

Can An ETF Really Save The World?

*By Matt Hougan & Dave Nadig
April 22, 2009*

Toxic mortgage-backed securities (MBSs) sit at the heart of the global financial crisis. Any attempt to resolve the crisis must deal with the problems these securities create. ETFs may offer a way.

CONTACT

Matt Hougan, Editor

IndexUniverse.com

Email: mhougan@indexuniverse.com

Introduction

Toxic mortgage-backed securities—those MBSs backed by borrowers with weak credit—sit at the heart of the global financial crisis: The rapid growth in the market for these securities during the first part of this decade laid the groundwork for the issues currently facing the nation's banks; their rapid devaluation in 2008 brought things to a head; and their continuing liquidity and pricing problems simply extend the crisis.

Over the past year, the government has announced a series of initiatives aimed both at resolving the crisis in the Financial sector and addressing the broader recession. These have included: the \$700 billion troubled assets relief program (TARP); the \$200 billion–\$1 trillion Term Asset-Backed Securities Loan Facility (TALF); a \$750 billion stimulus package; \$300 billion in Treasury purchases; zero percent interest rates; and a \$1.25 trillion plan to purchase high-quality MBSs issued by federally backed agencies like Fannie Mae, Freddie Mac and Ginnie Mae.

While helpful, these programs have not addressed the heart of the problem: the toxic, low-quality MBSs themselves. Recently, Treasury Secretary Timothy Geithner has been emphasizing the need for private investors to partner with the federal government to solve this problem. In March, Geithner announced the launch of the Public-Private Partnership Investment Program, or PPPIP, a complicated program in which the government will both lend money to and invest alongside large private investors, as a way of encouraging investors to buy toxic MBSs. No one knows yet if PPPIP will work, or how much it will cost taxpayers. Early signs suggest that the initial investor response to the program may be tepid.

One of many criticisms of PPPIP (which we describe in detail below) is that it is designed to work primarily with private fund managers servicing institutional and ultra high net worth clients. Recently, however, proposals have emerged suggesting ways to democratize access to the program, using investment vehicles that are available to every investor. The most intriguing proposals center around the use of exchange-traded funds, a type of mutual fund that trades on a public exchange, like a stock.

ETFs, originally designed to increase access to equity indexes, have in the last 10 years opened up scores of alternative asset classes to the average investor, and have succeeded in creating liquidity in illiquid markets. The use of ETFs—either independent of or as a complement to the existing PPPIP structure—would be an intriguing approach to dealing with the \$1+ trillion toxic MBS problem.

The purpose of this report is to review the problems that the collapse of the MBS market has caused; examine and evaluate the various ETF proposals being suggested; and lay out next steps and questions to consider as the financial markets move forward.

The Problem

What Are Mortgage-Backed Securities (MBSs)?

To understand the problem with mortgage-backed securities as an asset class, you first have to understand what MBSs actually are. Here's how the Securities and Exchange Commission defines them:

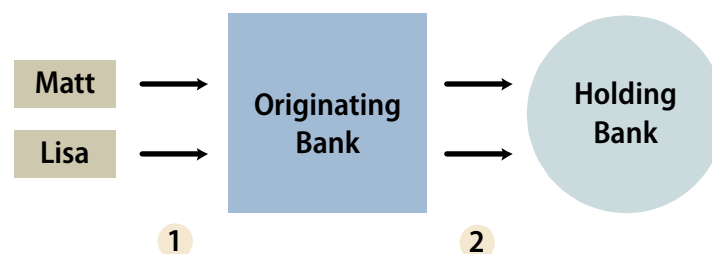
Mortgage-backed securities (MBS) are debt obligations that represent claims to the cash flows from pools of mortgage loans, most commonly on residential property. Mortgage loans are purchased from banks, mortgage companies, and other originators and then assembled into pools by a governmental, quasi-governmental, or private entity. The entity then issues securities that represent claims on the principal and interest payments made by borrowers on the loans in the pool, a process known as securitization.

An example will bring that lofty description down to earth.

Suppose that you take out a mortgage on your house. You borrow money from your local bank, and agree to repay that money over time. The bank can decide to either hold your mortgage—in which case it receives your monthly mortgage check—or it can sell your mortgage to a larger entity, either a governmental/quasi-governmental agency (Fannie Mae, Freddie Mac or Ginnie Mae) or a private Wall Street commercial bank.

Your bank wants to sell that mortgage so that it can get its money back immediately. That way, it can go out and loan that money all over again to your neighbors. If it didn't sell your mortgage, it would quickly run out of cash to lend. Your bank will make most of its money on fees associated with underwriting the mortgage and selling the loan.

The Simple Mortgage World



- 1: **Bank makes loans to borrowers**
- 2: **Agency/commercial bank buys mortgages from originating bank**

Of course, it's more complicated than that. In the real world, the "holding bank" in the chart above doesn't actually want to hold your mortgage either. It has the same problem as your local bank: If it just bought and held mortgages, it would quickly run out of money. So instead of holding your mortgage, it bundles it together with thousands of other mortgages and sells the package to investors as "mortgage-backed securities."

This daisy-chaining of mortgages means that when you make your monthly mortgage payment, you're actually paying the holders of the MBS, who expect to earn a yield on their investment.¹

What's The Big Deal?

Perhaps the biggest problem with the MBS market is its size. In short: It's huge. At the end of 2006, there was more than \$5 trillion in outstanding MBSs. That was up from just \$3 trillion at the turn of the millennium. What's more, the nature of this market has shifted over the past decade, with Wall Street coming to play a bigger and bigger role.

A critical distinction in the MBS market is between an "agency" security and a "nonagency" security. Agency MBSs are issued by government-sponsored entities like Fannie Mae, Freddie Mac and Ginnie Mae. These MBSs have an implicit government guarantee. They have traded well and held their value throughout the financial crisis. The iShares MBS Bond Fund (NYSE Arca: MBB), which holds a portfolio of these securities, actually returned a positive 5.69% in 2008, during the heart of the financial crisis. When you hear people talking about "toxic debt," they are explicitly *not* talking about agency MBSs.

Nonagency mortgage-backed securities, on the other hand, are written by private investors, typically large investment banks. These MBSs do not have any government guarantees, and so are subject to losses—potentially total. They also tend to be riskier in general than agency loans, simply due to credit quality. Government-sponsored agencies like Fannie Mae and Freddie Mac have strict credit requirements. Most loans that meet these requirements will follow an agency path, because the agencies are able to offer lower interest rates on average than commercial banks, due to their implicit government guarantee. As a result, a large portion of the mortgages that flow into the nonagency market tend to be "nonconforming"; that is, ineligible for agency consideration. These nonconforming loans carry the descriptors so commonly heard on the evening news: subprime, jumbo, Alt-A, etc.

These are the mortgages that have suffered the most during the current market downturn.

Unfortunately, at the same time nonagency MBSs have been suffering in terms of liquidity, performance and default, more and more of the market has become nonagency. For most of the past decade, the nonagency share of the MBS market was consistently below 20%. But that started changing in 2003, and by the end of 2006, more nonagency MBSs were being issued than agency MBSs. To make matters worse, by the end of 2006 more than 80% of all nonagency MBSs being issued were subprime.²

In other words, the downturn hit just when this market was at its largest and most fragile.

¹ The preceding paragraphs draw from reporting by Street Authority (www.streetauthority.com).

² CIBC World Markets, Inc.

How Are MBSs Structured?

Beyond the agency versus nonagency question, MBSs vary in other important ways.

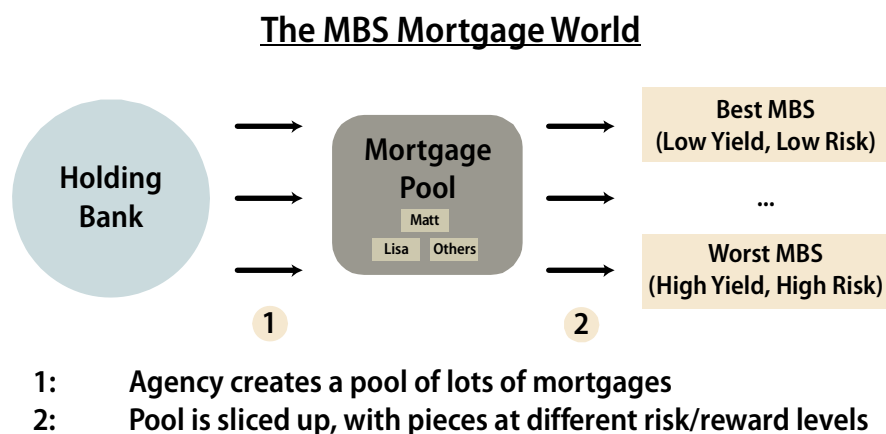
When a bank creates an MBS, it goes through two levels of stratification to create securities with different risk and reward payoffs—after all, the point of creating the security is to find a sweet spot with investors.

First, banks categorize loans into general credit categories, bundling together mortgages with similar credit ratings, maturities, etc. In common parlance, these can be broken down into three groups:

- **Prime:** Mortgages backed by the best available credits.
- **Alt-A:** Mortgages backed by good credits that are nonconforming (i.e., don't meet the specifications set by top-rated underwriters in one way or another: They may be large "jumbo" loans, they may have limited documentation, etc.).
- **Subprime:** Mortgages backed by weaker credits or supported with low levels of documentation.

MBS experts often use other terms. One common group of terms ranks MBSs by credit quality as follows: Seasoned Prime, Furry Prime, Alt-A Hybrid, Alt-A Floaters, Subprime and Pay Option ARMs.

Either way, once mortgages are sorted, they are then placed into groups. Sometimes these groups are simply sorted by credit quality, while at other times the categories are mixed to include some "good" and some "bad" credit. Either way, mortgages are collected into an entity, usually a trust, which funds itself by issuing several classes of securities for investors to buy. These securities have different levels of seniority in the capital structure, and thus different risk characteristics. In the jargon of MBSs, these different classes are called "tranches."



And these tranches have very different experiences in the case of default. Dow Jones Marketwatch.com explained this well in a 2007 article:

“When the borrower makes a mortgage payment, the cash flows first to the highest-rated tranches. These pay the lowest rates, but are the least risky. Then the money flows down like a waterfall, with holders of the next riskiest tranche being paid next, and so on.

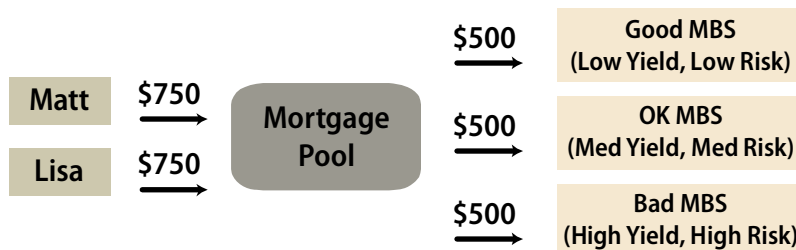
The riskiest MBS tranches get paid last, but they offer the highest interest rates. And when losses occur from mortgage defaults and foreclosures, the riskiest tranches are hit first, while the top-rated bits suffer last -- like a waterfall in reverse.”

This is an important and widely misunderstood point: Your mortgage is not, in its entirety, sitting behind a single MBS somewhere. Instead, your mortgage has been sliced into notional chunks.

One good analogy is the credit structure of a public company. If a company defaults, the senior bond holders get paid first, then the junior bond holders, then the preferred stockholders and then the holders of the common stock. In an MBS, the highest (“super senior”) tranche gets paid first, then the second-highest (“senior”) tranche, then the next.

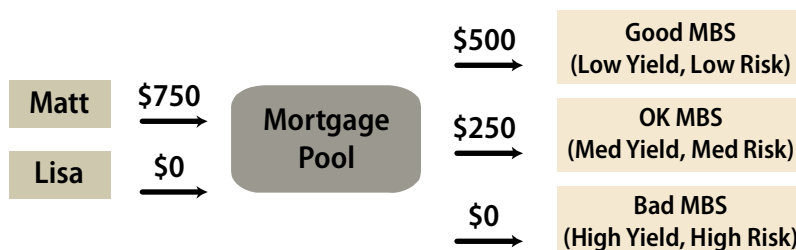
Just like a stable market for a company’s debt, as long as the cash flow’s there, everyone gets paid, and everyone is happy.

Nobody Defaults: Everyone’s Happy



But when something goes wrong, not every investor is treated equal. The “good” securities get paid out, while the “bad” securities get less and less.

Lisa Defaults: Good MBS Is Pristine



The Mythical AAA Rating

This tranche structure is one of the reasons that some subprime mortgage-backed securities were able to obtain AAA ratings from agencies such as Moody's and Standard & Poor's.

There has been a lot written about the hindsight absurdity of bundling together subprime loans and selling them as AAA-rated securities. Clearly, in retrospect, it didn't work. But if you understand the waterfall payoff schedule of the tranche structure, you can understand the logic.

Historically, most subprime loans get paid. When Wall Street was creating these securities, it looked back at history and wondered, "Well, what if things get really bad and 20–30% of the loans default ... a level far above the historical average? What would happen then?"

The answer was that even in that scenario, the senior tranches of the MBSs would still be intact, because they would receive cash flow first while junior tranches got hit with defaults. Using historical data, it seemed impossible that things could get so bad that the top tiers would suffer. It seemed even less likely if you used a mixed securities pool, one that combined prime or Alt-A with subprime mortgages in a single group. Surely at least the "good" mortgages would make their payouts.

In addition, popular quant models at the time effectively ignored the correlations among mortgages. The thinking was that while one individual might lose his job and default on his mortgage, there would never be systemic default throughout the real estate market.

We now know that both of these critical assumptions were wrong—the national housing market could fall hard, and fall universally, in a way that would impact all levels of the tranche structure. But you can at least understand what the bankers were thinking.

Things got even more complicated when companies such as Ambac, AIG and Lehman Brothers began insuring these MBSs through derivative securities such as credit default swaps. These insurers followed the same logic as the banks and assumed that the top-tier tranches would be OK, so they guaranteed the value of those securities while charging relatively low fees.

What Went Wrong?

When house prices started to fall—not just in Des Moines, but in Detroit and Dallas and everywhere else at the same time—all of these seemingly logical assumptions fell apart. Default rates soared above historical levels, and have shown little signs of improving. Even today, the housing market continues to struggle, the economy is weak and the blowup of Lehman Brothers and others means that many insurance guarantees are worthless.

As a result, what were sure-thing securities whose cash flow was supported both by historical data and guarantees are now, somewhat suddenly, "toxic." No one knows where the bottom of the housing market is, how bad it will get, how many defaults there will be or if the loan guarantees by third parties are worth a penny.

That's how we went from AAA to junk, almost overnight, and scuttled the economy in the process.

Does It Really Matter?

Why is this a problem? After all, banks have made bad loans before. And it's not like these securities have literally zero value. They hold the right to physical assets (houses): That must be worth something. Why can't the banks simply hold onto them for the future?

The problem is threefold: First, the value of mortgage-backed securities has fallen, across the board; second, these values are artificially depressed; and third, we've lost the ability to accurately price these securities in an open market. Any effort to solve this crisis must address all three problems, so let's consider them in turn.

Real Values Have Fallen

The current real estate bust is unlike anything we've seen before. Toxic MBSs are simply worth less than they were when they were first created, regardless of the secondary market. And things could continue to get worse. In the future, we may see *more* defaults, *less* cash flow, and higher and higher tranches could be impacted. The current pricing of some toxic MBSs appears to be anticipating just this deterioration. This in itself might be survivable but for the fact that many on Wall St. levered-up to purchase these securities, with some firms leveraging their own balance sheets 20 or even 30 times. Remember: They thought they were safe—in some cases AAA—securities.

As with any levered investment, even marginal losses are magnified: It doesn't take much of a mistake to sink a bank when it is levered up 20 or 30 times. And there are real losses in the MBS market.

A Buyer's Strike May Be Further Impacting Pricing

A more significant problem is that the value of these securities—as reflected in secondary market prices today—may be artificially depressed.

The market for lower-quality MBS securities has largely disappeared. Historically, the people who bought these securities were big banks, hedge funds and other institutional investors like pension funds and endowments. But these are the same people who are hurting the most today.

As a result, you have a buyer's strike. No buyers means that prices may be depressed.

That's bad news in part because of how these securities are valued on a balance sheet. There are two ways to value a security: "theoretical value," which considers the amount of cash flow that the security will generate over time (discounted for the time value of money and the risk of default); and "mark-to-market" value, which considers what the security would sell for on the open market. Mark-to-market accounting is the rule of the land for banks, because it is supposed to be less prone to manipulation than theoretical value accounting. But when there is no liquid market—when there is a buyer's strike—mark-to-market accounting makes a bad situation worse.

This has created, in a sense, a seller's strike as well. Many of these securities have not been truly marked down to the actual value at which they would sell today, and banks don't want to damage their reported capital by taking realized losses on securities held nominally at higher values. Many people believe that if the banks today accurately marked these securities to market, they would be technically insolvent. And not just a few banks—many of the most important ones: Citigroup, Bank of America, etc.

Coincidentally, balance sheet pressure has caused the problems in the lower-quality "toxic" MBS market to trickle over even into the high-quality MBS markets, because banks have been liquidating better-traded securities to raise cash in an attempt to stave off insolvency.

Liquidity Issues Impact Price Discovery

The reluctance both of buyers and sellers to enter into the market has made properly valuing these securities an intractable problem. It is difficult to calculate the “theoretical value” of these securities, since the long-term payouts are linked to so many different factors: the economy, interest rates, home prices, etc. At the same time, because the markets for lower-credit-quality MBSs have dried up, there is no semblance of real “price discovery” in the market. Many of these securities don’t trade for days or weeks on end. Needless to say, that feeds back into the earlier issues, as “mark-to-market” accounting is highly problematic when there is, in fact, no market.

Any solution to the MBS mess must address all three of these problems. It must create liquidity in the market, end the buyer’s strike and ultimately increase the value of these securities so that our nation’s banking system doesn’t go bust. No wonder people have been having a hard time finding a solution.

Proposed Solutions

PPPIP: Public-Private Partnership Investment Program

The Treasury's plan to breathe new liquidity into this market is called the Public-Private Partnership Investment Program, or PPPIP. Unveiled in March, the program actually has two parts: the "Legacy Loans Program" and the "Legacy Securities Program." The Legacy Securities Program is the more immediately relevant, as it deals specifically with the toxic MBSs discussed in this paper, and is the program against which ETF-based alternatives should be considered.

The Legacy Securities Program itself has two parts. First, it expands the existing Term Asset-Backed Securities Loan Facility (TALF), a \$200 billion–\$1 trillion program that was created to restart the free flow of consumer credit in the economy. Under the original TALF, the Federal Reserve has been providing nonrecourse loans to support the purchase of securitized car loans, credit card loans, college loans and Small Business Administration loans. The goal of the program is to drive up the value of these loans and thereby force down the interest rates charged to consumers.

The term *nonrecourse* turns out to be incredibly important to understanding government involvement in any of these proposals. In daily life, most loans investors experience are backed by collateral (a house, a car, a pool of securities in a margin account), but the borrower is still liable for the debt, regardless of whether the collateral is taken by the lender. A "nonrecourse" loan means that the only thing the lender (in this case, the government) can do in the case of default is take the collateral. Nonrecourse loans are a tremendously good deal for the borrower, to say the least.

The PPPIP Legacy Securities Program extends this program to cover all nonagency MBSs that at one time enjoyed an AAA rating, a category that includes some "toxic" debt. Extending the TALF facility to nonagency MBSs means that a large investor—a hedge fund or bank for instance—can buy the securities using money borrowed from the government, and limit their potential liabilities should their investments deteriorate to the point that they can't pay back the debt. The government's sole recourse is becoming owner of the assets purchased by the investor.

For the second half of the PPIP Legacy Securities Program, the U.S. Treasury will identify a select number of private fund managers that can raise private capital to invest in the MBS market. These managers must be experienced operators in the MBS market and must also have the ability to raise significant amounts (>\$500 million) of private capital to invest. Once they raise the capital, the Treasury will invest alongside the manager on a one-for-one basis. In addition, the government will provide loans to these managers allowing them to lever up their exposure. The Treasury is considering three different means for how this leverage will be delivered:

- 1) Leverage would be added solely through the Legacy TALF facility, as described above, or other non-PPPIP Treasury programs.
- 2) Treasury would provide senior secured treasury debt financing worth 100% of the total capital of the fund, with no additional leverage permitted.

- 3) Treasury would provide unsecured debt financing of up to 50% of the total capital of the fund; in addition, managers could also tap into the Legacy TALF and other Treasury facilities to obtain further leverage.

Regardless of which method is eventually chosen, the end result will be the same: the Treasury will invest alongside the private investors on a one-for-one basis, and investors will be able to leverage up their purchases with some sort of government loan, likely at least in part a nonrecourse loan.

The flip side for institutional investors accessing all this plentiful government capital is that they must lock up their money for three years.

If this sounds a lot like the government financing the creation (and co-investing in) massive MBS hedge funds, that's because that is precisely what this is.

The other half of PPPIP, the Legacy Loans Program, is somewhat simpler, and provides a potentially higher level of leverage. Under this program, commercial banks would identify illiquid mortgage debt (not already-structured securities) that they want to sell. Private investment groups would then bid on the right to purchase that debt, with the highest bid winning the right to buy. The Treasury would invest on an equal basis with the private investors, on a one-for-one basis. The FDIC would then offer nonrecourse loans allowing investors to leverage up their exposure on a six-to-one basis.

The critical thing about both plans is that the government—be it through the Fed, Treasury or the FDIC—will make loans to investors allowing them to lever up their exposure while putting additional government capital at risk. If the loans go sour, the government will be left holding toxic MBSs, the collateral that will back the loans.

That may sound like a raw deal for the government, but remember, the goal of this program is to entice private investors to move into the toxic MBS market. If the government didn't provide attractive financing, what would be the point? Moreover, the government has yet to set the terms for these deals. Interest rates have not been set on the loans. And more importantly, the value of the collateral being lent against would be subject to some level of "haircut"—a discount likely in the range of 5-20%, which acts as a small amount of insurance for the government, effectively marking down the asset ahead of time. The government can either be generous, or punitive, in terms of where it places this haircut. So far, it's only said that it will be aggressive from the point of view of normal economic environments, but lenient compared with the crisis situation we're in today.

The ETF Solution(s)

While Treasury was developing the PPPIP program, ETF companies began working on an alternative.

The foundations of these alternative programs formed earlier this year, when Invesco PowerShares filed papers with the SEC to launch two new ETFs:

- The Prime Non-Agency RMBS Opportunity Fund
- The Alt-A Non-Agency RMBS Opportunity Fund

These would be the first ETFs to target nonagency residential mortgage-backed securities (RMBSs). PowerShares' Chief Executive Bruce Bond minced no words in his public statement regarding the filing:

"We believe that various economic factors have converged to push the prices of many Prime and Alt-A residential mortgage-backed securities well below their fundamental values. We are hopeful that these ETFs will provide access and transparency into these markets along with some of the much needed additional liquidity originally intended by the TARP."

Of course, this initial filing does not cover the toxic ETFs described above. PowerShares' filing targets only the two top credit categories in RMBS—Prime and Alt-A—and only focuses on the top tranches in each of these market categories. These senior and super senior markets still have good liquidity, and the markets for them (while likely depressed by forced bank selling) are still relatively intact. While these classes of securities aren't the picture of capitalist health, neither are they "toxic."

Still, it raised an interesting idea: What if you could package together the truly toxic debt into ETFs and trade them on the open market?

The products would open the market to a whole new class of investors currently excluded from participation in PPPIP: individuals.

In addition, *if* the ETFs were successful, they would create liquidity in the underlying securities, because investors would have to trade those securities into and out of the ETF to allow it to function properly. Investors would demand transparency so that they could know what they were buying (ETFs publish their holdings on a daily basis). And the ETFs themselves could become the source of price discovery, with trading of the ETF shares providing a live, liquid market where "mortgage-backed securities" as an asset class could be properly valued.

Over the past two months, two such plans have emerged: One from Murray Stahl (CEO of Horizon Asset Management) and Robert Holderith (CEO of Emerging Global Advisors) called the "Stahl plan," and one that traces back to PowerShares itself.

Both plans, if successful, would achieve the core goal of getting these securities into an ETF structure and getting them out into the public. They share many similarities, as well as a few differences. It's worth reviewing them here to try to uncover the most promising aspects—and the flaws—of both plans.

The Stahl Plan

The Stahl plan begins with the federal government engendering a critical change in the subprime MBS market. The Treasury, with Congress' approval, would agree to make all interest income from primarily short-term MBS securities tax-free, provided that the creditor extend the terms of the loans to "reduce the interest burden or extend the time of principal payment" for the borrower. In other words, if the banks agree to make it easier for mortgage holders, the government will make it easier for the banks, by boosting the value of their MBSs by making interest payments tax-free. Of course, the government will lose revenue due to the tax forbearance.

Once this change is in place, the government would then suspend the mark-to-market accounting rule until "a viable public market ... (is) established with proper price discovery." The thinking is that the changes (extending the terms and making interest payments tax free) would eventually boost the value of these securities, encouraging private capital to flow into the markets. Once this new market is established, the mark-to-market rule would be reinstated and bank balance sheets would look healthier.

The Stahl Plan: Key Provisions

Interest payments tax free if mortgages are modified

\$4 billion for 10 ETFs

Treasury monitors creations

Government shares in expense ratio

To help foster the development of this active market, the Stahl plan turns to ETFs to spark trading and private interest in MBSs. The Treasury would create an ETF Committee, supervised by the Secretary of the Treasury and the Chairman of the Securities and Exchange Commission, to oversee the development of this market.

The Treasury would decide which banks could participate in the ETF program. It would then set aside \$4 billion, which would be used to purchase largely performing, less toxic MBSs from banks. These MBSs would be broken down into six credit categories (AAA, AA, A, BBB, etc.), and purchases would be made so that they broadly reflect the best-known indexes in the MBS space: the ABX indexes.

The Treasury would then enlist 10 managers with expertise in the MBS space to manage these assets on behalf of the government. Each manager would receive \$400 million worth of the securities, comprising a blend of different credit levels. These managers could then buy and sell securities to create the most attractive portfolios. ETF shares would be sold to the public, and the money returned to the government, shifting ownership from the public sector back to private investors.

In the future, the Treasury and commercial banks could identify other MBSs that would fit into the ETF structure, subject to various credit quality screens, etc. Rather than receiving cash, the banks would receive shares in the ETFs, which they could then sell on the open market.

Under the Stahl plan, the government would receive a portion of the expense ratio paid for managing the ETF ... say, 10 basis points (0.10%) out of a total fee of 25 basis points (0.25%). This would help offset some of the lost revenue from making the interest income tax free.

The PowerShares Plan

According to widespread reporting in the financial media, PowerShares itself is working on an alternative plan that will build on its original MBS ETF filing back in January of this year.³ The PowerShares plan shows some key similarities and some key differences with the Stahl plan.

Under the PowerShares plan, the government (or possibly banks) would support the creation of a series of MBS ETFs targeting several different points of the credit spectrum:

- Prime, Alt-A and subprime
- AAA, AA/A and junk (BBB or lower)
- Different tranches within each category

The government would seed the creation of these ETFs by providing \$10 billion for each category. It could either make that contribution in cash, or it could deposit some of the nonagency securities it already holds at the Fed, Fannie Mae, Freddie Mac and other government or pseudo-governmental organizations, including some of the MBSs it acquired through the initial TARP purchases. It would receive shares in the ETF in exchange, and would work with market makers to make those shares available to the market based on demand, eventually recouping some or all of its initial outlay.

The PowerShares Plan: Key Provisions

- Active management of the ETFs
- Interest income on subprime MBS ETFs would be tax free
- Government guarantee of principal at some level
- ETFs at multiple tiers and credit qualities
- \$10 billion seedings to push liquidity

If the government contributed cash, the manager of the ETF would use the money to purchase MBSs at the appropriate credit level to create the ETF. Either way, the securities would be actively managed in the fund, with managers on the lookout for the most attractive MBSs.

Critically, any mortgage-backed security entering the ETF would immediately receive two special dispensations from the government: First, as in the Stahl plan, its interest payouts would become tax deductible; second, the government would provide some sort of guarantee against losses in the portfolio, similar to those that are offered in the current PPPIP through the use of nonrecourse loans.

Once the \$10 billion worth of ETF shares was created, market makers would be tasked with finding a market for those securities. They would test the market at a given price, and if they didn't find demand, drop the price until they did. If the securities came to market with an implied 8% tax-free yield, for instance, and there weren't enough demand, the market makers could lower the price to raise that yield until demand emerged ... 9%, 10%, 11%. At some point, the thinking goes, the tax-free yield and limited principal protection would be enough to entice investors into the space, allowing

³ It's important to reiterate that the plan discussed here has no bearing on the existing PowerShares filings, which focus on the relatively liquid markets for senior and super-senior, high-quality RMBS.

the market makers (and by extension, the government) to sell out the full \$10 billion allotment. (There is a risk that the upside on the ETFs may be limited at first, due to the significant overhang of supply.)

The goal of the large seeding would be to create a large enough market for each ETF so that the market could immediately support both retail and institutional participation. In addition, it is hoped that these large-scale markets would foster strong liquidity and trading in the ETFs themselves, allowing the ETFs to essentially become “the market” for MBSs.

The Creation/Redemption Problem

As attractive as these ideas are, they are not without risks, the largest of which stems from the so-called “creation/redemption” process. This process deals with how new ETF shares are created and destroyed, and it is critical to the proper functioning of the ETF market.

What is the creation/redemption process?

The best way to understand the creation/redemption process is to understand how it works in a simple ETF, such as the S&P 500 SPDRs (NYSE Arca: SPY), the largest ETF in the world.

SPY aims to track the performance of the S&P 500 Index. It does that by holding all 500 stocks in the index in exactly the right proportions. Throughout the trading day, the sponsors of SPY publish an “indicative NAV” or “iNAV,” which reflects the per-share value of the fund’s underlying holdings; i.e., the value if SPY sold all its positions in all of the S&P 500 stocks and distributed the proceeds to shareholders. At the end of the day, the sponsor produces a final net asset value, or NAV, using a firm calculation of the value of all 500 components.

In theory, the ETF should trade close to the iNAV throughout the day and should end the day trading near the true NAV. However, if there is large buying pressure on the ETF, the price of the ETF may temporarily rise above the underlying value. When this happens, an institutional investor called an Authorized Participant (AP) can create new shares of the ETF at NAV to capitalize on the difference.

To do this with SPY, they buy up shares of all 500 stocks in the S&P 500 stocks in exactly the right proportions and deliver them to the ETF company. In exchange, the ETF company gives them shares of the ETF, priced at NAV. They can then sell those shares into the market and profit on the difference. This has the salutary effect of driving the price of the ETF back down to its NAV.

On the flip side, if selling pressure forces the price of the ETF below its NAV, the AP can buy a large block of ETF shares on the open market and turn them into the ETF sponsor. In exchange, they’ll receive the full NAV paid out in shares of each of the 500 underlying stocks. The AP can then sell those stocks in the public market to profit on the difference. The fact that an AP must buy shares of the ETF has the salutary effect of driving the price of the ETF back up toward its NAV.

Creation/Redemption In The MBS Market

In theory, the process would work the same under either the Stahl or PowerShares plan. Throughout the trading day, the managers of the ETF would calculate and publish the fund’s iNAV. This iNAV would represent the real-time, per-share value of the underlying MBS that it holds.

If buying pressure pushed the price of the ETF above the NAV, banks could profit by creating new shares at NAV and selling them into the inflated market. To do that, they would have to buy up an appropriate package of MBSs and deliver it to the ETF provider. Alternatively, a bank could take MBSs that it already holds on its books and deliver these to the ETF provider. Either way, the loans would be evaluated to ensure they met the standards of the ETF, and the AP would receive new shares of the ETF priced at the NAV.

The process would work similarly in reverse: If there were significant selling pressure on an ETF, and its share price dropped below the stated NAV, an AP could redeem shares of the ETF to make up the difference. To do this, they would buy shares of the ETF on the open market and then deliver them to the ETF provider in exchange for the underlying MBS. It could then either sell those MBSs or hold them to arbitrage the value difference. Alternatively, the PowerShares model *may* provide the option for the MBS to be exchanged for cash, a critical distinction that is explored below.

What's The Problem?

The first is liquidity. For the creation/redemption mechanism to function well, the underlying securities must be reasonably liquid.

It's easy to understand why. Suppose there is a large amount of selling interest in an ETF, which pushes the price of that ETF below its NAV. An enterprising AP buys shares of the ETF and delivers them to the ETF sponsor in exchange for the full NAV value. In the typical model, this is paid out "in-kind"; i.e., in shares of the underlying securities.

To complete the arbitrage process, the AP must go out into the market and sell those securities. But in order to sell those securities, the underlying market must be liquid. If an AP cannot effectively sell the underlying securities—or, alternatively, if they cannot cheaply hedge their position in the market—they will be unlikely to do a redemption. Instead, they will just wait until the ETF is trading at a large enough discount to NAV that they see the arbitrage profit as a lock. The liquidity of the underlying is directly related to how large that discount to NAV must be before the AP acts.

We do have some history of ETFs operating in illiquid environments. In 2008, when the credit markets froze up, various bond ETFs (particularly high-yield funds) traded at huge variance to their NAVs, because APs couldn't count on their ability to sell the underlying bonds that the ETF held.

This created a problem because it meant that regular ETF investors couldn't count on receiving anything like NAV when they sold their shares. ETF providers argued that the ETFs were actually doing a better job of pricing the market than the illiquid NAVs, which were based on "fair value estimates" of what the illiquid underlying securities were worth. It's an interesting topic for debate, but to even consider the possibility that the ETF will "set the market," you first have to create enough liquidity in the ETF itself to drive the market forward.

The two ETF plans take different approaches to addressing this problem. Under the Stahl plan, competitive bidding between different ETF providers would help drive liquidity into the market for the underlying MBS. The banks would be bidding against themselves to create the most liquid portfolios, and so, there would be a live market for the underlying securities.

The PowerShares plan flips that on its head and tries first to drive liquidity into the ETF itself. The key feature of the PowerShares plan is the huge initial funding—\$10 billion per ETF—and the government minimum value guarantee.

The PowerShares proposal may also allow for cash redemptions, with either the issuing bank and/or the government standing behind the offering and willing to redeem at NAV as the “buyer of last resort.”

This, ultimately, seems like an end requirement to ensure that the market functions properly. At some point, someone has to be willing to transact, in cash, for the illiquid assets, at the established NAV.

The hope in both plans is that, once the market is established for the ETFs, it will drive liquidity into the underlying securities, and the traditional creation/redemption mechanism will function.

What NAV?

Which raises the next major question: What NAV?

To function, an ETF has to have both an intraday indicative net asset value or iNAV, and an end-of-day NAV at which creations/redemptions can occur. These NAVs reflect the value of the underlying securities. But part of the problem with toxic MBSs is that they do not trade actively and thus their value and price are difficult to discern. So the question becomes, how do you create a NAV for a fund whose securities don't trade very often? No one knows what they're worth!

If this sounds redundant, it's because it's a classic chicken/egg problem: You need ETFs to create liquidity and generate accurate pricing in the MBS, and you need the liquidity and accurate pricing in the MBS to support the ETF.

The hope, again, is that the offer price on these ETFs can be adjusted lower by the market makers until they find an appropriate price in the marketplace, one that will engender demand.

Will It Work?

The ETF concept is very appealing. Launching MBS ETFs would bring an entirely new class of investors into the market for MBSs. Paired with new rules that would make interest payments on the MBSs interest free, it would help boost prices closer to the point where they reflected the ultimate values of the underlying real estate in a meaningful way. Most importantly, it could also break the logjam of illiquidity in this market by fostering trading in the underlying securities.

But there are real concerns. How do you handle liquidity in the initial phases of the launch to support a liquid creation/redemption basket? How do you ensure investor demand so that the product succeeds? And how do you accurately price the funds to create a believable NAV?

In evaluating both plans, one might start by pulling the best ideas from both to arrive at a potential solution. Some areas that are appealing are:

- **Tax-free income:** There is agreement in both plans that a good starting point is to make interest payments from the MBS tax free. This will both raise the value of the MBS (to prevent banks from being declared insolvent) and boost interest in the eventual ETFs. It's unclear if MBSs would have to participate in the ETF scheme to qualify for this tax treatment, or if the tax-free status would be conferred on all MBSs.
- **Loan modification:** The concept in the Stahl plan that would modify all loans that receive tax-free status makes a great deal of sense. Ultimately, the system will be best served if the actual asset owner at the end of the chain makes their monthly payment. By automatically extending out the maturity of these mortgages in exchange for the tax-free change, you lower the required monthly payment and provide some buyer relief.
- **Government involvement:** The PowerShares plan would have the government seed the launch of these ETFs by providing at least \$10 billion per ETF, either through cash or through its own MBS. This is much more aggressive than the Stahl plan, which would allocate just \$4 billion spread across 10 ETFs. The larger scope means more government involvement, but is worth considering in that it could boost liquidity and help attract institutional investors to the space. Since the Fed already owns many of these assets—and the government has already established that it is willing to put significant capital at risk to support these markets—neither the scale nor the implied involvement is outside of consideration.
- **Cash or in-kind redemptions:** The problem of redemptions and liquidity is solved if you allow cash-based redemptions, which the PowerShares plan appears to consider. If an AP can exchange their ETF shares for cash, then the redemption mechanism should keep the ETF trading in line with NAV perfectly. The risk, however, is that someone has to stand behind the ETF—and the declared NAV—with cold hard cash. Someone has to be the buyer and holder of last resort. That could either be the issuer, standing behind the NAV it calculates and distributes each day; or it could be the government.

The most critical moment would be shortly after the products launched, when the need to jump-start liquidity through the creation/redemption mechanism would be greatest. There

are real questions, of course, about whether banks would be willing to participate in the program if the price of the ETF were lower than the value of the assets they were carrying on their balance sheets.

- **Government guarantee:** The PowerShares proposal considers having the government create some sort of floor on ETF share prices. This would certainly give investors added comfort regarding the value of these securities. It would put the government on the hook for losses, but may be necessary to spark confidence and interest in the MBSs (and by proxy, the ETFs). Note that through PPPIP, the government is affording a similar kind of loss limitation for investors.

Can ETFs Be Integrated With PPPIP?

As attractive as the two ETF possibilities are, a third avenue presents itself: What if ETFs could be used inside the PPPIP structure? A few tweaks might be necessary, but it's not inconceivable.

Suppose, for instance, that the Treasury selected an ETF manager as one of its five targeted managers for the Legacy Securities Program. The ETF manager would be tasked with raising significant seed capital to jump-start the ETF: To fit the predefined parameters of the program, they would need to raise \$500 million. That would be unusual for an ETF, but it's not impossible; the ETF industry has a variety of mechanisms available to it to raise money for fund launches.

Once the money was raised, the Treasury would match the ETF one-for-one, providing an additional \$500 million in investment. This could either be provided prior to launch, or, more intriguingly, the government could use this \$500 million facility to support cash creations and redemptions. It would, in essence, be co-sponsor of the fund, acting as the buyer of last resort, and willing to transact at the stated NAV at any time.

Meanwhile, the ETF might also have access to a government-supplied nonrecourse loan, which would allow it to lever up its exposure to the market, while limiting downside in the fund, making it more attractive to investors.

To be sure, there would need to be other tweaks: There would need to be a facility to add new securities to the fund on an ongoing basis. If leveraged were used, there would need to be a way to facilitate adding leverage on an ongoing basis too. And investors would be allowed to trade in and out of the ETFs at will, in contrast to the three-year lockup in the PPPIP program.

Conclusion

None of these proposals is perfect.

There are serious concerns about liquidity, the level of government guarantees and the issue of how to create a NAV for something that is illiquid and tough to price.

Both the PowerShares and Stahl plans would use the world's leading mortgage experts to evaluate the securities and put an initial price on them, and then use market forces to feel out what price will be supported real time. That may be the best we can do at this point, but given the critical role that NAV plays in the creation/redemption process, it becomes a risk. What if the private market doesn't materialize? What if the initial trading is lumpy? What if the creation/redemption process breaks down and the funds trade with huge spreads?

It's entirely possible that the problems with these platforms are unsolvable, and that there is too much risk to follow through and launch an investable asset. It's equally possible that the concept of integrating ETFs into the PPPIP structure is too difficult.

But the concept of using ETFs to solve a major financial crisis is not new. In August 1998, in an effort to stem a panic in its equity markets, the Hong Kong government entered the market and acquired a large portfolio of common stocks. The effort succeeded in stabilizing the market, but left the government in the uncomfortable position of holding a significant share of that market's publicly traded corporations.

In October of that year, the government began searching for a way to gradually liquidate its portfolio without significantly harming the market. Its solution was ETFs. Specifically, the government partnered with State Street Global Advisors Asia Ltd. to form the Tracker Fund of Hong Kong. It organized an IPO for the fund in November 1999, raising \$HK 33.3 billion. Eventually, the government was able to unload more than \$HK 140.4 billion to the public through offerings of the fund. It remains one of the most popular ETFs in Asia to this day.

Could ETFs offer a similar solution here in the U.S.? Possibly. We're nearly a year into this crisis and no one has found a way to solve the core problem of toxic MBSs. The PPPIP proposal offers one alternative for finding a way to let private capital invest alongside public capital, but PPPIP has serious problems. For one, it is extraordinarily complex. It also relies on a limited number of market participants to act in price discovery and (perhaps most importantly) restricts the types of investors who will be able to invest in these products to institutions and the highest of high net worth individuals. It also engages in significant government guarantees via nonrecourse loans, and it is unclear if investors will be willing to participate.

Proposals have been floated to create traditional mutual funds as a way of allowing everyday investors to participate. But traditional mutual funds come with their own problems: They would be priced once a day based on the issuer's evaluation of the net asset value of the securities, which (as discussed above) is highly subject to debate. And because mutual funds do not provide any real transparency

into their holdings, investors would be left relying on the bank to make fair evaluation of NAV. It's a risky proposition for investors, to say the least.

ETF-based solutions would tackle the problem with transparency, while still allowing all investors to participate in the upside. And if they worked, they would drive liquidity directly into the underlying securities in a way that mutual funds do not.

As such, we believe an ETF solution is worth consideration. It may not be *the* solution, and there are real issues. But it is worth discussing as a *part* of what will inevitably be a multiplatform solution, which involves the concerted efforts not just of financial innovators, but regulators, investors, banks, market makers and individuals.

This report has been prepared by Matt Hougan & Dave Nadig of IndexUniverse.com, the leading independent authority on ETFs. For further information, please contact mhougan@indexuniverse.com.