

Comparison of Berkshire Hathaway and US Treasury Investments in Goldman Sachs Group, Inc

This analysis is based on the assumption that Warren Buffett is an intelligent third party investor who paid no more for his investment than he had to. It also assumes that Goldman Sachs' job is to protect its existing shareholders, so that it extracted from Mr. Buffett the most that it could. In other words, Mr. Buffett paid fair market value for what he bought. Further, it is assumed that Henry Paulson is likewise an intelligent man and that if he paid any more than Mr. Buffett – if he paid \$1.00 for something for which Mr. Buffett would have paid \$.50 – that the difference is a gift from the taxpayers of the United States to the shareholders of Goldman Sachs.

In order to compare Buffett's investment to Treasury's the first step is to understand and value the two parts of each investment, starting with Buffett's.

Buffett invested \$5.0 billion and in return received preferred stock and warrants. The warrants give their holder the right to purchase, at any time over the next five years, common stock worth 100% of his original investment amount, or \$5.0 billion worth of common stock, at a price of \$115.00 per share, or 43.5 million shares. ($\$5.0 \text{ billion} \div \115.00)

The value of these warrants is determined using a technique called the Black-Scholes Pricing Model. This model is almost universally regarded as the correct way, from an efficient market perspective (which of course Mr. Paulson believes in), to value such securities.

Using publicly available data, the right to purchase one share was, at the time of Buffett's purchase, worth \$40.95, so the right to purchase 43.5 million shares is worth \$1.8 billion ($\$40.95 \times 43.5 \text{ million}$). While recently the volatility of Goldman shares have been very high making each warrant far more valuable, this analysis uses a very conservative and more historically representative volatility of 30% for its valuation. This more than offsets the slightly lower value for the warrants caused by the dividends associated with the common stock.

If the warrants are worth \$1.8 billion, this implies that Buffett spent the rest of his \$5 billion, or \$3.2 billion, buying the preferred stock. Knowing that the market value of the preferred stock without the warrants is \$3.2 billion, one can use a simple cash flow model to calculate the return that Mr. Buffett demanded and Goldman agreed to on the preferred stock. If one assumes that Goldman pays quarterly dividends at 10% per year and redeems the preferred stock in ten years at the required 10% premium, the return (or yield to call) is 19%. If they redeem it sooner, the yield is higher.

Turning now to Treasury's investment, there are four key differences regarding the warrants. First, Treasury will only receive warrants to purchase common shares worth 15% of amount of its original investment; second, Goldman can, by issuing new shares, reduce the number of warrants that Treasury is able to purchase by half, to 7.5% of the amount invested; third, Treasury's right is based on a somewhat higher price per share; and fourth, Paulson's warrants grant him the right to purchase shares for a longer period.

Again using Black-Scholes, each of Treasury's warrants were worth \$51.81 on the date that Goldman Sachs agreed to participate in the Treasury Program. For the sake of calculating their value, if we use for the number of warrants the midpoint between 7.5% and 15% (11.25%) or 9.2 million warrants, the total value of Treasury's warrants is just under \$500 million.

Turning to the preferred stock, Treasury will buy preferred shares with a face value of \$10 billion and a dividend rate of 5% for five years and 9% thereafter and no call premium. If we use the same 19% return (yield to call) that Buffett's investment will provide, and assume the same 10 year time period, the current market value of Treasury's preferred shares is \$4.5 billion.

This means that Treasury will invest \$10 billion of the taxpayers' money and will receive warrants worth \$500 million and preferred stock worth \$4.5 billion, or total value of \$5 billion.

The other \$5 billion represents the gift that Mr. Paulson, on behalf of the taxpayers of the United States, will be making to the shareholders of Goldman Sachs.

If we assume that this gift will be comparable at the other eight big banks, then the total gift will add up to \$62.5 billion and if this approach prevails with the entire \$700 billion, the gift from the taxpayers to the shareholders of financial institutions will be \$350 billion.

Key Assumptions / Terms

	Berkshire Hathaway	US Treasury
Warrants		
Warrant Strike Price	\$ 115.00	\$ 121.68
Market Price of Common Stock at Issuance	\$ 120.78	\$ 111.00
Black Sholes Value Per Warrant	\$ 40.95	\$ 51.81
Number of Warrants Issued (in millions)	43.5	9.2
Warrant Terms - Years	5	10
Risk Free Rate	3%	4%
Volatility	30%	30%
Preferred Stock		
Dividend Rate		
Years 1 - 5	10%	5%
Thereafter	10%	9%
Term	Perpetual	Perpetual
Redemption Period (Assumed)	10 years	10 years
Call Premium	10%	0%
Assumed Transaction Date	9-23-08	10-13-08

Valuation (\$ in millions)

Berkshire Hathaway	
Total Investment	\$ 5,000
Less: Market Value of Warrants using Black-Scholes	\$ 1,780
Implied Value of Preferred Shares	\$ 3,220
Return (Yield to Call) for Preferred Shares based on Cash Flows	19%
US Treasury	
Derived Value of Preferred Shares using 19% Yield to Call	\$ 4,516
Plus: Market Value of Warrants using Black-Scholes	\$ 479
Market Value of Preferred Stocks & Warrants	\$ 4,995
Total Investment	\$ 10,000
Excess of Investment over Market Value ("Gift")	\$ 5,005