Dividends and Bank Capital in the Financial Crisis of 2007-2009

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First draft: March 2009

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Abstract

The headline numbers appear to show that even as banks and financial intermediaries suffered large credit losses in the financial crisis of 2007-09, they raised substantial amounts of new capital, both from private investors and through government-funded capital injections. However, on closer inspection a large part of the newly raised capital came from debt-like hybrid claims such as preferred equity and subordinated debt. The erosion of common equity was exacerbated by large scale payments of dividends especially in the former part of the crisis, in spite of widely anticipated credit losses. Dividend payments represent a transfer from creditors (and potentially taxpayers) to equity holders in violation of the priority of debt over equity. The dwindling pool of common equity in the banking system may have been one reason for the continued reluctance by banks to lend over this period. We draw conclusions on how capital regulation may be reformed in light of our findings.

Keywords: Crisis, risk-shifting, asset substitution, regulatory capital

JEL Classifications: G21, G28, G32, G35, G38

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Introduction

Financial intermediaries were at the center of the financial crisis that began in August 2007. They bore the lion's share of the credit losses from securitized subprime mortgages, even though securitization was intended to parcel out and disperse credit risk to investors who were better able to absorb losses.[3] The capacity to lend suffered as intermediaries attempted to curtail their exposure to a level that could more comfortably be supported by their capital.[4]

The accumulated losses in the crisis were large, but so were the headline figures for the amount of new capital raised. Table 1 and Figure 1 illustrate this "catching up" of capital with losses incurred (all figures and tables are gathered together at the end of the paper).

The cumulative acknowledged credit losses for financial institutions worldwide since the beginning of the financial crisis in August 2007 to the end of 2009 were $1.73 trillion. Set against this, the headline figure for new capital raised was $1.45 trillion. On the surface, the new capital raised is substantial, almost matching the losses. We see from Table 1 that there are some regional variations, with new capital raised in Europe being smaller relative to losses when compared to the United States. Although a substantial amount of new capital raised worldwide was in the final quarter of 2008 as part of government-funded recapitalization of the banking sector, the raw numbers seem impressive.

However, a closer look at the numbers reveals a much less sanguine picture of the recapitalization by the banking sector. We highlight three features in particular that are worthy of closer scrutiny.

First, most of the new capital was raised in the form of debt or hybrid claims such as preferred equity. When leverage is measured as the ratio of total assets to *common equity*, the leverage of the banking sector in the US and Europe rose relentlessly during the early part of the crisis, as we will show below. We argue that the continued reluctance of banks to lend may be attributable (at least in part) to the high leverage of the banking sector.

Second, even as the banking system suffered the depletion of common equity through losses on the asset portfolio, banks continued to pay dividends especially in the first part of the crises. As we will show, the outflow of common equity in the form of dividends

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[3] In some cases, this appears to have been by design, e.g., in structured investment vehicles (SIVs) and asset-backed commercial paper (ABCP) conduits, where banks sold guarantees to securitization vehicles to game capital requirements. See Acharya, Schnabl and Suarez (2009) for detailed evidence of such "securitization without risk transfer". In other cases, it appears to have been a highly levered bet on the economy, e.g., as manifested in the holdings of AAA-rated mortgage-backed securities which banks held up to 39% of all such securities (Lehman Brothers Report, April 2008).

[4] Ivashina and Scharfstein (2008) document that during the crisis, especially in the aftermath of Lehman's collapse, banks have made very few new loans and primarily honored drawdown on pre-arranged lines of credit.

was substantial in relation to total assets and total credit losses. This outflow deprived the banking system of much-needed common equity capital precisely when it was most needed. This erosion of common equity through dividends points to the breakdown of the priority of debt over equity. Banks that ultimately received public funding support and were in serious risk of failure continued to pay out dividends right from the period leading up to the crisis until the period after Lehman Brothers' bankruptcy. For a bank whose losses can be anticipated, it can be argued that dividends were paid to equity holders at the expense of the debt holders (including the taxpayers who fund bailouts). This represents a straight transfer in violation of the priority of debt over equity, which is sustained because of the slow-moving nature of the deterioration of book equity. In effect, the inertia in bank accounting makes even a distressed bank appear healthy in terms of its book capital ratios, enabling a transfer in violation of priority of debt over equity. The undesirable nature of dividend payments during crises has been commented on by Scharfstein and Stein (Scharfstein and Stein (2008)). See also Wessel, David (2008)[5].

Third, but not least, as common equity is paid out on the liabilities side of the balance sheet, the assets that get depleted on the asset side are the safe marketable assets – especially cash or government bond holdings. What gets left behind are the illiquid, riskier assets. This implies a type of risk-shifting or asset substitution that further favors the equity holders over the debt holders for the usual reason that equity holders' claims are convex claims over the asset payoffs, while debt holders have concave payoffs. Whereas traditionally risk-shifting has been discussed mainly in the context of new investments (as in the seminal work of Jensen and Meckling, 1976), we can see that risk-shifting can also be accomplished through changes in the capital structure of the bank. Paying out dividends in cash leaves behind riskier assets on a thinner equity cushion, which benefits the shareholders once again, at the expense of the debt holders.

On a related point, since many of the equity holders are also employees of the bank, the diversion of funds from debt holders (including taxpayers) to equity holders is related to the thorny and politically charged issue of employee compensation in banks. In this sense, our paper can be seen as a contribution pointing out how the determination of bank capital structure and dividend policy can be seen as a part of the larger debate on compensation issues. The standard view on corporate governance that emphasizes shareholder value maximization may have unintended and adverse consequences for failing banks.

Our paper is primarily a descriptive study documenting in a comprehensive way the time profile of losses and amount and type of new capital raised by banks in recent years, and especially since the beginning of the current financial crisis. Although our study is by

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[5] The undesirable nature of dividend payments during crises has been commented on by Scharfstein and Stein. See Scharfstein, David S. and Jeremy C. Stein (2008) This Bailout Doesn't Pay Dividends, *The New York Times,* October 20, 2008. See also Wessel, David (2008) "Brainstorming about Bailouts" Wall Street Journal, March 13th 2008
http://online.wsj.com/article/SB120536045253831681.html

design a "fact-finding" study, we believe that it contributes on two fronts. First, the facts themselves are striking, and we have attempted to present the evidence in a unified way that conveys the big picture. More importantly, the facts uncovered imply important conclusions both for the way that banks took decisions in the current crisis, and future reform of the rules governing bank regulation.

In particular, we believe that the dwindling pool of common equity may be an important reason for the reluctance of banks to extend credit in spite of the large-scale injection of bailout capital. Most of the public injections of bank capital in the United States through the TARP program took the form of preferred equity rather than common equity (even though in some cases, preferred equity is ultimately converted to common equity). As a consequence, banks' leverage relative to common equity has increased relentlessly. To the extent that the common equity cushion was subject to increasing compression, the stake of the controlling equity holders shrunk in accordance. This has led banks to take an extremely conservative attitude toward taking up the slack in intermediation left by the collapse of the securitization market as they would rather wait for the fortunes of their beleaguered assets and thinly capitalized balance sheets to resurrect themselves than extinguish that option for lower risk loans (see also Diamond and Rajan (2009) for a related theoretical point).

A speech by Bill Dudley (2009), the President of the Federal Reserve Bank of New York, notes that executives at banks and government-sponsored enterprises told regulators "repeatedly over the past 18 months" that "now is not a good time to raise capital". He goes on to say:

> "This desire to postpone capital raising stems in part to the fact that bank executives often do not want to dilute existing shareholders, which of course include themselves. […] The self-interested thing to do is avoid the dilution and hope for a good state of the world."

The fear of dilution leads incumbent shareholders to under-invest in raising new common equity capital, an agency problem that is a variant of the Myers (1977) debt overhang problem (again, not in the context of new investments).[6] This juxtaposition of agency problems at failing banks – underinvestment in issuance of new capital and erosion of existing capital through dividend distributions – poses some of the most difficult questions for bank resolution policy.

This divergence in the interests of the incumbent controlling shareholders from the broader public interest also raises questions on what should be the proper notion of regulatory capital. Under the current system of bank regulation, capital is regarded as a buffer against loss for senior creditors, and especially retail depositors. Hence, under the current system, regulatory capital includes subordinated debt and preferred equity. The

[6] Some others, see for example Tucker (2008), argue that the reluctance may be due to banks wanting to avoid sending an adverse signal to markets and suffering dilution due to lemon's premium (as in the Myers and Majluf, 1984, model of costly equity issuance).

recent crisis has led to a serious re-think on whether such hybrid claims should qualify as part of regulatory capital. Indeed, the recently agreed Basel III rules on capital put a much greater emphasis on common equity. In future, regulators may have no choice but to employ intervention thresholds that are tied to market value of equity – since that is what affects decisions of bank management – and market-imposed leverage constraints such as the extent of repo haircuts faced by a financial institution in the market for borrowing.

Before we discuss these policy implications, we provide descriptive evidence on capital raised by 23 large banks in the United States, the United Kingdom and Europe, and Fannie Mae and Freddie Mac, the two government sponsored enterprises in the United States, focusing especially on the type of capital issued, and on the dividend policies and capital structure of these banks, in the period 2000-2009[6].

Evidence on Bank Capital and Dividends

Table 2a shows the total capital raised by 25 large financial firms of the US, the UK and Europe in the pre-crisis period of 2000 to 2006 by the type of capital – common equity, preferred equity or debt. For the period preceding the crisis, a total of $1.39 trillion of capital was issued by the 25 large financial firms in our sample. A staggering $1.41 trillion of the total capital issued – that is, 101.2% - was in fact raised in the form of debt. Preferred equity accounted for $46.3 billion (3.34%). Capital *outflow* to common shareholders was at $63 billion (4.54% of capital). Thus, essentially during the period 2000-2006 these financial firms raised capital in the form of debt and to a lesser extent preferred equity.

During the crisis period of 2007-2009 the large financial firms raised nearly $707.6 billion of capital. The proportion raised as debt was 29.1% of total capital and accounted for $205.8 billion of the total. Common equity share at $238.1 billion accounted for 33.7% of capital. In contrast to pre-crisis trends, more than 37.3% ($263.6 billion) of capital was issued in the form of preferred debt. During this period, Washington Mutual, Freddie Mac and Bear Stearns, had negative common equity issuance – that is, more of share buyback than share issuance – amounting to $4.02 billion. This pattern of close to 66.3% being funded by debt and debt-like hybrid claims such as preferred equity is remarkable since this was a period over which bank balance sheets grew significantly, so it must be that as documented by Adrian and Shin (2008), this growth was funded by a large portion of debt and preferred equity in addition to common equity.

Figure 2a plots this division of capital issued into security type for individual banks for the period preceding the crisis from 2000 to 2006. There are some differences that stand out. While JP Morgan, the relatively better performer during the crisis, issued debt in

[6] Complete details are provided in the Appendix. Appendices A and B describe the variables we employ and their sources and the frequency of their measurement. Appendix C lists for each of the 21 banks the exact nature of each individual capital issuance from 2007 - 2009.

quantity that was 6.12 times common equity issued, in case of Lehman Brothers this ratio was 72.17. Similarly, Citigroup had a high debt to equity ratio of 21.59. Of note Wachovia, Wells Fargo, Bear Stearns, Merrill Lynch, Morgan Stanley, Bank of America, Fannie Mae and Freddie Mac had negative debt to equity ratios representing a capital *outflow* to common equity holders. HBOS, one of the beleaguered UK bank during the crisis, had a debt to common equity ratio of 10.17. Even with the benefit of hindsight, the relationship between type of capital issued and the ex post performance of banks is hard to ignore.

Figure 2c shows the TARP funds received by banks and the total amount paid back to date (July 2010). The figure shows some striking results. In the 3Q07-4Q09 period, all the banks (excluding the GSEs) which had received TARP funding had paid nearly 34% of the amount as dividends. JP Morgan, had paid out $9 billion dollars, almost 36% of the TARP funds it eventually received from the government. Similarly Bank of America and Citigroup which received $45 billion each in TARP funds had paid out $16 billion and $11 billion as dividends respectively during 20073Q-20094Q.

Tables 3a, 3b, 4a and 4b (and corresponding Figures 4a and 4b) highlights one important fact –banks had in fact been paying out significant dividends, not just during 2000-2006 but continued to do so during the first part of the crisis period from 2007-2008. Bank dividend payouts measured as a percentage of assets for all banks in our sample in 2002 were at 0.26% and in 2008 during the peak of the crisis, dividend levels fell to 0.17%. This ratio eventually fell in 2009 to 0.05% in the latter part of the crisis. Table 3a and 3b give the breakup of dividend payouts as a percentage of assets for the US and non-US banks in our sample. In effect, bank management did not drastically reduce their dividends in the first twelve months of the worst crisis to have hit them.

Table 4 gives the dividends paid by the 25 financial firms since the outbreak of the financial crisis in the summer of 2007. The largest dividends were paid by Bank of America and Citigroup. While dividend payments slowed for both banks from 4Q08 to 4Q09, Bank of America continued to payout dividends till the end of 4Q09, though it reduced dividends significantly in 2009. Citigroup, too, continued to pay dividends in 2008, however it did reduce dividends by nearly 35% in response to the ongoing crisis. Merrill Lynch almost doubled its dividends in 4Q08 (to $699 million) compared to the year earlier in 4Q07 ($361 million). Similarly, Lehman increased its dividends from $95 million in 2Q08 to $118 million in 3Q08 right before it went bankrupt. Bear Stearns also increased dividends from $36 million in 4Q07 to $47 million in 1Q08. Of particular note, Goldman Sachs continued to pay dividends until the end of 2009 in line with historic pre-crisis levels. Goldman Sachs *increased* dividends from $639 million in 2007 to $642 million in 2008 and to $717 million in 2009. On the other hand, while Morgan Stanley cut its dividends to zero in 1Q09, it resumed dividends beginning 2Q09. However, 2Q09 dividends were at only $80 million (only 28% of dividends in 2Q08) consistent with other banks which reduced dividends in the latter part of the crisis. To summarize, while some banks such as Citigroup reduced their dividend payouts in response to the ongoing crisis in 2008, most continued to pay out significant dividends

throughout 2008 and only significantly reduced dividends in the latter part of the crisis in 2009.

In contrast to investment banks, Wachovia and Washington Mutual cut their dividends drastically in the quarters leading up to their failure. Wachovia cut its dividends from $808 million in 2Q08 to $108 million in 3Q08. Similarly, Washington Mutual cut its dividends from $130 million in 1Q08 to $10 million in 2Q08. Similarly the GSEs Fannie Mae and Freddie Mac cut their dividends to zero in 4Q08 and 3Q08 respectively.

Table 5 gives the quarterly losses incurred by the financial firms in our analysis. This table highlights the fact that these financial firms were struggling during this period and yet continued to pay out dividends as described above. Particularly, Lehman which increased dividends in 3Q08 posted losses of $5.3 billion in 2Q08 and $7.0 billion in 3Q08 before filing for bankruptcy. Bear Stearns which increased dividends in 1Q08 posted losses of $1.9 billion in Q407 and $0.6 in Q108.

Among the financial firms which did cut dividends in response to the financial crisis, Fannie and Freddie posted losses of $138.7 billion and $115.1 billion for the period from 3Q07 to 4Q09. Wachovia which cut dividends in 3Q08 reported $29.4 billion in losses, a jump of 124% from $13.1 billion losses the previous quarter. Similarly WaMu which cut dividends in 2Q08 and 3Q08 reported losses of $5.5 billion in 2Q08 and $30.9 billion in 3Q08.

Lessons from private contracting

Anecdotal evidence is consistent with a reluctance of banks to cut dividends or even reduce their amount:[7] Lehman Brothers Holdings announced a 13% increase in its dividend and a $100 million share repurchase in January 2008; Citigroup cut its dividend close to zero only in November 2009; JPMorgan and Wells Fargo, while recipients of the TARP capital in Fall 2008 cut dividends as late as February and March 2009, respectively; and even as the Federal Reserve was urging banks receiving bailout funds to cut dividends, Goldman Sachs did not cut dividends throughout the crisis period.

This is to be compared to the fact that 61 components of the Standard & Poor's 500 stock index cut their dividends during 2008. Most corporate debt has covenants which prevent firms from paying out dividends when negative earnings are reported. This constraint prevents firms from transferring funds to equity holders at the expense of debt holders.

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[7] See Table 4 for bank by bank history of dividend distributions. Also see the press articles: *Dividends Cut Fastest Since 1950s as Citigroup Conserves Cash* (Bloomberg, November 26, 2009); *JPMorgan Cuts Dividend 87 Percent to 5 Cents a Share* (Bloomberg, February 23, 2009), *Fed Urges Banks to Put Bailout Funds Into Loans, Not Dividends* (Bloomberg, February 24, 2009), *Wells Fargo Cuts Its Dividend 85%* (Wall Street Journal, March 7, 2009).

Additionally, firms cut dividends to avoid the debt overhang problem (Myers (1977)). A debt overhang emerges if a company is unable to make new investments since it is unable to raise new debt as lenders are unwilling to lend to highly levered firms. Firms anticipating such opportunities maintain an equity cushion and thus cut dividends in times of distress.

In contrast, banks have continued to pay out dividends even during the crisis. This can be attributed to the short-term nature of their funding and the implicit and explicit guarantees provided by the government. Banks are typically funded by short-term debt. As a result, if they were to announce a dividend cut, rollover debt can "run" as it did on investment banks. The fear of "runs" leads banks to continue paying dividends which is beneficial only in the short run even when it would be prudent for them in the long-run to cut dividends.

Further banks benefit from the explicit and implicit guarantees provided by the government. The explicit government guarantees provided on deposits for **commercial banks** ensures that the banks are protected even in the event of a failure. Similarly, many financial institutions may have the implicit government guarantee for firms which are considered too-big-to-fail. Thus, banks are unlikely to cut dividends, figuring that in the event that they do fail, they would most likely be bailed out.

The contrast between stressed depository institutions (such as Wachovia and Wamu) and investment banks (such as Lehman, Merrill Lynch) is already informative. While depositories were subject to a "prompt corrective action" resolution regime, such orderly wind-down plans were absent for investment banks. Hence, the implicit too-big-to- fail guarantee for investment banks was virtually free of any end-game restrictions, allowing them to pay dividends even as they were failing.

This contrasting behavior of banks versus non-financial firms provides important lessons for reform of governing bank regulation. Regulators have realized that banks need to be explicitly prevented from paying out dividends in times of distress to avoid such transfers in violation of priority of debt over equity. As Lawrence Summers, Director of the National Economic Council notes in his letter on the Senate and House of Representative (January 12, 2009):

> "Those receiving exceptional assistance will be subject to tough but sensible conditions that limit executive compensation until taxpayer money is paid back, ban dividend payments beyond de minimis amounts, and put limits on stock buybacks and the acquisition of already financed strong companies"

While this is a step in the right direction, the evidence suggests that more should have been done. In later sections, we further draw on the lessons learnt from private contracting and provide recommendations for the design of prompt corrective measures for governing bank regulation.

Two Notions of Capital

To understand the significance of common equity and its role in bank resolution, it is important to distinguish between two different notions of bank capital. There is, first, the notion of bank capital (implicit in the Basel approach) as a buffer against loss that protects depositors. Under this first notion of bank capital, hybrid claims such as preferred equity or subordinated debt are counted as bank capital, since both are claims that are junior to depositors.

However, there is a second, contrasting notion of bank capital as the claim held by the owners of the bank who have control over the bank's operations. Hybrid claims such as preferred shares or subordinated debt do not qualify as bank capital under this second notion of bank capital, as they can be seen as junior forms of debt. We could dub this second notion of capital as "pure equity capital". This notion of capital can be thought of as the equity demanded by creditors as a safeguard against losses on their stake. It is analogous to the margin requirement set by creditors on leveraged traders, and is exemplified by the "haircut" demanded by creditors in a repurchase agreement. In contrast to the Basel capital requirement (which is a regulatory capital requirement), we could characterize the pure equity requirement in the margin or haircut set by a creditor as the "market-determined" capital requirement. Just as with repo haircuts and margin requirements, the market determined capital requirement fluctuates over time with shifts in market conditions and the balance sheet capacity of leveraged traders.

The key difference between the Basel notion of capital as a buffer to protect depositors and pure equity capital as the market-determined haircut lies in the behavior of those owners who have control over the bank. When the bank has too little pure equity capital, the owners' incentives reflect their highly leveraged balance sheet. When faced with a dwindling stake in a leveraged entity, controlling owners have little to lose, and everything to gain by engaging in risk-shifting bets on the bank. The increased haircut imposed by the capital market during distress episodes could be seen as the increased margin demanded by creditors in the capital market to changed incentives, or the reduction in funding capacity of an asset in anticipation of the attendant risk-shifting problem[12].

The market-determined capital requirement reflected in the repo haircut is a constraint imposed by the capital market, and reflects the terms on which creditors are willing to lend to those with control over the leveraged entity. One plausible channel through which the constraint operates is the wish by creditors to avoid being embroiled in a lengthy and costly bankruptcy settlement after the borrower has defaulted. When a bank breaches the maximum leverage ratio permitted by the market, the bank must take remedial action to reduce its leverage, or face a run by its creditors.

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[12] Acharya and Viswanathan (2007) build a model of funding liquidity of financial institutions tied to such a risk-shifting problem

When bank capital is viewed as the equity that creditors demand in the market, then there is a maximum degree of leverage that the market will permit. The haircut in a repo contract encapsulates such a notion of equity. The market demands a minimum stake to be held by the entity that controls the asset. As the market haircut fluctuates in line with capital market conditions, so will the maximum leverage that the market permits. If a bank breaches the maximum leverage, it must find new equity to bring down leverage or face a run by its creditors.

We have seen that throughout the recent crisis, banks have lost pure equity capital through credit losses and dividend payouts, but have not replenished the lost pure equity capital through the issuance of new common equity. Instead, the lion's share of new capital raised has been in the form of hybrid claims such as preferred shares and subordinated debt. In particular, government-sponsored capital injections have taken the form of preferred equity, especially in the United States under the TARP program. The consequence has been that pure equity capital continued to dwindle during the crisis period.

It would be reasonable to conjecture that the stringency in credit conditions reflects, at least in part, the lack of pure equity capital in the banking system. The market-determined capital requirement was binding as hard as ever, even though the constraints of the regulatory Basel capital requirements were relaxed through the injection of hybrid claims. Without concerted efforts to relax the market-determined capital requirements that are pressing down on the banks, it would be difficult to expect much headway in freeing up credit conditions towards greater willingness of the banks to extend credit.

Leverage

The distinction between regulatory (Basel) capital and pure equity capital can also be seen through the evolution of various bank leverage ratios. The examination underscores the earlier evidence that asset growth of banks in the period 2000-2006 was funded primarily through debt, especially through short-term debt, and not through the buildup of common equity capital.

Table 6 shows the leverage ratios for the 25 large financial firms in our sample – divided into commercial banks, investment banks and GSEs[8] – for the fiscal years 2000 through 2009. The numbers reported are averages within each division. Figures 6a-6d are based on the time-series evolution of four of these ratios, which we focus on in our discussion.

Figure 6a shows the corporate finance measure of leverage – the debt/shareholder equity ratio, and Figure 6b shows another measure - the assets/common equity ratio (common equity being shareholder equity minus preferred equity). In both cases, the pattern for commercial and investment banks is similar. For both commercial and investment banks, the capital structure was getting increasingly levered from 2000 to 2007. The debt/

[8] See Appendix C for the classification of each bank into commercial bank or investment bank.

shareholder equity ratio for commercial banks increased from around 5.19 in Q100 to 6.79 in Q407, whereas for investment banks, it increased from 16.19 to 19.39. For GSEs this ratio decreased from 30.92 to 21.62. The assets/common equity ratio for commercial banks grew from 15.0 to 22.51, and for investment banks this ratio grew from 26.90 to 35.85 for the same period. For GSEs this ratio increased from 39.59 to 41.85.

Table 6c shows the asset/ shareholder ratio for large US financial firms. For commercial banks this ratio increased from 14.68 to 22.11. For investment banks, the Q100 ratio was much higher at 26.13 and increased to 33.91 in Q407. For GSEs this ratio decreased from 32.8 to 23.57 during the same period.

Table 7 show the change in asset to common equity ratio during the crisis for the large US financial firms in our sample. This ratio increased from 1Q07 to the peak of the crisis in 2Q and 3Q2008 for most firms. Of note, the ratio for Citigroup increased from 16.69 in 1Q07 to 27.32 in 4Q08. The ratio for Lehman also increased from 29.73 in Q107 to 33.16 in 2Q08 just before it went bankrupt. This increase in asset to common equity ratio was even more dramatic for the GSEs as they became distressed. The ratio for Fannie Mae peaked in 3Q08 at 67.47 from a much lower 25.32 in Q107. For Fannie Mae, commercial paper/assets increased from 34.62 to a staggering 853.44 in 2Q08.

It is clear thus that the asset growth that banks experienced during 2000 to 2007 was increasingly funded by debt. What kind of debt? To shed light on this, we plot in Figure 6d the ratio of commercial paper to total assets for commercial banks, investment banks and GSEs in our sample. While investment banks were always financed in a significant way through unsecured short-term commercial paper, what is striking is that commercial banks increased their reliance on commercial paper nine-fold from fiscal year 2000 to fiscal year 2007. In 4Q07, commercial paper was 3% of assets for commercial banks. This is comparable to investment banks with a ratio of 2.88% in 4Q07.

Further, while the growth in loans and assets was primarily of the long-term type – mortgages to a large extent and corporate and private equity finance to some extent – the nature of non-deposit debt financing was in fact of the short-term type. That is, bank capital structures were not only looking increasingly levered and funded through non-deposit type debt, they were also experiencing a rise in maturity mismatch (or duration gap between assets and liabilities) and were thus vulnerable to economy-wide shocks that generally tend to cripple the markets for short-term financing.

This short-term aspect of bank leverage is captured in Tables 8 and 9, and corresponding Figure 8. Table 8 shows the worldwide quarterly outstanding amounts for commercial paper – usually of 90-day maturity and more than 75% of which tends to be issued by financial institutions. From a steady issuance of around $1.4-1.5 trillion per quarter during 2000-2004, the amount rose sharply to a peak of $2.14 trillion during 2Q07. Following the money-market freeze of August 9, 2007, the figure fell sharply from its peak to around $1.62 trillion in 3Q08 (picking up somewhat in 4Q08 due to guarantees, for example, by the Federal Reserve). In 2009, commercial paper issuance declined further and in 4Q09 this figure was around $1.14 trillion.

Viewed from any dimension – overall leverage, deposit versus non-deposit leverage, and maturity of leverage – banks were pursuing a risk-shifting strategy, and importantly, not just through their choice of assets, but also through their capital structures.

There is one important lesson for bank regulation in all this. While standard corporate finance measures of capital, dividend distribution and leverage were individually and jointly implying that bank behavior reflected a serious conflict of interest between shareholders and creditors, regulatory measures of capital adequacy – for example, the ratio of capital to risk-adjusted assets – hardly moved (see, for example, Box 1.3 of IMF, 2008). Why was this so? While some of this had to do with the large holdings of AAA-rated tranches of mortgage-backed securities on bank balance-sheets, which attracted little capital charge and thus kept the level of risk-adjusted assets (the denominator) to a low figure, the measurement of capital (the numerator) was also problematic.

Implications for reform of financial regulation

The distinction between Basel capital and pure equity capital emphasized here have important implications for the reform of financial regulation and the resolution of problem banks that can lead to a speedy recovery in lending.

To some extent, some inertia is inevitable in the valuation of bank assets, even in a world where the rigorous application of mark-to-market valuation rules are the preferred norm. Even under the original version of accounting standards such as the US accounting standard 157 of the FASB, or the International Accounting Standards Board rule IAS 39, full and immediate marking to market of assets is infeasible due to the lack of transparent markets. There is the larger issue of whether full marking to market is even desirable from a financial stability viewpoint. Here, we will not address this particular debate. However, even for a fervent supporter of full marking to market as an ideal, the practical limitation of marking to market of bank assets means that inertia is an inevitable feature of bank balance sheet accounting.

In a world where bank balance sheets lag market conditions, or where the accounting values do not anticipate further credit losses from foreseeable weakening of macroeconomic activity, an early suspension of dividends and capital preservation would seem to be one of the first steps that a regulator must take in order to forestall greater problems with capital erosion in the future. The FDIC could replicate a "covenant" style private contract that restricts banks from paying out dividends when certain thresholds are reached. There should be an explicit role in the covenant thresholds for simple leverage measures such as asset to common equity ratios, loans to deposits and short-term debt to assets. Additionally, market measures such as equity retention implied by repo haircuts may provide more timely information and prevent further equity erosion by forcing banks to stop paying out dividends in times of distress. The recently agreed Basel III rules set a minimum common equity threshold of 4.5% of risk-weighted assets plus a "conservation buffer" of 2.5%. The conservation buffer can be breached during crises,

but the intention is that banks that breach it will face limitations on the payout of dividends or on compensation of its employees. Debate is possible on whether 4.5% + 2.5% is large enough, but the form of the new Basel III rules take account of some of the lessons mentioned above.

From the point of view of overall financial system stability and the externalities imposed by one institution on the system as a whole, an early suspension of dividends can be justified by the prevention of negative spillover effects imposed by incumbent controlling shareholders of weakening banks on the rest of the system. Although such interference in the management of the firm runs counter to the autonomy of the controlling shareholders in determining the financial decisions of the firm, it should be borne in mind that banking has always offered exceptions to the autonomy of the firm when externalities are involved. The fact that banks have been regulated reflects their special status. They exert externalities on the rest of the financial system so that the affairs of the bank affect a very broad constituency that go beyond the traditional domain of the owners and creditors of the firm. They affect the broader economy and are supported by both explicit and implicit public funding support in case of difficulties. The very fact that banks are regulated, and special legal regimes exist to deal with problems of distress reflect their special status. Our proposal for an early suspension of dividends is merely re-drawing the line between the private and public domains of actions.

Thus, an early imposition of regulatory sanctions against the paying of dividends (for instance, as part of an increasing "ladder of sanctions" that are based on market or common-equity based notions of bank leverage) may have an important place in the agenda for reform of the regulatory system. The proposals in the Geneva Report (Brunnermeier et al., 2009) argue for such a ladder of sanctions. Acharya, Mehran, and Thakor (2010) suggest creating a capital account by diverting dividends during good times which are then transferred to a regulator when the bank goes bankrupt. Recently, Eric Rosengren, the President of the Federal Reserve Bank of Boston has argued for a similar prompt suspension of dividends as the first step in dealing with a banking crisis (Rosengren (2010)).

Conclusion

In this paper, we have delved deeper into the evolution of bank capital during the global financial crisis of 2007-2009. The crisis which initially erupted in 2007 in the subprime mortgage sector in the United States has led to a decline in real economic activity, leading to further credit losses in other mainstream credit categories such as prime mortgages, commercial real estate, corporate debt and other household debt such as credit card loans and auto loans.

Even as banks and financial intermediaries suffered large credit losses as the financial crisis has gathered pace, the headline numbers obscure important shifts in the composition of bank capital, and hence on the constraints banks face in their daily operations. We have shown that the bulk of the new capital raised both from private

investors and from government-funded capital injections have been in the form of debt-like hybrid claims such as preferred equity and subordinated debt. Furthermore, banks continued to pay large sums in the form of dividends in the early part of the crisis that further eroded the common equity base.

As a result, there was a relentless increase in the leverage of the banking sector in the early part of the crisis, when leverage is measured with common equity on the denominator. We have argued that common equity is the more appropriate notion of bank capital when we want to capture the idea of market-based capital requirements that creditors would like to impose on borrowers. The alternative notion of bank capital which includes subordinate debt and hybrid claims (as a buffer against loss for depositors) is less appropriate, even though this latter notion of capital is what is enshrined in the current banking regulations.

We argued that continuing dividend payments during the crisis represent a transfer from equity holders of banks to creditors (and taxpayers) in violation of the priority of debt over equity. We have further argued that the increased riskiness of the remaining assets of the bank represent a type of risk-shifting that benefits equity holders at the expense of creditors (and taxpayers).

In general, the events of the financial crisis of 2007-2009 have posed several challenging questions on the proper notion of bank capital that should inform bank regulation. We offer our paper as a small step in this important debate.

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Table 1a
Credit Losses and Write downs incurred (all financial firms including banks, brokers, insurers and GSEs) during 2007-2009

(USD 'Billions)	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	Total Loss
Worldwide	58.7	216.7	220.9	174.6	263.6	385.1	140.7	147.3	35.2	80.5	1,723.3
Americas	42.9	128.3	135.1	112.5	205.6	243.3	101.0	99.5	28.9	48.2	1,145.3
Europe	14.5	76.9	74.3	58.3	52.2	137.5	36.1	47.7	6.7	32.8	537.0
Asia	1.3	11.4	11.4	3.7	5.7	4.4	3.6	0.1	-.4	-0.6	40.6

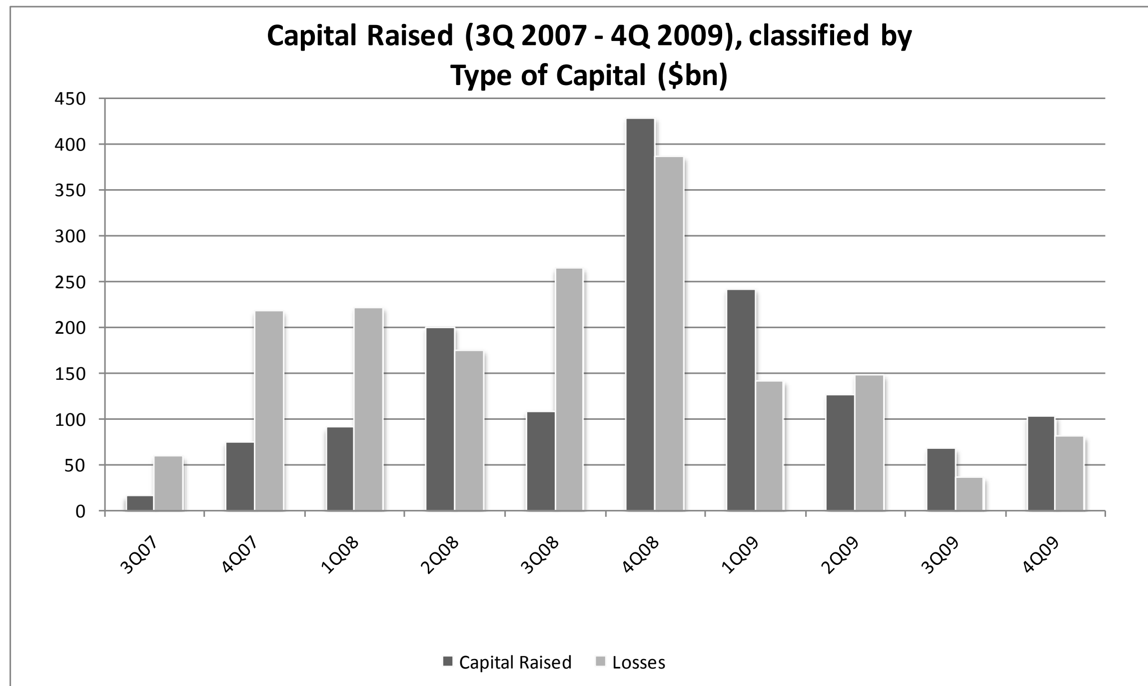
Source: Bloomberg WDCI

Table 1b
Table 1b – Capital Raised (WDCI) - for all financial firms including banks, brokers, insurers and GSEs during 2007-2008

(USD 'Billions)	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	Total
Worldwide	14.8	74.1	89.7	199.4	107.7	427.9	241.1	125.8	66.8	101.6	1,448.9
Americas	3.1	47.1	63	103.8	44.1	266.6	122	91.8	16.1	21.1	778.7
Europe	11.7	26.9	23	82	54.9	132.7	99.6	13.7	30.7	75.1	550.3
Asia	0	0	3.7	13.5	8.7	28.6	19.5	20.3	20.0	5.4	119.7

Source: Bloomberg WDCI

Figure 1 Capital Raised vs. Credit Losses incurred by worldwide financial institutions



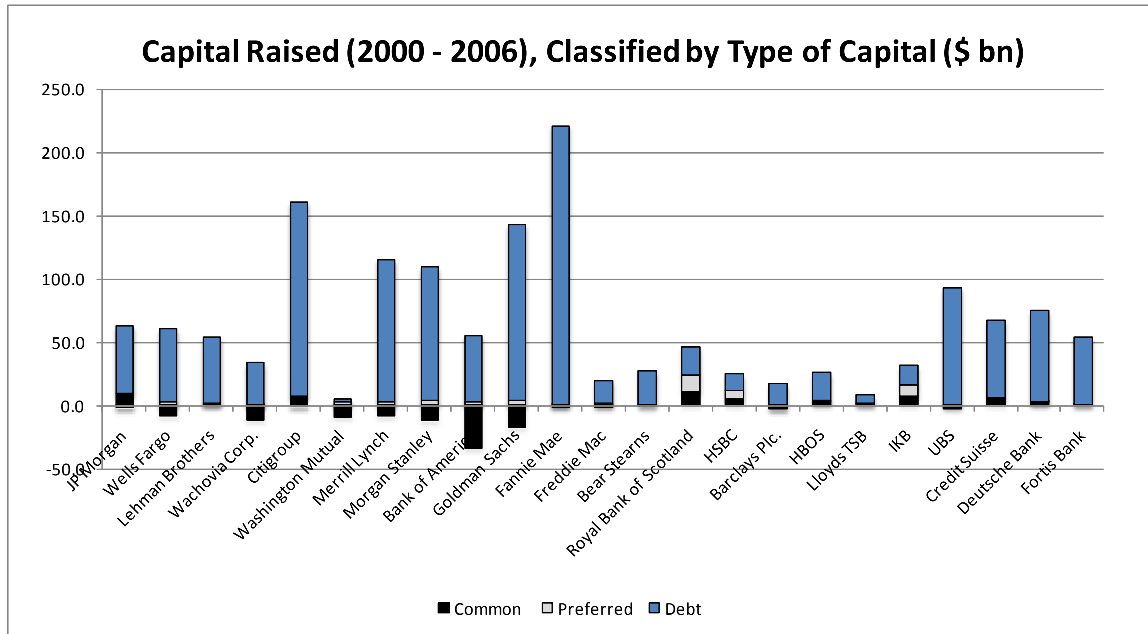
Source: Bloomberg WDCI

Table 2a – Capital Raised by Type of Capital for 25 large financial firms from 2000 – 2006

($ bn)		Type of Investor			Total
Geography	**Name**	**Common**	**Preferred**	**Debt**	**Capital Raised**
U.S	JP Morgan	8.8	-2.2	54.1	60.8
U.S	Wells Fargo	-9.0	2.9	57.4	51.3
U.S	Lehman Brothers	0.7	0.5	52.5	53.7
U.S	Wachovia Corp.	-12.1	0.0	33.2	21.1
U.S	Citigroup	7.1	-0.9	153.5	159.7
U.S	Washington Mutual	-9.4	2.9	1.6	-4.9
U.S	Merrill Lynch	-9.0	2.7	112.6	106.3
U.S	Morgan Stanley	-12.5	3.1	105.8	96.3
U.S	Bank of America	-34.2	2.6	52.7	21.1
U.S	Goldman Sachs	-17.7	3.1	139.6	124.9
U.S	Fannie Mae	-1.7	0.4	220.6	219.3
U.S	Freddie Mac	-2.0	1.5	18.2	17.6
U.S	Bear Stearns	-1.0	0.0	27.4	26.3
U.K	Royal Bank of Scotland	10.8	12.4	22.8	46
U.K	HSBC	4.6	7.1	12.8	24.5
U.K	Barclays Plc	-1.9	-0.4	16.4	14.1
U.K	HBOS	2.1	1.5	21.9	25.5
U.K	Lloyds TSB	0.8	0.0	7.1	7.9
Europe	IKB	7.1	8.3	15.5	31
Europe	UBS	-2.7	0.0	92.7	90
Europe	Credit Suisse	5.7	0.0	61.3	66.9
Europe	Deutsche Bank	2.0	0.9	72.0	74.9
Europe	Fortis Bank	0.5	0.0	53.5	53.9
	TOTAL	**-63.0**	**46.3**	**1405.2**	**1388.3**

Source: Annual statements of Banks, SEC Filings and Bloomberg
Note: Data not available for BNP Paribas and ABN AMRO

Figure 2a –Capital Raised, classified by Type of Capital for 25 large financial firms from 2000 - 2006



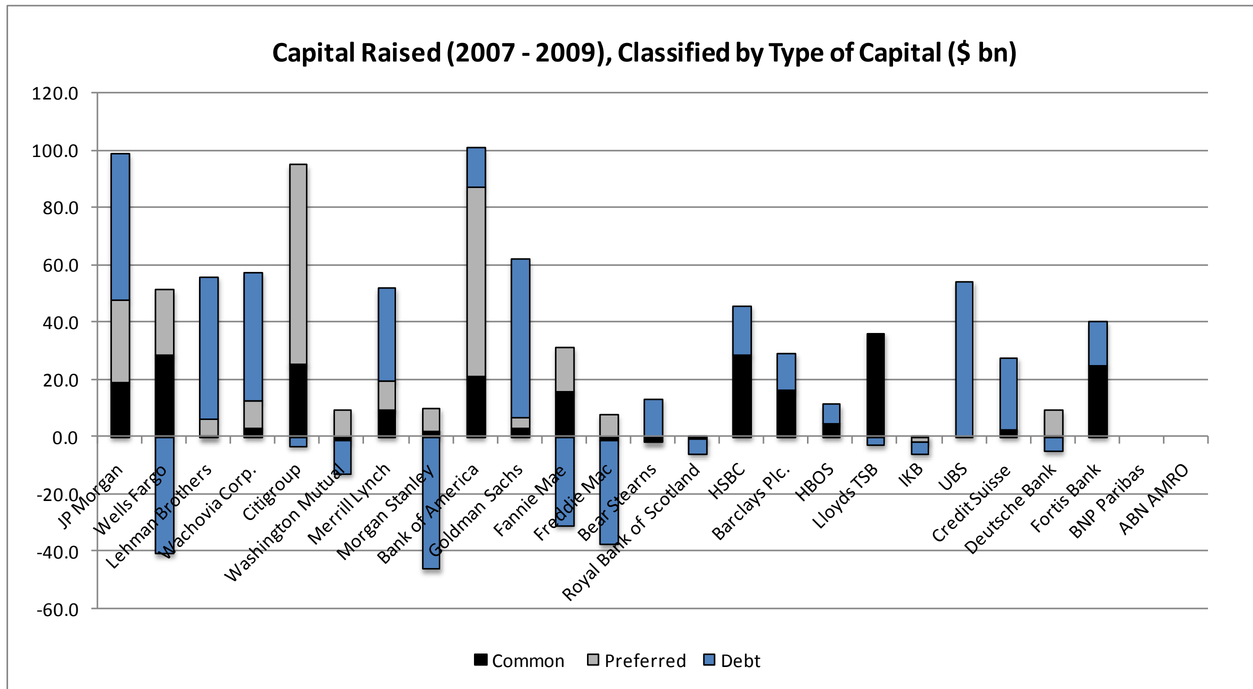
Source: Annual statements of Banks, SEC Filings, Compustat and Bloomberg

Table 2b – Total Capital Raised by Type of Capital for 25 large financial firms from 1Q07 to 4Q09

($ Bn)		Type of Investor			Total Capital Raised	Losses Incurred *
Geography	**Name**	**Common**	**Preferred**	**Debt**		
U.S	JP Morgan	19.2	28.7	51.1	99.0	62.8
U.S	Wells Fargo	28.8	22.7	-40.9	10.5	43
U.S	Lehman Brothers	0.1	5.9	50.1	56.0	16.2
U.S	Wachovia Corp.	3.1	9.7	44.8	57.5	101.8
U.S	Citigroup	25.4	69.6	-3.2	91.9	123.9
U.S	Washington Mutual	-1.5	9.4	-11.4	-3.5	45.1
U.S	Merrill Lynch	9.4	10.4	32.3	52.1	55.9
U.S	Morgan Stanley	1.9	8.0	-46.2	-36.3	23.4
U.S	Bank of America	20.9	66.3	13.7	100.9	89.2
U.S	Goldman Sachs	2.8	3.8	55.5	62.1	9.2
U.S	Fannie Mae	16.1	15.3	-30.9	0.5	138.7
U.S	Freddie Mac	-1.0	7.9	-36.7	-29.8	115.1
U.S	Bear Stearns	-1.5	0.0	13.3	11.8	3.2
U.K	Royal Bank of Scotland	0.2	-0.9	-5.0	-5.7	56.7
U.K	HSBC	28.8	0.0	17.1	45.9	55.8
U.K	Barclays Plc.	16.2	0.0	13.1	29.4	39.7
U.K	HBOS	4.8	0.0	6.5	11.3	26.3
U.K	Lloyds TSB	36.2	0.0	-3.0	33.2	3.2
Europe	IKB	0.2	-1.9	-4.1	-5.8	12.5
Europe	UBS	0.00	0.00	54.2	54.2	57
Europe	Credit Suisse	2.4	0.0	25.2	27.7	18.9
Europe	Deutsche Bank	0.6	8.7	-5.1	4.3	19.5
Europe	Fortis Bank	25.1	0.0	15.4	40.5	8
Europe	BNP Paribas	0.0	0.0	0.0	0.0	19.1
Europe	ABN AMRO	0.0	0.0	0.0	0.0	1.9
	TOTAL	**238.1**	**263.6**	**205.8**	**707.6**	**1146.1**

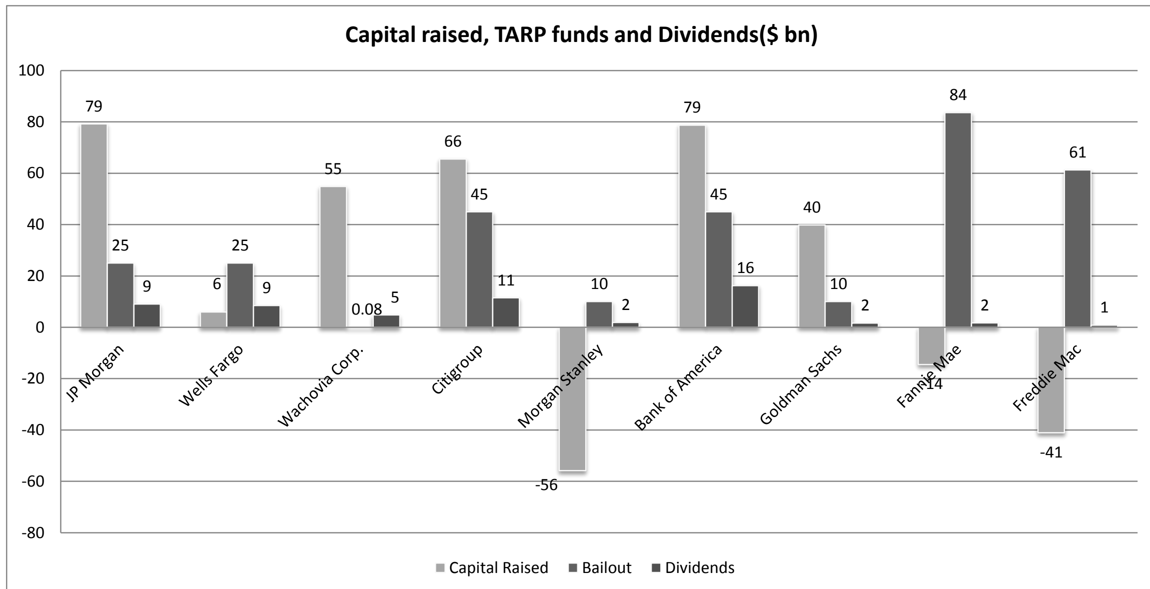
Source: Annual statements of Banks, SEC Filings, Compustat and Bloomberg
Note: Capital Raised data not available for BNP Paribas and ABN AMRO
** Losses incurred for the crisis period from 3Q2007 to 4Q2009*

Figure 2b: Capital Raised, classified by Type of Capital for 25 large financial firms from 2007 - 2009



Source: Annual statements of Banks, SEC Filings, Compustat and Bloomberg

Figure 2c: Capital Raised, dividends and TARP funds for large financial firms in the U.S from 3Q 2007 to 4Q 2009.



Source: Annual statements of Banks, SEC Filings and Bloomberg

Table 2c - Quarterly Capital Raised by large financial firms from 1Q07 to 4Q09

Geography	($ Bn)	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	Total Capital Raised
U.S	JP Morgan	5.0	14.8	23.5	-0.1	1.9	12.5	2.5	37.6	-1.2	10.2	-4.2	-3.4	99.0
U.S	Wells Fargo	2.0	2.6	-0.1	1.1	0.5	2.1	4.8	33.6	-13.6	-8.4	-19.0	4.9	10.5
U.S	Lehman Brothers	12.8	10.7	16.4	0.2	8.1	7.8	-	-	-	-	-	-	56.0
U.S	Wachovia Corp.	3.6	-0.9	16.4	4.7	18.1	16.7	-1.1	-	-	-	-	-	57.5
U.S	Citigroup	9.8	16.6	13.5	13.2	11.8	12.7	-18.9	29.4	-8.7	2.2	13.1	-2.8	91.9
U.S	Washington Mutual	-1.5	1.6	-1.1	-0.8	-7.8	6.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.5
U.S	Merrill Lynch	23.7	20.4	30.1	-1.8	-1.0	19.5	-18.6	-20.2	0.0	0.0	0.0	0.0	52.1
U.S	Morgan Stanley	14.5	9.8	3.5	10.8	5.2	8.8	-1.8	-93.1	5.0	-4.7	2.7	7.6	-31.6
U.S	Bank of America	4.7	17.4	13.3	1.8	13.1	13.4	-9.1	36.1	19.5	6.3	0.1	-16.0	100.9
U.S	Goldman Sachs	11.3	10.9	19.2	8.0	11.7	8.2	-3.1	4.8	6.3	-5.3	-2.5	-7.3	62.1
U.S	Fannie Mae	5.0	10.0	-7.5	-38.3	-97.4	101.0	-8.4	-11.6	54.8	12.4	-0.8	-18.6	0.5
U.S	Freddie Mac	0.0	11.2	-13.9	-29.9	16.8	35.5	364.1	-443.0	78.2	-16.9	-12.6	-19.5	-29.8
U.S	Bear Stearns	4.1	2.8	3.2	0.8	0.8	-	-	-	-	-	-	-	11.7
U.K	Royal Bank of Scotland	-	-	-	5.9	-	-	-	1.1	-	-	-	-12.7	-5.7
U.K	HSBC	-	-	-	10.1	-	-	-	9.1	-	-	-	26.7	45.9
U.K	Barclays Plc.	-	-	-	9.2	-	-	-	20.3	-	-	-	-0.1	29.4
U.K	HBOS	-	-	-	6.5	-	-	-	4.8	-	-	-	0.0	11.3
U.K	Lloyds TSB	-	-	-	0.2	-	-	-	1.5	-	-	-	31.5	33.2
Europe	IKB	-	-	-	4.4	-	-	-	1.0	-	-	-	-11.2	-5.8
Europe	UBS	-	-	-	42.8	-	-	-	9.5	-	-	-	2.0	54.2
Europe	Credit Suisse	-	-	-	14.0	-	-	-	23.0	-	-	-	-9.3	27.7
Europe	Deutsche Bank	-	-	-	-0.8	-	-	-	4.6	-	-	-	0.4	4.3
Europe	Fortis Bank	-	-	-	46.7	-	-	-	-0.8	-	-	-	-5.4	40.5
	TOTAL	95.0	127.9	116.7	108.7	-18.1	244.0	310.5	-352.4	140.4	-4.3	-23.1	-33.1	712.2

Source: Annual statements of Banks, SEC Filings, Compustat and Bloomberg
Note: Capital Raised data not available for BNP Paribas and ABN AMRO

Table 3a – Quarterly Dividends Paid by US Banks and GSEs

Quarterly dividends paid in cash as reported in the Balance Sheet of the banks

($ bn)	2000-2006 per Quarter Average	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09
Total Dividend Paid	6.38	10.45	10.64	11.21	11.19	9.71	9.20	8.45	6.35	1.97	0.72	0.78	0.78
Quarterly Dividends as % of Assets*	0.08%	0.09%	0.08%	0.09%	0.09%	0.07%	0.07%	0.07%	0.06%	0.02%	0.01%	0.01%	0.01%

Source: Annual statements of Banks, SEC Filings, Compustat and Bloomberg
** Calculated as Total dividends paid by all banks as % of sum of assets of all banks. Other ratios are computed in similar manner in the tables that follow.*

Table 3b – Annual Dividends Paid by Non - US Banks

Semi-Annual dividends paid in cash as reported in the Balance Sheet of the banks

($ bn)	2000-2006 per Half-Yearly Average	1H07	2H07	1H08	2H08	1H09	2H09
Total Dividend Paid	5.98	12.57	30.11	6.99	11.77	2.80	8.71
Quarterly Dividends as % of Assets*	0.07%	0.07%	0.14%	0.03%	0.06%	0.01%	0.05%

Source: Annual statements of Banks, SEC Filings, Compustat and Bloomberg
** Calculated as Total dividends paid by all banks as % of sum of assets of all banks. Other ratios are computed in similar manner in the tables that follow.*

Table 4a – Quarterly Dividends paid by each US Bank

($ mm)	JP Morgan	Wells Fargo	Lehman Brothers	Wachovia Corp.	Citigroup	Wamu	Merrill Lynch	Morgan Stanley	Bank of America	Goldman Sachs	Fannie Mae	Freddie Mac	Bear Stearns
2000-2006	25,603	19,438	1,053	14,879	42,237	9,876	4,308	5,107	38,756	2,632	2,741	2,848	2,943
1Q07	1,197	948	81	1,071	2,682	477	294	272	2,502	163	390	335	38
2Q07	1,328	937	81	1,066	2,671	484	292	269	2,494	161	490	326	38
3Q07	1,320	1,034	81	1,215	2,690	486	288	271	2,829	150	489	324	37
4Q07	1,320	1,036	81	1,265	2,690	482	361	270	2,830	165	487	167	36
1Q08	1,326	1,024	94	1,274	1,676	130	341	276	2,859	157	344	162	47
2Q08	1,362	1,026	95	808	1,753	10	344	280	2,858	156	343	162	-
3Q08	1,462	1,128	118	108	1,746	-	469	281	2,929	155	54	0	-
4Q08	1,483	1,134	-	107	875	-	699	273	1,610	174	0	0	-
1Q09	242	1,443	-	-	54	-	0	0	64	167	0	0	-
2Q09	163	214	-	-	0	-	0	80	86	180	0	0	-
3Q09	207	234	-	-	0	-	0	65	88	184	0	0	-
4Q09	208	238	-	-	0	-	0	65	88	186	0	0	-
2007-2009	11,618	10,396	631	6,914	16,837	2,069	3,088	2,402	21,237	1,998	2,597	1,475	196

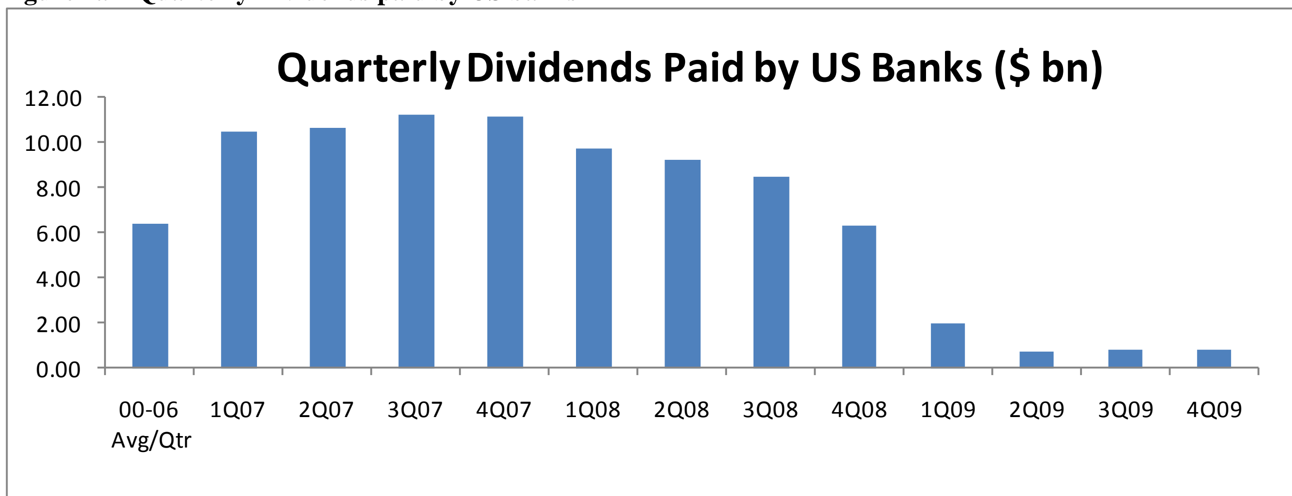
Source: Annual statements of Banks, SEC Filings, Bloomberg and Compustat

Table 4b –Semi Annual Dividends paid by each non-US Bank

($ mm)	Royal Bank of Scotland	HSBC	Barclays Plc.	HBOS	Lloyds TSB	IKB	UBS	Credit Suisse	Deutsche Bank	Fortis Bank	BNP Paribas	ABN AMRO
2000-2006	20,169	44,839	16,540	11,451	21,799	512	2,625	5,605	8,596	10,397	12,936	12,058
1H07	1,911	3,982	1,440	1,226	1,245	-	0	0	0	1,269	0	1,497
2H07	4,215	6,511	3,094	2,443	2,833	-	0	2,328	3,091	1,435	4,159	0
1H08	0	2,113	1,445	-	1,280	-	0	0	0	2,154	0	0
2H08	4,002	5,600	301	-	0	-	0	109	420	0	1,342	0
1H09	0	2,800	0	-	0	-	0	0	0	0	0	0
2H09	0	3,101	288	-	0	-	0	2,190	650	0	2,479	0
2007-2009	10,129	24,107	6,569	3,669	5,358	-	0	4,627	4,161	4,859	7,980	1,497

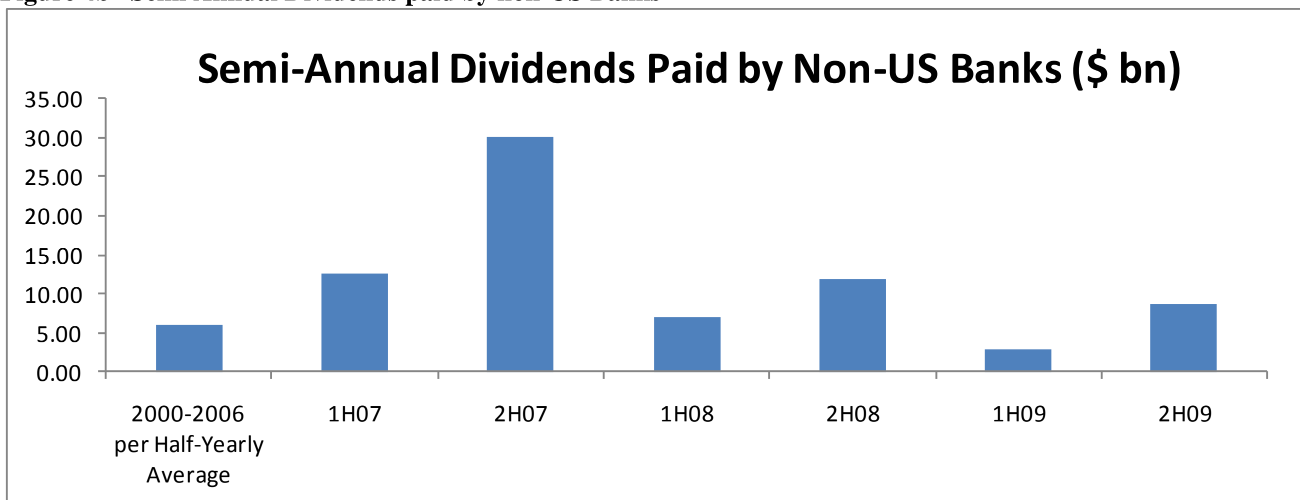
Source: Annual statements of Banks, SEC Filings, Bloomberg and Compustat

Figure 4a – Quarterly Dividends paid by US banks



Source: Annual statements of Banks, SEC Filings, Bloomberg and Compustat

Figure 4b –Semi Annual Dividends paid by non-US Banks



Source: Annual statements of Banks, SEC Filings, Bloomberg and Compustat

Table 5 Quarterly Losses incurred by Large Financial Firms

($ bn)	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	Total
JP Morgan	2.5	2.8	5.9	4.0	8.1	9.8	7.7	8.0	7.8	6.2	62.8
Wells Fargo	0.0	2.6	2.2	4.5	5.5	8.6	4.3	4.7	5.6	5.0	43.0
Lehman	0.7	0.8	2.4	5.3	7.0	-	-	-	-	-	16.2
Wachovia	1.7	3.3	4.5	13.1	29.4	49.8	0.0	0.0	0.0	0.0	101.8
Citigroup	5.6	18.2	19.6	12.2	12.8	19.7	13.8	10.3	5.6	6.1	123.9
Wamu	0.9	3.9	3.9	5.5	30.9	-	-	-	-	-	45.1
Merrill	9.4	18.0	7.6	8.9	12.0	0.0	-	-	-	-	55.9
Morgan Stanley	0.9	9.4	2.3	1.8	1.3	5.8	1.2	0.2	0.4	0.1	23.4
Bank of America	2.1	7.6	6.3	5.5	6.7	14.5	13.8	13.3	10.1	9.3	89.2
Goldman Sachs	1.5	-0.5	2.0	0.8	1.1	2.3	0.8	1.2	0.0	0.0	9.2
Fannie Mae	3.7	5.2	9.5	15.4	20.0	17.0	19.3	24.0	13.5	11.1	138.7
Freddie Mac	3.1	6.1	15.2	13.0	19.0	22.2	13.5	24.5	-6.1	4.6	115.1
Bear Stearns	0.7	1.9	0.6	-	-	-	-	-	-	-	3.2
RBS	0.0	2.8	0.0	9.9	0.3	17.2	0.0	15.8	1.0	9.7	56.7
HSBC	0.9	7.6	2.6	10.8	4.8	15.6	0.0	7.9	0.0	5.6	55.8
Barclays	0.0	3.5	1.5	4.4	0.0	11.1	3.4	8.2	0.0	7.6	39.7
HBOS	0.0	1.1	4.2	0.2	3.7	17.1	-	-	-	-	26.3
Lloyds TSB	0.0	0.4	0.0	1.3	0.0	1.5	0.0	0.0	0.0	0.0	3.2
IKB	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5
UBS	4.7	14.6	19.5	6.0	4.7	4.0	3.5	0.2	-0.1	-0.1	57.0
Credit Suisse	1.9	4.0	5.3	0.0	2.9	3.3	1.4	0.0	0.1	0.0	18.9
Deutsche	2.6	0.1	3.3	2.8	2.6	3.8	1.7	1.2	0.6	0.8	19.5
Fortis	0.0	4.5	2.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	8.0
BNP	0.5	1.3	1.0	1.0	2.6	3.7	2.4	2.1	2.5	2.0	19.1
ABN AMRO	0.0	1.9	-	-	-	-	-	-	-	-	1.9

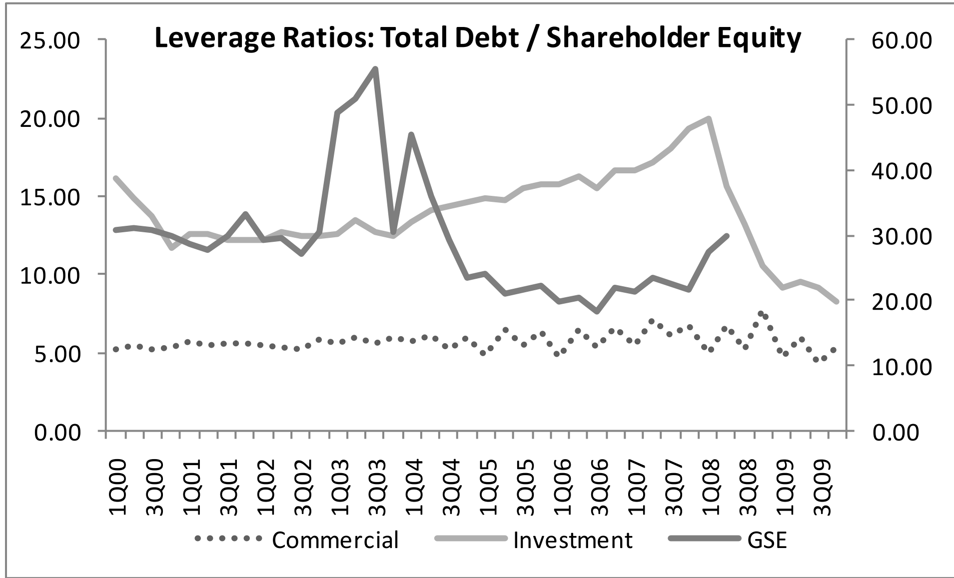
Source: WDCI, Bloomberg (numbers as of 31st December, 2009)

Table 6 – Leverage ratios for all banks in the data set (all numbers are from balance sheets)

Leverage Ratios	Type of Bank	2000-2006 *	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09
Total Debt / Shareholder Equity	Commercial	5.65	5.52	7.13	6.14	6.79	4.94	6.71	5.24	7.70	4.71	6.00	4.30	5.37
	Investment	13.88	16.66	17.20	18.00	19.39	20.01	15.60	13.20	10.52	9.13	9.50	9.10	8.22
	GSE	30.31	21.22	23.40	22.66	21.62	27.58	30.03	-379.04	-37.42	-70.72	-704.68	-352.85	-142.56
Total Assets/ Common Equity**	Commercial	17.77	19.83	24.61	19.49	22.51	24.00	25.06	20.66	27.93	25.29	23.84	19.29	19.55
	Investment	25.96	31.13	31.63	33.78	35.85	41.91	33.80	29.63	29.77	28.17	22.20	20.84	18.82
	GSE	39.23	29.20	33.08	33.30	41.85	68.23	85.28	40.40	18.19	15.37	14.56	12.85	10.83
Total Assets/ Shareholder Equity	Commercial	16.86	16.75	20.48	17.87	22.11	20.26	21.85	18.38	23.54	17.06	19.18	15.30	17.18
	Investment	25.33	29.59	30.09	32.05	33.91	37.58	29.50	27.43	23.44	21.40	19.81	18.74	17.01
	GSE	32.32	23.10	25.49	24.68	23.57	29.85	32.40	-398.83	-38.51	-74.85	-761.04	-385.79	-156.84
Commercial Paper / Total Assets	Commercial	0.72%	1.62%	0.82%	1.92%	3.00%	1.76%	0.83%	1.71%	2.46%	1.70%	0.67%	0.91%	1.10%
	Investment	0.57%	0.00%	0.18%	0.07%	2.88%	2.30%	0.00%	0.00%	3.22%	5.88%	3.19%	2.05%	3.88%
		0.12%	0.44%	0.37%	1.13%	1.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

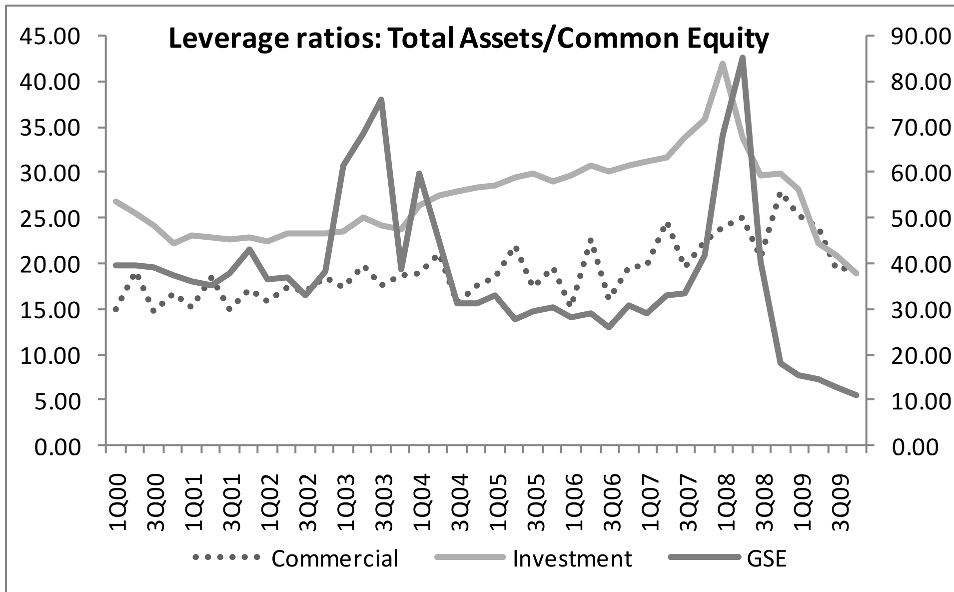
Source: Balance Sheets of all banks, from Bloomberg, SEC filings, Annual reports
**2000-2006 numbers are average of the quarterly ratios from 2000 to 2006*
*** Common Equity = Shareholder Equity – Preferred Equity as reported in Balance Sheet.*

Figure 6a – Leverage Ratios – Total Debt/Shareholder Equity for large US financial firms



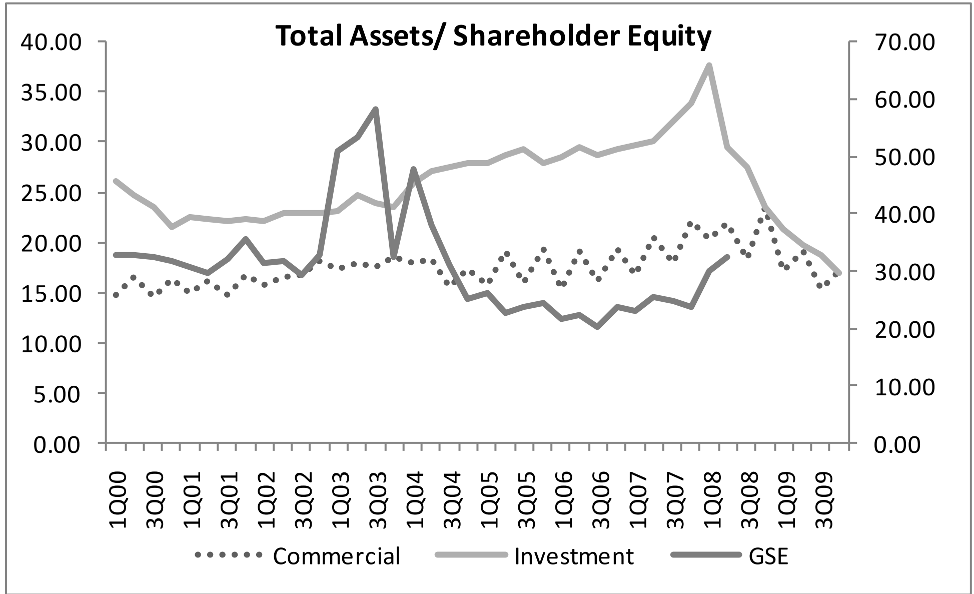
Source: Balance Sheets of all banks, from Bloomberg, SEC filings, Annual reports
Note: Commercial/Investment Bank Ratios are on the primary axis and GSE ratios on the secondary axis. (Debt = Short term borrowings + Long Term borrowings. It does not include Deposits held by a bank.)

Figure 6b – Leverage Ratios – Total Assets/Common Equity for large US financial firms



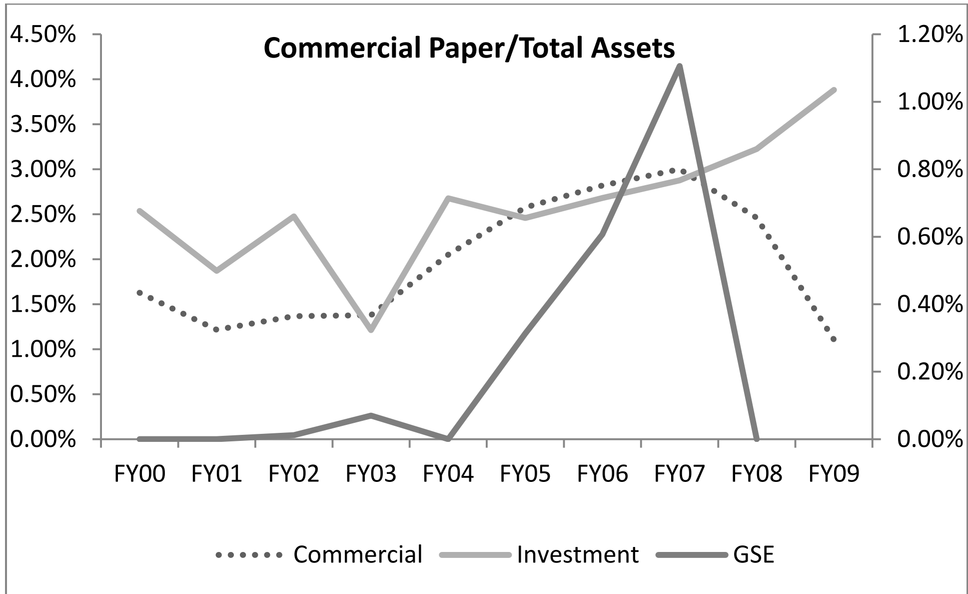
Source: Balance Sheets of all banks, from Bloomberg, SEC filings, Annual reports
Note: Commercial/Investment Bank Ratios are on the primary axis and GSE ratios on the secondary axis.

Figure 6c –Asset/ Shareholder Ratio for large US financial firms



Source: Balance Sheets of all banks, from Bloomberg, SEC filings, Annual reports
Note: Commercial/Investment Bank Ratios are on the primary axis and GSE ratios on the secondary axis.

Figure 6d –Commercial Paper/ Total Assets for large US financial firms



Source: Balance Sheets of all banks, from Bloomberg, SEC filings, Annual reports
Note: Commercial/Investment Bank Ratios are on the primary axis and GSE ratios on the secondary axis.

Table 7 - Assets/ Common Equity for large U.S financial firms

	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09
JP Morgan	11.97	12.23	12.33	12.68	13.08	13.96	16.35	16.12	15.04	13.82	13.24	12.93
Wells Fargo	10.70	11.57	11.63	12.20	12.58	12.89	13.43	19.33	0.00	0.00	0.00	0.00
Lehman	29.73	30.24	31.94	32.30	35.99	33.16	0.00	0.00	0.00	0.00	0.00	0.00
Wachovia	9.69	9.94	10.27	10.05	10.74	11.89	17.71	0.00	0.00	0.00	0.00	0.00
Citigroup	16.69	17.47	18.58	19.26	20.21	19.27	20.78	27.32	25.43	23.15	13.24	12.00
Wamu	12.06	11.71	12.51	13.06	13.92	11.64	0.00	0.00	0.00	0.00	0.00	0.00
Merrill	26.50	28.65	32.39	37.03	40.79	45.77	29.44	36.16	0.00	0.00	0.00	0.00
Morgan Stanley	32.07	31.24	34.70	34.65	33.90	30.88	28.48	20.80	20.87	16.17	18.05	17.86
Bank of America	11.38	11.55	11.69	12.05	12.49	12.39	13.38	13.05	13.96	11.47	11.32	11.45
Goldman Sachs	20.59	21.40	23.28	23.84	25.18	23.97	23.46	17.85	19.23	15.66	14.86	13.12
Fannie Mae	25.32	26.98	27.06	32.32	38.19	45.05	67.47	24.41	16.49	13.75	10.95	9.00
Freddie Mac	34.62	43.28	44.07	62.10	392.09	853.44	27.92	14.29	14.41	15.50	15.64	13.70
Bear Stearns	30.55	32.69	31.39	34.56	34.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: Bloomberg, SEC filings, Annual reports

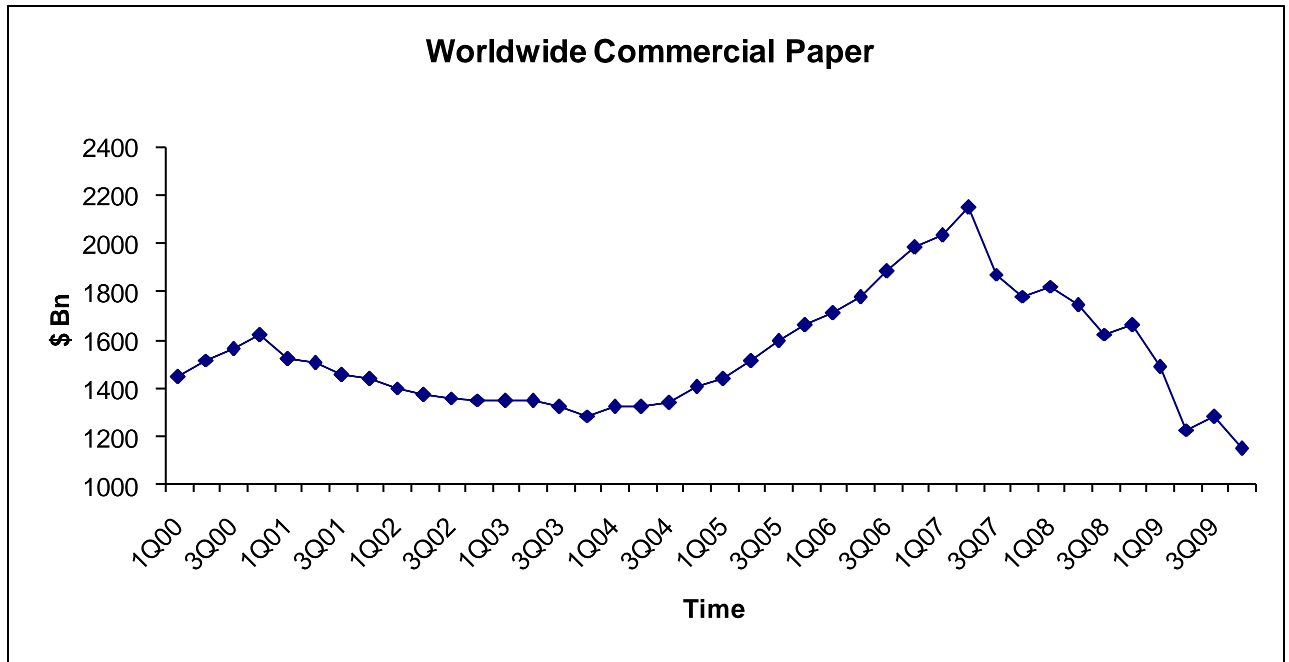
Table 8 – Commercial Paper Worldwide

Quarterly Data for Commercial Paper ($Bn)

Year	CP	Year	CP	Year	CP	Year	CP
1Q00	1449.1	1Q03	1349.9	1Q06	1709.9	1Q09	1488.8
2Q00	1517.2	2Q03	1349.8	2Q06	1776.4	2Q09	1229.1
3Q00	1560.2	3Q03	1321.4	3Q06	1886.0	3Q09	1279.5
4Q00	1619.3	4Q03	1284.2	4Q06	1982.9	4Q09	1147.7
1Q01	1523.0	1Q04	1323.5	1Q07	2034.7		
2Q01	1504.4	2Q04	1323.0	2Q07	2149.7		
3Q01	1457.0	3Q04	1341.2	3Q07	1871.8		
4Q01	1437.4	4Q04	1403.8	4Q07	1780.6		
1Q02	1400.2	1Q05	1436.9	1Q08	1821.5		
2Q02	1372.6	2Q05	1514.7	2Q08	1741.1		
3Q02	1360.8	3Q05	1597.2	3Q08	1624.3		
4Q02	1352.3	4Q05	1662.0	4Q08	1658.8		

Source: FCPOTOTS index – Bloomberg
(Commercial Paper Outstanding Seasonally Adjusted)

Figure 8 - Quarterly Data for Commercial Paper Worldwide ($Bn)



Source: FCPOTOTS index – Bloomberg

Table 9 – Commercial Paper issued by each bank as reported in Cash Flow Statement of Financial Statements

($ bn)	Name	Type of bank	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
U.S	JP Morgan	Commercial	24.9	18.5	16.6	14.0	12.6	13.9	18.8	49.6	37.8	41.8
U.S	Wells Fargo	Commercial	15.8	14.0	11.1	6.7	6.2	4.0	1.1	30.4	45.9	13.0
U.S	Lehman Brothers	Investment	4.2	1.9	1.6	1.6	1.7	1.8	1.7	3.1	0.0	0.0
U.S	Wachovia Corp.	Commercial	2.9	2.9	3.1	7.2	12.0	3.9	4.7	6.7	0.0	0.0
U.S	Citigroup	Commercial	18.7	13.9	18.3	17.6	25.6	34.2	43.7	37.3	28.7	10.2
U.S	Washington Mutual	Commercial	1.0	0.4	0.7	1.1	4.0	7.1	4.8	2.0	0.0	0.0
U.S	Merrill Lynch	Investment	13.0	1.9	3.4	3.4	4.0	3.9	6.4	12.9	20.1	0.0
U.S	Morgan Stanley	Investment	27.8	32.8	50.8	28.4	28.5	23.2	22.4	22.6	6.7	0.8
U.S	Bank of America	Commercial	7.0	1.6	25.2	42.5	78.6	116.3	141.3	191.1	158.1	0.0
U.S	Goldman Sachs	Investment	10.7	8.4	9.5	4.8	4.4	5.2	1.5	4.3	1.1	62.5
US	Fannie Mae	GSE	0.0	0.0	0.2	1.3	0.0	5.1	10.0	0.0	0.0	0.0
US	Freddie Mac	GSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.5	0.0	0.0
US	Bear Stearns	Investment	0.0	0.0	0.0	0.0	0.0	0.0	20.7	3.9	0.0	0.0
U.K	Royal Bank of Sctoland	Commercial	1.0	0.4	11.2	6.3	16.1	25.1	24.8	155.9	71.0	41.4
U.K	HSBC	Commercial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U.K	Barclays Plc.	Commercial	0.0	4.8	8.4	7.9	40.1	50.4	51.9	46.5	40.4	31.2
U.K	HBOS	Commercial	2.0	11.2	15.0	23.0	0.0	0.0	33.9	33.5	129.9	0.0
U.K	Lloyds TSB	Commercial	0.0	0.0	0.0	0.0	15.4	18.6	25.6	34.5	42.2	56.6
Europe	IKB	Commercial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Europe	UBS	Investment	0.0	0.0	0.0	0.0	69.7	77.8	98.0	133.6	104.1	49.9
Europe	Credit Suisse	Commercial	0.0	0.0	0.0	0.0	0.0	7.9	12.3	13.0	4.5	4.8
Europe	Deutsche Bank	Commercial	0.0	0.0	0.0	16.5	13.5	15.9	43.0	42.7	36.5	31.5
Europe	Fortis Bank	Commercial	0.0	0.0	0.0	0.0	60.4	78.5	100.4	109.2	0.0	0.0
Europe	BNP Paribas	Commercial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Europe	ABN AMRO	Commercial	26.0	20.3	25.1	20.3	20.9	61.5	74.4	63.3	41.9	30.3
Total			**154.8**	**132.8**	**200.1**	**202.5**	**413.8**	**553.9**	**741.4**	**1014.6**	**768.9**	**374.0**

Source: Bloomberg, SEC filings, Annual reports

Note: Commercial paper information could not be found for HSBC, BNP, 2004 and 2005 numbers for HBOS, 2000 numbers for Barclays, 2000-2003 for Lloyds PLV, UBS, Credit Suisse, Deutsche Bank and Fortis and IKB in financial statements available on Bloomberg or SEC filings.

** Data unavailable for this year*

APPENDIX A. Variable Definitions

Main Variables		Source
Credit Losses & Writedowns	Writedowns include those that directly reduce income, as well as value reductions that only decrease equity and are excluded by the banks from their earnings figures. The values are net of financial hedges the companies use to mitigate losses.	Bloomberg , WDCI function
Capital Raised (WDCI)	Capital infused by all banks, brokers, insurance companies and GSEs by different means.	Bloomberg , WDCI function
Capital Raised	Inlcudes net capital raised by long term borrowings, net common equity issuance and net preferred shares issued	Bloomberg, SEC, annual reports, Datastream,
Net Capital	Inlcudes net capital raised by long term borrowings, net common equity issuance and net preferred shares issued, less dividends	Bloomberg, SEC, annual reports, Datastream
Dividend	Dividends paid in cash by Banks	Bloomberg, SEC, annual reports, Datastream, Compustat
Common Equity	Common Equity was calculated by subtracting Preferred Equity from Total ShareHolders Equity. Both Preferred and ShareHolders Equity numbers were taken from the Balance Sheet	Bloomberg, SEC, annual reports, Datastream
Profit & Loss	Profit & Loss of the bank as reported on the Income Statement	Bloomberg, SEC, annual reports, Datastream
Assets	Total Assets of the bank as reported on the Balance Sheet	Bloomberg, SEC, annual reports, Datastream
Liabilities	Total Liabilities of the bank as reported on the Balance Sheet	Bloomberg, SEC, annual reports, Datastream
Total Debt (Leverage ratios)	Short Term Borrowings + Long Term borrowings as reported on the Balance Sheet. This does not include deposits held by banks	Bloomberg, SEC, annual reports, Datastream
Loans	Loans + Mortgages as reported on the Balance Sheet	Bloomberg, SEC, annual reports, Datastream

Appendix B. Frequency of data

Banks	Frequency	No. of Years
US Banks	Quarterly and Annual information	2000 onwards
European Banks	Quarterly/Semi Annual and Annual information	2000 onwards
UK Banks	Semi Annual and Annual information	2000 onwards

Appendix C – Capital Issuance – detailed data from Bloomberg (WDCI) from 3Q 20007 to 4Q 2009

Bank Name	Total Raised	Date	Curr ency	Amt. in Bn	Investor /Buyer	Investor Type	Capital Type	Security Type/Asset Sold	Amt. in USD Bn	Qtr	Type of Bank	Bank Region
JP Morgan	50.7	20-Oct-09	USD	1	Public Investors	Public	Common	30 year 7% trust preferred security	1.0	3Q09	Commercial	U.S
		1-Jun-09	USD	5	Public Investors	Public	Common	Common Stock	5.0	2Q09	Commercial	U.S
		28-Oct-08	USD	25	U.S. Treasury	Govt.	Preferred	Preferred stock	25.0	4Q08	Commercial	U.S
		26-Sep-08	USD	10	Public investors	Public	Common	Common stock at $40.50 a share	10.0	3Q08	Commercial	U.S
		14-Aug-08	USD	1.8	Public investors	Public	Preferred	8.625% Perpetual securities	1.8	3Q08	Commercial	U.S
		29-Jun-08	USD	0.07	Migdal Insurance	Private	Other	50% stake the capital markets unit of Migdal Insurance Holding Ltd	0.1	2Q08	Commercial	U.S
		05-Jul-08	USD	1.815	Public Investors	Public	Debt	8.0% 40-Year fixed-to-floating rate capital securities	1.8	3Q08	Commercial	U.S
		17-Apr-08	USD	6	Institutional Investors	Private	Preferred	8.125% Perpetual preferred stock	6.0	2Q08	Commercial	U.S
Wells Fargo	50.4	8-May-09	USD	8.6	Public Investors	Public	Common	Common Shares at $22 each	8.6	2Q09	Commercial	U.S
		06-Nov-08	USD	11.0025	Public Investors	Public	Common	Common shares at $27/share	11.0	4Q08	Commercial	U.S
		29-Oct-08	USD	25	U.S. Treasury	Govt.	Preferred	Preferred stock and warrants	25.0	4Q08	Commercial	U.S
		03-Sep-08	USD	1.75	Public Investors	Public	Debt	9.75% Perpetual hybrid bonds	1.8	3Q08	Commercial	U.S
		12-May-08	USD	2.5	Public Investors	Public	Debt	7.7% Fixed-to-float perpetual securities	2.5	2Q08	Commercial	U.S
		05-Mar-08	USD	1.55	Public Investors	Public	Preferred	7.875% 60-Year trust preferred securities	1.6	1Q08	Commercial	U.S
Lehman Brothers	13.9	06-Sep-08	USD	4	Public Investors	Public	Common	Common stock at $28 a share	4.0	3Q08	Investment	U.S
		06-Sep-08	USD	2	Public Investors	Public	Preferred	8.75% Non-cumulative mandatory convertible preferred stock	2.0	3Q08	Investment	U.S
		05-Feb-08	USD	2	Public Investors	Public	Debt	7.5% Subordinated 30-year bonds	2.0	1Q08	Investment	U.S
		04-Jan-08	USD	4	Public Investors	Public	Preferred	7.25% Convertible preferred stock, 32% conversion premium	4.0	1Q08	Investment	U.S
		02-Feb-08	USD	1.8975	Public Investors	Public	Preferred	7.95% Perpetual preferred shares	1.9	1Q08	Investment	U.S
IKB	10.7	13-Feb-08	EUR	2.3	German Govt, German Banks, KfW Group	Govt.	Other	Details not known	2.9	1Q08	Commercial	Europe
		27-Nov-07	EUR	0.35	German Banking Associations	SWF	Other	Details not known	0.4	4Q07	Commercial	Europe
		27-Nov-07	EUR	2.3	KfW Group	Private	Other	Details not known	2.9	4Q07	Commercial	Europe
		02-Aug-07	EUR	1	German Banking Associations	Private	Other	Details not known	1.3	3Q07	Commercial	Europe
		02-Aug-07	EUR	2.5	KfW Group	SWF	Other	Details not known	3.2	3Q07	Commercial	Europe

Royal Bank of Scotland	87.4	3-Nov-09	GBP	12.5	HM treasury	GOV	Common	B Shares which constitute Core tier 1 capital (25.5 – 13 billion recorded in February)	18.5	4Q09	Commercial	U.K
		26-Feb-09	GBP	13	HM treasury	GOV	Common	B Shares which constitute Core tier 1 capital	19.2	1Q09	Commercial	U.K
		19-Jan-09	GBP	5	HMT/Current shareholders	Private	Common	Ordinary shares at 31.75p/share	7.4	1Q09	Commercial	U.K
		13-Jan-09	GBP	0.74	Public investors	Public	Other	10.8bn shares of Bank of China Ltd	1.1	1Q09	Commercial	U.K
		13-Oct-08	GBP	15	Public investors	Public	Common	Common shares at 65.5 pence each	22.2	4Q08	Commercial	U.K
		28-Jul-08	GBP	0.5	Tesco Plc	Private	Other	50% stake in Tesco Personal Finance Group Limit	0.7	3Q08	Commercial	U.K
		22-Apr-08	GBP	12.3	Public Investors	Public	Other	Rights offering (11 shares for 18)	18.2	2Q08	Commercial	U.K
Wachovia Corp.	11.0	14-Apr-08	USD	4.025	Public Investors	Public	Common	Common stock at $24 a share	4.0	2Q08	Commercial	U.S
		14-Apr-08	USD	3.5	Public Investors	Public	Preferred	7.5% Preferred convertible stock	3.5	2Q08	Commercial	U.S
		02-Jun-08	USD	3.5	80 Domestic Investors (Unidentified)	Private	Preferred	7.98% preferred stock, private placement	3.5	2Q08	Commercial	U.S
Citigroup	138.54	10-Mar-10	USD	2	Public Investors	Public	Preferred	8.5% Trust Preferred Securities	2.0	1Q09	Commercial	U.S
		16-Jan-09	USD	10	FDIC	Govt.	Other	capital benefit from asset guarantee	10.0	1Q09	Commercial	U.S
		16-Jan-09	USD	5	U.S. Treasury	Govt.	Other	capital benefit from asset guarantee	5.0	1Q09	Commercial	U.S
		31-Dec-08	USD	20	U.S. Treasury	Govt.	Preferred	Preferred shares	20.0	4Q08	Commercial	U.S
		16-Dec-08	JPY	25	Mitsubishi UFJ Financial Group	Private	Other	Sale in NikkoCiti Trust and Banking corp.	27.6	4Q08	Commercial	U.S
		28-Oct-08	USD	25	U.S. Treasury	Govt.	Preferred	Preferred shares and warrants	25.0	4Q08	Commercial	U.S
		11-Jul-08	USD	4	Credit Mutual Group	Private	Other	German consumer unit (after-tax profit from the asset's sale)	4.0	3Q08	Commercial	U.S
		12-May-08	EUR	0.578	ING Group	Private	Other	CitiStreet (exact profit from the asset's sale not given)	0.7	2Q08	Commercial	U.S
		05-Jun-08	USD	2	Public Investors	Public	Preferred	8.5% Perpetual preferred stock	2.0	2Q08	Commercial	U.S
		29-Apr-08	USD	4.9	Public Investors	Public	Common	Common stock at $25.27 a share	4.9	2Q08	Commercial	U.S
		21-Apr-08	USD	6	Public Investors	Public	Preferred	8.4% Perpetual preferred stock	6.0	2Q08	Commercial	U.S
		14-Apr-08	USD	0.165	Discover Financial	Private	Other	Diners Club	0.2	2Q08	Commercial	U.S
		15-Jan-08	USD	6.88	Govt. of Singapore Investment Authority	SWF	Preferred	7.0% Convertible preferred stock	6.9	1Q08	Commercial	U.S
		15-Jan-08	USD	5.62	Kuwait Investment Authority	Govt.	Preferred	7.0% Convertible preferred stock	5.6	1Q08	Commercial	U.S
		15-Jan-08	USD	3.187	Public Investors	Public	Preferred	6.5% Convertible preferred stock, 35% conversion premium	3.2	1Q08	Commercial	U.S
		15-Jan-08	USD	3.715	Public Investors	Public	Preferred	8.125% preferred stock	3.7	1Q08	Commercial	U.S

		21-Dec-07	USD	3.5	Public Investors	Public	Preferred	8.3% enhance E trust preferred securities	3.5	4Q07	Commercial	U.S
		27-Nov-07	USD	0.7875	Public Investors	Public	Preferred	7.875% enhance E trust preferred securities	0.8	4Q07	Commercial	U.S
		27-Nov-07	USD	7.5	Abu Dhabi Investment Authority	SWF	Debt	11% Equity units convertible to common stock	7.5	4Q07	Commercial	U.S
Washington Mutual	12.1	31-Mar-08	USD	2	TPG Inc.	Private	Preferred	Common shares & preferred stock	2.0	1Q08	Commercial	U.S
		31-Mar-08	USD	6.05	Institutional Investors	Private	Preferred	Common shares & preferred stock	6.1	1Q08	Commercial	U.S
		12-Nov-07	USD	3	Public Investors	Public	Preferred	7.75% Perpetual convertible preferred shares	3.0	4Q07	Commercial	U.S
		18-Oct-07	USD	1	Public Investors	Public	Preferred	9.75% Perpetual preferred hybrid bonds	1.0	4Q07	Commercial	U.S
Merrill Lynch	29.9	28-Jul-08	USD	6.4	Public Investors	Public	Common	Common stock at $22.50 a share	6.4	3Q08	Investment	U.S
		28-Jul-08	USD	0.9	Temasek Holdings	SWF	Common	Common stock at $22.50 a share	0.9	3Q08	Investment	U.S
		17-Jul-08	USD	4.425	Bloomberg LP	Private	Other	20% stake in Bloomberg (pre-tax profit from the asset's sale)	4.4	3Q08	Investment	U.S
		05-Jul-08	USD	1.75	Public Investor	Public	Debt	Unsecured subordinated 30-year bonds	1.8	3Q08	Investment	U.S
		22-Apr-08	USD	2.55	Public Investors	Public	Preferred	8.625% Perpetual preferred stock	2.6	2Q08	Investment	U.S
		24-Feb-08	USD	0.6	Temasek Holdings Pte.	SWF	Common	Common stock at $48 per share	0.6	1Q08	Investment	U.S
		15-Jan-08	USD	6.6	Korea Invest, Kuwait Investment Authority	SWF	Preferred	9% preferred stock	6.6	1Q08	Investment	U.S
		31-Dec-07	USD	0.316	Aegon N.V	Private	Other	Merrill Lynch Life Insurance Company and ML Life Insurance Company of New York (after-tax profit from asset's sale)	0.3	4Q07	Investment	U.S
		24-Dec-07	USD	4.4	Temasek Holdings Pte.	SWF	Common	Common stock at 14% discount	4.4	4Q07	Investment	U.S
		24-Dec-07	USD	1.2	Davis Selected Advisors LP	Private	Common	Common stock at $48 per share	1.2	4Q07	Investment	U.S
		13-Aug-07	USD	0.75	Public Investor	Public	Preferred	7.375% preferred stock	0.8	3Q07	Investment	U.S
Morgan Stanley	28.779	2-Jun-09	USD	2.2	Public Investors	Public	Com	Common Shares at $27.44 each.	2.2	2Q09	Investment	U.S
		8-May-09	USD	2	Public Investors	Public	Com	Common Shares at $24 each	2.0	2Q09	Investment	U.S
		26-Oct-08	USD	10	U.S. Treasury	Govt.	Preferred	Preferred stock	10.0	4Q08	Investment	U.S
		14-Oct-08	USD	1.2	Mitsubishi UFJ Financial Group	Private	Preferred	10% Non-convertible preferred shares	1.2	4Q08	Investment	U.S
		14-Oct-08	USD	7.8	Mitsubishi UFJ Financial Group	Private	Preferred	Preferred shares convertible at $25.25 a share	7.8	4Q08	Investment	U.S

		19-Dec-07	USD	5.579	China Investment Corp.	SWF	Debt	9.0% Units convertible to common stock in Aug. 2010	5.6	4Q07	Investment	U.S
UBS	34.4	26-Jun-09	CHF	3.8	Public Investors	Pub	Other	Common Shares at 13 francs each	3.19	2Q09	Investment	Europe
		31-Dec-08	USD	0.4	Public investor	Public	Other	3.4 billion H-Shares	0.4	4Q08	Investment	Europe
		16-Oct-08	CHF	6	Switzerland Govt	Govt.	Debt	12.5% mandatory convertible notes	5.0	4Q08	Investment	Europe
		13-Jun-08	CHF	15.97	Public Investors	Public	Common	Common stock at 21 francs a share	13.4	2Q08	Investment	Europe
		24-May-08	USD	0.156	Shareholders	Public	Other	24.9% stake in Adam Street Partners LLC (exact profit from asset sales not given)	0.2	2Q08	Investment	Europe
		04-Mar-08	EUR	1	Public Investors	Public	Debt	8.836% Perpetual fix-to-float bonds	1.3	1Q08	Investment	Europe
		12-Oct-07	CHF	11	Govt. of Singapore Investment Corp.	SWF	Debt	9.0% 2-Year bonds convertible to stock	9.2	4Q07	Investment	Europe
		12-Oct-07	CHF	2	Unidentified Mideast investor	Private	Debt	9.0% 2-Year bonds convertible to stock	1.7	4Q07	Investment	Europe
HSBC	26.15	3-Jun-09	EUR	1.75	Public Investors	Public	Debt	Subordinated Bonds (245 Basis more than benchmark mid-swap rate)	2.2	2Q09	Commercial	U.K
		2-Mar-09	GBP	12.85	Public Investors	Public	Common Stock	Rights Offer	19.0	1Q09	Commercial	U.K
		03-Sep-08	GBP	0.65	Public investors	Public	Debt	6.75% subordinated 20-yr bonds	1.0	3Q08	Commercial	U.K
		17-Jun-08	USD	0.439	Global Payments Inc.	Private	Other	51% stake in HSBC Merchant Services (exact profit from asset's sale not given)	0.4	2Q08	Commercial	U.K
		19-May-08	USD	1.5	Public Investors	Public	Debt	6.8% Subordinated 30-year bonds	1.5	2Q08	Commercial	U.K
		02-Apr-08	USD	2	Public Investors	Public	Debt	8.125% Perpetual capital securities	2.0	2Q08	Commercial	U.S
Bank of America	99.3	20-May-09	USD	13.5	Public Investors	Public	Common Stock	Common Shares at $10.77 each	13.5	2Q09	Commercial	U.S
		12-May-09	USD	7.3	Public Investors	Public	Other	5.8% of its stake in China Construction Bank at HK$4.2 each (exact profit not given)	7.3	2Q09	Commercial	U.S
		16-Jan-09	USD	20	U.S. Treasury	Govt.	Preferred	Preferred shares and warrants	20.0	1Q09	Commercial	U.S
		09-Jan-09	USD	10	U.S. Treasury	Govt.	Preferred	Preferred shares and warrants	10.0	1Q09	Commercial	U.S

		07-Jan-09	USD	2.8	Public Investors	Public	Other	13% stake in China Construction Bank	2.8	1Q09	Commercial	U.S
		26-Oct-08	USD	15	U.S. Treasury	Govt.	Preferred	Preferred shares and warrants	15.0	4Q08	Commercial	U.S
		10-Jul-08	USD	10	Puiblic Investors	Public	Common	Common stock at $22 each	10.0	3Q08	Commercial	U.S
		20-May-08	USD	2.7	Public Investors	Public	Preferred	8.2% Perpetual preferred shares	2.7	2Q08	Commercial	U.S
		24-Apr-08	USD	4	Public Investors	Public	Preferred	8.125% Perpetual hybrid bonds	4.0	2Q08	Commercial	U.S
		24-Jan-08	USD	13	Public Investors	Public	Preferred	8.0% and 7.25% Preferred stock and convertibl	13.0	1Q08	Commercial	U.S
		14-Nov-07	USD	1.035	Public Investors	Public	Preferred	7.25% Perpetual preferred shares	1.0	4Q07	Commercial	U.S
Barclays Plc.	85.4	8-Jul-09	JPY	52.7	Public Investors	Public	Debt	Samurai Bonds	58.08	3Q09	Commercial	U.K
		19-Nov-08	GBP	0.5	Public Investors	Public	Preferred	14% preferred shares and warrants convertible at 197.775p per share	0.7	4Q08	Commercial	U.K
		31-Oct-08	GBP	4.3	Qatar Holding, Challenger Univeresal and HH Sheikh	Private	Preferred	Mandatory convertible notes (9.75% until conversion at153.6276p on 30/06/09)	6.4	4Q08	Commercial	U.K
		31-Oct-08	GBP	2.5	Qatar Holding	Private	Preferred	14% preferred shares and warrants convertible at 197.775p per share	3.7	4Q08	Commercial	U.K
		18-Sep-08	GBP	0.701	Public investors	Public	Common	Common shares at 301p per share	1.0	3Q08	Commercial	U.K
		05-Aug-08	GBP	0.33	Swiss Reinsurance Co.	Private	Other	U.K. life-insurance unit (after-tax profit from asset's sale)	0.5	3Q08	Commercial	U.K
		25-Jun-08	GBP	0.5	Sumitomo Mitsui Financial Group Inc.	Private	Common	Common stock at 296 pence a share	0.7	2Q08	Commercial	U.K
		25-Jun-08	GBP	0.753	Public investors	Public	Common	Common stock at 282 pence a share	1.1	2Q08	Commercial	U.K
		25-Jun-08	GBP	3.247	Challenger, a company representing Qatar's royal family, Qatar Investment Authority, Temasek Holdings China Development	SWF	Common	Common stock at 282 pence a share	4.8	2Q08	Commercial	U.K
		18-Apr-08	USD	2	Public investors	Public	Debt	7.7% perpetual securities	2.0	2Q08	Commercial	U.K
		08-Apr-08	USD	2.65	Public investors	Public	Debt	8.125% perpetual securities	2.7	2Q08	Commercial	U.K
		25-Jul-07	GBP	1	Temasek Holdings Pte	SWF	Common	Common stock at 740 pence a share	1.5	3Q07	Commercial	U.K
		25-Jul-07	GBP	1.5	China Development Bank	SWF	Common	Common stock at 740 pence a share	2.2	3Q07	Commercial	U.K
Credit Suisse	11.4	16-Oct-08	CHF	10	Public investors	Public	Debt	Treasury shares & bonds	8.4	4Q08	Commercial	Europe

		21-Aug-08	USD	0.3	Public investors	Public	Debt	8.25% Perpetual non-cumulative bonds	0.3	3Q08	Commercial	Europe
		13-Jun-08	USD	1.2	Public investors	Public	Debt	8.25% Perpetual non-cumulative bonds	1.2	2Q08	Commercial	Europe
		25-Mar-08	USD	1.525	Public investors	Public	Debt	7.90% Perpetual capital securities	1.5	1Q08	Commercial	Europe
Deutsche Bank	9.59	25-Aug-09	EUR	3	Public Investors	Public	Debt	9.5% subordinated bonds	3.8	3Q09	Commercial	Europe
		22-Sep-08	EUR	2	Institutional investors	Private	Common	Common shares at 55 euros each	2.5	3Q08	Commercial	Europe
		01-May-08	USD	1.265	Public Investors	Public	Preferred	8.05% Perpetual preferred trust securities (cumulative with option of being non-cumulative)	1.3	2Q08	Commercial	Europe
		12-Feb-08	USD	1.975	Public Investors	Public	Preferred	7.6% Perpetual preferred stock	2.0	1Q08	Commercial	Europe
Goldman Sachs	41.09	1-Jun-09	HKD	14.86	Public Investors	Public	Common	Hong Kong Traded shares	14.9	2Q09	Investment	U.S
		14-Apr-09	HKD	5.75	Public Investors	Public	Common	Common STock	5.8	2Q09	Investment	U.S
		28-Oct-08	USD	10	U.S. Treasury	Govt.	Preferred	Preferred stock and warrants	10.0	4Q08	Investment	U.S
		24-Sep-08	USD	5	Public investors	Public	Common	Common stock at $123 a share	5.0	3Q08	Investment	U.S
		24-Sep-08	USD	5	Berkshire Hathaway Inc.	Private	Preferred	10% Perpetual preferred stock	5.0	3Q08	Investment	U.S
		01-Oct-08	GBP	0.325	Public Investors	Public	Debt	6.875% Subordinated bonds	0.5	4Q08	Investment	U.S
Fannie Mae	83.60	10-May-10	USD	8.4	US Government.	Govt.	Preferred	Preferred Shares entered into under Purchase Agreement	8.40	3Q09	GSE	US
		26-Feb-10	USD	15.3	US Government.	Govt.	Preferred	Preferred Shares entered into under Purchase Agreement	15.30	1Q10	GSE	US
		5-Nov-09	USD	15	US Government.	Govt.	Preferred	Preferred Shares entered into under Purchase Agreement	15.00	4Q09	GSE	US
		6-Aug-09	USD	10.7	US Government.	Govt.	Preferred	Preferred Shares entered into under Purchase Agreement	10.70	3Q09	GSE	US
		6-May-09	USD	19	US Government.	Govt.	Preferred	Preferred Shares entered into under Purchase Agreement	19.00	2Q09	GSE	US
		25-Feb-09	USD	15.2	US Government.	Govt.	Preferred	Preferred Shares entered into under Purchase Agreement	15.20	1Q09	GSE	US
Freddie Mac	57.70	12-May-09	USD	6.1	US Government.	Govt.	Preferred	Preferred Shares entered into under Purchase Agreement	6.10	2Q09	GSE	US
		11-Mar-09	USD	30.8	US Government.	Govt.	Preferred	Preferred Shares entered into under Purchase Agreement	30.80	1Q09	GSE	US

		24-Nov-08	USD	13.8	US Government.	Govt.	Preferred	Preferred Shares entered into under Purchase Agreement	13.80	4Q08	GSE	US
		4-Dec-07	USD	6	Public Investors	Public	Preferred	8.375% Variable preferred shares	6.00	4Q07	GSE	US
		28-Sep-07	USD	0.5	Public Investors	Public	Preferred	6.55% Fixed Perpetual Preferred Shares	0.50	3Q07	GSE	US
		24-Jul-07	USD	0.5	Public Investors	Public	Preferred	6.02% Fixed perpetual Preferred Shares	0.50	3Q07	GSE	US
Fortis Bank	20.4	29-Sep-08	EUR	2.5	Luxembourg Government	Govt.	Debt	Loan convertible into 49% stake in Luxembourg banking division	3.2	3Q08	Commercial	Europe
		29-Sep-08	EUR	4.7	Belgium Government	Govt.	Other	49% stake in Belgian banking unit	6.0	3Q08	Commercial	Europe
		29-Sep-08	EUR	4	Netherlands Government	Govt.	Other	Stake in Dutch business	5.1	3Q08	Commercial	Europe
		02-Jul-08	EUR	0.709	Deutsche Bank	Govt.	Other	Commercial lending units in Netherlands (exact prfoit from asset sale not given)	0.9	3Q08	Commercial	Europe
		26-Jun-08	EUR	1.5	Public Investors	Public	Common	Common stock at 10 euros a share	1.9	2Q08	Commercial	Europe
		26-Jun-08	EUR	2	Public Investors	Public	Preferred	Preferred stock - no other details given in initial announcement	2.5	2Q08	Commercial	Europe
		23-May-08	EUR	0.625	Public Investors	Public	Debt	8% subordinated bonds	0.8	2Q08	Commercial	Europe
HBOS	22.9	15-Jan-09	GBP	3	Public Investors	Public	Preferred	Preference shares (12% for first five years and 3month Libor +700bps thereafter	4.4	4Q08	Commercial	U.K
		13-Oct-08	GBP	8.5	Public Investors	Public	Common	Common shares at 113.6 pence each	12.6	4Q08	Commercial	U.K
		21-Jul-08	GBP	2.48	Morgan Stanley, Dresdner Kleinwort Ltd., and o	Private	Common	Common stock, two new shares for every five at 275pence per share	3.7	3Q08	Commercial	U.K
Lloyds TSB	47.6	16-Dec-09	USD	2	Public Investors	Public	Other	12% hybrid Tier 1 securities	2.00	4Q09	Commercial	U.K
		3-Nov-09	GBP	7.7	Public Investors	Public	Common	13.5 billion rights offering (37p) net of UK Govt Portion	11.40	4Q09	Commercial	U.K
		3-Nov-09	GBP	5.8	HM Treasury	Govt.	Common	43% share of 13.5 billion rights offering	8.58	4Q09	Commercial	U.K
		3-Nov-09	GBP	7.5	Public Investors	Govt.	Other	Core Tier 1 capital generated by Exchange Offers	11.10	4Q09	Commercial	U.K
		13-Jan-09	GBP	1	HM Treasury	Public	Preferred	12% Preference shares	1.48	1Q09	Commercial	U.K
		17-Oct-08	GBP	0.4	Public investors	Public	Debt	10-year Bonds	0.6	4Q08	Commercial	U.K

		13-Oct-08	GBP	4.5	Public investors	Public	Common	Common shares at 173.3 pence each	6.7	4Q08	Commercial	U.K
		13-Oct-08	GBP	1	Public investors	Public	Preferred	12% Preference shares	1.5	4Q08	Commercial	U.K
		29-May-08	GBP	0.75	Public investors	Public	Debt	Variable subordinated callable bonds	1.1	2Q08	Commercial	U.K
		15-May-08	EUR	0.5	Public investors	Public	Debt	7.875% Perpetual bonds	0.6	2Q08	Commercial	U.K
		15-May-08	USD	1.25	Public investors	Public	Debt	7.875 Perpetual bonds	1.3	2Q08	Commercial	U.K
		26-Feb-08	EUR	1	Public Investors	Public	Debt	Variable subordinated bonds	1.3	1Q08	Commercial	U.K
BNP Paribas	11.938	29-Sep-09	EUR	4.3	Public Investors	Public	Common	Rights Offering at 40 Euros each	5.5	3Q09	Commercial	Europe
		20-Mar-09	EUR	2.55	French Government	Govt	Debt	Subordinated Bonds (Second Tranche)	3.2	1Q09	Commercial	Europe
		18-Aug-08	EUR	2.55	French Govt	Govt.	Debt	Subordinated Bonds	3.2	3Q08	Commercial	Europe