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Analysis of Financial Crisis Influence on the Investment Banks of Wall Street
—Taking Goldman Sachs as an example

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ABSTRACT
The 2008 Financial Crisis was one of the most severe events in the history of the US. It was an epic financial and economic collapse that cost many ordinary people their jobs, life savings, and homes. Everyone in the world may believe that the crisis damaged the investment banks of Wall Street badly because of the bankruptcy of Bear Stearns, Lehman Brothers, and other small banks. Still, this theory needs quantitative analysis to support it. This paper focuses on the significant investments in the US before the Financial Crisis. It uses the financial statements and financial ratios analysis of Goldman Sachs to determine how the actual influence of the financial crisis brings to Wall Street Giants. The research data used in this paper are from the official financial reports from the banks and some previous research which have similar topics. his study found that even though the investment bank giants indeed had a hard time during the financial crisis, they also got many benefits from the situation, which means it is challenging to think whether the financial crisis damaged the investment bank or benefited them. The paper is meaningful to remind people to regulate the investment banks and avoid the similar tragedy occur in the future.

Keywords: *2008 Financial Crisis, investment banks, Goldman Sachs*

1. INTRODUCTION

The 2008 Financial Crisis began years earlier with cheap credit tax and lax lending standards [1]. The regulation departments allowed the investment banks to ease the lending standards as a social welfare policy for the citizens of the US. It seemed like a good policy before the Financial Crisis started since it not only helped many American people have their own houses but also increased the turnover of the investment banks. However, millions of American homeowners did not have enough money to buy the houses with full payment and then decided to borrow the subprime mortgages to afford them. The demand for houses skyrocketed because of the lax lending standards. At the same time, the supply of houses was still increasing because the investment banks believed that the housing market was a rock-solid market in which they could consistently get a large number of profits without any high risk. The banks even allowed some unscrupulous investment banking and insurance practices that passed all the risk to investors to increase their profits [2]. This situation led to social disequilibrium, which the US government had to adjust to avoid potential problems like unemployment. Still, when the Federal Reserve increased the interest rate, those people who purchased their houses by subprime mortgages found that they could not afford their mortgages. This induced the housing market bubble to burst in the US financial institutions were left holding trillions of dollars worth of near-worthless investments in subprime mortgages when the bubble burst. The real estate market, which the investment banks thought was extremely solid, became toxic assets that got them bogged down and could not quickly out of trouble. Under this background, the 2008 Financial Crisis started to rage the entire Wall Street which the large investment bank giants were also involved.

Nowadays, most scholars who research the financial crisis only focus on quantitative methods because they believe that numbers are the most persuasive tools to support or counter a hypothesis. However, they ignore some external objective facts that may also influence the research conclusions. While this paper focuses on the five largest investment banks in the US and illustrates how the financial crisis affects them. Data collection, documentary research, and financial ratios analysis are used to do this research with Goldman Sachs as an example. It is still meaningful because it can give people the awareness to prevent something similar occur in the future.

2. ANALYSIS OF FINANCIAL CRISIS INFLUENCE ON THE INVESTMENT BANKS

2.1. Data collection

Initially, the financial data from the official websites of the investment banks are collected because the banks will post their annual report every year to show their market share investment potential to attract more customers. So it is the most convenient way to find some trustworthy and reliable information to figure out the research. In addition, it is beneficial to read these previous research which has similar research topics because some data and methods can be imitated to this research; this will help to save a significant amount of time. Furthermore, the financial ratios analysis of Goldman Sachs is created as an example to show the real change for investment banks by the influence of the Financial Crisis. Finally, some financial statements about Goldman Sachs from 2007-2009 are also reviewed to show the tendency of investments banks during the Financial Crisis. This paper also combines these data with real-world facts to figure out the influence of the Financial Crisis in 2008.

2.2. Financial ratios analysis

Financial ratio analysis compares the relationship between two or more financial data items from a company’s financial statements [3]. It is mainly used to make fair comparisons across time and between different companies. This research focuses on the key metrics, including profitability, liquidity, and credit metrics. These metrics help understand financial performance and how shareholders view such performance.

2.2.1. Profitability Metrics

The first profitability metric from the analysis of the financial ratios is the basic earning per share (EPS). Basic EPS reflects the portion of a firm’s profit allocated to each outstanding share of common stock, which equals the net income divided by weighted average shares. It is probably the most commonly used measure of firm profitability. The second is the operating margin, which reflects the most straightforward “operating” level ratio and can frequently be computed without adjusting the basic financial statements, which means it usually reflects how much revenue remains after the costs of productions which include wages and materials for the investment banks and can be regarded as a good sign about how the profitability of a firm is. Some other profitability metrics such as RoA and RoE are also be analyzed in this research.

2.2.2. Liquidity Metrics

Usually, the liquidity metrics measure a firm’s ability to pay its obligations. The current ratio is calculated during this research, which is one of the most essential liquidity metrics in the financial analysis and reflects the company’s ability to pay back its short-term liabilities and obligations (debt and payable) with its short-term assets (cash, inventory, receivables), which shows a firm’s ability to deal with some emergencies like the 2008 Financial crisis.

2.2.3. Credit Metrics

The credit metrics illustrates the book value of assets, liabilities, and shareholder’s equity. Debit the EBITDA reflects a company’s financial leverage, with a particular focus on debt relative to operating profitability. (i.e., how long will it take the company to pay off the debt it has incurred?). Likewise, the obligation to equity ratio is also used to measure a company's financial leverage. Still, it tends to reflect the proportion of the debt and equity which a company uses to finance its assets. A high debt to equity ratio generally means that the firm is aggressive in financing its growth with debt.

2.3. Goldman Sachs's statements analysis

Table 1. Goldman Sachs's income statement from 2016-2010 [4]

Annual Data I Millions of US $ except per share data	2010-12-31	2009-12-31	2008-11-30	2007-11-30	2006-11-30
Revenue	**$39,161**	**$45,173**	**$22,222**	**$45,987**	**$37,665**
Cost Of Goods Sold	$2,281	$2,298	$2,998	$2,758	$1,985
Gross Profit	**$36,880**	**$42,875**	**$19,224**	**$43,229**	**$35,680**
Research And Development Expenses	$530	$342	$485	$601	$492
SG&A Expenses	$18,147	$18,530	$13,432	$22,544	$18,396
Other Operating Income Or Expenses	$-3,422	$-2,440	$-1,709	$-1,661	$-1,538
Operating Expenses	$26,269	$25,344	$19,886	$28,383	$23,105
Operating Income	**$12,892**	**$19,829**	**$2,336**	**$17,604**	**$14,560**
Total Non-Operating Income/Expense	-	-	-	-	-
Pre-Tax Income	**$12,892**	**$19,829**	**$2,336**	**$17,604**	**$14,560**
Income Taxes	$4,538	$6,444	$14	$6,005	$5,023
Income After Taxes	**$8,354**	**$13,385**	**$2,322**	**$11,599**	**$9,537**
Other Income	-	-	-	-	-
Income From Continuous Operations	**$8,354**	**$13,385**	**$2,322**	**$11,599**	**$9,537**
Income From Discontinued Operations	-	-	-	-	-
Net Income	**$7,713**	**$12,192**	**$2,041**	**$11,407**	**$9,398**
EBITDA	**$14,796**	**$21,772**	**$3,961**	**$18,771**	**$15,555**
EBIT	**$12,892**	**$19,829**	**$2,336**	**$17,604**	**$14,560**
Basic Shares Outstanding	542	512	437	433	449
Shares Outstanding	585	551	456	461	477
Basic EPS	**$14.15**	**$23.74**	**$4.67**	**$26.34**	**$20.93**
EPS - Earnings Per Share	**$13.18**	**$22.13**	**$4.47**	**$24.73**	**$19.69**

The Table 1 shows above is the income statement of Goldman Sachs from 2006 to 2010. The comparisons indicate that the income of Goldman Sachs was damaged tremendously by the Financial Crisis in 2008. Typically, Goldman Sachs could earn around $40,000 million. Still, half cut the number in 2008, which was about $22,000 million, and this led to some subsequent negative impacts to the net income, EBITDA, and other revenues. In addition, the earnings per share decreased from $26.34 in 2007 to $4.67 in 2008 by the impact of the Financial Crisis, which induced billions of dollars' loss in Goldman Sachs.

Table 2. Goldman Sachs' vital financial ratios from 2006-2010 [5]

Annual Data	2010-12-31	2009-12-31	2008-11-30	2007-11-30	2006-11-30
Current Ratio	0.798	0.8043	0.7911	0.7046	0.7089
Long-term Debt / Capital	0.6927	0.7236	0.7233	0.7932	0.7744
Debt/Equity Ratio	7.4318	7.344	8.0081	16.4548	15.2762
Gross Margin	94.1753	94.9129	86.5089	94.0027	94.7299
Operating Margin	32.9205	43.8957	10.5121	38.2804	38.6566
EBIT Margin	32.9205	43.8957	10.5121	38.2804	38.6566
EBITDA Margin	37.7825	48.1969	17.8247	40.8181	41.2983
Pre-Tax Profit Margin	32.9205	43.8957	10.5121	38.2804	38.6566
Net Profit Margin	19.6956	26.9896	9.1846	24.8048	24.9516
Asset Turnover	0.043	0.0532	0.0251	0.0411	0.0449
Inventory Turnover Ratio	-	-	-	-	-
Receiveable Turnover	0.5012	0.6653	0.2454	0.3103	0.4049
Days Sales In Receivables	728.3037	548.6353	1487.529	1176.132	901.3605
ROE - Return On Equity	11.8667	20.9938	4.8478	29.2166	29.1776
Return On Tangible Equity	10.7994	18.9284	3.6073	27.1005	26.6501
ROA - Return On Assets	0.9167	1.5767	0.2625	1.0358	1.1378
ROI - Return On Investment	3.3183	5.2326	0.9983	5.6041	6.0122

Only did the basic EPS fall badly in 2008, but also other profitability Metrics ratios. From the Table 2, the operating margin, the balance to measure the revenues, also showed a massive decline in 2008. It declined from around 40 to only 10. The same situation occurred in ROE and ROA. Both of them showed a significant drop from 2007 to 2007. In addition, the current ratio stabilized as usual in 2008. This was also an important reason Goldman Sachs could survive the vicious financial storm because it could still pay its short-term obligations and release some pressure from the severe crisis. However, even though it seemed that Goldman could pay the short-term debts, its overall ability to deal with other liabilities was still weak, primarily on the decrease of the credit metrics which shows in Table 3. The leverage ratio declined from 26.2 to 13.7, and the equity debt showed the same tendency, which decreased from 3.8 to 2.6. These numbers illustrated that Goldman was losing its ability to deal with its liabilities. It was hazardous for a company to go bankrupt if it could not either earn profits or pay its obligations, especially during a period in which it had to deal with many serious problems, for example, a large amount of deposit by depositors.

Table 3. Goldman Sachs' annual report from 2007-2008 [6]

Financial Condition and Other Operating Data		
Total assets	**\$884,547**	\$1,119,796
Other secured financings (long-term)	**17,458**	33,300
Unsecured long-term borrowings	**168,220**	164,174
Total shareholders' equity	**64,369**	42,800
Leverage ratio (4)	**13.7x**	26.2x
Adjusted leverage ratio (5)	**8.2x**	17.5x
Debt to equity ratio (6)	**2.6x**	3.8x

2.4. Discussion

Bear Stearns, Lehman Brothers, and Merrill Lynch, they were considered the fifth, fourth, third investment banks before the Financial Crisis. Unfortunately, Bear Stearns became the first investment bank to fail down Wall Street's history. It increased its exposure to subprime mortgages to increase its net income. Thus it had a severe lack of funding when the housing market collapsed, and two of its subprime mortgages funds failed. More and more depositors started to withdraw their money because of the loss of confidence. The Federal Government realized that it would cause some subsequent effects to other large financial institutions. It formulated the bailout plan to save Bear Stearns with a \$25 billion loan, but it was found that the loan was unavailable to solve the problem. Finally, the Federal government created a company to buy \$30 billion assets of Bear Stearns, and JPMorgan Chase acquired Bear Stearns with \$2 per share [7].

Similarly, Lehman Brothers followed Bear Stearns' footsteps and became the next central investment bank to fall during the Financial Crisis. It faced an unprecedented loss because it spent much money in the housing market. It could not cope with the capital loss pressure and tried to get investments from other financial institutions, such as Bank of America and Barclays, even it asked Warren Buffet for some assets. Neither successfully injected investment or bailouts to Lehman Brothers. Still, this trade was terminated by the Financial Service Authority of Great Britain [8]. Finally, Lehman Brothers announced to go bankrupt, which was also the most significant failure of the investment bank in US history. The entire economy of the US, even the whole world, plummeted rapidly and pushed the other three central investment banks into a precarious situation to go bankrupt. This caused Merrill Lynch to acquire Bank of America for \$50 billion [9].

The statistic of financial analysis does not show above because it is almost entirely the same as the decline tendency of Goldman Sachs. Other than their competitors, Morgan Stanley and Goldman Sachs, fortunately, got investments from other foreign companies and persisted until the bailout from the US Treasury. In December 2007, the China investment Corporation injected \$5 billion into Morgan Stanley in exchange for the securities converted to a 9.9% equity in 2010. In September 2008, Morgan Stanley received \$9 billion from Mitsubishi UFJ Financial Group to give the company emergency funds until it received another \$10 billion from the US government [10]. Goldman Sachs got \$5 billion from Warren Buffett, the richest man globally, and further received the same bailout as Morgan Stanley received from the US Treasury.

3. CONCLUSION

In conclusion, this paper finds that the Financial Crisis indeed had a substantial negative impact on investment banks on Wall Street, which induced Bear Stern and Lehman Brothers to go bankrupt, Bank of America acquired Merrill Lynch, Goldman Sachs and Morgan Stanley nearly out of breath because of the analysis of the financial ratios numbers which shows above. All the key metrics showed a decrease during the crisis, which proved that the central investment banks in the US lost their ability to make profits and struggled with their obligations. However, although some of the Wall Street Giants fell during the Financial Crisis, it did not mean that all of them were damaged seriously. Goldman Sachs and Morgan Stanley were allowed to emerge with the commercial banks by the US government to save the country's largest two investment banks, which formed institutions of unprecedented size and global reach. Bear Stearns, Lehman Brothers, and Merrill Lynch went bankrupt because of the influence of the Financial Crisis. Still, their fall did not have a considerable impact on the further development of Wall Street. It was true that Wall Street was hurt because of their fall at that time; some new significant players replaced their seats and became the latest investment bank giants such as JP Morgan Chase, Citi groups, Bank of America, and so on. Overall, the investment banks on Wall Street even benefited from the Financial Crisis instead of damaging badly as most people imagined. Nowadays, the central investment banks occupy 77% of all US bank assets and declare a "too big to fail" thing. In addition, although the investment banks quickly recovered from the Financial Crisis, it still induced a massive loss for US society. Unemployment rose to over 10%, and millions of families in the US lost their homes to foreclosure. When the dust settled from the collapse, 5 trillion dollars in pension money, real estate value, 401K, savings, and bands had disappeared, 8 million lost their jobs, 6 million lost their homes in the USA. In conclusion, the 2008 Financial Crisis had a substantial negative impact on society and the central investment banks of Wall Street, according to the numbers. But shows an opposite direction if combined with the facts in the real world.

AUTHORS' CONTRIBUTIONS

This paper is independently completed by Yue Yao.

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