

Zions Bancorporation ESOARS: An Evaluation

by

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This report was prepared by Stephen A. Ross with the assistance of Rick Antle, Greta Hotopp, Andrew Jeffrey, and Richard Roll, principals of CVI, at the request of the Council of Institutional Investors. CVI is a company specializing in the valuation of employee stock options. Brief bios of the principals are appended at the end of the report. CVI has never had a business relation with Zions Bancorporation.

Assignment

Zions Bancorporation (Zions) has developed a product, ESOARS, which is intended to help determine the value of employee stock options (ESOs) for purposes of financial disclosure under FAS 123R. The Council of Institutional Investors (CII) has solicited my opinion and that of CVI on the suitability of the ESOARS product for purposes of FAS 123R.

The ESOARS Security

The ESOARS security is designed to track the payoffs of a company's ESOs.¹ It will be sold in a public auction to fix its value and, by inference, the value of the associated ESOs.² The ESOARS security is a tracking instrument that pays the holder a constant fraction of the actual payouts made by the company to its employees as they exercise their options. To adjust for pre-vesting forfeitures, security holders will be reimbursed for their original bid, with interest, on a pro rata basis.³ In the event of a modification of the terms of the ESOs, e.g., an altered strike price, Zions has the right to cancel the security at a price to be determined by a third party.⁴ The cancellation procedure is not well described, although a model-based valuation is mentioned.

Possible cancellation introduces an element of uncertainty that can potentially lead to a significant divergence between the value of the ESOARS security and the value of a perfect tracking instrument not subject to cancellation at modification. With this exception, though, a correct value for the ESOARS security would serve as a benchmark for the cost to the company of issuing ESOs.

We turn now to the proposed auction mechanism for valuing ESOARS.

The ESOARS Auction

The ESOARS auction is meant to mimic the Treasury auction.⁵ Participants submit bids for the tracking security consisting of the amount they wish to acquire at specified prices. These offer prices are arrayed from highest to lowest in a simulated demand curve for the security. The actual sale price is determined as the highest price such that the aggregate

¹ "Zions Bancorporation ESOARS, Summary prepared for: Office of the Chief Accountant, Securities and Exchange Commission" at: https://www.esoarsauction.com/pma/faq/zions_submission.pdf ("Summary"), page 6.

² Summary, p.2.

³ "ESOARS holders will be reimbursed, with interest, for the pro rata share of the amount paid for the ESOARS securities for employee stock options in the reference pool that are forfeited prior to vesting," <https://www.esoarsauction.com/pma/faq/#is5>. This was not the case for the 2006 auction.

⁴ Summary, p. 8.

⁵ References to the U.S. Treasury are made in relation to the choice of format ("Modified Dutch auction" section, p. 12), resolutions of tie bids ("Tie bids at stop price" section, p. 13), and limitations on bids ("Maximum bid amounts" section, p. 15), and elsewhere, Summary, pages 12, 13, and 15.

of the offers at and above that price just consumes the supply. If total demand at the sale price exceeds supply, then the highest offers are satisfied first while those who bid exactly the sale price are allocated securities in proportion to the amount they offered to buy (although subject to restrictions as described below).

ESOARS For Purposes of FAS 123R

The value of any asset or security is most reliably determined by its price in a well-functioning liquid market that attracts adequate interest from investors. Such a market has low transactions costs and is able to absorb a large volume of trade with minimal price impact. A consistently small bid/ask spread is a typical attribute of such a liquid market.

The security being traded must have adequate public information for market participants to form a reasoned opinion of value, and the security must be supplied in a quantity sufficient to warrant the attention of investors and speculators and cover the cost of information processing relative to asset value. Participants in the market for complex securities typically rely on models to determine their own assessments of value, but the market price aggregates disparate views and is the best representation of value. Because of these features, a liquid market is said to lead to price discovery.

Similar conditions apply to auctions. To produce a good estimate for the value of the security being sold, the auction must have low barriers to entry so that it can attract the interest of many informed and well-capitalized buyers. Ideally, it should attract institutional buyers who have the capacity to model the product, particularly for a security with ESOARS's complexity. An auction is one-sided in that potential bidders decide whether or not to participate and, if so, to what extent; when an auction attracts many bidders with sufficient resources, competition prevents the sale price from undervaluing the security. On the other hand, when bidding is restricted and competitive forces are weakened, one can expect undervaluation.

Unfortunately, the ESOARS auction is not likely to fulfill the conditions to permit true price discovery. Difficulties arise from restrictions placed on participants in the ESOARS auction, from the small size being offered and from incentives of the seller. Further dampening conditions include a contingency to eliminate competitive bidding, delays in payments to security holders, mandatory account-holding by winning bidders post-auction with Zions' brokerage arm (Zions Direct) and pre-auction consideration of each bidder's Zions Direct balance, which affects the maximum bid allowed. In addition, bidders are faced with the prospect of an unsupported secondary market and undefined third-party valuations affecting the virtual "callability" of the security upon ESO modification.

Not surprisingly, these factors preclude the ESOARS auction mechanism from satisfying the basic requirements for liquidity and price discovery and make it highly likely that the ESOARS auction price will significantly understate the true cost of ESOs to the firm.

We will now explain in more detail how various auction features impact the resulting sale price.

Bidder Cost/Benefit

The small size of the offering (actual proceeds in Zions' June auction were only \$702,075 and the restricted maximum bid was just \$350,000⁶) makes the security unsuitable for large or institutional holders. The additional requirement that any winning bidder become (if not already one at the time of the auction) a customer of Zions Direct would be a further barrier for some investors. It is particularly ominous that Zions takes into account the size of the customer's deposit in determining the maximum allowable bid. The suggestion that bidders who are pre-auction customers of Zions Direct may be allowed a larger bid is a serious barrier to institutional involvement.

The diminutive size of the issue has other predictable effects. In their summary to the Office of the Chief Accountant of the SEC, Zions reported that there were 82 registered bidders, 57 of whom actually made bids. They note that there were 5 institutions amongst the 82 registered bidders, although they do not identify how many of those actually submitted bids.⁷ The small scale makes it uneconomic for an investor to exert significant effort in studying the offering. At CVI, we were approached by a hedge fund seeking a valuation, but, upon learning of the restrictions and the size of the ESOARS offering, they decided not to participate. To the extent that this is a typical reaction, the bidders who did participate would be far from a representative sample of investors.

Perhaps the closest market that currently exists to securities such as the ESOARS is the market for individual company stock options. The average trading volume in Zions options, for example, is approximately 300 per day,⁸ i.e., options on 30,000 individual shares. By contrast, the Zions auction was for 93,610 units. To put this in perspective, the auction represented around the same number of underlying shares as the average number of Zions options traded in the listed market over a three-day period. It is important to realize that listed options are by comparison much simpler instruments than the ESOARS security and that investors can hedge them with positions in the underlying stock (and vice versa). Moreover, they are traded in two-sided, low cost, liquid secondary markets supported by multiple market-makers.

By contrast, the ESOARS instrument is sui generis, less convenient to hedge or to use as a hedge, not tradable in an efficient two-sided aftermarket, and not a simple substitute for holding the stock itself. Unlike a warrant issued by a company or a private placement, information about the issuing company is a smaller component of the ESOARS' value; instead, they are more subject to the proclivities of Zions employees.

⁶ Summary, p. 15.

⁷ The reported number of bidders, number of institutions, and number who made bids, Summary, p. 15.

⁸ Calculated from The Options Clearing Corporation's online Volume Query results, data for the period 26 March 2006 through 26 March 2007, divided by two to represent one contract side, and divided by 252 to represent an average daily volume of over 296 over the one-year period, http://www.optionsclearing.com/market/volume/volbyproduct_form.jsp as accessed on 26 March 2007.

FAS 123R requires that the ESO valuation represents the actual cost to the company of its employee option grant payouts. But if the limited market supply results in a low ESOARS value, this has nothing to do with actual ESO costs. It does indicate that the auction is not sufficiently well functioning to enable price discovery.

Lack of a Supported Secondary Market

The lack of commitment to a secondary market further diminishes the potential for a reliable valuation in the initial auction, and removes a check on the validity of price discovery. All investors are reluctant to take on a position that can only be unwound at significant discount from inherent value. ESOARS are in this aspect analogous to unregistered stock, which invariably sells at a discount. Subsequent illiquidity in the ESOARS secondary market renders the purchase a ‘buy-and-hold’ decision --an unattractive feature at any size.

Zions states that there are no restrictions on the transfer or sale of the ESOARS and that there may not be an active secondary market for ESOARS.⁹ While it states its intention to facilitate an aftermarket in ESOARS, it will do so only on a best-efforts basis attempting to cross trades between holders who wish to sell and investors who wish to buy, and for large holders, it will run an auction if they wish.¹⁰ This is a far cry from what is needed: a market-maker who stands continually ready to buy and sell within a limited spread.

Without an adequate secondary market, for this diminutive auction there is no objective market-based way to judge whether the initial sale price really is a fair estimate of the cost of issuing the ESOs, rather than a one-time, limited-size sacrificial sale meant to create the façade of a market for reporting purposes. The failure of Zions to support a market in the security after the auction is consistent with this interpretation; typically when companies issue warrants they promise to make a secondary market in them to increase their attractiveness to investors. If Zions truly believed that the auction produced the right price, then they would be willing to stand as or enlist a market-maker in the security and sell or purchase large amounts with a modest bid-ask spread. Alternatively, Zions should seek offers in the market, rather than bids as we will describe below.

Buyers’ and Seller’s Incentives

Some of the ideas expressed in the press, which at first seem only peripherally related to ESOARS effectiveness in price-discovery, come into play in discussion of the instrument. These press stories, including several which Zions chose to file with the SEC, have made much of comments surrounding Zions’ motives behind their own issuance and their further intention to derive fees from advising other companies who wish to follow suit. According to some reports, interest in the product is expected to

⁹ “There may not be an active secondary market for ESOARS; therefore, holders may not be able to find a buyer for their securities or may sell them at a loss,” <https://www.esoarsauction.com/pma/faq/#is5>, 25 March 2007.

¹⁰ Summary, p. 8.

hinge on achievement of a lowered expense. Without delving into the accuracy of the various stories, as we have shown, the ESOARS's auction does result in a lowered reporting expense for FAS123R.

In a typical auction, the buyer obviously prefers a low price while the seller prefers the opposite. A seller striving to minimize the sales price is atypical in the investment world. However, in the ESOARS auction, both seller and buyer appear to desire the same thing, a low price. Avid competitive bidding amongst the buyers is attenuated for the many reasons we have discussed. In such a situation the price will be artificially low.

But regardless of buyer demand, a lower limit is usually determined by the seller's estimate of true value; after all, the seller can withdraw the security rather than sell it at a ridiculously low price. In a standard auction, the seller often establishes a "reservation" price, the lower limit and point of withdrawal. In the ESOARS case, though, the seller like the buyer has an incentive for the price to be low in order to book a low expense for ESOs, and no such lower limit is set. Zions has an incentive to obtain a low valuation for their ESOARS product, and the small size and one-time nature of the issue allows this incentive to take precedence over the desire to maximize the funds raised by the issue's sale, the normal consideration when issuing a security for the purpose of raising capital.

The extent of the downward bias of ESOARS

How downward-biased is the auction price? It is possible to examine the implications of the price in terms of Zions' own disclosures. Use of the Black-Scholes model in this context does not rely on the Black-Scholes model being correct; it only uses the model to translate price into estimates of the inputs that are more readily compared across different securities.

The reported ESOARS auction price was \$7.50.¹¹ One natural question is what implied volatility would result from this valuation. (In options markets, prices are often thought of in terms of the implied volatility of the option, which traders use as a surrogate by which to compare prices. The implied volatility is the volatility input into the option pricing model so that the resulting price equals the prevailing market price.) Similarly, we could ask what term or expected life would be consistent with the auction price holding other inputs constant.

From Zions' SEC submission,¹² the expected life of their options was 4 years, the annual dividend yield was 2% and the interest rate was about 5%. They used a volatility of 18% per year which is close to both the historical volatility and the current implied volatility in the market. Using the Black-Scholes model, the life of the option on grant date would have to be set at about 2.2 years to recover the auction value of \$7.50, or equivalently, a

¹¹ June 29, 2006 test auction of ESOARS, <https://www.esoarsauction.com/pma/faq/#is5>, the results of which were used to determine grant-date value of \$8.57 per ESO.

¹² Summary, p. 17.

grant-date value of \$8.57¹³ for FAS123R purposes. This is about half of what Zions estimated to be the expected life and it implies that the ESOs which vest 1/3 in each of the three years after the grant date would have to be exercised immediately upon vesting. Alternatively, holding other parameters constant, the implied volatility which recovers the auction price is about 10% per year. To put this in perspective, on the auction date, 29 June 2006, only one company in the S&P500 had a volatility lower than 10%.¹⁴ Furthermore, the volatility of the S&P 500 Index itself was over 13%.¹⁵

In their submission to the Chief Accountant of the SEC, Zions said that “Given the well-publicized criticisms of the Black-Scholes-Merton model, we expected the market value to be somewhat lower than the modeled price and generally are pleased with the pricing obtained in our first-ever ESOARS auction. Over time, the market for ESOARS should grow more efficient.”¹⁶ The Black-Scholes-Merton model and lattice models certainly have their failings, but exactly what the deficiencies are that would lead these valuation models to be persistently biased above the appropriate value is not clear. What then, is there about the pricing that Zions finds so pleasing? And what could possibly justify implied assumptions for expected life in the model that are bizarre compared to actual exercise behavior or for a volatility so extreme compared to other stocks? Zions is correct that the market should grow more efficient over time, but it won’t happen without creating the conditions for an actual market to develop, instead of a stunted demand curve artificially met by a single, one-time supplier.

In conclusion, the ESOARS product is too flawed to serve as a reliable valuation tool for FAS 123R purposes. While the tracking security itself is imperfect but not unreasonable, in combination with the auction mechanism and surrounding conditions and incentives, the design serves primarily to produce a predictably downward biased result.

Remedies

1. Increase Issuance and Remove Entry Barriers

One way to remedy the failings of the ESOARS’s mechanism and to achieve the goal of market-based valuation for ESOs would be to significantly increase the issuance size, to provide a regular calendar for issuance, and to eliminate the artificial restrictions on bidders and holders of the security. These actions would attract the interest of bidders and put them in a competitive environment where they would be subject to adequate

¹³ Summary, p. 17.

¹⁴ This information is obtained from Ivolatility.com, a provider of implied volatility data and analyses. In particular Ivolatility.com’s calculations of 180-day call implied volatility on June 29, 2006 for the 496 component companies that were available for computational purposes and the S&P Index itself were used. The one component stock that traded at lower than a 10% implied volatility was in the process of being taken over. ZION was actually the 79th lowest implied volatility in Ivolatility.com’s calculations with a 19.24% implied volatility on that day, from the market data.

¹⁵ Of the five component stocks that actually traded at lower implied volatilities than the S&P Index itself on that date, only one was not in the process of being taken over or merged.

¹⁶ Summary, p. 18.

market discipline. An additional benefit of increased size is that it changes the issuer's incentives to the benefit of market efficiency. As the ESOARS auction is currently designed, the issuer has an incentive to achieve a low price because of perceived benefits associated with the reduction of accounting expense. An economically meaningful issue size would turn the issuer's attention to raising funds at an attractive price, and, as a further consequence, artificial restrictions on bidders hold much less appeal to that issuer.

Zions does have the capacity to make much larger-scale offerings. As examples of the size of Zions' other transactions, in December 2006 Zions issued \$240 million of non-cumulative perpetual preferred stock.¹⁷ Rather than have the tracking security be a fraction of the value of the ESOs, for true price discovery it should be the same or even a multiple of the size of the ESOs.¹⁸ In addition, if the market were assured of a regular calendar of sufficiently large issues, it could further attract the interest of a broad spectrum of potential bidders.

Increased issue size and the elimination of restrictions would attract the attention of a broad spectrum of market participants, a regular calendar would assure them that they could amortize the information and analysis costs of bidding over future auctions, and the elimination of the seller's incentives to achieve a low valuation could assure the buyer that a subsequent call would not be at a significant discount to value. The resulting auction price would be a market-based discovery of the fair value.

2. Provide a Liquid Secondary Market

A complementary remedy would be for Zions to support a liquid secondary market in the security. If Zions were prepared to make a two-sided market in ESOARS available -- providing a market-maker to buy and sell as demanded-- it would alleviate the inability of the current ESOARS auction process to determine a fair value of the ESOs. Currently there is only a one-sided market composed of small positions that must be held for the life of the ESOs or sold in an illiquid secondary market. If ESOARS are correctly valued at the auction price, a market-maker should not mind buying and selling ESOARS at a modest bid-ask spread around the auction price. In this context, the auction is merely a method of initiating a liquid secondary market with a reliable price discovery mechanism. The proper price for expensing would not be the initial auction value but, rather, the prevailing price in the secondary market.

It is common in the financial markets to place more weight on the secondary market price than on the initial offering. Closed-end funds, for example, typically sell in the secondary market at a discount from their net asset value but are sold at a premium in the initial offering. It often takes a few months for the trading price to emerge less its initial premium as the initial buyers of the funds move to sell them in the market. The same would occur for ESOARS (given a liquid secondary market), but in this case it is the initial discount from value that would disappear as buyers entered the market for the

¹⁷ <http://www.10kwizard.com>, 12/05/2006 filing of 424B3 by Zions Bancorporation.

¹⁸ We realize, of course, that it's highly unlikely that any firm would use ESOARS to raise a major amount of capital.

bargain values and Zions was in the position of having to raise the price (and provide a sorely-missing supply curve) as it satisfied their demand for significantly larger quantities than were initially offered.

3. Reverse the Auction

Another simple, complementary remedy using market forces would be to reverse the auction. Instead of selling ESOARS with all of the attendant misalignment of incentives, Zions could buy ESOARS from third party suppliers and use them to hedge the obligation to the employees (or simply hand them over to the employees). The ESOARS payouts would be as they are currently and bidders would compete to supply quantities of options at stipulated prices. Instead of a demand curve, the equilibrium price would be determined by a supply curve (aggregating up from the bottom) from which Zions could purchase. Alternatively, Zions could act as a discriminating monopsonist and simply pay the offer price from each supplier until enough options are accumulated to make the proposed grant to employees. Even at its most inefficient, such a one-sided market would be superior to the current approach, with its misaligned incentives.

FAS 123R requires companies to expense the cost of the ESOs. In the ESOARS auction, bidders offer some estimate of the value to them of receiving the same payments as the employees. If, instead, the company were to buy ESOARS, sellers would agree to supply the payments that the company has to make at an ask price. This ask price is the true cost to the company, i.e., what they have to pay to offset the liability, not the bid price which is what someone is willing to pay to receive the ESOs payouts. In effect, what the Zions ESOARS auction does is find the value of the payouts to financial players, but what is required is the cost to the company of making the payouts. If the auction were sufficiently competitive, the spread between the value of buying the payouts and the cost of supplying them would be very small, but as we have described above, this is not the case with the ESOARS auction. Far more efficient would be to run the auction in reverse to buy ESOARS. Doing so would align the incentives in the usual way, so that the buying company would want a low price and the financial sellers a high price.

Conclusion

In sum, ESOARS require major modifications before they can correctly reflect the true cost to the company of its ESOs. Without remedies or alternatives such as those proposed above, the ESOARS price should not be accepted by auditors nor certified by senior executives as correctly measuring the cost of a company's ESOs.

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