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The recovery of US commercial banking: an analyis of revenues, profits, dividends, capital and value creation

Abstract

This paper reviews the financial performance, risk, changing revenue and asset mix and prospects for future shareholder value creation of the 20 largest commercial banks in the US from 2003-2012. Fifteen of the 20 banks in the sample reported record revenues in 2012, with 12 of these banks also earning record profits. Revenue from interest income declined each year 2010-2012, resulting in banks generating more revenue from trading activities and fees. Aggregate dividends are still equal to their level 10 years ago, despite record profits and a mean effective tax rate of 25.2%, which is 4% lower than its pre-crisis average. Banks reduced their allowance and provision for loan losses each year 2010-2012, but 7.6% of all loans remain nonperforming, restructured or impaired. Net interest margin remained stable between 3.4%-3.7% from 2009-2012, while average profit margins have increased back to their pre-crisis levels. Banks hold an average capital/assets ratio of 11.4%, well in excess of the 10.0% regulatory minimum. Bank stock returns have lagged behind the S&P 500 since the market lows of March 2009. Average bank market betas shifted to a significantly higher range in post-crisis, but have gradually declined to a mean value of 1.2. Aggregate MVA for commercial banks has been negative for 5 consecutive years, and aggregate EVA was negative from 2009-2011 before posting a strong turnaround in 2012, as banks' mean return on capital finally exceeded their cost of capital. Bank stocks were undervalued at the end of 2012 based on their P/B, PEG and P/E ratios, as well as value creation metrics such as future growth reliance and EVA momentum.

Keywords: commercial banking, bank capital, regulation, risk, stock returns, profits.
JEL Classification: G18, G21.

Introduction

Commercial banking in the US is completing its recovery from the financial crisis of 2008-2009. Banks faced numerous challenges to their revenue and profit models in the post-crisis years, including navigating the new regulatory frameworks imposed by the Dodd-Frank Act and the Basel III accord. From 2010-2012 some argued that the industry was on the verge of relapsing into financial distress and thus required trillions of dollars of assistance, delivered via programs such as the Troubled Asset Relief Program (TARP) and Quantitative Easing (QE1, QE2 and QE3). By the end of fiscal year 2012, however, 15 of the 20 largest commercial banks in the US posted record-setting revenues, with 12 of these banks also earning record profits. Many now view banks' financial performance as convincing evidence that they are ready to compete in a free market environment once again and thus no longer require further regulatory support.

In this paper I assess how banks are responding to the new regulatory mandates and the extent to which they have recovered from the events of 2008-2009. I examine the financial performance, risk, changing revenue and asset mix and prospects for future shareholder value creation of the 20 largest commercial banks in the US from 2003-2012. I focus on these 20 banks because they are most likely to have the resources to respond quickly to the new regulatory framework mandated by the Dodd-Frank Act and Basel III, and, as dominant players in their industry, also receive a disproportionate amount of regulatory scrutiny. As commercial banking continues adapting to the new environment, signs of significant recovery are most likely to be evident in banks of this size and scope.

1. Literature review

The academic literature suggests that, when it comes to banks, size matters. Filbeck et al. (2011) find that size plays a significant role in a bank's ability to outperform the S&P 500, particularly during an economic contraction. Additionally, the Dodd-Frank Act designates bank holding companies with $50 billion or more in consolidated assets as systemically significant (12 of the 20 banks in our sample meet this criterion, shown in Table 1 below). The banks featured in this study can therefore be viewed as industry bellwethers, as they have the resources and stability to respond quickly to changes in the regulatory landscape. The Dodd-Frank Act requires large financial firms, bank holding companies (BHCs) and savings and loan holding companies (SLHCs) to significantly increase their balance sheet capital (Price, Waterhouse, Coopers, 2010), which can limit banks' efforts to maximize profits. Dodd-Frank also prohibits any mergers or acquisitions that result in a new entity whose consolidated liabilities exceed 10% of the aggregate liabilities of all financial companies (Murphy, 2010). The new capital requirements and merger restrictions are based on the risk these banks pose to the stability of the US financial system, which is determined mainly as a function of their size.

The Basel III accord imposes even harsher restrictions on systematically important banks, requiring

them to use more of their own capital in their operations (Basel Committee on Banking Supervision, 2010). These higher capital requirements are targeted at reducing both exposure to contagion and excessive risk-taking. The new regulations are mainly focused on what have become known as the "too big to fail" banks, due to their systemic importance. Many believe the "too big to fail" banks have exploited the moral hazard problem of regulators being too quick to rush to their aid when they assume more risk than they can manage. In addition to increasing systemic risk, the "too big to fail" banks also cost more to bail out (Demirguc-Kunt and Huizinga, 2010). Clearly, both US and global regulators believe that size matters when it comes to banks.

Jackson et al. (1999), Santos (2001), Stolz (2002), and VanHoose (2006, 2007) find that higher capital standards act as constraints that are likely to reduce total lending by banks, with accompanying substitutions of alternative assets for loans on banks' balance sheets. This shift to alternative assets is further being driven by global private sector deleveraging, resulting in a reduction in aggregate demand and slower loan growth (Keen, 2009). These studies also find that capital regulation leads to higher capital ratios. I therefore examine the asset, revenue and profit mix and capital holdings of our sample of banks from 2003-2012.

The author expects to observe a decrease in the amount of loans relative to banks total assets as their capital ratios rise because less capital is available for lending. Requiring banks to hold more capital is also likely to hamper their ability to earn sufficient returns for shareholders. This should lead to banks investing in alternative assets with higher expected returns and risk. The author therefore, expects to find an increase in the market risk of these banks as they increase their capital holdings.

2. Data and descriptive statistics

Data for this study are obtained from Standard & Poor's Capital IQ, EVA Dimensions, LLC and the Federal Reserve Economic Database (FRED). The 20 largest commercial banks in terms of market capitalization are identified from Capital IQ. The identity of these banks and descriptive statistics are presented as Table 1 below[1]. The median market capitalization of these banks is $8.8 billion; they hold median assets of over $59 billion, median total deposits of over $48 billion, and median total loans of over $42 billion. Collectively, these banks make 47% of all the commercial loans in the US and employ over 575,00 people fulltime.

Table 1. Descriptive statistics

Bank	Market cap (ml. USD)	Total assets (ml. USD)	Total deposits (ml. USD)	Total loans (ml. USD)	% of all cons. loans	% of all comm. loans	Total fulltime employees
Wells Fargo	227.046	1.440,563	1,021.585	774.930	4.08%	15.86%	269.200
US Bancorp	68.641	353.415	251.568	223.663	2.78%	4.42%	64.486
PNC	39.874	304.415	212.279	186.003	2.23%	6.02%	50.947
BB&T	25.170	182.735	131.079	113.893	0.65%	1.59%	34.000
Sun Trust	18.328	171.546	127.619	119.906	1.24%	3.60%	26.778
Fifth Third	16.793	123.360	93.454	85.297	0.88%	2.64%	20.798
M&T	15.378	83.229	65.661	65.045	0.42%	1.20%	13.640
Regions Financial	13.875	118.707	92.454	73.354	0.59%	1.78%	26.813
Key Corp	11.119	90.639	67.721	52.225	0.50%	1.88%	15.589
CIT Group	9.817	44.631	11.171	21.311	0.13%	1.14%	3.560
Comerica	7.922	62.947	51.255	44.846	0.08%	2.11%	8.628
Huntington Bank	7.135	56.114	46.331	41.007	0.48%	1.13%	11.245
First Republic	6.055	37.313	28.229	30.294	0.08%	0.18%	2.110
Zions Bancorp	5.438	54.905	45.016	37.374	0.10%	1.32%	10.368
BOK Financial	4.581	27.808	19.496	12.238	0.04%	0.51%	4.704
Cullen/frost	4.547	22.572	19.078	9.139	0.04%	0.32%	3.878
East west Bank	4.290	23.308	19.282	15.678	0.03%	0.32%	2.205
Signature Bank	4.224	19.722	15.272	10.947	0.01%	0.12%	844
Commerce Bank	4.110	21.910	17.897	10.204	0.09%	0.21%	4.270
SVB Financial	4.019	22.154	18.690	9.503	0.01%	0.51%	1.615
Mean	24.918	163.100	117.757	96.843	Total	Total	Total
Median	8.869	59.530	48.793	42.926	14.4%	46.9%	575.678

[1] I focus on the commercial banking subsector, omitting many of the large banks in the diversified financials subsector. Some of these entities (Goldman Sachs, Morgan Stanley) applied for banking charters during the unusual circumstances of 2008, and most have a significantly different business model, focused more on investment banking vs. traditional bank activities such as gathering deposits and extending credit.

Empirical findings are presented in the sections that follow. The paper focuses on the commercial banking subsector, reporting either aggregate results (for items such as assets, revenues and profits) or means (for items such as profitability and capital ratios).

3. Revenue sources and asset mix

Figure 1 presents aggregate total revenue and interest income from loans and investments for the sample of commercial banks from 2003-2012. Surprisingly, the only year in which the aggregate total revenue of these banks declines is 2008. The average annual growth rate in total revenue is 8.6% from 2003-2012, with these banks' aggregate total revenue reaching all-time highs every year from 2009-2012. While interest income from investments grows 8.9% per year from 2003-2012, interest income from loans grows only 6.0% per year, and actually declines each year from 2009-2012. With the more traditional revenue source of loan interest declining, but revenues achieving new record highs each year, it must be the case that banks have been developing alternative sources of revenue.

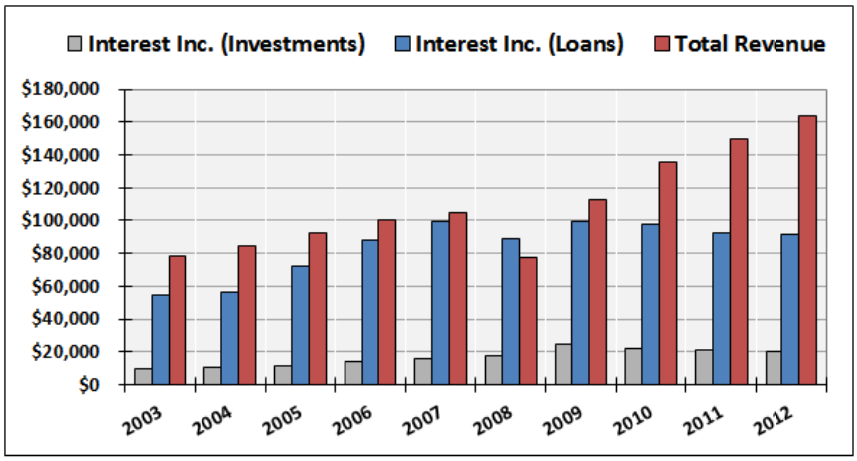

Fig. 1. Total revenue and interest income (millions)

Figure 2 presents trends in alternative revenue sources for our sample of commercial banks. Revenues from trading and mortgage banking activities have grown at a faster annual rate than interest income from loans (25.2% and 19.0%,), with service charges on deposits and other fees growing 6.7% per year.

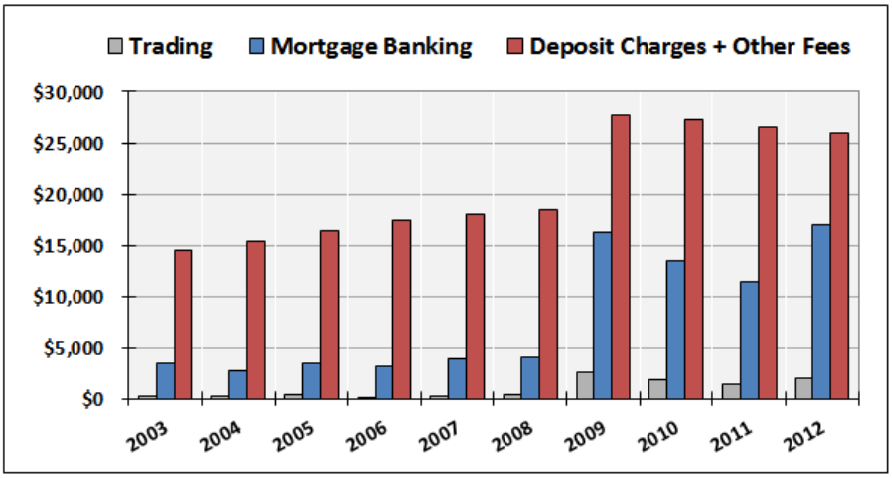

Fig. 2. Other revenue sources (millions)

The changes in revenue sources depicted in Figure 2 are, of course, a function of the assets held by banks. Figure 3 presents aggregate bank assets for our sample. We see steady growth in total loans through 2008, with the contraction in loan volume predicted by previous research occurring through 2010. While the average annual rate of loan growth equaled 9.3% per year from 2003-2012, other asset classes all display faster annual growth, including trading assets (23.4%), investment securities (17.7%) and mortgage-backed securities (11.4%). This confirms that banks are substituting alternative assets for loans on their balance sheets as predicted by previous researchers.

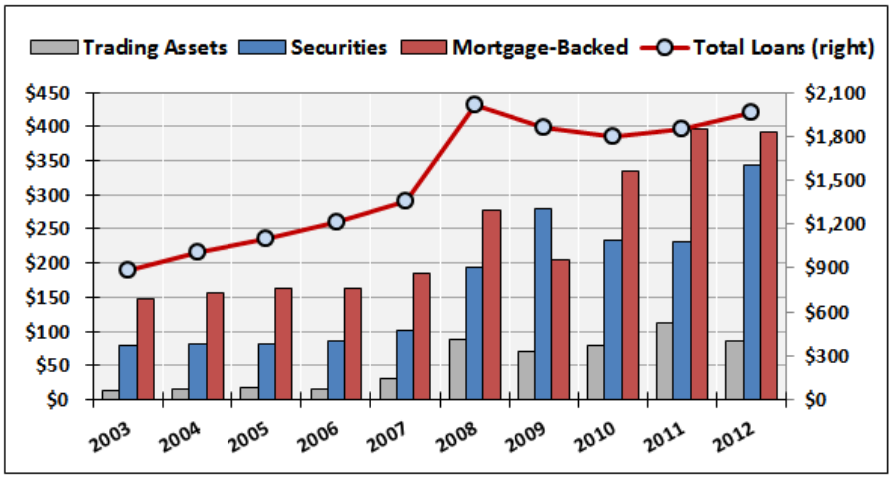

Fig. 3. Commercial bank assets (billions)

Summarizing the results of this section, we find the following:

- Aggregate revenue for the 20 largest commercial banks in the US reached all-time highs each year from 2009-2012. Fifteen of the 20 banks reported record revenues in 2012, and 12 of these banks also reported record profits.
- Traditional sources of revenue such as interest income from loans and investments declined each year 2010-2012.
- Total loans outstanding contracted in 2009 and 2010, resulting in banks diversifying into other asset categories, including trading assets, investment securities and mortgage-backed securities. Total loans exhibited growth in both 2011 and 2012.
- Diversification into other assets has resulted in banks generating more revenue from trading activities, fees on credit cards and deposits, and mortgage banking activities.

4. Profitability, dividends, loan losses, taxes and capital

Figure 4 presents aggregate bank profits and dividends for our sample. Aggregate net income is negative in 2008 only, driven mainly by the smaller banks in the sample. Larger banks such as Wells Fargo, US Bancorp, PNC and BB&T all reported positive net income in the crisis year of 2008, albeit at much lower levels than in previous years. Profits rebounded sharply for the larger banks in 2009, and by 2012 every bank in our sample reported positive profits, with the exception of BOK Financial. As mentioned previously, 60% of the banks in the sample earned record net income in 2012.

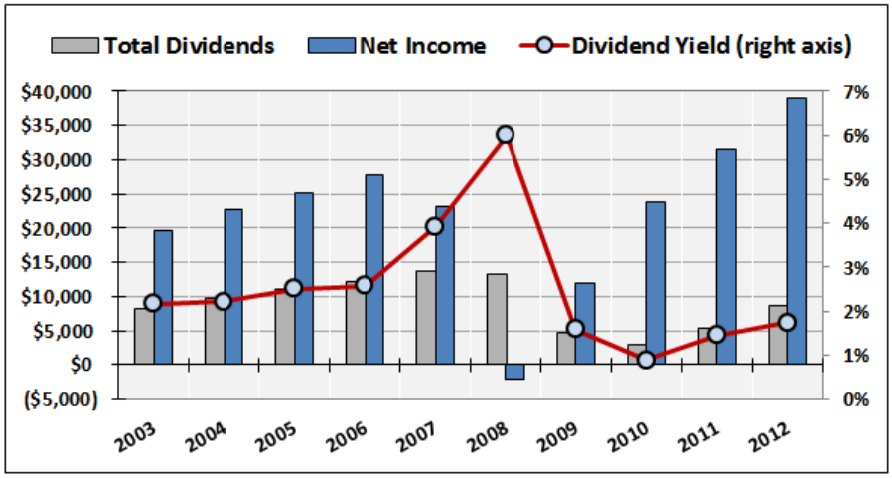

Fig. 4. Aggregate bank profits and dividends (in millons and percent)

Despite the volatile operating environment, our sample of banks experienced average annual growth in profits of 7.9% from 2003-2012, which would be considered exemplary for most industries. Aggregate dividends display a different pattern, however. The 20 commercial banks featured in this study paid total dividends of $8.2 billion in 2003 and $8.6 billion in 2013 – despite a doubling of revenues and profits over the same period. Banks were reluctant to reduce dividends leading into the financial crisis (Kanas, 2013), and are now apparently reluctant to raise them. For example, Citigroup cut its dividend in November 2008, and JP Morgan and Wells Fargo delayed cutting dividends as late as February-March

2009, months after both banks had been recipients of TARP funds. Dividends are related to bank risk-taking in several ways. They affect the ability of a bank to build a significant capital buffer (Acharya et al., 2009 and Onali, 2010), and allow banks to shift risk to depositors, as the level of the firm's dividend is one factor that determines deposit insurance rates (Duan et al., 1992). Given banks' record revenues and profits, analysts and shareholder activists are overdue in demanding a return to higher dividend payouts.

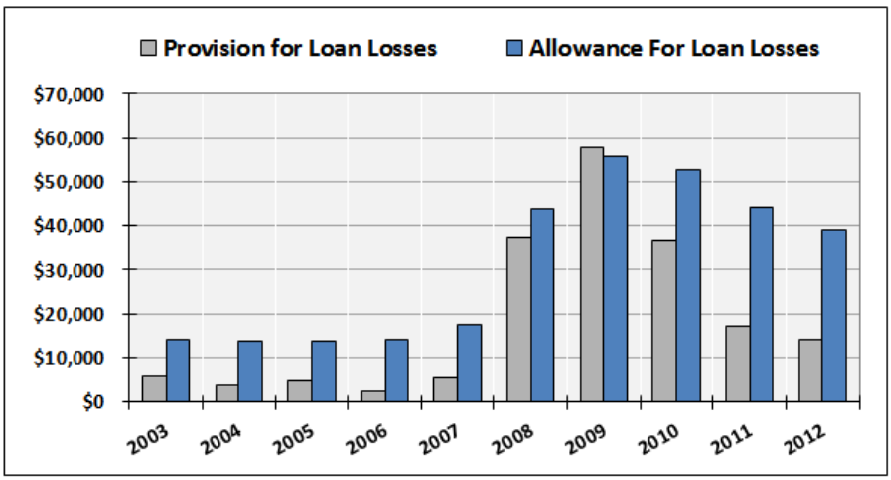

Fig. 5. Aggregate loan loss provisions and allowances (millions)

Figure 5 depicts aggregate loan loss provisions and allowances for our sample. The dramatic surge in loan loss provisions and allowances from 2008-2010 explains much of banks' struggles to regain their former levels of profitability. Conversely, the steady decline in loan loss provisions and allowances from 2010-2012 has contributed to banks' recent record profits. Before we conclude that the quality of banks' loan portfolios is improving, however, we need to consult Figure 6, which depicts commercial banks' nonperforming, restructured and impaired loans.

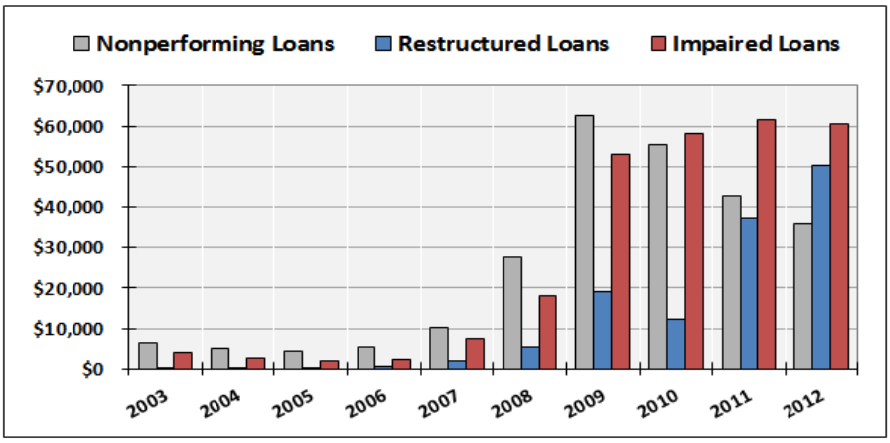

Fig. 6. Aggregate nonperforming, restructured and impaired loans (millions)

While banks have been successful at reducing the level of nonperforming loans, they still hold $60.5 billion of impaired loans and $50.3 billion of restructured loans. Including the $36.0 billion of nonperforming loans that still remain on banks' balance sheets, 7.6% of total net loans are either nonperforming, restructured or impaired. The only year in which this ratio was higher was 2011 (7.8%). The elevated levels of these questionable loans casts a shadow over bank profits in 2013 and 2014, as a substantial fraction of the impaired and restructured loans are likely to become nonperforming, leading to further increases in banks' provision for loan losses. Banks' decision to reduce loan loss provisions by 75% since 2009 has led to higher reported profits, but such an aggressive reduction appears questionable in light of the high percentage of impaired loans remaining on banks' balance sheets. The quality of banks' loan portfolios remains a key issue that requires further scrutiny by regulators, and the potential drag on future profits may account for some of banks' reluctance to increase dividends proportionately with revenues and profits. VanHoose (2007) argues that risk-based capital regulation should result in banks holding less risky portfolios, but the high levels of impaired and loans suggests that banks have been slow to impose stricter loan standards on borrowers.

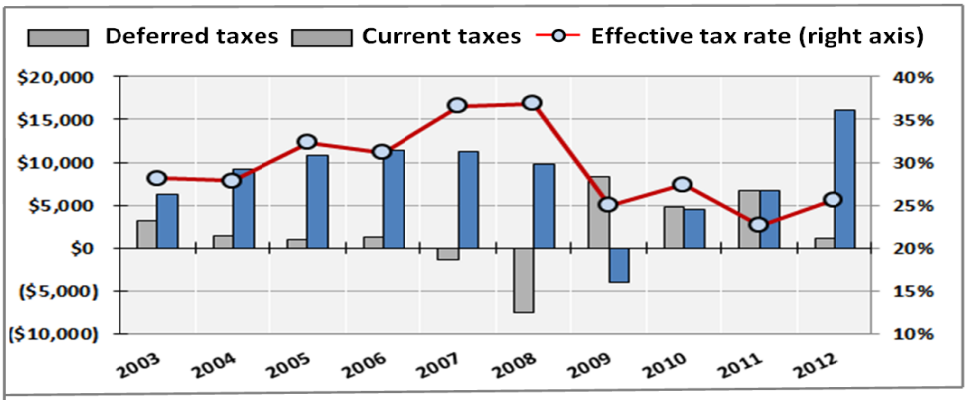

Fig. 7. Aggregate taxes (in millions) and banks' effective tax rate

Figure 7 depicts banks' current and deferred taxes and banks' effective tax rate (computed as current taxes/EBT ex-unusual items). Banks enjoyed a stable average effective tax rate of 29.8% from 2003-2006. Beginning in 2009 banks have enjoyed significantly lower tax rates (averaging 25.2% from 2009-2012), despite playing catchup on the billions of tax defferals afforded to them during financial crisis.

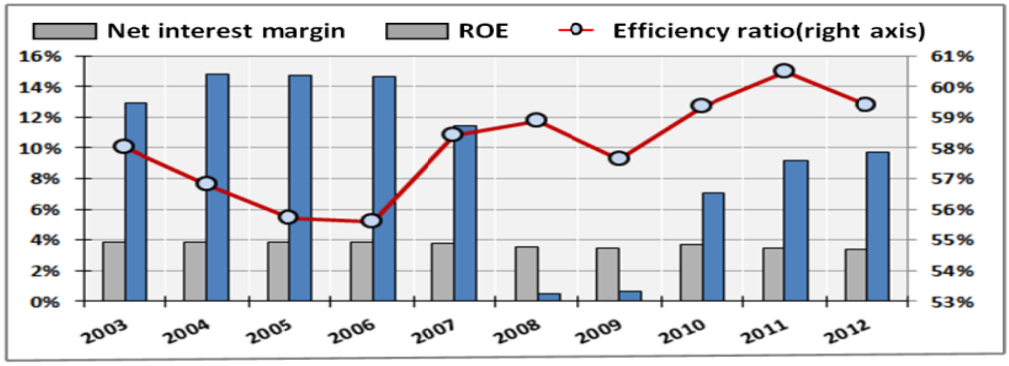

Fig. 8. Mean net interest margin, return on equity and efficiency ratios

Figure 8 shows banks' average net interest margin (NIM), return on equity (ROE) and efficiency ratios (the ratio of expenses to revenues). Banks enjoyed a stable average NIM of 3.83% from 2003-2007, due in large part to a decade of monetary easing by the Federal Reserve, which has kept short-term interest rates at historic lows. Despite the stable NIM, banks' mean ROE cratered to an abysmal 0.5%-0.6% in 2008-2009 before rebounding into the 7.0-9.0% range from 2010-2012, which is still significantly lower than the average of 13.7% from 2003-2007. Banks' mean efficiency ratio remains slightly elevated at 59.4%, higher than its average of 57.0% from 2003-2007. Expect banks to focus on additional cost efficiency gains in 2013 and beyond, which should boost their overall profitability.

We can also depict banks' profitablity in terms of traditional metrics such as EBITDA and net income profit margins, and value creation metrics such as their EVA margin (the ratio of economic value-added to revenues). Figure 9 shows that all 3 of these profit margin metrics are close to their 2003-2007 values, which further confirms that banks have regained their ability to generate profits and create value.

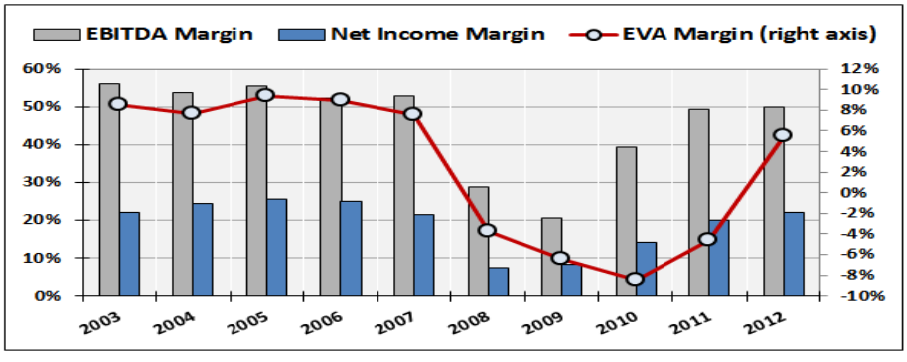

Fig. 9. Mean EBITDA margin, net income margin and EVA margin

The Collins Amendment to the Dodd-Frank act requires banks to significantly increase balance sheet capital, particularly Tier 1 capital holdings (primarily common stock, disclosed reserves or retained earnings, and non-redeemable preferred stock). Holding more capital contributes to two opposing effects, as explained by Keeley (1990), Demsetz et al. (1996) and Hellman et al. (2000). The overall effect of a higher capital ratio is, therefore, ambiguous. Higher capital ratios discipline banks' risk-taking, as using more of their own capital exposes banks to greater risk. A greater equity ratio may also decrease stability through a franchise-value effect, however. Because holding capital is costly, future profits will be lower, causing banks to assume greater risks to increase profits and the value of their franchise. Recent bank crises have increased regulator and shareholder awareness of the importance of adequate capital buffers, with many banks maintaining levels of capital greater than the regulatory minimum as a cushion against the adverse financial consequences of unexpected changes in asset prices. Banks therefore have an incentive to hold excess capital to avoid the costs associated with supervisory action if they approach or fall below the regulatory minimum capital ratio (Marcus, 1984; and Furfine, 2001). Banks may also maintain excess capital as a signal of stability to the market and to satisfy regulators and rating agencies (Jackson et al., 1999; and Shim, 2013).

Figure 10 presents the aggregate Tier 1 and total capital held by the banks in our sample, along with their mean capital/assets ratio. The chart reveals that large commercial banks were quick to respond to the call to hold more capital. Aggregate Tier 1 and total capital held by the banks in our sample has more than doubled since 2007, and their mean capital/assets ratio has increased as high as 12.3% in 2010. Fourteen of the 20 banks in our sample had capital/assets ratios greater than the regulatory minimum of 10% in 2012.

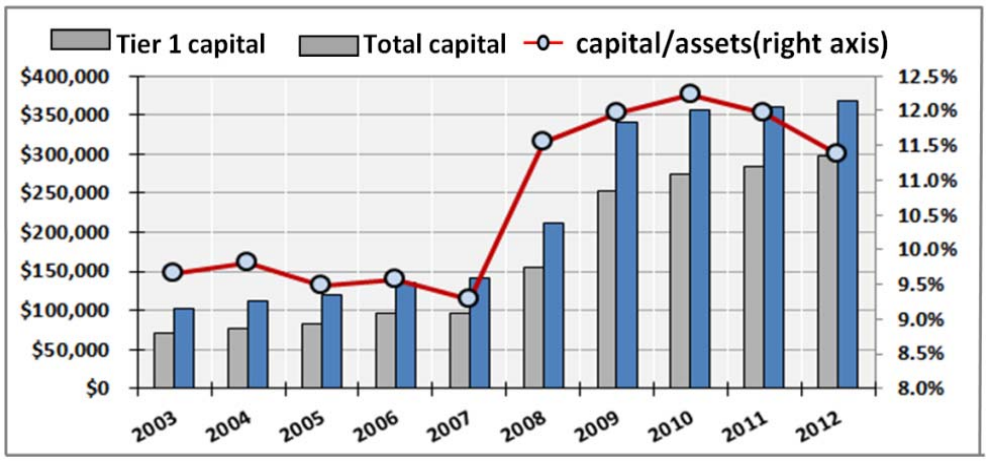

Fig. 10. Aggregate bank capital (in millions) and mean capital/assets ratios

Summarizing the results of this section, we find the following:

- Net income was positive for 19 of the 20 banks in the sample, with 12 of these banks earning record profits.
- Banks have started increasing dividends, but aggregate dividends are still equal to their level 10 years ago.
- Banks reduced their allowance and provision for loan losses each year 2010-2012, but fully 7.6% of all net loans remain either nonperforming, restructured or impaired.
- Banks paid an average effective tax rate of 29.8% 2003-2007; this average has fallen to 25.2% from 2009-2012, despite the large increase in bank profits.
- Banks' net interest margin has remained stable between 3.4%-3.7% from 2009-2012, and average ROE has increased each year 2010-2012. Banks' efficiency ratios have been increasing post-crisis, averaging 59.4% in 2012.
- Banks' average EBITDA margin, net profit margin and EVA margin have increased each year 2009-2012, and are back to their pre-crisis levels.
- Banks hold three times the Tier 1 capital they held in 2007, and the average capital/assets ratio for the banks in our sample equals 11.4%, well in excess of the regulatory minimum of 10.0%.

5. Shareholder value creation

In this section we examine bank stocks' performance and risk, and the prospects for future shareholder value creation[1]. Do commercial bank CEOs pay as close attention to their shareholders as CEOs in other industries? Apparently so US Bancorp CEO Richard Davis was recently quoted as saying "Our shareholders don't deserve for us to take a blip that we can't repeat and they can't predict" (Cocheo, 2011, p. 28).

[1] The data in Figures 14-17 are provided by EVA Dimensions, LLC.

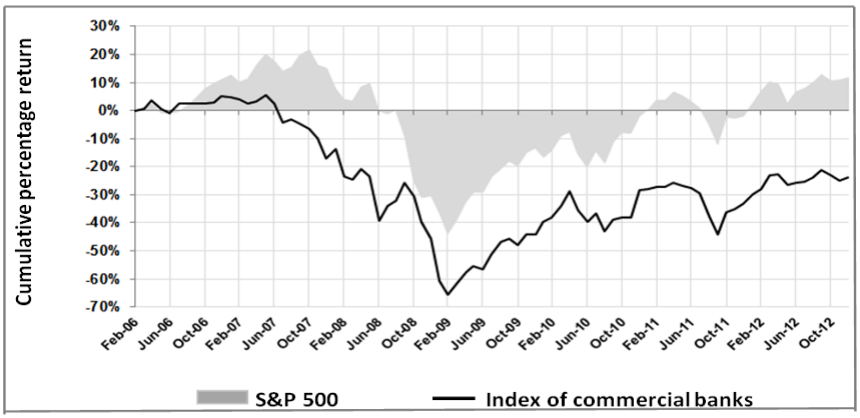

Fig. 11. Bank stock returns 2006-2012

As depicted in Figure 11, commercial bank stocks experienced more than a blip in 2007-2008 before recovering off the market's lows in Februrary-March 2009. Figure 12 shows that bank stocks have not performed well since the market bottom in early 2009, as slower-than-expected economic growth and lingering uncertainties have created industry headwinds (uncertainties include contradictions inherent in the Dodd-Frank Act, the possibility of additional regulatory changes, and Federal Reserve monetary policy, which has been volatile and opaque in recent years).

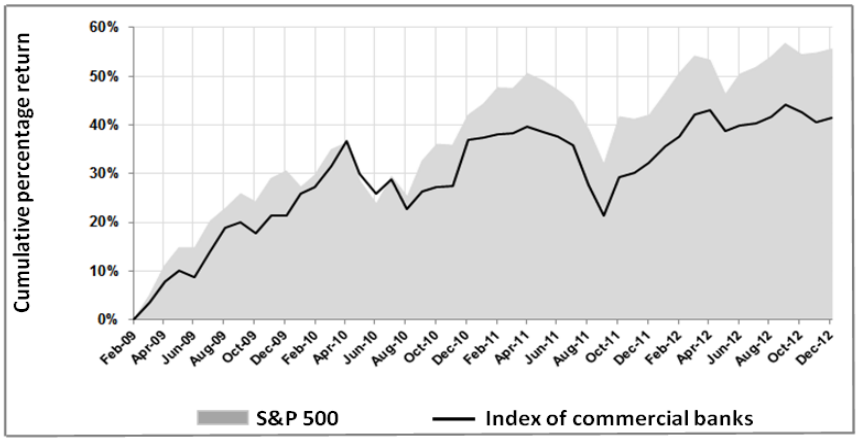

Fig. 12. Bank stock returns 2009-2012

Moreover, these low returns would look even worse if they were adjusted for the increase in bank stocks' betas in the post-crisis years, depicted in Figure 13. Each bank's beta is estimated vs. the S&P 500 using monthly returns for the trailing 36 months. The mean market beta of the stocks in our sample began rising in 2009, peaking at 1.6 in November 2011. The graph shows that the systemic shocks from 2008-2009 are gradually diminishing, but banks' mean beta remains elevated at 1.2. These findings are consistent with the idea that banks' shift away from loans and into riskier activities is contributing to the increase in bank stocks' betas.

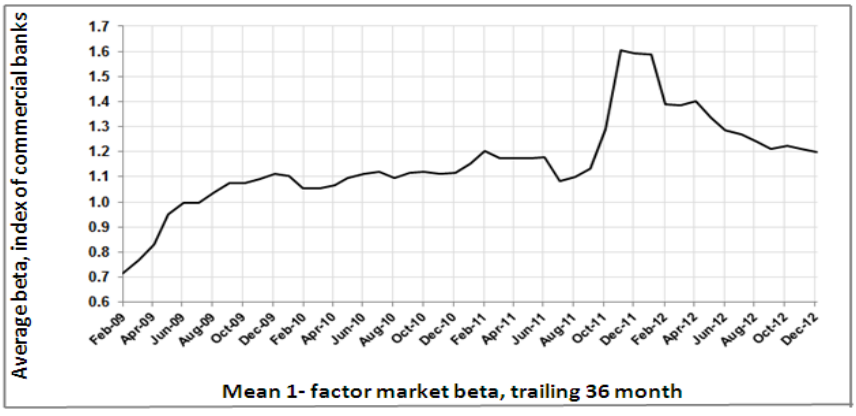

Fig. 13. Bank stocks' average market beta

Figure 14 depicts the aggregate market value-added (MVA) and economic value-added (EVA) of the banks in our sample. Market value-added measures the difference between the market capitalization of the firm's securities and the total capital invested in the firm. Companies thought to have stronger future prospects have higher MVA because investors are willing to pay larger premiums above invested capital to own the firm's securities. Figure 14 shows that commercial banking has been a negative MVA industry from 2008-2012, with a market value of bank equity and other securities less than total invested capital. Commercial banks have destroyed a significant amount of shareholder value.

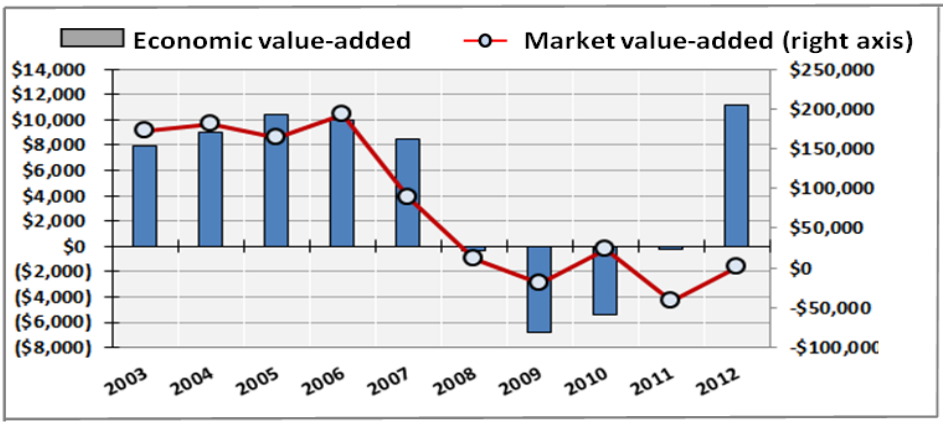

Fig. 14. Market value added and economic value added (EVA), in millions

Figure 14 also shows banks' aggregate EVA, measured as invested capital multiplied by the spread between banks' return on capital and cost of capital. Commercial banks' aggregate EVA declined precipitously beginning in 2007, and was consistently negative from 2008-2011 before posting a strong rebound in 2012. Figure 15 provides greater detail regarding the key drivers of banks' EVA. Although banks' cost of capital has been trending lower since 2007, their return on capital fell below their cost of capital from 2008-2011, resulting in negative EVA. Banks' negative EVA and MVA indicate the extent to which bank stocks have been poor investments in recent years, although the 2012 surge in EVA portends that this sector may restored itself to a positive value creation trajectory.

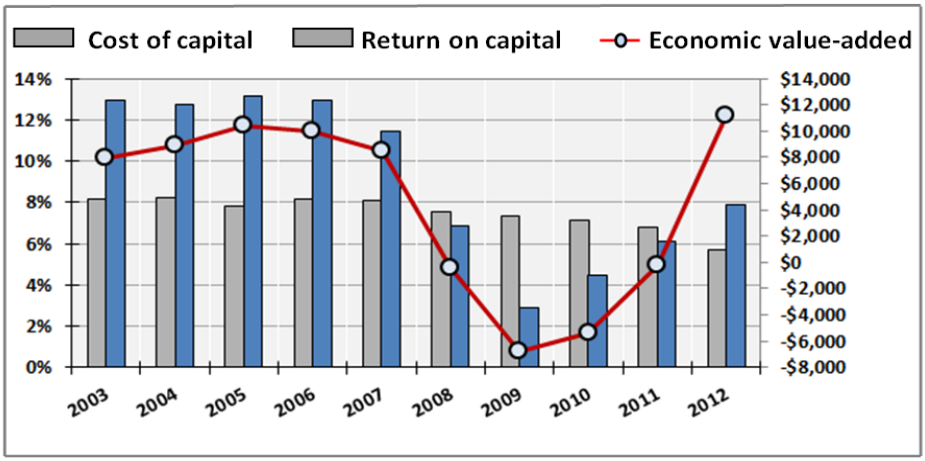

Fig. 15. Mean return on capital, cost of capital, and EVA (in millions)

The new regulatory requirements for banks to hold more capital are reflected in the two value creation metrics depicted in Figure 16, financial earning assets/revenue (FEA/Rev) and asset yield. FEA/Rev measures the total capital a bank has to hold to generate $1 of revenue. Everything else equal, higher capital intensity raises the profit margin hurdle rate at which value is created. FEA/Rev offers another perspective on commercial banks' recovering margins, ROE and EVA. Whenever more capital is added to the balance sheet but does not "pay for itself" in terms of higher net income (in the case of ROE), higher net operating profit after tax (in the case of EVA), or higher revenues (in the case of FEA/Rev), bank profitability and performance will suffer. Higher FEA/Rev indicates that more capital is available to cushion business risk – it can be interpreted as the level of risk insurance on the balance sheet. The second variable, banks' average asset yield, is computed as the ratio of bank net revenues to financial earning assets, and is thus a measure of the net yield earned on the financial assets. A lower

yield translates into a higher capital charge. Figure 16 shows that banks' FEA/Rev has risen to over 175% since 2003, when it averaged 100%. Similarly, banks' asset yield has been in a general downtrend, rebounding to above 5.0% in recent years. Metrics such as these reflect analyst warnings that imposing higher capital requirements on banks can be harmful to the economy (Oprita, 2011). Even as revenues and profits recover, banks cannot sustain pre-crisis levels of profitability and value creation *and* hold significantly higher capital at the same time.

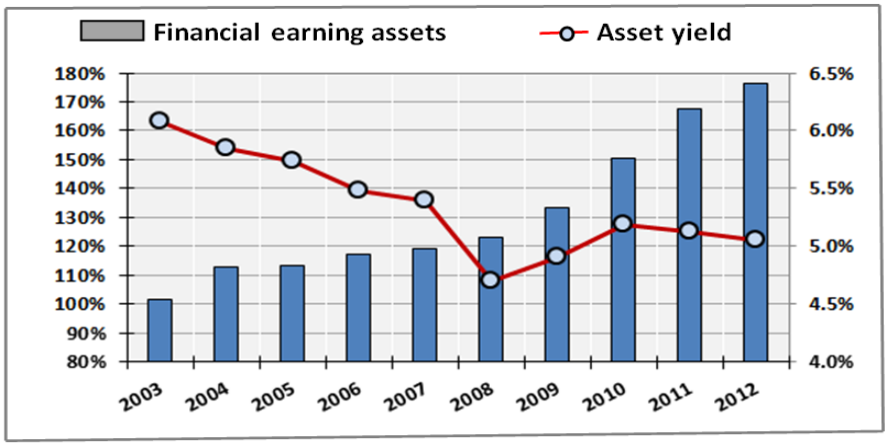

Fig. 16. Mean financial earning assets/revenue and asset yield

Figure 17 depicts banks' future prospects as investments based on two additional value creation metrics, EVA momentum and future growth reliance (FGR). EVA momentum measures the percentage change in EVA from the prior period. FGR equals the percentage of the firm's total market value that is dependent on *future* EVA generation (newly-deployed capital expected to earn a return above the cost of capital). A large positive FGR can indicate (1) investor confidence that the firm will grow its EVA in the future; (2) that a significant rebound in EVA is expected (as in a turnaround situation); or (3) over valuation relative to the company's true future prospects. On the other hand, a stock with an FGR of zero would be fairly valued based on current EVA, even if no growth is expected. A negative FGR is the most conservative valuation condition, indicating that the stock's capitalization is less than the present value of its current EVA.

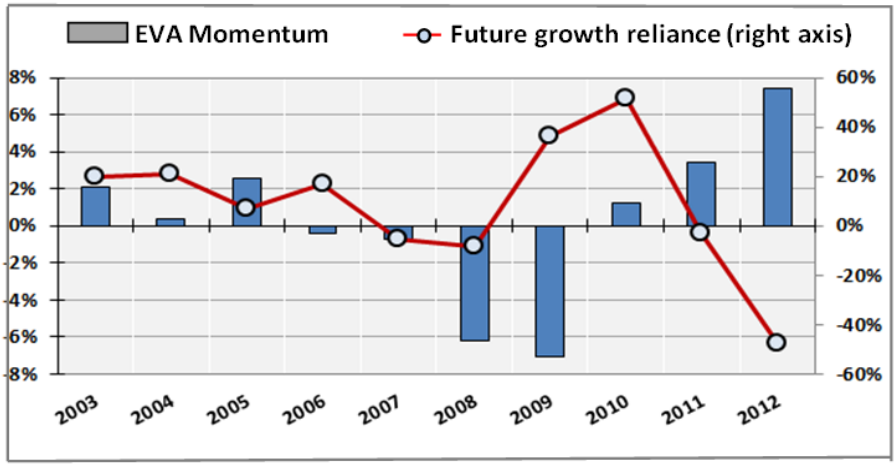

Fig. 17. Mean EVA momentum and future growth reliance

Figure 17 shows that banks' EVA momentum has significantly recovered from its lows in 2009 (-7.0%), registering a bullish +7.6% in 2012. When interpreted along with a mean 2012 FGR of - 44%, bank stocks appear to be significantly undervalued. We can also assess banks' valuation via more traditional metrics such as the price to book (P/B), price to earnings growth (PEG) and price to earnings (P/E) ratio, depicted in Figure 18. We see that banks are more reasonably valued based on all of these metrics compared with the pre-financial crisis period. At the end of 2012 commercial banks traded at 1.1 times book value and a PEG ratio of only 0.55. With a mean P/E of 10.8, the implication is that banks were undervalued and priced to deliver market-beating returns.

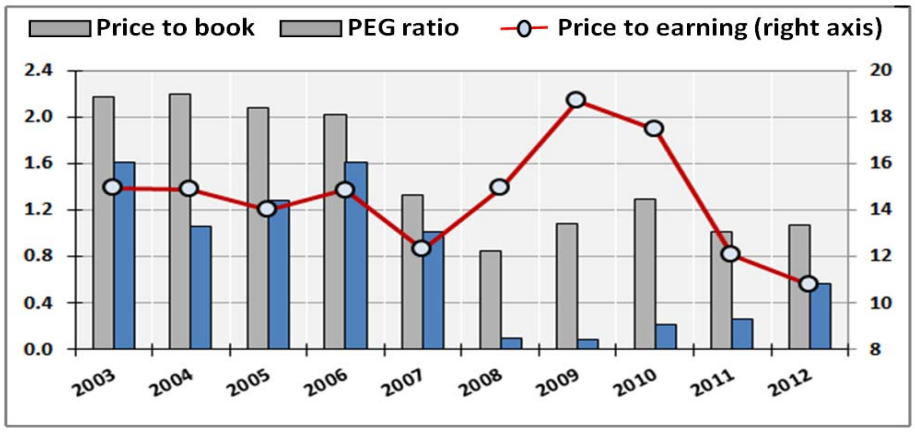

Fig. 18. Commercial banks' mean P/B, PEG and P/E ratios, 2003-2012

Figure 19 shows the mean returns of the banks in our sample from January-July 2013. As suggested by the various relative valuation metrics presented above, banks were priced for – and delivered – market-beating returns for the first time in several years.

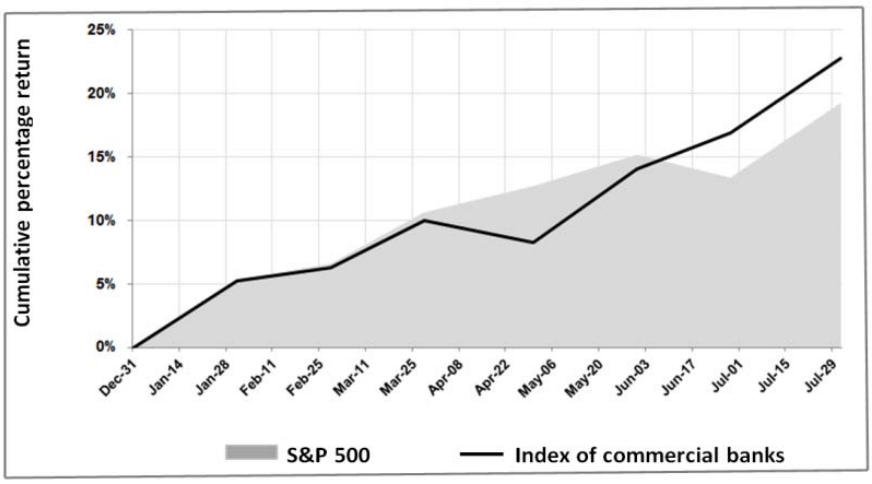

Fig. 19. Banks' mean returns vs. S&P 500, January-July 2013

Summarizing the results of this section, we find the following:

- Bank stock returns have lagged behind the S&P 500 since the market lows of March 2009.
- Average bank market betas shifted to a significantly higher range post-crisis, but declined to a mean value of 1.2 by the end of 2012.
- Aggregate MVA for commercial banks has been negative for 5 consecutive years, and aggregate EVA was negative from 2009-2011 before posting a strong turnaround in 2012. Banks' mean return on capital finally exceeded their cost of capital again in 2012.
- Banks are adapting to new regulations requiring them to hold significantly higher levels of capital.

Banks' future growth reliance (FGR) and EVA momentum suggest that bank stocks were undervalued as of year-end 2012. Banks also appear undervalued based on traditional metrics such as the P/B, PEG and P/E ratios.

Conclusions

This paper reviews the financial performance, risk, changing revenue and asset mix and prospects for future shareholder value creation of the 20 largest commercial banks in the US from 2003-2012. I focus on these 20 banks because they are most likely to have the resources to respond quickly to the new regulatory framework mandated by the Dodd-Frank Act and Basel III accord, and, as dominant players in their industry, also receive a disproportionate amount of regulatory scrutiny. As commercial banking continues adapting to the new environment, early signs of significant change are most likely to be evident in banks of this size and scope.

Aggregate revenue for the 20 largest commercial banks in the US reached all-time highs each year from 2009-2012. Fifteen of the 20 banks in the sample reported record revenues in 2012, with 12 of these banks also reporting record profits. Traditional sources of revenue such as interest income from loans and investments declined each year 2010-2012. Total

loans outstanding contracted in 2009 and 2010, resulting in banks diversifying into other asset categories, including trading assets, investment securities and mortgage-backed securities. Diversification into other assets has led to banks generating more revenue from trading activities, fees on credit cards and deposits, and mortgage banking activities.

Banks have started increasing dividends, but aggregate dividends are still equal to their level 10 years ago, despite record aggregate profits. Banks reduced their allowance and provision for loan losses each year 2010-2012, but fully 7.6% of all net loans remain either non performing, restructured or impaired. Banks' decision to reduce loan loss provisions by 75% since 2009 has led to higher reported profits, but such an aggressive reduction appears questionable in light of the high percentage of impaired loans remaining on banks' balance sheets. The quality of banks' loan portfolios remains a key issue that requires further scrutiny by regulators, and the potential drag on future profits may account for some of banks' reluctance to increase dividends proportionately with revenues and profits.

Banks paid an average effective tax rate of 29.8% from 2003-2007. This average has fallen to 25.2% inrecent years (2009-2012), despite the large increases in bank profits. Banks' net interest margin has remained stable between 3.4%-3.7% from 2009-2012, and average ROE has increased each year 2010-2012. Banks' efficiency ratios have been increasing post-crisis, averaging 59.4% in 2012. Banks' average EBITDA margin, net profit margin and EVA margin increased each year 2009-2012, and are all back to their pre-crisis levels.

Banks hold three times the Tier 1 capital they held in 2007, and the average capital/assets ratio for the banks in our sample equals 11.4%, well in excess of the regulatory minimum of 10.0%. Bank stock returns have lagged behind the S&P 500 since the market lows of March 2009. Average bank market betas shifted to a significantly higher range post-crisis, but declined to a mean value of 1.2 by the end of 2012. Aggregate MVA for commercial banks has been negative for 5 consecutive years, and aggregate EVA was negative from 2009-2011 before posting a strong turnaround in 2012. Banks' mean return on capital finally exceeded their cost of capital again in 2012. Banks are evidently adapting to new regulations requiring them to hold significantly higher levels of capital. Banks' future growth reliance (FGR) and EVA momentum suggest that bank stocks were undervalued as of year-end 2012. Banks also appear undervalued based on traditional metrics such as the P/B, PEG and P/E ratios.

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