



Caveat Emptor: Capital Rules and Deleveraging Can Make “Bargain” Banks Expensive

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The stress tests of the European Banking Authority (EBA) last year led to the conclusion that numerous banks, including major listed banks, would need additional capital to support the continuation of existing activities. Official estimates started low, but eventually converged on over 100 billion euros for the banks; even these numbers seem low compared to the real needs if banks were to maintain their former book of business, as enumerated in my earlier study.¹ The numbers seemed much larger than what the markets or the banks’ home countries could provide, and the prices of bank stocks tanked at the end of 2011.

In response, the authorities took a number of measures, particularly focused on liquidity and the conclusion of a Greece sovereign debt restructuring. For a while those measures restored the stock markets’ confidence, marked by the sharp rise in prices for bank stocks through the middle of March this year. With the subsequent softening, bank stocks might again seem tempting to investors on a variety of metrics, including price to book (PBR) and price to pre-provision operating profit (PPOP).

Yet my conclusion is that the markets remain too sanguine about the valuations of banks. Even the European authorities are not entirely convinced that they have stabilized the situation.² Macroeconomic adjustment, deleveraging, and the various capital, leverage, and liquidity rules that will come from round three of the Bank for International Settlements (BIS) rules imply new constraints on both banks’ assets and funding. That should translate into returns on equity that are likely to be sharply reduced in the future, even after the various write-offs of bad property loans and inappropriate exposures to sovereign debt have been resolved. This white paper will present scenarios showing how valuation is affected for a variety of factors including capital structure and leverage, and then apply those scenarios to the banks of various nations in the developed world. At the current stock market levels, that translates into price to equity ratios (PERs) that range from the slightly cheap to the oft-mentioned “fully valued,” which usually translates into “too high,” even though PBRs appear to be at a substantial discount.

A Simple Model for Valuing Banks

Banks have long served as the intermediary, transforming the short-term payments instrument that depositors prefer into the longer-term loans and other assets that borrowers need. One function of bank capital is to assure depositors that they will be able to retrieve their money when they want it. Likewise, it has long been realized that a capital buffer would be needed to cover losses on loans. Over time this was supplemented by deposit insurance from the central authorities, in an attempt to reduce the likelihood of bank runs. The availability of insurance creates adverse incentives, tempting banks to “go for broke,” especially when the existing portfolio has substantial, albeit implicit, losses. If scenarios with positive outcomes turn up, the managers continue to run the bank; if unsuccessful, the

¹ Richard Mattione, “You can bank on it: European banks will need tons of money,” December 2011.

² “Crisis is not over, EU reports warn,” *Financial Times*, March 31-April 1, 2012.

government pays. The BIS rules address this problem with stricter requirements on capital, leverage, and liquidity, so that banks are less at risk when adverse outcomes result.³

The model used here to explore bank valuations combines the normalized return on assets (ROA) for banks with an expected rate of non-performing loans (NPLs) to characterize the lending and investing operations of a bank. This provides a measure of the earnings at a bank, which are presumed to be the ultimate item of interest to potential equity investors. The value of that earnings stream should be equal to the value of the equity of the bank, because by using net margins one is already adjusting for the payments to creditors, whether on insured deposits, uninsured deposits, bonds, subordinated debt, etc. One thing we have done for convenience: the costs of operating the bank have already been subtracted from the net interest margin in using the ROA, rather than modeling each separately.

The extra feature resulting from the BIS rules is that, no matter what that earnings stream is theoretically worth to equity investors, the BIS rules mandate a minimum Tier I capital requirement supporting that balance sheet. If the existing balance sheet includes enough capital to meet those standards, the valuation is done. If not, the bank must go out and raise more equity to support that balance sheet, or at least retain a larger than planned share of earnings, which detracts from the value of that earnings stream to existing investors. The other alternative is for the bank to shrink its balance sheet to satisfy the BIS requirements, but that of course shrinks the earnings stream for existing investors, reducing the market value of the bank. The model likewise can incorporate a bank's decision to deleverage, any future BIS leverage rules, and the promised but less clear liquidity rules. Not all parts of the Basel III evolution are well defined yet, so we will discuss some practical methods of modeling them below.

Despite the many rules and situations that might result in the real world, I believe only two things really matter in valuing a bank: the earnings stream available and with how many equity investors one must share that earnings stream.⁴ In the case of a bank that is undercapitalized by BIS rules, one will either share with more investors than are currently in the stock, or the earnings stream must shrink while the asset base contracts so that no other investors need to be tapped. My aim is to find a justifiable valuation with the stylized model outlined below.

For the time being I shall set aside problems of deleveraging and deposit flight, and instead assume that the bank's previous book of business continues to be pursued. Once conditions return to normal, that business has earnings that can be expressed as a return on assets, net of operating costs, and a normal level of charge-offs for nonperforming loans. And, in preparation for later variations on this model, I will assume that there is a mix of assets requiring capital and those exempt from capital requirements under Basel III.

A Starting Point

Let's start with a standardized bank that has risk assets of 100 euros and total assets of 125 euros, along with a current capital base of 7.5 euros, which for now we shall assume represents both its book value and its calculated capital under the Basel standards (see Exhibit 1). The bank makes a return on those assets, post operating costs, but also has normal charge-offs for nonperforming loans. We will assume that risky assets have an ROA of 1.25%, risk-free assets an ROA of 0.5%, that charge-offs amount to 25 basis points per year on all assets, and that the tax rate is 30%.⁵ Then this bank earns a PPOP of 1.375 euros per year, a post-provisioning profit of 1.06 euros per year, and an after-tax profit of 0.74 euros per year. Assuming a PBR of 1.0, the bank then has a P/PPOP multiple of 5.45x and a PER of 10.1x. These valuation measures might not look exorbitant, but neither are they cheap; in this paper I will mostly treat a PER in the range of 8x to 10x as a possibly neutral range.

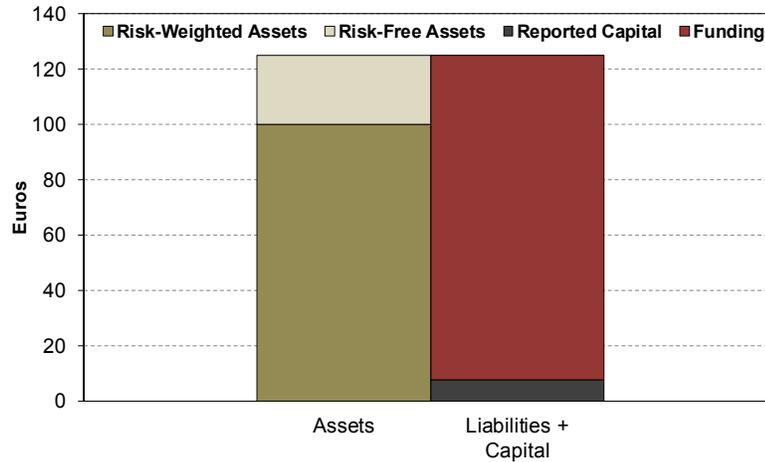
Unfortunately, the new capital standards require 9 euros of capital to support this book of business. Perhaps this does not fluster investors: the capital can be raised at the current price, so the PBR stays at 1.0x. The new capital raising

³ Though many object that implementation of such measures during the downturn makes regulation pro-cyclical rather than contra-cyclical.

⁴ Some might add a third consideration, the risk that loans default. But this will translate in any case into reduced earnings and possibly a greater need for capital; in the extreme case regulators close the bank, and all the earnings go to new investors, with no portion for old investors.

⁵ In the real world, assets have risk weightings between 0% and 100%: a full weight on most commercial loans, but 0% on most sovereign bonds, 20% on trade finance, 50% on various securitizations, and a variety of weightings on mortgages, while risk weightings on derivative books are imposed on a net rather than gross basis. But the complexity gained from modeling that here comes at no gain in understanding, so we model banks as if there are only two types of assets.

Exhibit 1: A Simplified Bank Balance Sheet



Source: GMO

has done nothing to change the bank’s book of business, so earnings, PPOP, and net profits are unchanged. But now 9 euros of capital, not 7.5, are sharing those rewards. Thus while the PBR stays at 1.0x with the conclusion of the deal, the P/PPOP multiple has advanced to 6.5x post deal, and the PER to 12.1x. Meanwhile, because extra capital is supporting the same book, the return on equity (ROE) has dropped from 9.9% to 8.3%. What had previously looked acceptable no longer does, so the price should go down.

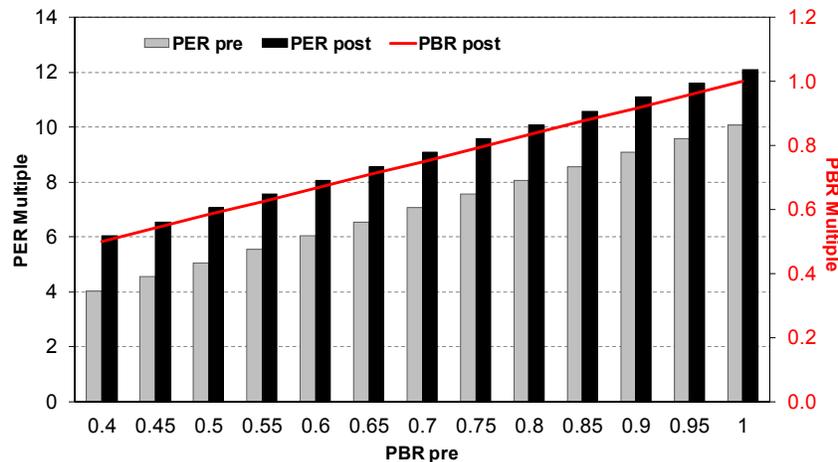
Varying the Initial PBR

Presumably investors know this, so the price should go down before the deal is concluded. As such, the interesting question is what pre-deal PBR might make investors happy. Exhibit 2 presents the same bank for a variety of PBRs ranging from 0.4x to 1.0x. At the cheap end of the range, a pre-deal PER of 4x still translates into 6.1x post-deal, so the extremely cheap valuations before the required capital raising look too cheap. But a middle of the range pre-deal PBR of 0.7x translates into a post-deal PER of 9.1x, not a very exciting opportunity for a post-deal ROE of 8.3%.

Varying the Initial Capital Shortfall

Of course, the capital shortfalls at European banks ranged from almost non-existent to flabbergasting last December, when the market was in such consternation. Exhibit 3 looks at the bank described above holding its asset structure

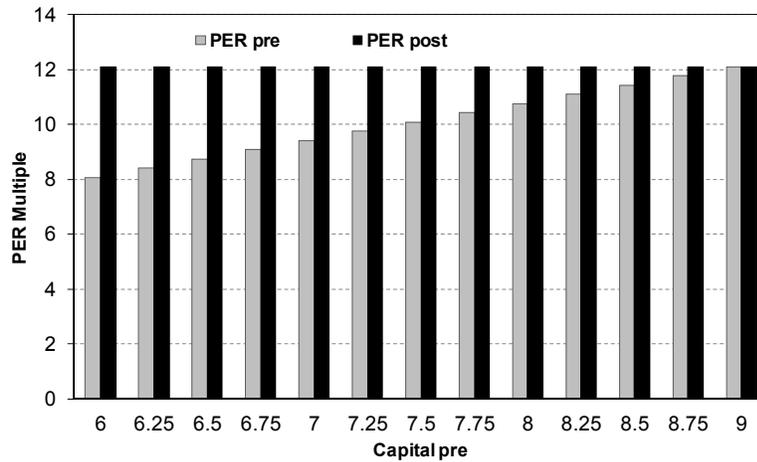
Exhibit 2: Varying the Initial PBR



Note: ROA of 1.25% on risky assets, 0.5% on risk-free assets, Tier 1 actual 7.5%, Tier 1 target 9%, PBR varies, normalized NPLs

Source: GMO

Exhibit 3: Varying the Initial Capital Shortfall



Note: ROA of 1.25% on risky assets, 0.5% on risk-free assets, Tier 1 actual 7.5%, Tier 1 target 9%, varying pre-deal capital, PBR 1x

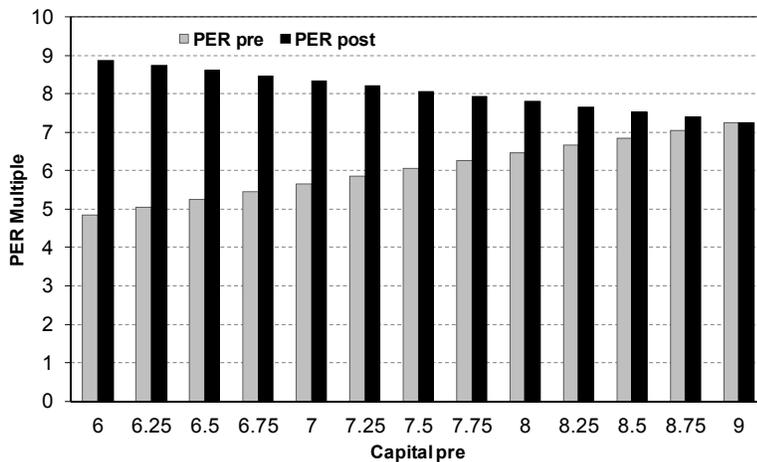
Source: GMO

constant but with a variety of initial capital positions. In all cases, 100 euros of risk assets and 125 euros of total assets need 9 euros of capital support, but the bank initially has measured capital of between 6 and 9 euros, so depending on the situation needs between 0 and 3 euros of new capital. This is the “normal” dilution scenario. A bank that has only 6 euros of capital will see new capital raisings equal to 50% of old capital, so a PER that started at 8.1x ends up at 12.1x post-deal, a valuation that seems too expensive. This bank should presumably trade at a PBR noticeably below 1x. On the other hand, if the bank starts with 8.5 euros of capital and only needs to raise another 0.5 euros of capital, dilution is just less than 6%, but the PER moves from a pre-deal 11.4x to a final 12.1x, so again the starting PBR seems too high. The problem in this case is that the ROE of 8.3% post-deal is too low to justify the starting PBR of 1x.

Exhibit 4 handles this by looking at a much lower starting PBR of 0.6x for the same bank. For the banks with the more extreme shortfall, 6 euros of capital when 9 are required, the seemingly cheap PER pre-deal of 4.8x approaches 9x after the deal, while the ROE is 8.3% post-deal, so this is at best an investment situation without much upside. But if the bank started with a more substantial capital base of 8.5 euros, again requiring only 0.5 euros of new capital, the post-deal PER is 7.5x (pre deal is 6.9x), rather more tempting though still with an ROE of only 8.3% post-deal.

One might object that if the regulatory authorities and the market show some forbearance, the bank can earn the necessary capital over the future years, so that investors have no reason to be upset, and thus no reason to look for

Exhibit 4: Varying the Initial Capital Shortfall



Note: ROA of 1.25% on risky assets, 0.5% on risk-free assets, Tier 1 actual 7.5%, Tier 1 target 9%, varying pre-deal capital, PBR 0.6x

Source: GMO

a PBR of less than 1x. But the bank that has merely 6 euros of capital would have to reinvest all earnings for more than 4 years to get to the same position as a bank that has 9 euros of capital today. Today's low real interest rates are unlikely to last forever, so again forbearance does not seem a good reason to be generous in the assessment of the appropriate price ratios for a bank.

Varying the Underlying Profitability of the Bank

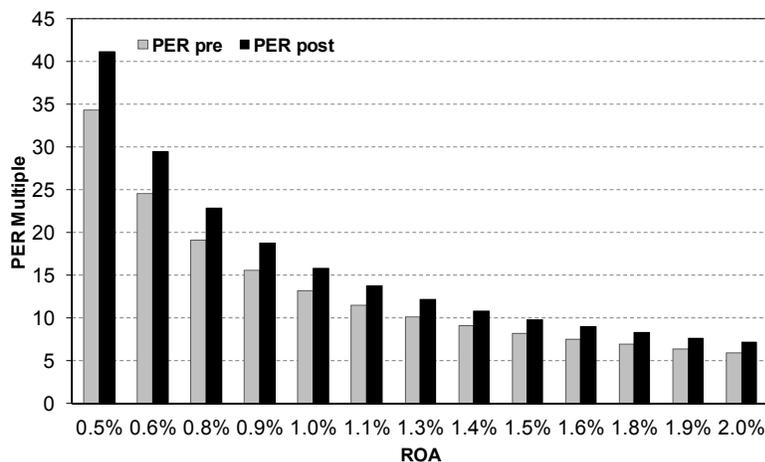
In fact, profitability varies widely across banks. Let's return to the original scenario of a bank with 7.5 euros of capital currently and 9 euros required, 100 of risk assets and 125 euros of total assets, but using a range of ROAs on risky assets from 0.5% to 2% (Exhibit 5). The ROA of 50 basis points corresponds to a pre-deal ROE of 2.9% and post-deal ROE of 2.4%, so at a PBR of 1x one is not too surprised to find out that both pre- and post-deal the PERs are also unattractive (34.3x and 41.1x). One hopes that this sort of a bank is a truly rare find in the real world, because its ROA barely exceeds the rate of nonperforming loans. How do some other scenarios look? Not too surprisingly, an ROA of 2% looks very good: the ROE exceeds 16.9% pre-deal and still hits 14.1% post-deal, and a pre-deal PER of 5.9x rises to a still modest 7.1x. In fact, one would probably be happy to purchase this bank pre-deal if the ROA were above 1.5% given the low NPL ratio because all of those scenarios correspond to a post-deal ROE above 10% and a PER below 10x.

Varying the Leverage

The bank we have been looking at so far is not very aggressive in terms of its leverage ratio, at least when compared to major global investment banks. For example, in the scenarios corresponding to Figure 3, the pre-deal leverage ratio was 16.7x, and the post-deal number was 13.9x. Banking authorities seem to be considering numbers of 20x or greater for the future BIS leverage rules, with various ways of calculating the figure that could prove fairly generous. So let's now look at how leverage affects our interest in this bank.

Now the bank has the same 100 euros of risk assets as before, supported pre-deal by 7.5 euros of capital with 9 euros required post-deal. But let's look at a number of scenarios for total assets, which correspond with a variety of leverage ratios (see Exhibit 6 for representative scenarios). For now we will use a PBR of 1x, and an ROA of 1.25% on risky assets and 0.5% on risk-free assets, while letting total assets vary from 100 euros up to 340 euros. This corresponds to pre-deal leverage ratios of 13.3x to 45.3x, and post-deal leverage ratios of 11.1x to 37.8x (20% dilution in all scenarios because we are using a PBR of 1x and a capital shortfall of 20%). The low-leverage bank is uninteresting pre- or post-deal, with PERs of 10.7x and 12.9x, respectively, and ROEs of 9.3% falling to 7.8% post-deal (Exhibit 7). But the highly leveraged bank appears a bargain, because an investor would not require extra capital if those extra assets were truly close to riskless. A pre-deal ROE of 14.9% slips to 12.4% after the capital raising, a pre-deal PER of 6.7x

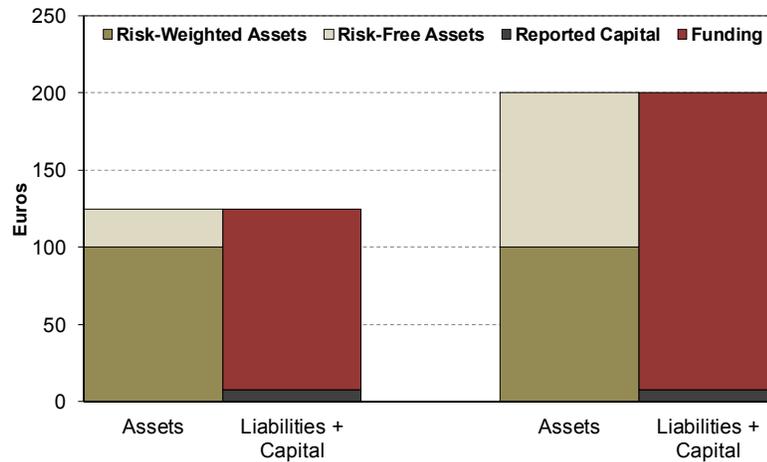
Exhibit 5: Varying the Underlying Profitability



Note: Tier 1 actual 7.5%, Tier 1 target 9%, PBR 1x, ROA varies, normalized NPLs

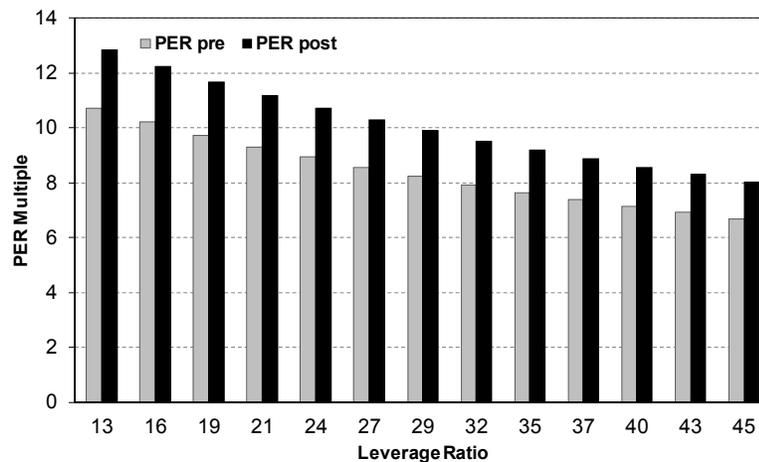
Source: GMO

Exhibit 6: Bank Balance Sheet under Varying Leverage



Source: GMO

Exhibit 7: Varying the Leverage



Note: Tier 1 actual 7.5%, Tier 1 target 9%, PBR 1x, ROA of 1.25% on risky assets, 0.5% on risk-free assets, leverage ratio varies, normalized NPLs

Source: GMO

climbs to merely 8x, and the P/PPOP ratio climbs from 3.1x to 3.7x. If all it takes is a little bit of capital to fix things and the world can return to its previously merry and leveraged ways, one should buy the more highly leveraged banks and get back to the business of coining money.

Imposing Leverage Ratios

The nature of the leverage ratio rules to be incorporated in Basel III remains unclear. For the time being we will model the rules in terms of gross leverage – total assets to capital – although there are ways to avoid leverage rules.⁶

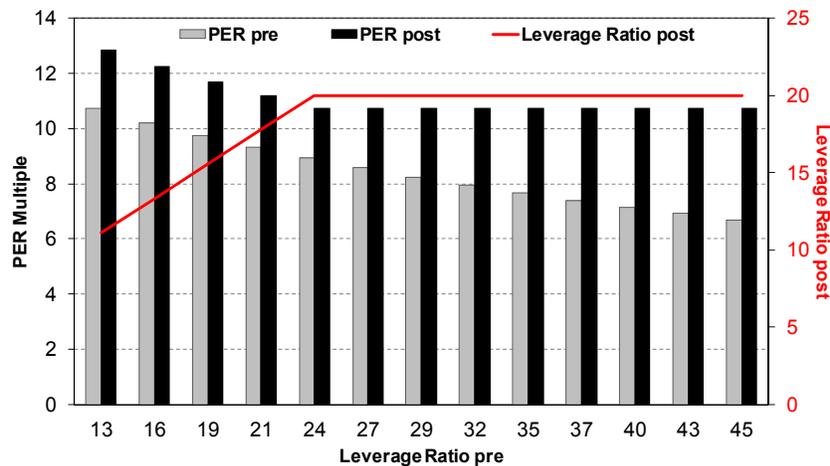
The next two scenarios will look at the imposition of leverage ratios in conjunction with capital ratios. We will start with the same bank as before, which has 7.5 euros of capital supporting 100 euros of risk assets, but a number of choices for the amount of total assets prior to the BIS III rules. After BIS III, however, the bank needs 9 euros of capital to keep the same 100 euros of risk assets, but is constrained to a gross leverage ratio of 20x to 30x post-deal capital. ROAs remain at 1.25% on risky assets and 0.5% on riskless assets.

⁶ For example, Deutsche Bank has restructured its U.S. operations so as to put the derivatives book in an entity outside of the bank holding company, and therefore outside of Basel III rules. “Deutsche Bank shields U.S. unit from Dodd-Frank,” *Wall Street Journal*, March 21, 2012.

For the case of a maximum leverage ratio of 20x, the banks are rather uninteresting in virtually any scenario (Exhibit 8). Post-deal ROEs range from 7.8% to 9.3%, because in over half of the scenarios the bank must dispose of assets (presumed here that it disposes of risk-free assets rather than risk-weighted assets, as that maximizes profits for the given capital and leverage constraints). Pre-deal PERs ranged as low as 6.7x and P/PPOP ratios as low as 3.1x, but post-BIS III rules, the best one can get is a PER of 10.7x and a P/PPOP of 5.5x. Few investors would be interested if the leverage ratio is merely 20x with these sort of ROAs and a PBR pre-deal of 1x.

The situation is less intimidating if a gross leverage ratio of 30x is allowed (Exhibit 9). Post-deal ROEs range from 7.8% for the low-leveraged bank to a more remarkable 11.1% for the banks at 30x post-deal because in few cases do banks have to dispose of assets. Pre-deal PERs still range as low as 6.7x and P/PPOP ratios as low as 3.1x, but now post-deal PERs are as low as 9x with a P/PPOP of 4.3x. So leverage from the good old days might make a bank attractive if ROAs stay high and there are no significant bad assets at the bank.

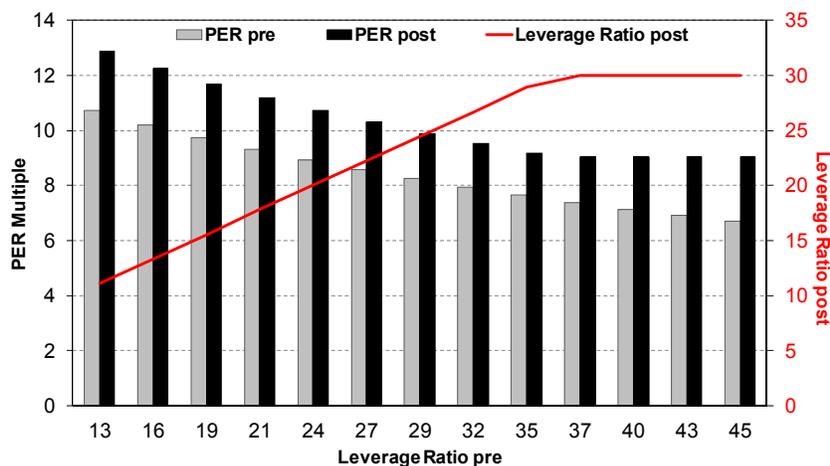
Exhibit 8: Imposing Leverage Ratios



Note: Tier 1 actual 7.5%, Tier 1 target 9%, ROA of 1.25% on risky assets, 0.5% on risk-free assets, normalized NPLs, leverage ratio capped at 20x

Source: GMO

Exhibit 9: Imposing Leverage Ratios



Note: Tier 1 actual 7.5%, Tier 1 target 9%, ROA of 1.25% on risky assets, 0.5% on risk-free assets, normalized NPLs, leverage ratio capped at 30x

Source: GMO

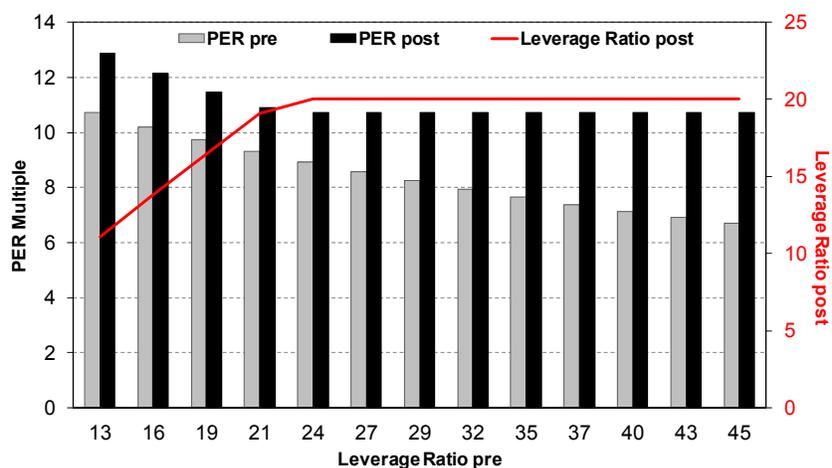
The Deleveraging Alternative

Banks have made it clear they hate to issue new shares. Some have sold the crown jewels to raise capital, others have been dragged kicking and screaming to issue new shares in the market, but in even more cases they have been shedding assets. The tendency to deleverage was reinforced by the difficulty of raising funds late in 2011.

For now we will not worry about the second-round effects of deleveraging on European and global economic growth, but rather focus on what it implies for the value of the banks that are doing the deleveraging. Let's continue with our prototypical bank, which has 100 euros of risky assets and a calculated capital of 7.5 euros. The regulators insist on a capital ratio of 9% by July 1 of 2012, and the bank now responds by shrinking assets instead of raising capital.

Suppose that market conditions or regulatory authorities impose a post-crisis leverage ratio of 20x on the bank. In this case the more leveraged banks face a sharp run-off of risk-free assets in addition to the contraction in risk-weighted assets. A bank that had 100 euros of risk-weighted and 200 euros of total assets pre-crisis must shrink this to 83.33 euros and 150 euros, respectively, post-crisis when there is no capital raising. This in turn lowers the ROE from 11.7% to 9.3% while raising the PER from 8.6x to 10.7x. Things are even worse for banks that had a greater degree of total leverage pre-crisis, as they must shrink assets more dramatically to get to total assets of 150 euros; the most extreme we have modeled here (which, in terms of leverage ratios, is in line with gross leverage ratios at some of the investment banks) see ROEs shrink from 14.9% to 9.3% and PERs rise from 6.7x to 10.7x (Exhibit 10). Deleveraging can indeed be painful and make pre-crisis ratios largely irrelevant.

Exhibit 10: The Deleveraging Alternative



Note: Tier 1 actual 7.5%, Tier 1 target 9%, ROA of 1.25% on risky assets, 0.5% on risk-free assets, normalized NPLs, leverage ratio capped at 20x

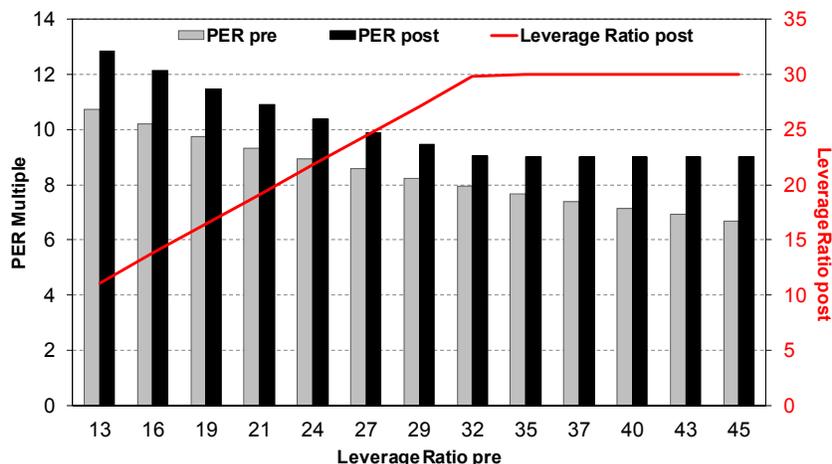
Source: GMO

A more moderate contraction to a leverage ratio of 30x has, not surprisingly, more modest effects. Banks in this case need to shrink the risk-weighted assets to 83.3 euros but only need to shrink total assets to 225 euros, so in many cases the profit shrinkage is limited to the reduced earnings from risky assets. For example, a bank that had 260 euros of assets pre-crisis has to reduce total (and risky) assets by only 35 euros; its pre-crisis ROE of 13.1% falls to only 11.1%, and the 7.7x PER based on pre-crisis earnings rises to only 9x. This might be tempting, albeit not cheap, to investors if leverage need not fall. The most leveraged banks still look unattractive, but not dramatically so. The most extreme situation modeled here (as in the previous scenario) starts with an ROE of 14.9% that shrinks to 11.1%, with a PER that rises from 6.7x to 9x (Exhibit 11). Not a great bargain at the PBR of 1x assumed in this scenario, but conceivable for those who expect business soon to return to “normal” with all forgiven for the banks.

The Whole Shebang

Finally we have modeled here several scenarios called “the whole shebang” for banks facing pressure on several fronts. Here the bank must write off book capital to reflect losses, is forced by regulators to restore the capital written

Exhibit 11: The Deleveraging Alternative



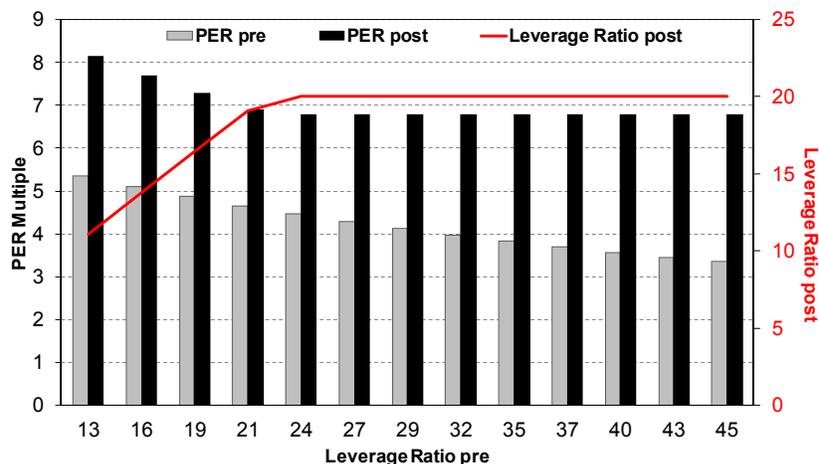
Note: Tier 1 actual 7.5%, Tier 1 target 9%, ROA of 1.25% on risky assets, 0.5% on risk-free assets, normalized NPLs, leverage ratio capped at 30x

Source: GMO

off, must shrink its risk assets to the newly restored level of capital, and must deal with leverage restrictions. This turns out not to be so pleasant. The assumption here is that the bank had reported capital of 7.5 euros pre-crisis with risk-weighted assets of 100 euros, that 1 euro of capital is written off in conjunction with raising 1 euro of new capital in the equity market, and risk-weighted assets shrink to a size consistent with a 9% Tier 1 capital ratio at the restored final level of 7.5 euros of capital. And, because the market presumably knows it will not be pleasant, we have assumed first a PBR of 0.5x pre write-offs and capital renewal.

Assigning a maximum leverage ratio of 20x post-recapitalization and balance sheet shrinkage, the pre-crisis ROEs that range from 9.3% to 14.9%, depending upon leverage, contract to a range of 7.8% to 9.3%, driven in most cases more by deleveraging than by recapitalization (Exhibit 12). The PBR rises from 0.5x to 0.63x without a movement in stock prices, reflecting the addition of new equity. The P/PPOP ratio that had ranged from 3x down to 1.5x at the leveraged bank pre-crisis ranges from 4.6x to 3.5x post-stabilization, and the PER that had ranged from 5.4x at the lightly leveraged bank down to 3.3x at the leveraged bank now ranged from 8.1x to 6.8x with the post-crisis fundraising. This may leave some room for price appreciation in the more leveraged situations, but only a modest amount; a PBR of 1x after the write-downs and capital renewal corresponds even in the leveraged situations to a PER of 10.7x.

Exhibit 12: The Whole Shebang



Note: Extraordinary write-off of 1% of assets, restore book capital, delever the rest, 9% Tier 1 and 20x leverage cap

Source: GMO

Allowing for a final leverage ratio of 30x helps somewhat, in that the ROE in the more leveraged scenarios shrinks to only 9.1%, while the PER is 6.9x and the P/PPPOP ratio is 3.1x. This bank might be tempting to investors, but only because it is running a rather highly leveraged book post-crisis, helped by the assumption that ROAs can stay high post-crisis.

Banks in the Real World

No bank in the real world matches any one of these scenarios perfectly, but most can be fit within the range of “theoretical” scenarios posited above.

Perhaps the first thing to tackle is the Long Term Refinancing Operations (LTROs) of the European Central Bank (ECB). While the LTROs do not appear to have stopped deleveraging at European banks, they at least reduced the amount of deleveraging, allowing banks to run a somewhat larger book than seemed possible in the more dire moments at the end of last year. In the context of the deleveraging scenarios above, it appears that the LTROs can make it possible to justify values for banks with relatively healthy loan books even in a deleveraging environment if the knock-on effects on the macroeconomy are controllable. The one disappointment in the LTROs is that Italian and Spanish banks seem to have used some of the proceeds to buy sovereign bonds. An attempt to play the yield curve to restore capital positions has been part of bank workouts in the past, but does not seem very wise in the current situation when the credit status of the sovereigns themselves has been called into question.

What about banks in specific countries? Greek banks are likely to have very heavy capital depletions for bad loans, probably far in excess of the scenario modeled above, with little opportunity to run a very leveraged book for years, if not decades. In addition, holding a restructured Greek sovereign claim with several decades to maturity and an interest rate of a mere 4% is not likely to result in ROEs as attractive as the bad scenarios modeled above. For these equities there may be a positive price, but only if the clean-up results in most of the bad loans being lifted from the banks and placed onto the sovereign, and that would hardly solve Greece’s sovereign debt problem.

In Ireland, the Irish government rode to the rescue and turned a banking problem into an Irish sovereign debt problem that, while on its way to resolution, poses daunting challenges to the Irish banks. With so much Irish bank equity likely to become available at some point in the future as the government tries to reduce its holdings, a modest multiple seems appropriate for Irish banks. But in Ireland, the big capital infusions are probably done and investors have probably already suffered the biggest hits. In the Icelandic case, sovereign resources were grievously inadequate for handling the debt problem, and the banks imploded.

Over the next year or so we should find out which scenario mirrors the situation facing Portuguese and Spanish banks. The Portuguese banks entered the crisis with a weak capital position, so modest losses could make them unattractive in the style of the scenarios modeled earlier (Exhibit 12), and that scenario probably is generous in the number of write-offs modeled above (dilution of only 13.3%). Portuguese banks get the honor of inaugurating the next round of financings: on April 12 Banco Espirito Santo announced a 1 billion euro capital raising via a rights issue.⁷

The Spanish situation is perhaps the most interesting. Leverage within the banking system is not particularly high in Spain,⁸ but the amount of losses to be realized on capital due to bad property loans looks to be far higher than the 13.3% hit to book capital modeled above (Exhibit 12). Spanish banks so far have had rather good fortune in tapping retail accounts for preference shares by emphasizing the higher yields in a yield-starved world, but this may not last once the holders realize that the value of the principal can also go down. BBVA and Santander have more crown jewels that they can sell to avoid direct capital raisings: there could be an initial public offering of the Mexican operations (Bancomer for BBVA, Santander Mexico for Santander), and further slices of the Brazilian and Chilean operations sold by Santander. Yet those sales cannot go on forever without seriously damaging future profit prospects, for those

⁷ “Espirito Santo shares drop on new stock sale plan,” *Bloomberg News*, April 12, 2012.

⁸ Though in terms of total debt to GDP, Spain is highly leveraged.

are among the highest ROE operations of the Spanish banks. Some banks are accumulating deferred tax assets (DTAs) via the goodwill from taking over their even weaker compatriots; for example, Banco Sabadell has acquired Caja de Ahorros del Mediterraneo (CAM), Banco Popular is merging with Banco Pastor, and BBVA received the caja (savings bank) UNNIM for one euro. But even with carve-outs of bad loans from the purchased institution to the Spanish government, the numbers do not look great for most of the institutions without a quick recovery of the Spanish economy that would remove the risk of the Spanish real estate holdings at these banks. It is disappointing that the government at this date is still only considering a “bad bank” scheme rather than moving toward a resolution of the property loan problems.⁹ In addition, the government’s inability to move more quickly to a situation where it is running a primary balance, rather than a deficit, exacerbates the risk for Spanish banks, though the property-related difficulties seem the larger issue.

Italy looks a bit better. While there have been some sharp write-offs of loan books and sizable capital raisings over the last year or so, the problem in Italy seems mostly to have been a question of domestic deleveraging. If the availability of LTROs has stabilized the deposit situation of Italian banks, which generally have lending roughly in line with retail deposits,¹⁰ the situation in Italy for the better banks resembles some of the situations modeled above with leverage ratios proving to be only a mild restraint on profitability. The better Italian banks, then, would seem to face two questions: can the government deliver on its promises to reduce its over-indebtedness, and will the banks be able to find the necessary deposits if there are no more LTROs? Still, the greater ease seen from the ECB over the last few months cannot but help their prospects. The lesser banks face an additional issue in the structural weakness of being run by regional foundations designed neither for market-based decisions nor for capital support.

French banks have gathered a fair amount of attention. The larger French banks ran at rather high leverage ratios before the 2008 crisis, notable for the sizable derivatives business and in their use of market-based funding for their dollar-lending book. While swap lines between central banks can ease conditions in dollar-funded books, it appears that the banks will be sharply reducing their lending outside of Europe that had been funded by dollars; in other words, this part of the leverage ratio will decline. The LTROs seem to have stabilized the euro-funded portion of their books, so that portion will only need to come down to the extent that they are constrained by capital rules or by other regulations of the European authorities. The French office property market seems to be facing a much better situation than that of Spain: residential property prices are high as a share of disposable income, but the listed banks are not major funders in that market and may avoid large problems. So the problem will be that future ROEs will drop as the French banks continue to sell some profitable loan books that can no longer be adequately funded. Perhaps also there will be a problem if the liquidity rules yet to come from the Basel III process require a degree of matching in loan and deposit books that makes that business unprofitable or impossible, an issue that those funded by retail deposits will not face. Finally, operations outside France – in Greece, in Italy, in Eastern Europe – may suffer losses that damage the capital position of the parent.

One can continue on to other banks. Only two listed German banks were covered by the stress test; the largest may be able to continue with a highly leveraged balance sheet, one that may not be so leveraged as it appears because gross derivatives positions are large but net leverage positions are small. The larger global banks based in the United States may make the same claim, especially if the Volcker rule on leverage fails to go through, allowing banks to maintain a fairly high leverage ratio. With a natural deposit base in dollars, they might come through relatively unscathed depending upon the resolution of the residential mortgage mess in the United States. In fact, they theoretically could come out ahead if their dollar-denominated deposit base lets them pick off the assets of European competitors in the U.S. Finally, if any nation’s banks might benefit from the crisis it would be Japanese banks, several of which have relatively strong capital positions and low leverage. The one trick here is that they too would presumably be taking over dollar-based assets in both the U.S. and in Asia. If the U.S.-based assets also come with dollar-based retail funding, the prospects will mostly be determined by whether the Japanese can get good assets at a reasonable price:

⁹ “Spain weighs up a ‘bad bank’ scheme,” *Financial Times*, April 30, 2012.

¹⁰ Including as retail the longer-term funding from individuals, not just the shorter-term deposits.

Mitsubishi's recent proposal to acquire Pacific Capital Bancorp via its California-based Union BanCal Corp does seem a touch pricey. The Asian assets might be more problematic if they depend upon dollar-denominated funding, but perhaps they can convert some portion of those to a yen base, and run down their holdings of Japanese government bonds. That might not be so good for Japanese sovereign credit, but that is a story for another white paper.

Closing

Policy actions over the last four months eased the tensions in Europe's banking and bond markets considerably, albeit temporarily. Cooling the crisis has reduced the pressure for capital raisings by European banks, leading to something of a virtuous circle in an appreciation of bank share prices. Full and rapid implementation of Basel III rules implied capital needs beyond the capacity of the market, especially at a time when the sovereign debt of so many European nations also appeared to be of questionable quality.

Yet the absence of near-term capital raisings has its own costs, marked by a shrinkage of balance sheets and underlying profitability for many banks that will play out over many years. Even if capital raisings are avoided, earnings-based measures do not look so cheap despite discounts on price to book ratios. Thus the bargains that are available in the banking sector may not prove to be so great over time. Caveat emptor!

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Appendix: A Quick Summary of Scenarios

A starting point

100 euros of risky assets, 25 euros of risk-free assets

ROA of 1.25% on risky assets, 0.5% on risk-free assets

Required Tier 1 capital ratio of 9%, but original capital ratio of only 7.5%

NPLs of 25 basis points

Initial PBR of 1.0x

Varying the initial PBR (Exhibit 2)

100 euros of risky assets, 25 euros of risk-free assets

ROA of 1.25% on risky assets, 0.5% on risk-free assets

Required Tier 1 capital ratio of 9%, but original capital ratio of only 7.5%

NPLs of 25 basis points

Various initial PBRs from 0.4x to 1.0x

Varying the initial capital shortfall (Exhibits 3 and 4)

100 euros of risky assets, 25 euros of risk-free assets

ROA of 1.25% on risky assets, 0.5% on risk-free assets

Required Tier 1 capital ratio of 9%, but original capital ratio ranges from 6% to 9%

NPLs of 25 basis points

Two scenarios for initial PBR, 0.6x and 1.0x

Varying the underlying profitability of the bank (Exhibit 5)

100 euros of risky assets, 25 euros of risk-free assets

ROA ranges from 0.5% to 2% on risky assets, stays at 0.5% on risk-free assets

Required Tier 1 capital ratio of 9%, but original capital ratio of only 7.5%

NPLs of 25 basis points

Initial PBR of 1.0x

Varying the leverage (Exhibit 7)

100 euros of risky assets, risk-free assets vary from 0 euros to 240 euros

ROA of 1.25% on risky assets, 0.5% on risk-free assets

Required Tier 1 capital ratio of 9%, but original capital ratio of only 7.5%

NPLs of 25 basis points

Initial PBR of 1.0x

Imposing leverage ratios (Exhibits 8 and 9)

100 euros of risky assets, risk-free assets vary from 0 euros to 240 euros

ROA of 1.25% on risky assets, 0.5% on risk-free assets

Required Tier 1 capital ratio of 9%, but original capital ratio of only 7.5%; capital raised to cover difference

Risk-free assets also shrink to 20x total capital post capital raising in version a (30x in version b)

NPLs of 25 basis points

Initial PBR of 1.0x

The deleveraging alternative (Exhibits 10 and 11)

100 euros of risky assets, risk-free assets initially vary from 0 euros to 240 euros

ROA of 1.25% on risky assets, 0.5% on risk-free assets

Required Tier 1 capital ratio of 9%, but original capital ratio of only 7.5%; risky assets shrink to level that does not require a capital raising

Risk-free assets also shrink to 20x total capital in version a (30x in version b)

NPLs of 25 basis points

Initial PBR of 1.0x

The whole shebang (Exhibit 12)

100 euros of risky assets, risk-free assets initially vary from 0 euros to 240 euros

ROA of 1.25% on risky assets, 0.5% on risk-free assets

Required Tier 1 capital ratio of 9%, but original capital ratio of only 7.5%; regulators force bank to write off 1 percentage point of capital and then raise that same amount in the market; risky assets shrink to level that does not require a further capital raising beyond that amount to cover the write-off

Risk-free assets also shrink to 20x total capital in version a (30x in version b)

NPLs of 25 basis points after one-time write-offs

Initial PBR of 0.5x