

## WHY DOES WARREN BUFFETT MAKE MONEY?

In a paper written last year, a group of hedge fund professionals and academics claimed to have “discovered” how famed investor Warren Buffett makes his money. The outstanding returns experienced by Berkshire Hathaway (Buffett’s firm) can be explained by two main factors: (1) wise investments in undervalued, safe, blue-chip securities and (2) extremely agreeable funding terms leading to economical leverage. By punting on temporarily cheap assets with lots of borrowed funds, and by being able to borrow cheaply, Buffett has been able to reach legendary status among the investment community. In the words of the paper’s authors: “Buffett has developed a unique access to leverage that he has invested in safe, high-quality, cheap stocks and these characteristics largely explain his impressive performance.”<sup>1</sup>

Here we focus on the funding side of the equation, leaving the stock-picking prowess analysis to others. Where is Berkshire getting that vast and affordable funding from? How is Buffett being able to erect the wall of economical leverage that makes his returns so mouth watering? Simply stated: by being willing to take on a lot of risk. For a fee, of course.

Berkshire sells insurance and reinsurance policies into the financial markets. It also sells derivatives. All of those sales generate (for the most part, upfront) premiums from those purchasing protection from Berkshire. Those premiums can amount to a very large sum. Buffett then invests that money, an activity that should lead to interesting returns given his track record. Given that a lot of the sold insurance policies and derivatives contracts may take a long while, if at all, before Berkshire has to make any loss payouts, Buffett can make good

use of the premium collected for many, many years. The hope is that any eventual loss payment is both lower than the premium initially col-

lected and long to come. If Berkshire breaks even, that is if the eventual insurance claims and derivatives payouts equal the amount of premium received, Berkshire would have received the equivalent of zero-cost financing for all that period of time (plus any returns obtained from investing the premiums). Were Berkshire to actually enjoy underwriting profits (payouts lower than the premiums), the company would have, in effect, enjoyed negative cost funding. This is what the paper’s authors mean when they state that Buffett enjoys the significant advantage of having unique access to steady, cheap, leverage. In the Sage of Omaha’s very own words:

If our premiums exceed the total of our expenses and eventual losses, we register an underwriting profit that adds to the investment income our float produces. When such a profit is earned, we enjoy the use of free money — and, better yet, get paid for holding it. That’s like your taking out a loan and having the bank pay you interest.”<sup>2</sup>

The difference between the premiums collected and the loss payments made (if any) is called “float.” Berkshire’s prowess, thus, would be based on the tremendous amounts of float it can generate. According to the paper’s authors, 36 percent of Berkshire’s liabilities come from insurance float, on average. Berkshire does not seem to include derivatives-generated float under the overall insurance float number, so the final number may be even greater. Exhibit 1 illustrates the estimated annual cost of Berkshire’s insurance float since 1976 (2.2 percent on average, 3 percentage points below the average Treasury Bill rate; notice how the company seems to have been getting better at it as of late).

And Berkshire’s float has been growing spectacularly through the years, matching the company’s spectacular growth. If float was \$39 million in 1970, it had jumped to \$1.6 billion by 1990, to

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## EXHIBIT 1 Buffett's Cost of Leverage: The Case of His Insurance Float

	Fraction of years with negative cost	Average cost of funds (truncated)*	Spread over benchmark rates				
			T-Bill	Fed Funds Rate	1-Month Libor	6-Month Libor	10-year Bond
1976–1980	0.79	1.67	–4.59	–5.65			–5.76
1981–1985	0.20	10.95	1.10	–0.27			–1.28
1986–1990	0.00	3.07	–3.56	–4.61	–4.80	–4.90	–5.30
1991–1995	0.60	2.21	–2.00	–2.24	–2.46	–2.71	–4.64
1996–2000	0.60	2.36	–2.70	–3.10	–3.33	–3.48	–3.56
2001–2005	0.60	1.29	–0.82	–0.96	–1.05	–1.19	–3.11
2006–2011	1.00	–4.00	–5.84	–6.06	–6.29	–6.59	–7.67
Full Sample	0.60	2.20	–3.09	–3.81	–3.69	–3.88	–4.80

\* In years when cost of funds is reported as “less than zero” and no numerical value is available, cost of funds is set to zero.

**Data from:** Frazzini, A., Kabiller, D., and Pedersen, L.H., “Buffett's Alpha,” (May 3, 2012). The data are hand-collected from Buffett's comment in Berkshire Hathaway's annual reports. Rates are annualized, in percent.

\$27.87 billion a decade later, and to \$73.12 billion by 2012 (again, these numbers may not include derivatives-generated float, only insurance-generated float). That's a lot of very cheap (even negative cost) funding.

Very few other insurers seem to be able to achieve those types of outcomes. While Berkshire has generated an underwriting profit for the past 10 years straight, competitors don't appear to be able to boast similarly rosy results (reporting, in fact, underwriting losses as a whole). Listen to Buffett explain it:

Let me emphasize that cost-free float is not an outcome to be expected for the [insurance] industry as a whole: There is very little ‘Berkshire-quality’ float existing in the insurance world. In 37 of the 45 years ending in 2011, the industry's premiums have been inadequate to cover claims plus expenses.<sup>3</sup>

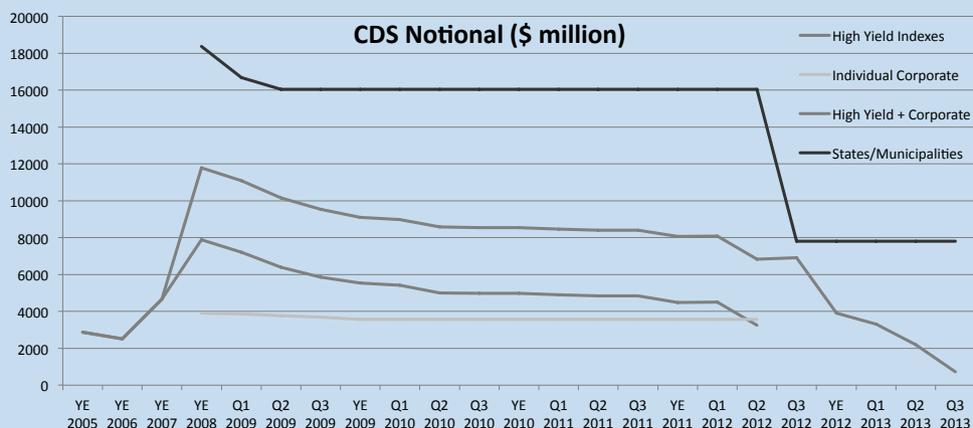
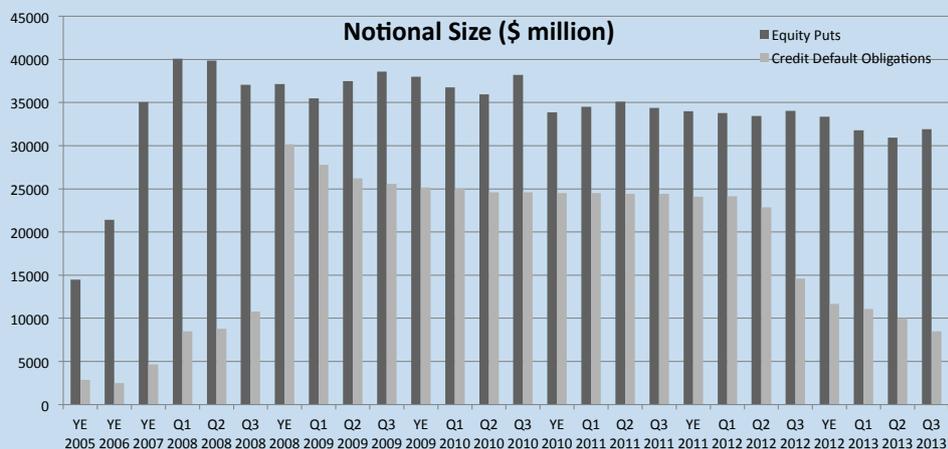
Berkshire's strategy has been labeled as “betting against Beta,” after the famous investment risk measurement variable. You buy low risk (“low Beta”) assets and you sell high risk (“high Beta”) ones, hoping that the former will do well while

the latter do badly. Insurance and reinsurance policies, including on very exotic underlyings, are a way of making that bet. Derivatives are another. While many would be expected to be familiar with Berkshire's insurance forays, they may be less so with his derivatives trades. In this article, we focus on this less-known leg of Warren Buffett's search for float.

### Derivatives games

Berkshire Hathaway began selling equity index put options and credit protection through credit default obligations (credit default swaps and the like) in 2004. At the time, Berkshire Hathaway already held a very substantial derivatives portfolio, legacy of the acquisition of reinsurer General Re. Berkshire had embarked on a strategy to wind down the General Re derivatives book, which included a myriad of products and underlying assets, more than 23,000 contracts outstanding. For instance, as of December 31, 2003, Berkshire's derivatives portfolio included \$11 billion in foreign currency

## EXHIBIT 2 The Evolution of the Notional Size of the Puts and the Credit Contracts



forwards, \$333 billion in interest rate and currency swaps, and \$102 billion in interest rate and currency options. These contracts (both long and short exposures) generated assets and liabilities in similar amounts (about \$15 billion each, \$10 billion if you allow for counterparty netting). A year later, the legacy portfolio had already been wound down significantly, with swaps notional (including now credit products as well as interest rates-currency) just at \$153 billion and interest rates-currency options just at \$35 billion. By December 31, 2005, with just 740 contracts left outstanding, the respective numbers were \$44 billion and \$14 billion (currency forwards remained at around \$13 billion in size); by December 2006 Berkshire's derivatives book

had become dominated by the equity index puts and credit default obligations positions, with interest rates-currency swaps at \$10 billion, interest rates-currency options at \$4 billion, and foreign currency forwards at \$1 billion. By the beginning of 2008, the legacy portfolio had been essentially liquidated and essentially all of Berkshire's derivatives book consisted of the equity puts and the credit obligations. The unwinding had been costly, with losses of more than \$400 million by year-end 2005.

The equity puts and credit default obligations positions were built slowly at first and more intensely later on. By year-end 2004, the notional size of the put contracts was around \$4 billion, growing to \$14 billion a year later and

to \$21 billion by December 2006. The position reached its pinnacle notional size of \$35–40 billion in late 2007 to early 2008 and kept more or less constant at that level from then on (save for a smallish unwinding several years later). Notional sizes, expressed in dollars, take into account currency exchange rates.

The notional size of the credit default obligations was \$2.8 billion by year-end 2005, \$2.5 billion a year later, and \$4.6 billion in December 2007. Up to that point, Berkshire had sold protection only on American high-yield corporate indexes (about 100 names per contract). From 2008, the company not only significantly ramped up such activity, but also began to sell protection on individual corporate names and on state/municipalities, with the consequent drastic increase in total notional amounts, which reached a high of \$30 billion by year-end 2008 (sizes decreased from that point, due to a combination of contract expirations and cancellations, all the way to less than \$10 billion by late 2013; essentially all exposures today come exclusively from the state/municipalities contracts).

As of year-end 2006, Berkshire had sold 62 equity puts and credit default contracts; this number went up to 94 a year later and to 251 by year-end 2008 (down to 203 by year-end 2010, following the expiration of the first contracts, some unwindings, and the fact that no new contracts were being written). The last equity put contracts were sold in February 2008. The last credit contracts were written in February 2009 (just one new contract).

Exhibit 2 displays the evolution of the notional size of the puts and the credit contracts. The equity index puts were European (can only be exercised at maturity), were struck at-the-money (thus affording a very tasty premium for Berkshire, as these options are very close to having positive intrinsic value), were written on four international equity indexes (S&P 500, FTSE 100, Euro Stoxx 50, and Nikkei 225), and had the following expiration dates: between September 2019 and January 2028 (the weighted average life of all put contracts

was approximately 7.5 years at September 30, 2013).

Originally, 47 put contracts were sold, generating \$4.9 billion upfront premium. The maximum possible payment from Berkshire on these contracts equals the puts' notional size (currently around \$32 billion), but this would only take place at contract expiration and only if all the indexes reach a value of zero at that time. The likelihood of that is severely limited. Were Berkshire forced to make payments equal to \$4.9 billion, it would break even on the puts (plus any investment returns on the float). A 25 percent drop in all the equity indexes by expiration date would yield a loss payout of around \$8 billion, at current foreign exchange rates.

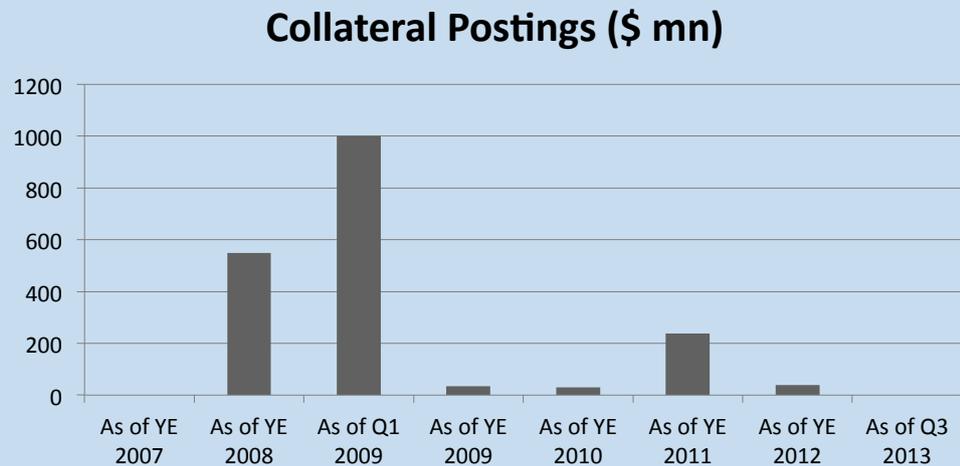
In Q2 2009, Berkshire agreed with counterparties to amend six equity put contracts, reducing maturities by between 3.5 and 9.5 years (bringing the total weighted average maturity of the puts portfolio from 13 to 12 years). Strike prices on those contracts were reduced between 29 percent and 39 percent. Finally, the aggregate notional amount of three of those contracts increased by \$160 million. These amendments were cost-free (no money changed hands). In Q4 2010, eight equity index put contracts (\$4.3 billion notional, maturities between 2021 and 2028) were terminated (at the instigation of the counterparty); the unwinding required Berkshire to pay \$425 million, for a net gain of \$222 million — as it had originally received \$647 million in premium.

All corporate credit default contracts (both high-yield and investment grade) expire in Q4 2013; a significant portion of high-yield contracts expired in Q4 2012. Berkshire is liable for payouts whenever a credit event takes place. High-yield contract expiration dates ranged from September 2009 to December 2013. Individual corporate default contracts had five-year maturities and were referenced to about 40 different names. Berkshire stopped selling individual corporate credit default contracts from 2009 on, as dealers began asking for stringent collateral.



**BERKSHIRE STOPPED SELLING INDIVIDUAL CORPORATE CREDIT DEFAULT CONTRACTS FROM 2009 ON, AS DEALERS BEGAN ASKING FOR STRINGENT COLLATERAL.**

### EXHIBIT 3 Description of Collateral Postings



Premiums received upfront from the high-yield credit contracts totaled \$3.4 billion; payouts on those contracts had totaled \$2.6 billion by Q3 2013. Premiums from individual corporate credit default contracts are paid quarterly (\$93 million a year). Berkshire assumes that the final underwriting profit (premiums raised minus payouts) from corporate credit contracts will be around \$1 billion when they expire by year-end 2013, having enjoyed on average annual \$2 billion float.

State/municipalities credit contracts expire between 2019 and 2054 (about 500 underlying debt issues). Any potential loss payments cannot be settled until expiration. We found no specific data on the amount of the (upfront) premiums received by Berkshire from selling this risk, but we can make an informed approximation. At year-end 2008, Berkshire announced that the total premium raised from selling the high-yield default contracts had been \$3.4 billion. A year earlier, the announced number had been \$3.2 billion. This implies new premiums of \$0.2 billion in 2008. At the same time, we know that the individual corporate contracts that were first sold in 2008 implied annual premiums of \$93 million. That makes it \$293 million in new premiums for 2008. Since Berkshire reported in its 2008 annual report that it had raised \$633 million that year in new premiums from credit default obliga-

tions, we may be allowed to conclude that the state/municipalities contracts were sold for some \$340 million (only one credit default contract was sold after 2008; I don't know which of the three underlying risk categories that last contract was referenced to). In August 2012, \$8.25 billion of the state/municipalities position were terminated (apparently, the original counterparty had been Lehman Brothers, and Lehman's liquidators were eager to unwind the trade, which was heavily in their favor; thus, the contract cancellations may not necessarily imply a negative view of the state/municipalities market on the part of Berkshire). I very roughly assume that the cost of this unwinding may have been around \$475 million, or the "approximate" size of the liabilities generated by these contracts at the time.

Loss payout amounts on the credit default obligations are subject to individual and aggregate limits (for instance, of around \$5 billion in the case of the high-yield default contracts), and payment obligations are on a first-loss basis or on an aggregate-deductible basis.

With limited exceptions, Berkshire has not been required to post collateral. However, were it to suffer a rating downgrade, it would have to post an additional \$1.1 billion. See Exhibit 3 for a description of collateral postings throughout. In 2011, Berkshire announced a big change in deriva-

tives collateral requirements/policies by the financial industry, making it now unacceptable for the company to enter into new major derivatives contracts.

Besides the attainment of a lot of extra float (some \$7–8 billion for several years, some \$6 billion for a lot of years), another key reason for entering into these particular derivatives positions was the belief that they were vastly overpriced. That is, Berkshire was being given the chance to collect much more money from selling the risk than it should, according to Berkshire. If you look at the equity puts, the premium, at way over 10 percent of notional amount, certainly looks tasty (not surprising given the long maturities and the at-the-money strike). This is how Buffett, at year-end 2006, preemptively tried to address any queries his shareholders may have about the fact that he had been selling such a large derivatives portfolio (which, as we know, was only about to get even larger):

The answer is that derivatives, just like stocks and bonds, are sometimes wildly mispriced.... Though we will experience losses from time to time, we are likely to continue to earn — overall — significant profits from mispriced derivatives.<sup>4</sup>

The portfolio selected by Berkshire to short had one highly intriguing characteristic: It was, for the most part, devoid of counterparty risk. Since premiums on the equity puts, the high-yield corporate credit default swaps, and the state/municipalities credit default obligations were received upfront, Berkshire could not be “stuffed” any money on these contracts. Only in the case of the individual high-grade corporate credit default obligations was counterparty risk involved, as premiums were received quarterly, but this position was just a small fraction of the total trade. If Berkshire’s trading counterparts went broke or moved to a far away island, the firm would suffer almost no pain. Given the intense focus on counterparty risk after the financial crisis, this is no small feat.

### **Berkshire’s roller coaster**

How did Buffett’s derivatives play evolve? Well, it’s been quite a ride, that’s for sure.

Lots of ups and downs in gains and losses. Given that Berkshire must account for the changes in the market (fair) value of the derivatives in its income statement, those ups and downs have impacted reported earnings on a continuous basis. And given that the value of derivatives must be accounted as either assets or liabilities on the balance sheet, Berkshire’s capital ratios and perception of the firm as safe and sound (these derivatives happened to be liabilities essentially all the time, since they mostly implied future potential obligations only from Berkshire to its counterparties and not vice versa) could also be affected.

Such chute-the-chute is the unavoidable price to pay when one chooses to sell a lot of long-term and varied derivatives risk. However, in this case, two factors were present that made it much more bearable than it might have been for other firms. First and crucially, and as we mentioned earlier, Berkshire got away with very light collateral terms at initiation of the contracts. Many a firm has been sunk because the market went against them, increasing their liabilities and drastically enhancing margin requirements until there was no more collateral available to post up, and liquidation was the next, sad step. Thanks to the preferential treatment obtained, Berkshire could sell all that equity, currency, and credit risk safe in the knowledge that any potential future margin call would be of a minimal size. Collateral could not sink Berkshire, making the trades much more attractive and probably even plain feasible (Berkshire would quite probably not have sold the portfolio had collateral requirements been stringent). Apparently, the most Berkshire has had to post during the life of the trade was \$1.7 billion at some point during the worst of the 2008 financial crisis. This is money that still continues to produce a return for Berkshire while it is being held as a guarantee.

Second, Warren Buffett doesn’t seem to care at all about interim earnings or balance sheet volatility (the lack of stringent collateral requirements possibly plays a role here), repeatedly saying so to his shareholders. He firmly believes



**THE PORTFOLIO SELECTED BY BERKSHIRE TO SHORT HAD ONE HIGHLY INTRIGUING CHARACTERISTIC: IT WAS, FOR THE MOST PART, DEVOID OF COUNTERPARTY RISK.**

that the trades will in the end generate positive float, and that's what truly counts. Hey, that's why they were put on in the first place: free real money for the firm; who cares about some collateral-light, unrealized turbulence on the side? Not Warren Buffett certainly:

Our derivative position will sometimes cause large swings in reported earnings, even though [we] might believe the intrinsic value of these positions has changed little. [We] will not be bothered by these swings — even though they could easily amount to \$1 billion or more in a quarter — and we hope [shareholders] won't either....In our catastrophe insurance business, we are always ready to trade increased volatility in reported earnings in the short run for greater gains in net worth in the long run. This is our philosophy in derivatives as well.<sup>5</sup>

The market value of Berkshire's derivatives portfolio would be impacted by several key variables. In the case of the puts, Berkshire would suffer setbacks if equity prices fell, if equity volatility shot up, if the dollar dropped in value versus the yen, euro, or pound, and if interest rates went down. It would make gains if the opposite moves took place, and also just from the passage of time. In the case of the credit default contracts, Berkshire would suffer losses if American corporate and state/municipalities credit spreads shot up and (in the case of a few contracts) if the counterparty defaulted or looked close to defaulting.

As these variables fluctuated significantly during the life of these contracts, Berkshire experienced significant turbulence in mark-to-market derivatives gains and losses, as well as on the portfolio's liabilities. And given that the portfolio was quite sizeable and that some of those gains and losses could be large, the turbulence sometimes had a big impact on Berkshire's overall reported earnings. Exhibit 4 details the evolution of the gains/losses, liabilities, and notional amounts. The information comes from Berkshire's quarterly and annual reports, and while thorough care has been taken to collect the data accurately, some errors or omissions may be inevitable. Detailed info on the puts and credit contracts is only available on an annual basis from 2006 and on a quarterly basis from 2008.

Let's start with gains and losses (part of the company's income statement). While 2006 and 2007 were relatively placid (with the exception of Q4 2007), 2008 has by far been the worst-performing year, with a combined accounting setback of \$6.8 billion. Since by that time, unlike in previous years, the puts and the credit contracts comprised essentially Berkshire's entire derivatives portfolio, from that point on, gains and losses on the former almost exactly matched overall derivatives gains and losses. 2009 was the best year (\$3.6 billion gain), in spite of a horrible Q1. 2010 saw a modest gain of \$420 million, notwithstanding a \$2.1 million loss in Q2. 2011 was horrible — a \$2 billion setback. Markets rebounded in 2012, leading to a \$1.9 billion gain. So far, 2013 has been great with a cumulative \$2 billion gain. Since 2008, the portfolio yielded gains in excess of \$1 billion on seven quarters, and losses in excess of \$1 billion also on seven occasions. Gains above \$2 billion took place three times, losses above \$2 billion also three times.

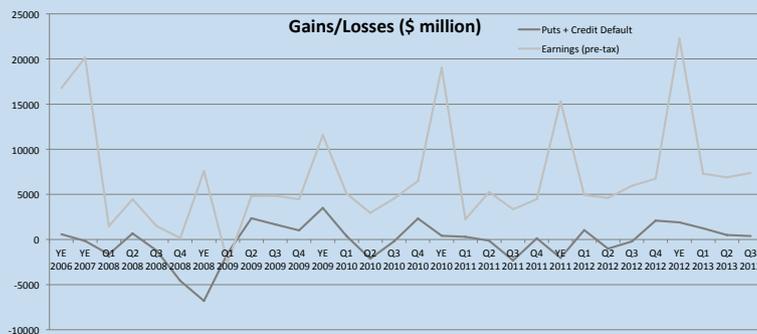
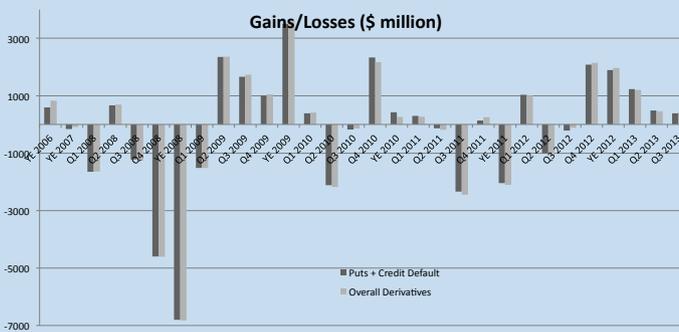
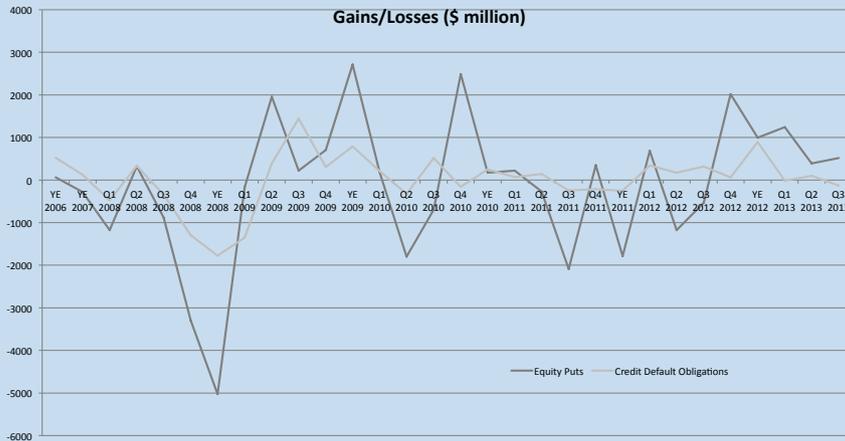
These gains/losses had, on occasion, a big impact on Berkshire's overall profits. For instance, Berkshire barely made any money in Q4 2008 (just a tiny \$140 million in pretax earnings, a 90 percent decline with regards to the previous quarter), and the massive \$4.5 billion derivatives loss surely had something to do with it. The firm's entire pretax earnings for 2008, at just \$7.5 billion, were only 37 percent of 2007's figure; the \$6.8 billion derivatives debacle contributed mightily to that sharp decline (i.e., without the derivatives, no such sharp decline in profitability). To be fair, derivatives gains have also contributed to significant increases in profits and even to the mere presence of such increase, as in Q4 2010 when overall earnings grew by less than \$2 billion, coincidental with a derivatives gain of \$2.3 billion, or as in Q4 2012 (\$800 million and \$2.1 billion, respectively).

The derivatives portfolio could, with minor exceptions, represent only a liability for Berkshire, given that any payments can only originate from the firm (and not from its counterparties). Only



**BERKSHIRE EXPERIENCED SIGNIFICANT TURBULENCE IN MARK-TO-MARKET DERIVATIVES GAINS AND LOSSES, AS WELL AS ON THE PORTFOLIO'S LIABILITIES.**

## EXHIBIT 4 Gains/Losses





**BERKSHIRE'S  
DERIVATIVES  
LIABILITIES  
(RECORDED ON  
THE RIGHT HAND  
SIDE OF THE  
BALANCE SHEET)  
CHANGE FOR  
THREE REASONS:  
CHANGES IN THE  
FAIR VALUE OF  
THE DERIVATIVE  
(I.E., GAINS OR  
LOSSES), NEW  
PREMIUMS  
COLLECTED,  
AND NEW  
PAYOUTS MADE.**

in the case of the individual corporate credit default contracts did Berkshire face counterparty risk, as the premiums were paid quarterly rather than entirely upfront. This explains that in some periods (in many, actually) Berkshire recorded those high-grade corporate positions as assets and not liabilities. The expected value of the premiums to be received by Berkshire was simply higher than the expected value of any default payments to be made by Berkshire.

Berkshire's derivatives liabilities (recorded on the right hand side of the balance sheet) change for three reasons: changes in the fair value of the derivative (i.e., gains or losses), new premiums collected, and new payouts made. When no new premiums or new payouts have taken place, the change in derivatives liabilities will be equal to the gains (leading to a decrease in liabilities) or losses (leading to an increase in liabilities) incurred by the position. For instance, year-end 2008 credit default contract liabilities increased by \$2.3 billion with respect to year-end 2007. This was explained by pretax fair value losses of \$1.8 billion, \$633 million in new premiums, and \$152 million of loss payments. Progressively, essentially all changes in derivatives liabilities were explained by mark-to-market gains or losses on the puts and credit contracts portfolio, as no more premium money was being raised and as new large loss payments vanished.

As can be seen in Exhibit 5, equity puts liabilities only reached \$10 billion a couple of times, having been between \$6 billion and \$8 billion for most of the time. Credit default liabilities only reached \$4 billion a couple of times, having been less than \$2 billion most of the time. As the corporate credit contracts began to expire, as investment-grade exposures turned into net assets (from late 2009 on), and as half of the state/municipalities exposure was liquidated, credit default liabilities naturally nosedived. As of Q3 2013, Berkshire's credit liabilities stand at just \$470 million. That's how much it would cost Warren Buffett to buy back the contracts and liquidate the exposure once and for all.

## Was it worth it?

"We are delighted that we hold the derivatives contracts that we do," declared Warren Buffett in his 2009 letter to shareholders.<sup>6</sup> Coming as they did soon after the financial crisis, which had led to big losses amid the worst performance ever experienced by the portfolio, these words are doubly reassuring as to Berkshire's enthusiastic and staunch commitment to the trade. The firm was looking for one thing: substantial and long-lasting float. As long as collected premiums (both upfront and quarterly) kept above any payments derived from the derivatives position, Berkshire would be happy. That the outcome was going to be favorable seems to have never been in serious doubt. In the 2007 letter, Buffett stated: "I believe that on premium revenues alone, these contracts will prove profitable, leaving aside what we can earn on the large sums we hold."<sup>7</sup> A year later, he reiterated: "Our expectation...is that we will do better than break even and that the substantial investment income we earn... will be frosting on the cake."<sup>8</sup> As for longevity, well, the equity puts and the state/municipalities credit default swaps mature between 10 and 45 years after premium has been collected, with no loss payment by Berkshire taking place, if at all, until those far away expiration dates.

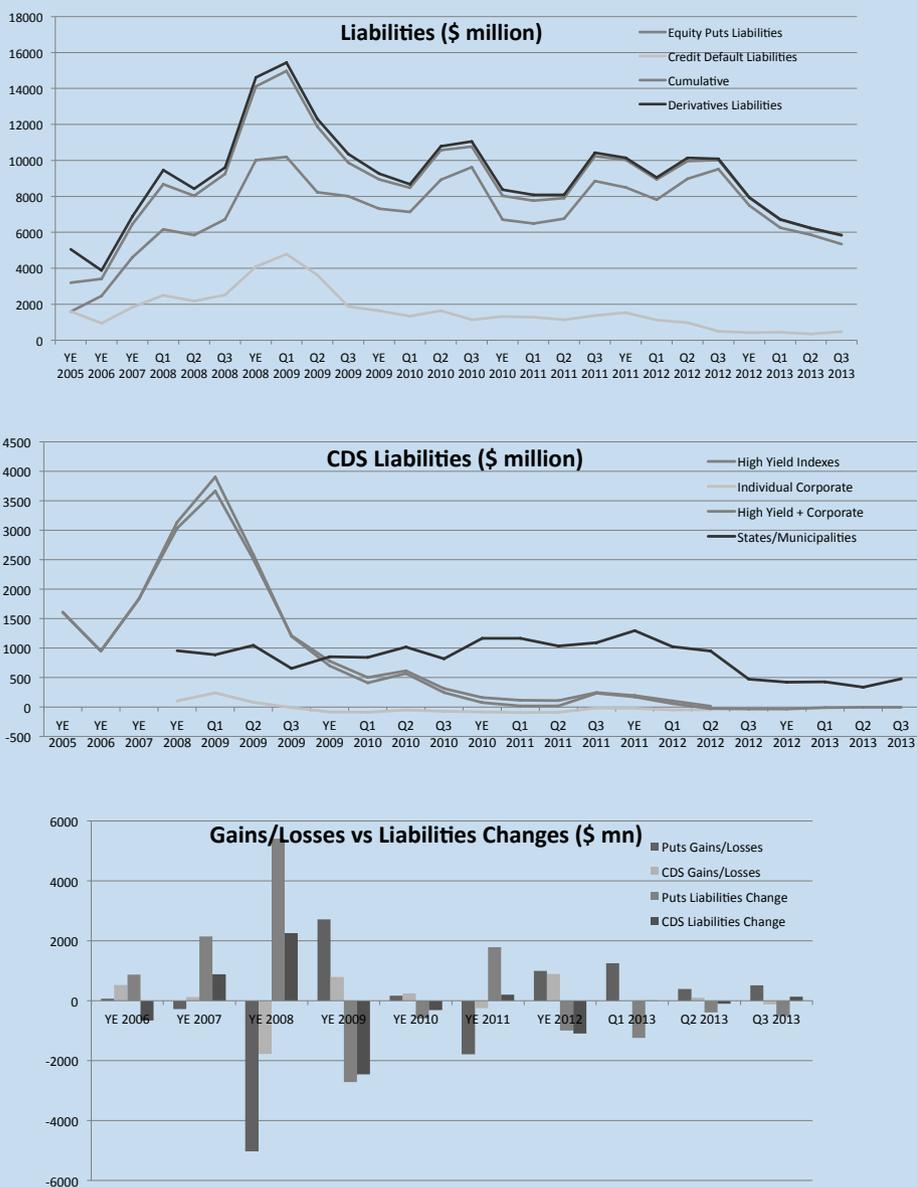
By year-end 2011, Berkshire was already dancing the victory lap, at least when it came to one of the (sizable) components of the trade:

Our insurance-like derivatives contracts, whereby we pay if various issues included in high-yield bond indexes default, are coming to a close.... We are almost certain to realize a final 'underwriting profit' on this portfolio because the premiums we received were \$3.4 billion, and our future losses are apt to be minor.... This successful result during a time of great credit stress underscores the importance of obtaining a premium that is commensurate with the risk.<sup>9</sup>

There was also little doubt that the equity puts play will prove handsomely profitable, as expressed in the 2012 missive to shareholders:

Though it's no sure thing, [we] believe it likely that the final liability will be considerably less than the amount we currently carry on our books (\$7.5 billion). In the meantime, we can

## EXHIBIT 5 Liabilities



invest the \$4.2 billion of float derived from these contracts as we see fit.<sup>10</sup>

The high-yield corporate bet was a risky one, made even riskier by the unprecedented credit crisis of 2007–2008, and yet it has delivered close to \$1 billion in cash profits from premium alone. How much did Berkshire make on top of that, through reinvestment of the float? It may be hard to say without direct knowledge, but it could be reasonable to assume that the return has been positive (data

seem to indicate that annual returns on assets between 2004 and 2012 stayed in the 1.80–5.10 percent range, being around 3–4 percent on average; historical returns have been much higher as illustrated in Exhibit 6). Berkshire may be expected to make several billions of dollars, perhaps tens of billions, during the many years that the positive float would last.

The individual high-grade corporate credit default contracts, about to expire for good, don't appear to have generated

## EXHIBIT 6 Buffett's Performance

	Berkshire Hathaway	Public U.S. stocks (from 13F filings)	Private Holdings	Overall stock market performance
<i>Sample</i>	<i>1976–2011</i>	<i>1980–2011</i>	<i>1984–2011</i>	<i>1976–2011</i>
Beta	0.68	0.77	0.28	1.00
Average excess return	19.00%	11.80%	9.60%	6.10%
Total volatility	24.80%	17.20%	22.30%	15.80%
Idiosyncratic volatility	22.40%	12.00%	21.80%	0.00%
Sharpe ration	0.76	0.69	0.43	0.39
Information ratio	0.66	0.56	0.36	0.00
Leverage	1.64	1.00	1.00	1.00
Sub period excess returns:				
1976–1980	42.10%	31.40%		7.80%
1981–1985	28.60%	20.90%	18.50%	4.30%
1986–1990	17.30%	12.50%	9.70%	5.40%
1991–1995	29.70%	18.80%	22.90%	12.00%
1996–2000	14.90%	12.00%	8.80%	11.80%
2001–2005	3.20%	2.20%	1.70%	1.60%
2006–2011	3.30%	3.00%	2.30%	0.70%

**Data from:** Frazzini, A., Kabiller, D., and Pedersen, L.H., "Buffett's Alpha," (May 3, 2012).

any loss payout, and there seem to be no indications of counterparty default on the quarterly premium payments. Those \$93 million annual fees (plus any upfront fee) appear to have been entirely free money, for five long years.

The state/municipalities default contracts can't generate a loss payout until their maturity (far, far in the future), and while Berkshire had to make good on \$8.5 billion of the position, the amount paid to the counterparty is not known (a very rough and almost certainly inexact approximation may be in the neighborhood of \$400 million). In any case, it can't have been a prohibitive amount given that at the time of the unwinding, the total mark-to-market liability on the entire \$16 billion portfolio was around \$950 million. Assuming that Berkshire raised around \$340 million through the sale of these contracts (as per our calculation in the prior section), this particular trade may have been unprofitable.

Exhibit 7 provides a description of the evolution of Berkshire's derivatives float (again, drawing on the company's

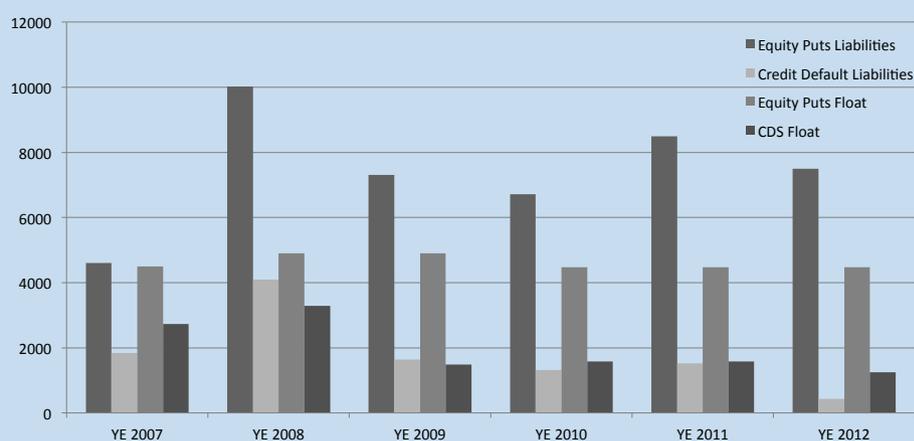
quarterly and annual reports, and on our analysis for the cost of the state/municipalities portfolio unwinding in 2012, this being the only relevant number seemingly not having been publicly disclosed). We see that the benefits have been pretty substantial so far. And the news get even better when we take into account that, barring any desperate request by a counterparty to unwind a trade (together with Berkshire's acquiescence to do so and incur the cost of buying back the exposure), no further loss payouts can happen before expiration of the only two remaining positions, the equity puts and the state/municipalities credit default obligations that mature in the pleasantly distant 2019–2054 period.

Another way to analyze the performance of the trade is by comparing the float obtained with the accounting liabilities generated. In other words, compare premiums minus payouts with the market cost of liquidating the exposures. Had Berkshire had or wanted to terminate the puts and the credit default contracts, would the raised premiums (minus

## EXHIBIT 7 The Evolution of Berkshire's Derivatives Float

(\$ mn)	Equity Puts Premiums	CDS Premiums	Cumulative	Put Payouts	CDS Payouts	Float
Up to YE 2007	4,500	3,200	7,700	0	472	7,228
Up to YE 2008	4,900	3,833	8,733	0	542	8,191
Up to YE 2009	4,900	3,926	8,826	0	2,442	6,384
Up to YE 2010	4,900	4,019	8,919	425	2,442	6,052
Up to YE 2011	4,900	4,112	9,012	425	2,528	6,059
Up to YE 2012	4,900	4,205	9,105	425	3,005	5,676

## EXHIBIT 8 Liabilities Versus Float (\$ Million)



any loss payments) have been able to cope, or would the final tally have been way in excess of that? Well, the evidence is somewhat mixed, unless we assume that the float led to pretty interesting investment returns. Exhibit 8 shows why. While the float from the credit contracts would have been in general enough to cover their liabilities, that from the puts would by itself have been widely incapable of doing so.

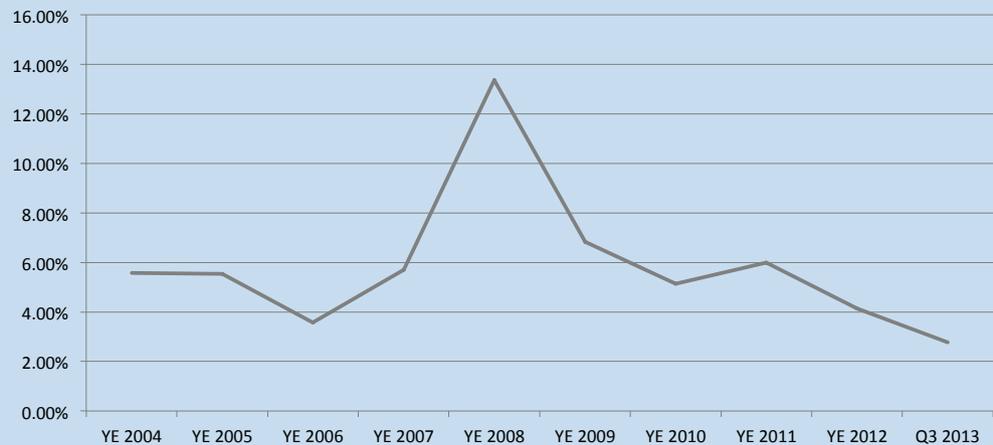
Finally, we can look at the size of those liabilities with regard to Berkshire's equity capital. In other words, if those mark-to-market losses grew too large, would the company's solvency be at stake? Exhibit 9 provides some guidance. It doesn't look as if the portfolio gravely threatened Berkshire.

Lack of strict collateral requirements was key for the trade to work and perform: Berkshire would otherwise not have

entered into the trades. Buffett has referred to derivatives collateral as a "lethal threat" that can sink companies. While it is true that by avoiding stringent margin rules Berkshire agreed to collect less premiums on the sold contracts than would otherwise have been the case, Buffett declared at the end of 2010: "That...left us feeling comfortable during the financial crisis, allowing us in those days to commit to some advantageous purchases. Foregoing some additional derivatives premiums proved to be well worth it."<sup>11</sup> A year later, Buffett made clear that as a consequence of the new post-crisis, much-more-demanding industry policies on collateral, his firm would not be entering into new positions:

Though our existing contracts have very minor collateral requirements, the rules have changed for new positions.... We shun contracts of any type that could require the instant posting of

## EXHIBIT 9 Derivatives Liabilities/Equity



collateral. The possibility of some sudden and huge posting requirement — arising from some out-of-the-blue event such as a worldwide financial panic or a massive terrorist attack — is inconsistent with our primary objectives of redundant liquidity and unquestioned financial strength.<sup>12</sup>

Why did Warren Buffett select precisely those underlying assets for his vast derivatives bet? Was he wise and prescient, or just fortunate? Why equity indexes, and why those indexes? Why credit default, and why those credits? Why 2004? Why 2008? Maybe Buffett was doing the mirror equivalent of “buying the dips” (when people buy assets very cheaply right after a market collapse), in essence “selling the top” by selling options when their premiums have exploded as a result of a market collapse. We can see that the equity puts notional size increases substantially (it almost doubles) in 2007 and early 2008, which of course are dates when markets began to unravel wildly, thus making downside protection very expensive, perhaps in an irrational way. We can also see that the credit default obligations notional amounts explode in 2007 (double) and 2008 (seven times higher), periods when credit spreads worsened severely. If you believe that people are overreacting to the panic, it can be a great opportunity to take on risk. Global equities and American credit happened to be two asset classes that concurrently and suddenly went out of control. And Buffett dutifully stepped in to monetize that chaos.

In the end, Buffett’s play would not have been possible had counterparties not been available and willing to pay the premiums. Why did they do it? Were they insuring themselves against an existing underlying risk profile? Or were they punting on tanking markets, widened credit spreads, outright defaults, overall tumult, and a falling dollar? Whatever the case, Warren Buffett and others like him (who seem to be the majority in the markets; people seem to prefer to be premium receivers rather than premium payers) should be thankful for the existence of those eager to act as sources of the float that has made the Berkshire Hathaway miracle possible.

### Holy triad

Our analysis of Berkshire Hathaway’s derivatives position appears to confirm (for now at least) the findings of Frazzini, Kabiller, and Pedersen, at least when it comes to the extremely favorable funding terms that the firm can achieve through its float business. If, as the hedge fund trio posits, Warren Buffett then invests the float very wisely, it is easy to appreciate that he has developed an edge.

But smart as generating so much positive float for so long surely is, and smart as selecting profitable investments surely is, the true secret sauce may lie in a third, typically less discussed, factor — at least when it comes to the massive derivatives

portfolio analyzed in this paper. Simply stated, Berkshire appears to have enjoyed tremendous, and perhaps unique, advantages when it came to selling the derivatives from which the float (and thus the edge's foundation) comes. Without those advantages in place, the whole thing may not have been possible to begin with. And the true key is that those advantages may be reserved for Buffett and, maybe, just a handful of other people. Enjoying those advantages, in other words, can lead to vast competitive benefits.

Those three key factors that may not have been available to all market players are: (1) very soft collateral requirements, (2) utter disregard for quarterly earnings volatility, and (3) the ability to find buyers of sizable and often heterodox contracts. Other players may have faced much more stringent collateral requirements. Other players may care much more about continuous earnings turbulence. Other players may not be able to sell such contracts. Buffett is very clear about it: If he had to face "normal" collateral rules, he would not have entered into the trades. Did he get preferential treatment because of who he is? Likely. Buffett was willing to sell contracts for less premium just to avoid collateral posting; since raising premium is all that matters, his concerns about collateral are obvious. With standard collateral rules, \$40–50 billion would have been at instant risk (and could suddenly sink many a firm). Many other investors would not have been able to sell a similar derivatives portfolio for fear of those exposures or for utter lack of resources. That is, a float-generating trade that is possible and desirable for Buffett to make becomes impossible and undesirable for many or most others. Only Buffett would get to enjoy the float and thus the tremendous investment edge.

The contracts Berkshire sold were not all orthodox. Buffett placed as much as \$40 billion of very long dated at-the-money equity risk. Buffett collected \$4 billion of high-risk credit premium upfront, when quarterly payments tend to be the norm. Some credit contracts had 10–45 year maturities, with five years

being the norm. Loss payouts on several contracts can only take place at maturity, with whenever a credit event takes place being the norm. These unorthodox contracts were apparently wildly overpriced, affording Buffett lots of float from the get-go. Could anybody enter into such trades (i.e., be able to find willing buyers), or do you need to be Warren Buffett?

As for quarterly earnings volatility, not everyone may be able or willing to be so sanguine/complacent. Buffett enjoys god-like stature with his shareholders and has built a career on long-term focus. "Temporary" setbacks, including very large ones, may thus not turn them into ferocious critics. Not everyone may be shielded from criticism in such a way. Of course, this is directly linked to the collateral issue: If you don't face hard collateral penalties, you can afford to not care about earnings turbulence.

### Legend or bust

Naturally, Buffett could have borrowed like anybody else, and then invested the money. But he wants to build an edge. It's hard to become a legendary investor if you do what everyone can do. The float gives him that edge. Of course, the activities that lead to the generation of float contain the seeds of risks that may materialize into costs way above those of a simple loan. But Berkshire, and our analysis seems to confirm this, has been masterful at achieving underwriting profits and thus negative cost funding. Float doesn't have to be paid back, doesn't imply payment of interest, and is not debt. Had Berkshire, in 2004, borrowed \$6 billion (approximately the average annual positive float from the derivatives trade) for 15 years at, say, 5 percent annual interest, it would have been \$10.5 billion out of pocket by the loan's maturity date. So far, it's only lost \$3 billion on the derivatives position, and, barring some surprise, no extra cash disbursements will take place until 2019...if at all. That's a \$7.5 billion surplus. So the big lesson from Berkshire Hathaway may be that you must take chances if you want to a superior investor. ■

## NOTES

<sup>1</sup> Frazzini, A., Kabiller, D., and Pedersen, L.H., "Buffett's Alpha," (May 3, 2012) (white paper).

<sup>2</sup> Berkshire Hathaway Inc.'s annual report (2012): 7. Available at: <http://www.berkshirehathaway.com/2012ar/2012ar.pdf>.

<sup>3</sup> *Ibid.*, p. 8.

<sup>4</sup> Berkshire Hathaway Inc.'s shareholder letter (2006): 17. Available at: <http://www.berkshirehathaway.com/letters/2006ltr.pdf>.

<sup>5</sup> Berkshire Hathaway Inc. press release (May 2, 2008). Available at: <http://www.berkshirehathaway.com/news/may0208.pdf>.

<sup>6</sup> Berkshire Hathaway Inc.'s shareholder letter (2009): 15. Available at: <http://www.berkshirehathaway.com/letters/2009ltr.pdf>.

<sup>7</sup> Berkshire Hathaway Inc.'s shareholder letter (2007): 16. Available at: <http://www.berkshirehathaway.com/letters/2007ltr.pdf>.

<sup>8</sup> Berkshire Hathaway Inc.'s shareholder letter (2008): 18. Available at: <http://www.berkshirehathaway.com/letters/2008ltr.pdf>.

<sup>9</sup> Berkshire Hathaway Inc.'s shareholder letter (2011): 17. Available at: <http://www.berkshirehathaway.com/letters/2011ltr.pdf>.

<sup>10</sup> Berkshire Hathaway Inc.'s shareholder letter (2012): 16. Available at: <http://www.berkshirehathaway.com/letters/2012ltr.pdf>.

<sup>11</sup> Berkshire Hathaway Inc.'s annual report (2010): 20. Available at: <http://www.berkshirehathaway.com/2010ar/2010ar.pdf>.

<sup>12</sup> *Op. cit.* note 9.