and outflows for two sectors – the equity sector and the banking sector. We see that the equity sector actually saw net inflows after the Lehman bankruptcy. Thus, contrary to the common misperception that the exit of foreign investors from the Korean stock market is the main reason for capital outflows, flows in the equity sector was net positive immediately after the crisis. The reason for this net positive flow was that selling by foreigners was more than matched by the repatriation flow of Korean investors who sold their holdings of foreign equity held in mutual funds, etc.

![Figure 5. Net Capital Flows of Bank Debt and Equity (Billion Dollars) (Source: Bank of Korea)](image)

However, in contrast to the equity sector, the banking sector saw very substantial capital outflows from Korea. In the three months following the Lehman bankruptcy, there was an outflow of 22.5 billion dollars in October, 9.4 billion dollars in November and 20.8 billion dollars in December. These outflows account for much of the decrease in Korea’s foreign exchange reserves from over 250 billion dollars before the Lehman crisis to 200 billion at the end of 2008.

Figure 5 illustrates again the important role played by leveraged financial institutions in amplifying the financial cycle. Unlike long-term investors, such as pension funds and life insurance companies, leveraged institutions are vulnerable to erosion of their capital, and hence engage in substantial adjustments of their assets even to small shocks.
Tax on Non-Core Liabilities as a Prudential Tool

Both for advanced and emerging economies, the ratio of non-core to core liabilities reflects the degree of risk-taking by the banking sector, and the extent of under-pricing of risk. Risk is being “under-priced” in the sense that banks take cues from current buoyant market conditions to take on additional exposures now, without taking sufficient account of the fallout to the rest of the economy when the bubble eventually bursts. Having gone through the recent financial crisis, we are now very familiar with this type of market failure.

In the terminology of economics the cause of the market failure is an externality. Banks take account of their own short-term objectives without taking account of the spillover effects of their actions on other banks and on the economy as a whole. The textbook method to correct an economic externality is to impose a corrective tax (a Pigou tax) that better aligns the incentives of the individual actors to the interests of society as a whole.

A tax on non-core liabilities can serve as such a corrective tax. During a boom, the tax on non-core liabilities makes the non-core funding more expensive, and hence can dampen the boom in the upswing caused by the underpricing of risk. In order that a tax can serve its purpose most effectively, the tax should have the twin properties that it be targeted at those activities that cause the greatest spillover effects, and it should not be easily evaded. The non-core liabilities tax scores highly on both scores.

The revenue raised by the tax is secondary. The main purpose of the tax is to align incentives. A good analogy is with the Congestion Charge used to control car traffic into central London. Under this charge, car drivers pay a daily fee of 8 pounds to drive into central London. The main purpose of the charge is to discourage drivers from bringing their cars into central London, thereby alleviating the externalities associated with traffic congestion.

In the same way, the non-core liabilities tax should be seen primarily as a tool for aligning the incentives of banks closer to the social optimum. The revenue raised by the tax would also be of benefit – perhaps for the purpose of a resolution fund – but the revenue is a secondary issue.

Comparison with Other Prudential Tools to Dampen Procyclicality

The tax on non-core liabilities has features that make it preferable to other tools that have been proposed to mitigate the procyclicality of the financial system. We list some here.

- **Time-varying capital requirements.** Capital requirements are the bedrock of the existing framework for bank regulation. The recent financial crisis showed that capital requirements do not bind hard enough during the boom, with the result that banks end up with balance sheets that are too large and capital that is too small to meet the downturn. Time-varying capital requirements that attempt to gauge the stage of the financial cycle is one potential answer. However, the technical and measurement issues associated with such proposals are daunting. Experience with the
bureaucratic delays in implementing Basel II should give us pause for thought on the likely success of implementing something as complex as time-varying capital requirements.

- **Expected loss provisioning.** An alternative to time-varying capital requirements is expected loss provisioning (or “pre-provisioning”) as pioneered by the Bank of Spain. The success of pre-provisioning has been amply illustrated by the recent financial crisis, but the calibration of the expected loss provision faces many of the same measurement and technical issues as for time-varying capital requirements. There is also the question of whether the expected loss provision will be large enough to meet a severe downturn.

- **Administrative tools.** A special case of a non-core liabilities tax is a cap on the loan to deposit ratio of a bank. A loan-to-deposit cap is equivalent to a non-core liabilities tax where the tax rate is zero up to the permitted threshold and then is infinite beyond that threshold level. A loan to deposit cap has been proposed in Korea, and will be implemented shortly. The loan-to-deposit cap will serve the purpose of tying the growth of lending to the size of the deposit base. The drawback of such a rule is that it is inflexible, and that it may introduce pricing distortions in the financial market by raising the interest rate on deposits due to competitive pressures. The gap between deposit rates and market interest rates increase the incentives for circular financing deals where market finance is raised by issuing bonds, and then the proceeds are deposited in the banking system. Japan in the 1980s experienced precisely such a circular funding problem, which exacerbated Japan’s bubble. In any case, the Korean version of the loan to deposit cap does not apply to foreign bank branches in Korea, which leaves a large hole on the funding side of the banking system.

A tax on non-core liabilities is simple to implement and is a price-based intervention, which means that it works with market forces, rather than working against them.

In effect, the tax on non-core liabilities is a way for the Korean banking authorities to influence the cost of dollar funding used in Korea. It is as if the Korean authorities can set the US dollar interest rate for the purpose of prudential regulation. In the current market environment where global liquidity conditions are ample due to the near-zero US dollar interest rate, the ability to set a price for US dollar liabilities would be an important new weapon in the fight against the flood of incoming capital and the increasing fragility of the financial system.

**What About Circumvention?**

A tax on non-core liabilities will be most effective if it is implemented globally, at the same rate. This is so, since the global application of the non-core liabilities tax will minimize the incentive for circumvention and be minimally distortive in terms of the overall pattern (although not the scale) of international capital flows. Thus, ideally, non-core liabilities taxation should be adopted in a coordinated fashion, perhaps through the G20 process on the reform of financial regulation.
However, even a local adoption of the non-core liabilities tax may still be effective. All securities transactions need to be cleared and settled. For Korean securities denominated in Won, having access to the clearing and settlement process whereby the proceeds of the securities sale are exchanged for dollars will be necessary at some stage of the transaction. Thus, even for securities transactions that are initiated in Hong Kong or Singapore, there will be an entity with access to the Korean settlement system – either a Korean bank, or the Korean branch of a foreign bank. Thus, as long as membership of the settlement system is used as the criterion for who should be subject to the non-core liabilities tax, someone along the chain will bear the tax.

For this reason, a non-core liabilities tax that apply to Korean banks and the foreign bank branches in Korea will cast a net that is wide enough to make the tax effective. The fact that so many foreign banks have established branches in Korea in spite of the considerable fixed costs suggests that there are sizeable benefits from having such branches. Provided that the tax rate is low enough not to exceed those benefits, the tax will have some bite. However, if the tax rate is very high, there will be a strong incentive to find innovations in over-the-counter contracts that take advantage of the cost wedge created by the tax. Thus, an important desirable feature of the non-core deposit tax is that the tax rate should not be so high as to create distortions arising from attempts to evade the tax.

**How Should Non-Core Liabilities be Defined?**

Retail deposits and money market funds are the archetypal case of core liabilities of the banking system, or intermediary system more broadly. However, the precise definition of core liabilities should appeal to the principle that core liabilities are the claims of the ultimate creditors (the household sector) on the intermediary sector.

Not all deposits should qualify as core liabilities. For instance, if a non-financial company issues securities and then deposits the proceeds into a time deposit account, such a deposit should not count as a core liability of the bank, even though it is in the legal form of a deposit. The reason is that the depositor (the firm) is not the ultimate household claim holder.

Conversely, core liabilities can include items that are not formally deposits. For instance, if a bank has issued covered bonds, then such bonds are stable liabilities that are held mostly by long-term investors. As such, covered bond liabilities should qualify as core liabilities. Similarly, certificates of deposit (CDs) sold to household savers have many of the features of term bank deposits. Hence, some types of CDs should qualify as part of the core liabilities of the bank.

19th February 2010

Seoul, Korea