

A HISTORICAL PERSPECTIVE ON DUTCH AUCTION RATE PREFERRED STOCK

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ABSTRACT

In February of 2008, the \$330 billion auction-rate security market began to fall apart. Brokerage houses that managed the periodic auctions refused to support their issues, so that auctions failed and liquidity disappeared. Investors had a wake-up call: an asset they had thought was a money-market equivalent was in fact something much more risky. In this paper, we consider this current meltdown in light of the 1980s history of Dutch Auction Rate Preferred Stock (DARPS). We conclude that a significant contributor to the recent problems was the marketing of DARPS to individuals, when the security was designed for corporate investors.

JEL: G01, G32, K34

KEYWORDS: Preferred Stock, Auction, Dividends Received Deduction

INTRODUCTION

In early 2008, owners of billions of dollars' worth of auction-rate securities learned that the assets they had presumed to be as safe as money-market assets were, instead, not only quite risky, but also temporarily completely illiquid. The brokerage houses that had been standing behind the securities' rate reset auctions stopped supporting the market, and auctions failed—resulting in no liquidity for investors and in extremely high rates for some issuers. In late summer of 2008, some large brokerages began to promise that they would buy back the auction-rate securities of their retail investors; intervention by regulators soon encouraged other brokerages to do the same.

Retail investors whose accounts were frozen for months blamed brokers for misrepresenting the safety and liquidity of auction-rate securities. Mitigation efforts included demands by investor groups and by government regulators for clearer disclosure. Even now, issuers and investment bankers are scrambling to create acceptable new substitutes, while consumer advocates are demanding explanations.

The liquidity risks inherent in auction rate securities have been well known since their creation in the 1980s. However, they may not have been appreciated by the retail investors who have only recently entered the market. The auction rate market traditionally has been the exclusive province of corporate cash managers, who were able to benefit from the dividends received deduction (DRD). This preferential tax treatment has allowed corporate investors to exclude from taxes up to 85% of the dividends they received. Since corporate investors thus faced a lower effective tax burden on these securities, issuers could offer a lower pre-tax return on them. In short, everybody won. Dutch Auction Rate Preferred Stock (DARPS) was developed in the early 1980s to facilitate this tax benefit-sharing by allowing corporate cash managers to capture dividends with relatively little price risk. However, changing market conditions later in the decade threatened to make the security obsolete. A concerted effort by broker-dealers to extend the market to individual investors saved DARPS from extinction, but at the cost of selling it to investors for whom it was not designed. Coincidentally, as the market expanded to include retail investors, the share of potential benefits accruing to issuers greatly increased.

Since retail investors could not benefit from the DRD, they were simply using DARPS as a cash equivalent. This focus made them especially vulnerable to auction failure. They certainly seemed the

least prepared for, and the most affected by, the lost liquidity from the tidal wave of failures in February, 2008.

In this paper, we consider the recent auction-rate problems in light of the traditional use for the securities: as a dividend capture strategy. We argue that expanding the market to retail investors meant jamming a round peg into a square hole—it was an idea doomed to failure. We proceed as follows. In the next section, we review the literature on both the old and new incarnations of DARPS. In section three, we review the rise and fall of DARPS in the 1980s, stressing its use for tax benefit-sharing. Given this background on the traditional use for the security, we consider the current auction market meltdown in section four, highlighting the recent changes that made the market vulnerable.

LITERATURE REVIEW

Academic attention to DARPS has been spotty, mirroring DARPS' popularity in the market. There have been three general phases of relevant work: the early DARPS literature, which describes the asset's rise and fall during the 1980s; studies attempting to quantify implicit taxes, which evaluate various tax schemes employing different types of preferred stock; and more recent work assessing DARPS' contributions to the financial debacle of 2008. Two critical themes underlie all of the work, however—the potential tax benefits available for the proper clientele, and the unavoidable risk of auction failure.

The earliest of this literature focuses on preferred stock's use as a tax benefit-trading mechanism. Winger, *et al.* (1986) describe the early history of the precursor to DARPS, adjustable-rate preferred stock, ARPS. (We discuss ARPS more fully in the next section. See also Houston and Houston, 1990.) The authors acknowledge that taxes motivate ARPS trading, noting that “[s]upply and demand in the marketplace...should lead to ARPS prices that reflect a type of joint tax optimization on the part of issuers and investors.” In practice, however, they find that the securities had drawbacks for corporate money managers: ARPS were more volatile than money-market comparison assets, and had relatively unattractive returns as well. These results were not much attenuated in ARPS mutual funds, since the preferreds in these funds all reset against the same reference assets. (See also Erickson and Maydew, 1998.) Market conditions also hurt ARPS. Interest rates were rising, making investors more inclined to be conservative (“it was not the time to...play the role of a hero”; Wilson, 1986a); investors were worried about tax reform; and the markets were unsettled by the “tidal wave” of negative investor sentiment unleashed by the failure of Continental Illinois and the Latin debt fiasco. Finally, there was liquidity risk. Winger *et al.* (1986) note that ARPS usually did not offer a conversion feature or a sinking fund, so that ARPS' prices were only able to remain “relatively constant.” These unattractive features of ARPS led investors to turn to convertible adjustable preferred issues, which offered “a means for assuring that the investor can liquidate the investment for an amount equal to the original purchase price.” This evolution toward greater price stability continued, of course, with DARPS.

Morse and Johnson (1994) explain that DARPS was originally marketed by investment bankers as a “tax-advantaged cash substitute.” They compare DARPS' performance in the late 1980s to that of hedged dividend-capture programs, and find that DARPS were more “user-friendly” (because they required fewer intermediate transactions than did the hedged dividend capture programs, which use protective puts and covered calls to hedge) and generated higher and more consistent returns. Alderson, Brown, and Lummer's (1987) seminal paper on DARPS explains how its novel design features improved upon adjustable rate preferred stock, making corporate dividend capture safer by reducing potential price risk. Validating Winger *et al.*'s (1986) conjecture about ARPS, they find that the relative yields on CP and DARPS “accommodate” both the issuer and the investor—“to allocate the benefits of the corporate exclusion on dividend income among both the issuing and purchasing firms.”

Notice that Alderson, Brown, and Lummer (1987) identify *firms* as the traders. If taxes were the motivation for trading these various types of preferred issues, then the clientele for the trades would have been those who benefited from those potential tax benefits—corporations. The contemporary literature uniformly concurs with the identification of DARPS traders as corporations. Erickson and Maydew (1998) assert that preferred stock is held “by a particular type of investor (corporations).” Their finding of an implicit tax effect, measured around a threat to decrease the DRD—a threat that negatively affected only preferred stock, not common—strengthens this assertion. They summarize their findings by saying that “our results support the notion that corporate investors form a tax clientele for preferred stock.” Similarly, Alderson and Fraser (1993) assert that DARPS was designed to “enhance the marketability of preferred equities to the tax clientele that values them most, corporate purchasers.” (See also Engel, Erickson, and Maydew, 1999, on DARPS, and Winger, *et al.*, 1986, going even further back to ARPS.)

As we clarify in the next section, however, to benefit from DARPS, the trading companies must be in the right tax brackets. Houston and Houston (1990) provide strong evidence that, in the 1980s, DARPS indeed were traded by the “right” types of companies: issuers with low marginal tax rates and purchasers with high tax rates. As noted above, these issuing firms cannot derive the maximum benefit from debt tax shields, but can create similar benefits by issuing DARPS, since corporate investors will accept lower pre-tax yields on DARPS than on debt. The sharing of tax benefits is what Alderson, Brown, and Lummer (1987) say makes DARPS “an extremely valuable cash management vehicle for *fully taxable* companies to purchase from *zero tax* issuers” (emphasis added). Similarly, Alderson and Fraser (1993), after describing the factors that led to the decline of the DARPS market after 1987, assert that DARPS could still serve as a useful financing tool, albeit for a “very narrowly defined investor clientele for high-quality preferred stock” (i.e., corporate cash managers, “by design” the asset’s “principal clientele,” “virtually the only participants on the demand side of this segmented market,” and for whom it is “exclusively” suitable) and a small set of potential issuers (i.e., “high-quality, low-tax-rate firms”). (Given the very specific nature of these potential trading partners, these authors conclude that the criteria result in “a market that is too small to be of consequence.” We will see below that attempts to expand this market were almost certainly one of the primary causes of the DARPS meltdown of 2008.)

Taxes continued to be focus of literature written until just a few years ago. With the older work having established the corporate clientele on both sides of the trade, later work attempted to estimate the relative benefits to the participants and to quantify the implicit tax between the yields on tax-advantaged assets like DARPS and on comparable-risk comparison assets. (See Erickson and Maydew, 1998, for a full explanation of implicit taxes.) This more recent work also begins to hint at a new type of investor for DARPS—individuals.

Plesko (2005), using a weekly sample of DARPS auction results from 1985 to 1993, finds that taxes motivate the trades in these issues. He asserts that the auctions he studies are almost completely an institutional game: given that “taxable corporations are a clear, and targeted, clientele as potential buyers” of DARPS, and “firms with substantial [net operating losses] form a natural clientele as issuers,” DARPS’ “clientele are easily identified.” In fact, DARPS “is marketed only to corporations.” However, he sees some indications that individuals are participating in the market, referring to a 1988 Morgan Stanley estimate that up to 10% of preferred stock is held by individuals, and noting that both Lehman and the *Wall Street Journal* recommended preferred stock for individuals as early as 2001. (See Plesko, footnote 11; see also Engel, Erickson, and Maydew, 1999, footnote 8, for reference to individuals’ holding of trust preferred—but not straight preferred—stock.)

Individual participation may also help explain Plesko’s empirical results. While he finds that both the issuer and the investor share the tax benefits that motivate his trades, he observes that the proportion of those benefits accruing to the issuer increases over time. His main finding, however, is on implicit taxes: he finds that the relative pre-tax yields of DARPS and comparable commercial paper imply a marginal tax

rate less than the corporate maximum—a result he calls a “puzzle.” This latter finding may imply that individual investors are active in the market.

Erickson and Maydew (1998) note that the highest implicit tax effect will occur when a stock’s returns come solely from dividends and when corporations are the marginal holders of that stock. For example, given a DRD of 70% and a maximum marginal tax rate of 35%, the highest implicit tax rate is 27.4%. (Using equation (1), which we specify in the next section, we see that, given these tax and DRD values, the before-tax DARPS rate must be $(.65)/[1-(1-.70)*.35] = .726*$ (before-tax CP rate). Thus, comparing the before-tax rates, we find that the DARPS rate is the CP rate times (1-.274), so that the implicit tax rate is 27.4%.) The authors note, however, that if individuals are the marginal investors, this implicit rate will be lower. Individuals do not benefit from the dividends received deduction, so their effective tax rate on DARPS is T. Their required pre-tax DARPS rate is higher, making the pre-tax difference between DARPS and CP—the implicit tax—smaller. (For example, if only individuals held DARPS, then the implicit tax would be zero, since there would be no difference between the tax burdens on the two assets for any investor.) Similarly, Engel, Erickson, and Maydew (1999) estimate the implicit tax cost of trust preferred stock relative to straight preferred—that is, the premium that investors will demand for holding trust preferred, whose dividends are not eligible for the dividends received deduction, and are therefore fully taxable to corporate investors. They show that the maximum implicit tax cost between the two is 27%, but that their empirical estimate is much lower (only 2.33%). They interpret this as evidence of a “discernible but small effect of investor-level taxation” on the preferreds’ relative yields. The authors summarize their results by asserting that, in this case, the tax benefit to issuers apparently is much larger than the tax disadvantage to investors—a conclusion consistent with Plesko’s (2005) observation that the share of benefits to issuers seems to be increasing over time.

As we will see later, the retail ownership that was hinted at in the late 1990s became the dominant characteristic of the demand-side for DARPS in 2008. Small, individual investors became significant owners of DARPS, and they were severely hurt when the rate-reset auctions started failing. Some commentators attempting to explain the debacle of 2008 have asserted that these liquidity risks were hidden until the market blew up. However, recognition of the risks inherent in auction-rate assets is clear from the early preferred stock literature. For example, in 1986, an article about adjustable-rate preferred stock (ARPS), DARPS predecessor, stated most emphatically:

ARPS are not money market instruments and are not substitutes for short-dated paper. They possess more of the characteristics of equities than of debt instruments, such as voting rights in certain circumstances, and liquidation rights superior to those of common and other junior securities but inferior to those of debt. Also, unlike most debt cases, failure to meet a dividend...is not an event of default...With few exceptions, they do not give the holder the right to put the stock back to the issuer for cash. (Wilson, 1986a)

In addition, caps on ARPS were hit on some issues even in 1984, just two years after the assets were conceived (Wilson, 1986a).

As for DARPS, a 1986 article asserted that “[t]he instrument is not for the small or unsophisticated investor,” but for the manager of “temporarily’ idle corporate funds” who could benefit from the DRD (Wilson, 1986b). The author clearly warned these potential corporate investors that they might be unable to sell their stock if there were insufficient demand at auction, a “failed” auction.

It is true that, during these earliest days, the possibility of a failed auction was considered remote. Alderson, Brown, and Lummer (1987) note that they ignored relative risk when comparing commercial paper and DARPS, since DARPS can provide investors with “an impressive degree of certainty”

regarding its reset to par every seven weeks. (McConnell and Saretto, 2009, provide supporting evidence for this sanguine assessment: between 1984 and 2006, auction-rate securities of all types suffered only 13 auction failures in over 100,000 auctions.) While Alderson, Brown, and Lummer go on to acknowledge that “[w]hat uncertainty remains is an element of liquidity risk,” they assert that “this need not be a major concern,” given the coordination of the reset auctions with the required holding period for the dividend exclusion. In fact, DARPS “enables the purchaser to realize the corporate dividend exclusion in a near riskless manner.”

On the other hand, Alderson and Fraser (1993) clearly explain the “well known” liquidity risk of DARPS’ auction failure: “existing holders who wish to divest have no recourse to the issuer in the event that the number of shares demanded at a dividend yield below the stated maximum rate is insufficient to cover the available supply.” They stress that DARPS investors *must* accept some risk of auction failure, since only then will the security meet the IRS’s “at-risk” requirement for the dividend received deduction: “the dividends received deduction and the potential for auction failure are inseparable: holders of money market preferred stock cannot simultaneously maintain a position in variable-rate preferred equity, take advantage of the dividends-received deduction, and avoid the risk of auction failure.” In fact, their survey results found that the only security design feature that significantly affected their sample firms’ decision to redeem their DARPS was this risk of auction failure. The importance of this possibility to issuers suggested to them that auction failure could signal poor credit quality, and lead to a self-fulfilling cycle of failures. These were not idle conjectures: in 1999, Winkler and Flanigan described the serial auction failures of M-Corp’s DARPS in 1987 and 1988, the years immediately before the company failed.

Some regulators and practitioners were sounding alarms about auction failure. The Securities Industry and Financial Markets Association (SIFMA), an industry trade group for securities firms, broker-dealers, and asset managers, stressed the potential for auction failure in its best practices (2007): “[a]lthough the Maximum Rate is generally above a market Rate, Existing Owners may be disadvantaged if there is a Failed Auction because they are not able to exit their positions by means of the Auction.” Much earlier, the IRS in 1990 clearly identified DARPS as equity, despite its use as a cash equivalent. Its revenue ruling 90-27 laid out the reasoning. DARPS was equity because it acts like traditional preferred: “[a] holder has no right to receive a certain sum on demand or on a specified date; a holder’s rights on liquidation or bankruptcy are subordinate to claims of creditors; and receipt of dividends depends on their being declared and paid out of legally available funds” (Willens, Biebl, and Burge, 1990). Since the broker is not required to support the auctions, they may fail—meaning that investors have no guarantee that they can sell their shares.

By 2005, accounting firms had starting requiring their clients to stop classifying their auction-rate securities as “cash equivalents.” Financial Accounting Standard 95 (FAS 95) defines cash equivalents as “short-term highly liquid investments...readily convertible to known amounts of cash [and] so near their maturity that they present insignificant risk of changes in value because of changes in interest rates.” The standard asserts that only assets with maturities under three months when acquired will usually satisfy these requirements—DARPS would not qualify. (However, as was made clear during the hearings on auction-rate securities of the U.S. House of Representatives’ Committee on Financial Services, these securities were still being classified as cash equivalents on retail investors’ brokerage statements in 2008.) In 2005, Lance Pan of Capital Advisors Group warned that the FAS 95 interpretation of cash equivalents could lead corporate cash managers to abandon DARPS. More interestingly, he also predicted that a “contagion”—“more bad press”—could cause serial auction failures, and that “[i]nvestors with near-term cash needs may be gravely impacted as they are forced to sell at deep discounts.” And, “We have always been concerned that the fragile liquidity and investor confidence of ARS may subject the securities to potentially violent market contagion that could lock up the entire market for days or weeks.” The point of his article? To reiterate his company’s warning to stay away from auction rate securities, or to “tender the security back at the earliest possible time before anyone else does.”

Of course, the probability of a poor outcome may depend on market conditions. Winkler and Flanigan (1991) study the relative behavior of DARPS and CP during the market turmoil surrounding October 19, 1987. They conclude that investors quickly increase DARPS' risk premiums during market turbulence, so that DARPS is "not an acceptable substitute for commercial paper" and "should not be viewed as a near-cash investment." Similarly, McConnell and Saretto (2009) find that, as far back as 2003, auction rate bonds offered a small premium above money market alternatives, but that this spread widened considerably after auctions began failing in September, 2007. They also find that, starting that month, their auction-rate bonds also began to yield more than variable rate demand obligations (VRDOs) from the same issuers. Since VRDOs guarantee investors the right to sell the bonds back at par, this widening spread may have indicated investors' increasing liquidity concerns about the auction process. The authors summarize by saying that "ARS bonds were not priced as cash equivalents once the likelihood of auction failure became tangible during the late fall of 2007." (While McConnell and Saretto did not study auction rate preferred stock, they assert that "some very preliminary analyses" suggest that DARPS behaved like the bonds.) Finally, Plesko's (2005) result that the implied marginal tax rate between DARPS and CP is less than the maximum—which implies that fully taxed investors receive a higher after-tax rate on DARPS—may also reflect a default premium.

The presence of a default premium does not necessarily imply auction failure, however. McConnell and Saretto (2009) examine a sample of 793 auction rate bonds and find that the probability of their auctions' failure depended on their maximum allowable reset rate. Bonds with lower max rates fail more frequently. For example, the authors compare the failure rates for bonds whose max rates are contractually fixed with those whose max rates float relative to a reference rate. For the fixed issues, the average max rate is 14.1%; in contrast, for the floaters, the max rate averages 4.1%. Thus, having a floating max rate implies having a low max rate. The authors find that, during early 2008's worst failure period, up to 90% of the floaters failed, while only 13% of the fixed max-rate issues failed. They interpret their ability to link the probability of auction failure with bond characteristics as evidence that investors were rationally avoiding issues whose market-clearing rates were above their max rates. They also suggest that the problems in the ARS market resulted from a spillover, or "contagion," from the broader credit markets' response to the subprime crisis of 2007.

Having described the literature on both the original and more recent incarnations of DARPS, we now look more carefully at the tax treatment that initially spurred its creation.

DUTCH AUCTION RATE PREFERRED STOCK IN THE 1980s

Finance textbooks often describe preferred stock as a dominated security, with more restrictions for issuers than common stock, but without debt's tax deductibility (see, for example, Schall and Haley, 1986). The early variable-rate preferred stock literature explains the resulting "puzzle" of the "enigma" that is preferred stock by appealing to the dividends received deduction: issuers who may not be able to benefit from debt financing (because their tax rate is low, or because they have other tax shelters) may be able to issue low-rate preferred to corporate investors who can exclude most of their dividends from taxes. Taxes, then, provide a rationale for the existence of an apparently dominated security.

The ability of corporate investors to deduct a substantial proportion of the dividends they receive is meant to prevent triple taxation of those dividends. The excluded proportion, the DRD, was 85% when DARPS was developed in the 1980s. Thus, under this regime, corporate investors were taxed on only $(1 - \text{DRD}) = 15\%$ of the dividends they received.

The ability to exclude such a substantial proportion of dividends from taxes made high-dividend stocks attractive to corporate cash managers. However, there was obviously a tension between the attractiveness of the dividends and the inherent risk of stocks that generated them. Cash managers devised hedging

schemes to couple their stock investments with covered calls and protective puts, but these programs were expensive and unwieldy. In 1982, a product was devised that allowed corporate investors to avoid the involved hedging required with dividend-capture programs: adjustable rate preferred stock (ARPS). Adjustable rate preferred stock reduced price risk by resetting its dividend rate every quarter. The new rate was set at a fixed spread above Treasuries, where the chosen Treasury benchmark was the highest of the current yields on bills, notes, or bonds. (Given that the yield curve was normal during this period, this effectively meant the ARPs were set at a fixed rate over T-bonds.)

While ARPS helped investors mitigate the interest rate risk of a dividend capture program, it had significant drawbacks. First, the 91-day reset period was much longer than the 46-day holding period required for dividend capture, so that investors selling after the holding period were still exposed to price risk. Second, the fixed spread over Treasuries precluded adjustments for changing credit risk, so that issues whose credit quality deteriorated might never reset to par. Finally, some investors were concerned that their cash management issues' yields were tied effectively to a long-term, rather than a short-term, benchmark.

In response to these problems with ARPS, innovative investment bankers created Dutch Auction Rate Preferred Stock (DARPS). DARPS met the problems of ARPS head on: its seven-week reset period better matched investors' required holding period, and its spreads were allowed to fluctuate, accommodating both closer links to desired benchmarks and changing credit quality. Yield flexibility was accomplished by resetting dividend rates through an auction. Investors who wished to ensure that they kept their shares submitted noncompetitive tenders. Investors who wished to participate in the auction submitted quantity/yield bids, which were ranked by the auctioneer from lowest to highest yield. Shares were awarded starting with the lowest yield; the highest accepted yield (the stop-out or clearing rate) determined the dividend rate for all shares. If the quantity of bids at the stop-out yield exceeded the available shares, *current* investors received pro-rata allocations (new bidders were excluded). (Contrast this auction mechanism to the old and current formats for Treasury auctions. Under the former, a discriminatory system, winning bidders received the yield they bid. In the current system, a single-price system, all winning bidders receive the stop-out rate, as with DARPS. However, under both Treasury systems, all bidders participate in the pro-rata allocation of available shares at the stop-out; none is excluded.)

DARPS issues often had rate collars, specifying the maximum and minimum possible reset rates (used in case the auction garnered insufficient demand or supply, respectively). Both of these reference rates usually were based on the market rate for AA-rated commercial paper (CP), a money market alternative asset. For example, Alderson, Brown, and Lummer (1987) note that a common collar during the early 1980s was 110% and 58% of the rate on AA CP. While the ceiling was set to partially compensate an investor for a failed auction (a possibility deemed remote, as discussed later), the floor was set to equate the after-tax return on DARPS to the after-tax return on CP.

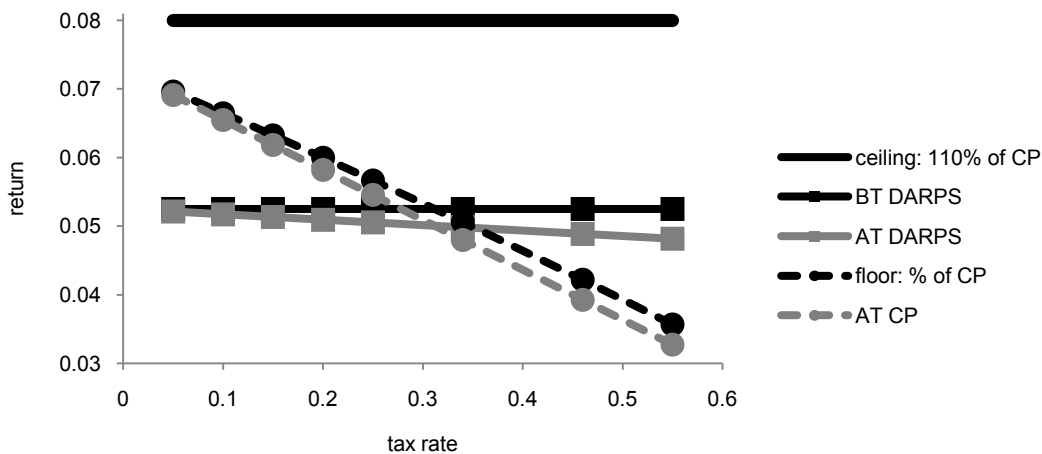
The DRD complicates the calculations of these after-tax rates. Since CP is fully taxable to the investor, its after-tax return is simply its before-tax return times the factor (1-T), where T is the marginal corporate tax rate. However, since corporate DARPS investors are able to exclude a large percentage of their dividends from taxes, their effective tax burden is much lower than their marginal tax rate would imply. For example, using the 85% dividends received deduction (DRD) and the 46% maximum marginal corporate tax rate from the early 1980s, we find the effective tax rate on DARPS dividends to corporate purchasers to be only (1-DRD)*T, or 6.9%. Using these relative tax burdens, we can find the equivalent before-tax return on DARPS as:

$$\text{before-tax equivalent rate for DARPS} = (\text{before-tax rate on CP}) * \frac{(1-T)}{[1-(1-DRD)*T]}, \quad (1)$$

or, using the same DRD and T values, $(\text{before-tax rate on CP}) \cdot (1-.46) / [1-(1-.85) \cdot (.46)] = (\text{before tax rate on CP}) \cdot (58\%)$. Thus, the 58% floor value was a consequence of the tax rate/DRD regime in place during the 1980s.

Figure 1 illustrates how these floor percentages would vary, using different marginal tax rates. The relationships pictured are based on the average values found by Alderson, Brown, and Lummer (1987) from their sample of 201 DARPS auctions held over the first half of 1986: a before-tax return on 60-day AA commercial paper of 7.273%, the comparable before-tax rate on DARPS of 5.251%, and an 85% dividend tax exclusion. The floor and ceiling rates are shown before tax. The ceiling—here set at 110% of the comparable CP rate, or 8.00%—is not a function of marginal rate. However, the “floor” is; this series shows the *before-tax* rate on DARPS at which an investor with a given T is indifferent between DARPS and CP. That is, it is the relationship shown in equation (1). (This series is purely hypothetical, since for these older DARPS the floor percentage is specified, given the contemporary tax/DRD regime. For example, as discussed above, Alderson, Brown, and Lummer’s generic floor was set at 58% of BT CP, given the 46%/85% regime, for a pre-tax yield of 4.22%.) The *after-tax* CP rate lies below this DARPS floor as long as the marginal tax rate is positive. However, this simply reflects the comparison between before- and after-tax rates: on an after-tax basis, the series are identical—equating DARPS’ after-tax yield to the after-tax CP rate is how the floor is established.

Figure 1: DARPS “Collar” under Initial 85% Corporate Dividend Tax Exclusion



DARPS “collar” under initial 85% corporate dividend tax exclusion, assuming various marginal tax rates. The DARPS floor is the before-tax rate on DARPS that equates its after-tax yield to the after-tax return on commercial paper. Investors prefer DARPS when their marginal tax rate is higher than approximately 32%; below that, they prefer commercial paper.

We can see the result of this more directly by considering the investor’s actual decision: would she rather earn the after-tax rate on DARPS or on CP? Figure 1 makes it clear that the answer depends on her marginal tax rate. When T is high, DARPS dominate CP. While she would pay tax on all of her CP interest, realizing an after-tax return of $(\text{BT CP}) \cdot (1-T)$, she would pay tax on only a fraction of her DARPS’ dividends—only 15% of them, given the DRD of 85%. As the investor’s marginal tax rate rises, the benefit of this tax shelter rises: while her after-tax return for DARPS falls as T increases, it does so at a much lower rate for DARPS than for CP. This is the effect of the dividend exclusion. However, at tax rates below approximately 32%, the investors is better off with commercial paper. This is because an investor with a low marginal tax rate is less attracted by a tax shelter like DARPS.

For a given CP yield, Figure 1 also illustrates that the floor for DARPS falls as the marginal investor’s tax rate rises. We can explain this by looking at equation (1). The floor rate for DARPS is set by multiplying

the before-tax rate on CP by a factor determined by the relative effective tax burdens: $(1-T)/[1-(1-T)*DRD]$. The numerator of this factor reflects the effective tax investors pay on CP interest; the denominator reflects the effective tax rate on DARPS dividends. Taking the derivative of this factor with respect to the marginal tax rate, we find:

$$\delta \text{factor} / \delta T = \frac{-1}{[1 - (1 - T) * DRD]} + \frac{(1 - T) * DRD}{[1 - (1 - T) * DRD]^2} < 0. \quad (2)$$

Thus, all else equal, the floor set on a DARPS issue falls as the marginal tax rates rise. Investors taxed at higher rates are more interested in a tax shelter, and will therefore accept lower pre-tax rates on tax-advantaged assets. The preference of these highly taxed corporate investors for DARPS is shown by the right-hand shaded area in Figure 2.

But what of the issuers? Issuers choose between DARPS and CP based on which offers a lower after-tax cost. Since DARPS' dividends are not deductible, issuers must pay their before-tax rate. However, interest on CP is deductible, so the after-tax cost of CP to issuers is only $(1-T)\%$ of the before-tax CP rate. Thus, issuers prefer DARPS over CP when the *before-tax* cost of DARPS is lower than the *after-tax* cost of CP. Given the values assumed in Figures 1 and 2, this occurs when the issuer's tax rate is less than approximately 28% (as shown in the left-hand shaded area of the Figure 2). Issuers with relatively low tax rates (or who have many nondebt tax shields) are less able to avail themselves of the tax benefits of CP, and would be attracted to DARPS. Thus, Figure 2 illustrates the potential for profitable sharing of tax benefits between issuers and corporate investors—which is exactly what Alderson, Brown, and Lummer (1987) found actually happened in the early DARPS market.

Figure 2: Potential for Profitable Sharing of Tax Benefits between Issuers and Corporate Investors

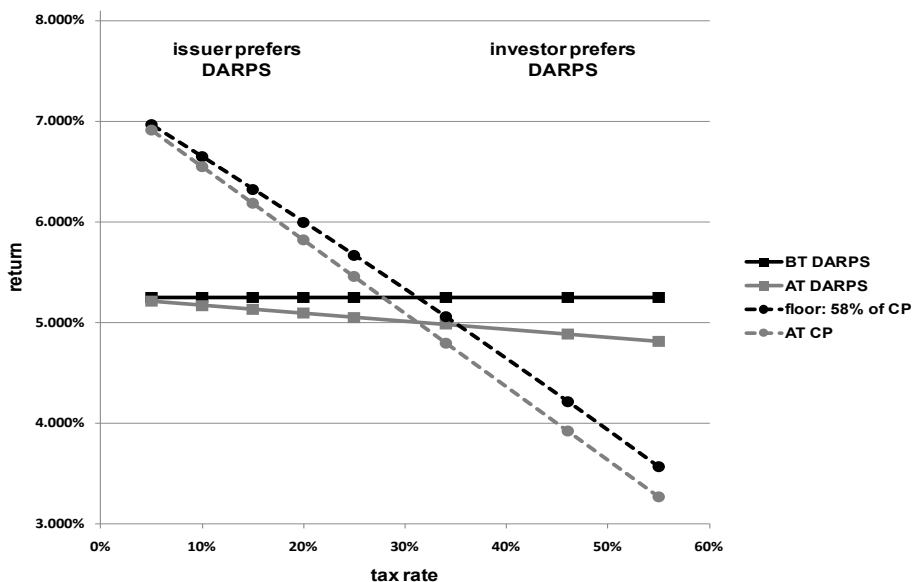


Figure 2. Issuers with low marginal tax rates prefer DARPS, since they are unable to benefit from the tax deduction for commercial paper interest. Conversely, highly taxed corporate investors prefer DARPS, since they can benefit most from the dividends received deduction. DARPS therefore allows both issuers and investors to benefit.

While this “tax arbitrage” drove the development of the market in the mid-1980s, the growth was short-lived, as regulatory changes dampened the enthusiasm of both issuers and investors for DARPS. For example, after the Tax Reform Act of 1986, marginal tax rates fell to 34%, and the corporate dividend tax

exclusion was reduced to 80%. (The DRD was further reduced to 70% at the end of 1987, where it has remained.) The investment tax credit was eliminated and depreciation terms were lengthened, reducing the number of nondebt tax shields available to issuers. These changes had the net effect of increasing the *effective* marginal corporate tax rate, making debt (and its tax shield) relatively more attractive to issuers. For a major issuer type, thrifts, there were also other headwinds for DARPS: the S&L crisis made investors much more wary of thrift issues, while regulators were demanding that the institutions increase their capital (a mandate they frequently met by shutting down their “nonsubsidiary subsidiaries funded with noninvestment investments”—that is, bankruptcy-remote subsidiaries that funded themselves with DARPS). (See also Houston and Houston, 1990, on thrifts’ use of preferred stock.) All of these factors decimated the market for DARPS. (See Alderson and Fraser, 1993.)

Figure 3 illustrates the tax rate and DRD changes that helped lead to DARPS’ demise. Comparing Figure 3 to Figure 1, we note three salient comparisons for given before-tax CP and DARPS rates. First, the DARPS floor rises when the DRD decreases. The lower DRD means that DARPS offer highly taxed investors less of a shelter, and must therefore offer *higher pre-tax* returns in order to compete with CP. Second, the after-tax DARPS return falls, since more of the dividends received are subject to taxation. Finally, the combination of the 70% DRD with the 34% marginal tax rate makes DARPS less attractive relative to CP. We can see this using the big, black boxes on the two DARPS curves in Figure 3. These boxes illustrate the marginal investor’s decision, before and after the tax-law changes. The initial scenario, on the 85% DARPS curve, shows that the marginal investor’s after-tax return on DARPS lies above the after-tax CP curve, so that the investor prefers DARPS. On the other hand, the after-tax DARPS return under the 70% DRD lies below the after-tax CP return.

Of course, we would not expect the same before-tax rate on DARPS under the new lower DRD/lower tax rate regime. Nonetheless, Figure 3 helps illustrate how such a regime change could decrease the suitability of DARPS for both issuers and investors.

Figure 3: Tax Reform Impact on Suitability of DARPS for Issuers and Investors

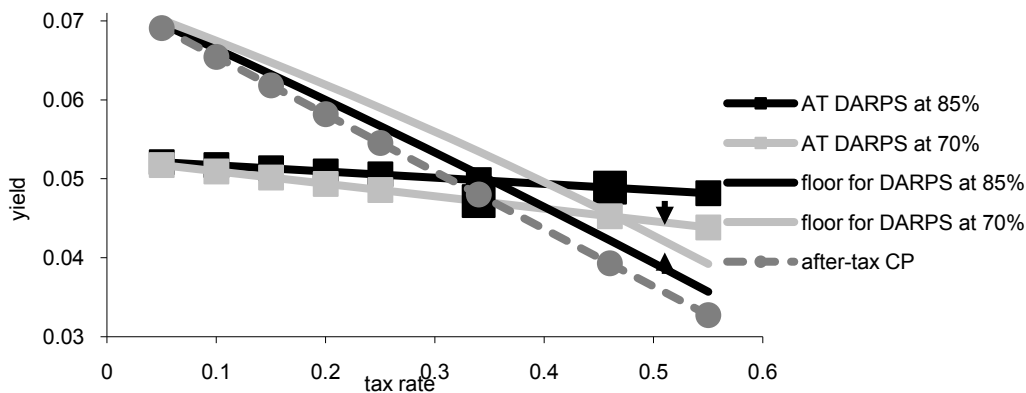


Figure 3. After the Tax Reform Act of 1986, the DRD and the marginal corporate tax rate were reduced. The net effect of these and other regulatory changes was an increase in corporations’ effective tax rates. These changes reduced the benefits of DARPS for both issuers and investors. The two large black squares in the figure illustrate the result: under the original 46%/85% tax rate/DRD regime, highly taxed investors preferred DARPS. After the changes, CP was more attractive to these corporate investors. (We are assuming that the corporate investor owns less than 20% of the paying company.)

Figure 3 may also shed light on Plesko’s (2005) result that the implied marginal tax rate between DARPS and CP is less than the maximum—his “muni-puzzle” equivalent. Implied lower tax rates mean a higher floor value for DARPS. It is possible that the lower implied tax rates are not a consequence of drawing lower-taxed corporations into the DARPS market as the market expands (a Miller, 1977, type of argument

that Plesko suggests), but of an increase in *individual* participation in the market (or, of course, both). Individuals would not benefit from the dividends received deduction, so would not view DARPS as a tax-advantaged security. They would therefore require a higher pre-tax return on DARPS than would corporate investors; this higher floor would then translate into a lower implicit tax rate in Plesko's analysis (see his Table 2). But why would retail investors be buying a security designed for corporate cash managers? And why were there any DARPS to buy at all, after the tax regime changes that threatened to doom them to obscurity? We discuss these questions in the next section.

THE DEBACLE OF 2008

Alderson and Fraser (1993) contend that DARPS is *exclusively* suitable for tax benefit-trading among corporations. However, this tax motivation is almost entirely absent from discussions of the recent auction-rate securities meltdown. This is undoubtedly because the \$330 billion auction rate market of 2008 had become a heavily retail market. For example, by then, only 3% of auction-rate issues' collateral was "DRD-eligible" (Weaver, Bonilla, and Villasenor, 2008). More importantly, in 2008, only 35% of corporations allowed any of their short-term assets to be auction-rate securities, and only 4.9% actually had any (Lee, 2008). The market had expanded greatly, but not through traditional corporate participation. Broker-dealers had begun a concerted push to encourage individual investors to enter the market.

The problem with the shift toward individual ownership was that it implied a shift toward a complete emphasis on reaching for yield in short-term investments. Individual investors are not interested in the tax benefits from DARPS, since, for them, there are none. To expand the market by bringing in these sorts of investors, broker-dealers had to emphasize DARPS' yield advantage over money market alternatives. Some of the investors burned during the recent meltdown allege that, in so doing, the brokers neglected to mention any possible reduction in liquidity from substituting auction-rate securities for money markets.

In this section, we will describe both the supply- and demand-side changes that kept the DARPS market afloat until 2008. We start on the supply side by considering a particular type of issuer, closed-end funds, since their auction-rate issues are most comparable to the DARPS of the 1980s. We briefly describe the problems of 2008, as well as the new types of assets that are being created to mitigate them. However, the more important part of the 2008 story is on the demand side: the increased individual participation in the auction-rate market as a whole. Thus, we conclude this section by presenting evidence on the shift in the DARPS market toward retail investors, and on possible explanations for it.

The Supply Side: Issuers, the DARPS Meltdown, and the Search for Replacement Assets

On the supply side of the market, we still have issuers with relatively low tax rates. The auction rate market of the last few years has had four main issuer types: municipalities, student loan lenders, closed-end funds, and structured issuers (who back their auction-rate securities with CDOs). (See Goldsmith and Pinedo, 2008.) The municipal market is by far the largest, accounting for half of the \$330 billion that the market reached at its peak in 2008. In fact, Bogert and Valenti attribute increased interest in auction rate securities to higher costs for letters of credit (required for VRDOs, which we discuss below) and the loosening of local regulations that increased the pool of municipal issuers. Municipalities and student-loan lenders tend to issue auction rate bonds, however, not preferred stock. Thus, while closed-end funds' share of the auction-rate market is relatively smaller—only \$63 billion (19%) at the peak—these funds are the primary issuers of auction rate preferred stock. They therefore will be the only issuer type we will consider.

Closed-end funds' preferred shares are perpetual and usually cumulative (Lee, 2008), and are not marginable. The penalty rates for closed-end funds have been relatively low—much lower than municipal max rates, for example, which might rise 1600 basis points from a prior auction, compared to 30 bp for a closed-end fund. In fact, funds' max rates were occasionally even lower than the rates set at auction (Lee, 2008; Goldsmith and Pinedo, 2008). Closed-end funds issue preferred stock for leverage (unlike open-end mutual funds, which cannot), hoping to use the relatively inexpensive DARPS funding to magnify the return to their common shareholders. Thus, instead of tax benefit-sharing, these issuers are playing a more basic yield curve game: trying to borrow for long-term needs at short-term rates. (Using DARPS purely to allow long-term financing at short-term rates was a scheme that D'Silva, Gregg, and Marshall (2008) say we should all now see as “impossible”: “If a funding instrument is long-term for one party, it must also be long-term for the counterparty.”)

Fund leverage, however, must conform to a required debt-coverage ratio. The Investment Company Act of 1940 requires that funds have 200% asset coverage for preferred stock (A:PS = 2:1, or 50% leverage). Closed-end funds cannot announce or distribute dividends if their auction-rate leverage exceeds 50% (Anand, 2009). On the other hand, the coverage ratio for debt is much higher—300%. This explains why preferred stock has been so popular for these funds (and why it can be so difficult for funds to refinance their DARPS with debt, as we will see).

Closed-end funds' managers must balance the needs of both their preferred and common shareholders. In the current market upset, the former want their liquidity restored—even if the funds must sell assets to redeem the shares—while the latter want to benefit from the relatively low failure rates paid by some of the funds. We can explore this tension now by turning to consideration of the market meltdown of 2008.

In February, 2008, the auction-rate securities market froze, as hundreds of auctions failed. Investors who had believed that their investments were as liquid as money market funds suddenly realized that they could not sell their shares at auction at all, much less at par. This came as a shock—auction failures always had been extremely rare. Between 1984 and 2007, fewer than one hundred auctions had failed: 13 through 2006; 31 more in late 2007. Then came February, 2008: 67% (258 of 386) failed on the 12th, 87% on the 14th, and 66% on the 20th (CFS, 2008; Plancich and Starykh, 2008).

Before 2007, the few failures that there had been were caused by credit problems. Alderson and Fraser (1993), investigating the decline of the original incarnation of the DARPS market, found that the securities that were redeemed in the 1980s were from issuers whose credit quality had so deteriorated that their shares were no longer acceptable investments for corporate money managers. Quality problems continued to drive auction failures for over a decade after that; as recently as 2004, Skarr asserted that “[f]ailed auctions are associated with downgrades in credit quality of either the issuer or the insurer of the issue.”

However, the problem in 2008 was not a quality problem. It was a liquidity problem. 2008's auctions failed because the broker-dealers who had been supporting the ARS market stopped doing so—they stopped placing their own bids to ensure that there was sufficient demand for the auction to clear. Broker-dealers' failure to support the auctions meant that investors were stuck with issues they had thought were cash equivalents. Even though investors were still receiving dividends (in fact, sometimes even high penalty dividends), they could not sell their issues at par. (However, Skarr's comment could still apply: many commentators link the rash of failures in mid-February, 2008 to downgrades to the monoline insurers who insured many ARS issues against default; see Lee, 2008.)

The Securities Industry and Financial Markets Association's (SIFMA) best practices specify that the broker-dealers have no obligation to support the market. They are not required to make an orderly market (Best Practices Subsection 4.2.1), to place bids to prevent a failed auction (4.3.5.(b)), or to offer investors

any duty “more extensive than normal dealer obligations governed by existing securities law.” The Association notes, however, that “[d]ealers typically place Cover Bids to avoid a Failed Auction,” and that “[t]he Association understands that Broker-Dealers routinely place Bids in Auctions generally.”

This “typical” support was critical. On average, Nuveen had 25 bidders in its weekly auctions, six of whom were lead managers (CFS, 2008). More importantly, according to a report from the U.S. House of Representatives’ Committee on Financial Services (CFS, 2008), between 2006 and 2008, “[n]early 85% of auctions would have failed or produced different results without the single broker’s intervention” (Carolyn B. Maloney, CFS, 2008). This degree of support prompted William Galvin, Secretary of State for Massachusetts, to testify to that committee that brokers’ “propping up” the market and “controlling” the rates set there led to the brokers’ “foisting... securities off on unsuspecting clients” as they “unloaded” their own inventory and protected their investment banking clients, to whom they were “ beholden.” Galvin saw auctions like these as “fantasies,” not viable rate-reset mechanisms.

The decisions by the supporting broker-dealers to allow auctions to fail has had severe ramifications for the auction-rate market. Corporate investors have suffered erosion in their asset values. All investors have lost liquidity; many have initiated lawsuits. Issuers have scrambled to create acceptable substitutes. February, 2008 may turn out to be the month that doomed DARPS to the “virtual extinction” that Alderson and Fraser (1993) had worried about fifteen years earlier.

Corporate investors whose DARPS investments are “frozen” may be forced to write them down. Statement of Financial Accounting Standards 115 (FAS 115) requires that investors recognize a decline in value when an asset has suffered an impairment that is “other than temporary.” FAS 157 describes how to determine fair value, allowing investors to use internal models and/or “unobservable inputs” (i.e., a “Level III” valuation, as opposed to using actual market prices, or “Level I”) when the investor cannot rely upon market quotes to determine value (that is, in situations like the current one, where trades are more “fire-sale” than “orderly,” as required). Although Carfang (2008) notes that “impairments from higher quality, but illiquid, issues are likely to be resolved when the market reaches a new equilibrium,” and therefore may be viewed as “temporary,” he characterizes the “negligible” secondary market for auction-rate securities as populated only with “distressed sellers and vulnerable buyers.” It may take a long time for the market to right itself, and there may be more losses in value in the meantime. Thus, he recommends that corporate investors value their DARPS using Level III models, and consider the decline in value as permanent—and therefore reportable under FAS 115.

While DARPS’ effects on corporate investors’ income statements can be painful, most of the legal and regulatory drama resulting from the market freeze has focused on getting individual investors access to their emergency funds. (We discuss retail participation in the DARPS market in the next section.) States’ attorneys general have been active in seeking liquidity for small investors, with New York’s and Massachusetts’ AGs at the forefront of arranging settlements. (See CFS, 2008 for examples of these actions.) Settlements generally have resulted in retail investors’ being made whole. Broker-dealers are buying these customers’ shares at par, and are compensating investors who had already sold into the secondary market at a discount. Some customers are being offered 0% loans against the value of their shares. (These loans are significant. Remember that closed-end funds’ DARPS are not marginable, which makes it difficult for brokers to help their customers by making loans against this collateral. However, FINRA has created temporary rules allowing brokers to lend up to 25% of their customers’ DARPS value.) The type of relief varies depending on the characteristics of the investor, with the most generous remedies going to the smallest investors. The amounts involved are substantial; for example, the UBS settlement with New York Attorney General Andrew Cuomo includes \$8.3 billion for individual investors and \$10.3 billion for institutions (CFS, 2008).

In the wake of these settlements, issuers are feverishly working to refund their DARPS. Some closed-end funds have sold assets to fund redemptions. At the end of 2007, closed-end funds had \$300 billion in assets; in November of 2008, the 640 extant funds had only about \$200 billion (Maxey, 2008d). Most of the DARPS redemptions between March, 2008 and September, 2009 came from non-municipal finds: these funds redeemed over 80% of their issues (\$27.13 billion redeemed, out of \$33.33 billion outstanding as of 2/1/08), while the munis redeemed only 30% (Lawson, 2009). Overall, however, as of October, 2009, about two-thirds of the levered closed-end funds still had some DARPS outstanding (Maxey, 2009).

Asset sales alone, however, will not be sufficient to allow redemption of these remaining DARPS. Over 70% of closed-end funds use leverage to boost returns (Maxey, 2009); this strategy will continue. So far, issuers have turned to traditional forms of debt such as reverse repos, extendible notes, and bank loans or lines of credit to replace DARPS. However, these sources of leverage have not been sufficient. For example, municipal closed-end funds, which pay lower rates on their DARPS, could face much higher costs if they replaced them with bank loans (Maxey, 2008b). Also, closed-end funds that enjoyed the 2:1 coverage ratio with DARPS are wary of the 3:1 ratio required for debt. These sorts of considerations have driven the search for new types of leverage.

The financing innovations that seem to hold the most promise involve “hard puts”—the ability of an investor to *require* the issuer’s agent to buy back her asset at par. Of these, tender option bonds and variable-rate demand obligations are generating the most interest.

In fall of 2008, several fund sponsors, such as Nuveen Investments, announced their intention to redeem their DARPS with variable-rate, credit enhanced bonds (tender option bonds, or TOBs). (See Goldsmith and Pinedo, 2008.) In October, the SEC allowed Eaton Vance to use the 2:1 coverage ratio for a TOB issuance, making TOBs a more attractive refunding option than they would be at the usual 3:1. TOBs are less expensive for issuers than alternatives such as VRDP (discussed below), but these bonds must be of high quality to be acceptable substitutes for investors (Maxey, 2009). This quality hurdle for bonds is motivating the search for new preferred-stock securities for DARPS refunding.

Closed-end funds wishing to refinance their DARPS with preferred stock have created variable-rate demand preferred, VRDP (the preferred-stock version of the variable rate demand obligation, VRDO). (Eaton Vance, which first started creating these with the SEC’s blessing in June of 2008, calls them liquidity protected preferred shares, or LPPs; others have dubbed them liquidity enhanced adjustable rate securities, or LEARS. See Goldsmith and Pinedo, 2008.) Issuing VRDPs is the exclusive province of closed-end funds (CFS, p. 53). This puttable preferred is backed by a letter of credit and has a hard put. The put can only be exercised at a remarketing date (a dividend reset date, where the allocation and rate setting process is handled by a remarketing agent) or in the event that the liquidity facility cannot be renewed. Not allowing the investor to exercise the put on demand preserves the equity status of the investment, according to the IRS. On the other hand, the VRDPs’ credit enhancement makes them eligible for ownership by money market mutual funds, significantly expanding the market for these assets. (The SEC’s Rule 2a-7, the rule that provides guidelines and restrictions for money funds, requires a hard put or tender option to ensure safety.) However, importantly, these shares may only be purchased by qualified institutional buyers (Lawson, 2009).

Adding hard puts allows issuers to create assets investors will buy. However, closed-end funds must still find entities willing to backstop these new issues. As we noted earlier, during the 1980s, the S&L crisis and resulting thrift reform meant that institutions had to sell assets from off-balance sheet entities, shrinking their asset bases to improve their capital positions. Today’s banks are also feeling balance sheet pressure, some of which stems from writedowns caused by the subprime mortgage debacle. As banks

work to reduce their own leverage, they are less willing to provide the types of credit enhancements needed for funds trying to refund their DARPS with VRDPs.

This reluctance is being expressed through banks' embrace of a new wrinkle: the six month "put-back-to." IRS Notice 2008-55 allows a liquidity provider to require the issuer to redeem securities after the liquidity provider has held them for six months. ("[A] liquidity facility for auction rate preferred stock may include an agreement by the issuer of the auction rate preferred stock to redeem the stock purchased by the liquidity provider under the liquidity facility after a minimum holding period of six months and after continuous good faith efforts to resell the stock in the periodic auctions at a price equal to the liquidation preference"; Bishop, 2008; IRS, 2008.) The Investment Company Institute (ICI) believes that banks are now unwilling to provide liquidity without this assurance. They note that, as of September 2009, the \$500 million of DARPS' redemptions for VRDP were all effected more than a year earlier—in early August of 2008—only a few weeks after the June 13 effective date of the IRS notice. Those early issues did not require the six-month "put-back-to." However, no further VRDP redemptions had occurred, which the ICI attributed to banks' requiring the option. The group also enumerates other obstacles to refunding, noting that banks must "undertake comprehensive due diligence," including "addressing numerous legal and regulatory questions, as well as confirming compliance with internal capital and risk management standards" (Lawson, 2009). Nonetheless, they expect that the ultimate amount of VRDOs from these redemptions could total \$10 billion.

Thus, in the wake of the auction-rate securities' meltdown, issuers are busy cleaning up their messes and scrambling for new ways to play the same game. The more interesting story, however, is on the other side of the market: the demand side. Who was buying the securities that imploded, and will they be participants in the retooled, hard-put market? We consider these questions in the next section.

The Demand Side: Retail Investors and DARPS

DARPS were created to help corporate cash managers capitalize on the dividends received deduction. However, by the time the market imploded in 2008, individual investors were heavily involved with DARPS. How did assets like these end up storing individuals' emergency funds?

We noted earlier that hints of individual ownership in the preferred stock markets have been around for years. For example, a *Wall Street Journal* article from late 2001 (Opdyke, 2001) highlights some financial planners who tout traditional preferred stock for their retail clients. The article does note that the vast majority of preferred is held by institutions, not individuals, that preferred stock represents just a sliver" of the size of the market for common stock, and that finding information on individual preferred issues can be like a "treasure hunt." It also clearly notes that, even for plain-vanilla preferred, liquidity risk is an issue: "they aren't appropriate investments for people who may need to quickly liquidate their holdings." (This liquidity risk is secondary, however, to credit risk, but the article assures us that individual investors can easily find "highly rated securities of stable companies generating plenty of cash"—like Bear Stearns.)

By 2004, there was more emphasis on retail investors, albeit wealthy ones. For example, Skarr (2004) asserts that auction-rate securities' investors "are typically high net worth individuals (for tax-exempt issues) or corporations (for taxable issues)." Lee (2008) concurs, and notes that closed-end fund investors in particular "are individuals who 'tend to have much greater household financial assets than either individual stock or mutual fund investors'" (citing an Investment Company Institute study). In 2008, an article in *The Economist* ("Kicked in the ARS," 8/16/08) asserted that there were around 100,000 retail investors in auction-rate securities, and that they were "well-to-do types and thus clued up enough to understand that higher yields suggest higher risk."

Susan Merrill, Executive Vice President and Chief of Enforcement at the Financial Industry Regulatory Authority (FINRA), testified at a hearing of the Congressional Committee on Financial Services that a survey of over 200 firms determined that by 2008, 43% of auction rate securities were held in retail investors' accounts, and another 21% were held by high net-worth individuals (CFS, 2008). (Linda Thomsen, Director of Enforcement for the SEC, testifying at the same hearing, agreed that there were more retail than institutional investors in the market, but said that the dollar holdings were split about equally.) Ms. Merrill described the evolution of the market toward the individual investors this way: "...the market actually started out as a more institutional market, and over time the issuers allowed a smaller amount to be the minimum that you could invest in an auction rate security, and once that amount got down to about \$25,000, that is when you started to see more retail investors buying the product and the broker/dealer firms marketing to more retail investors."

A par value of \$25,000 is significantly less than what DARPS had when it was purely an institutional product; as Alderson and Fraser (1993) note, the typical "auction exchange value" for DARPS originally was \$100,000. Why the push to expand the market? Again, testimony submitted to the Committee on Financial Services (CFS, 2008) offers some insights. According to Frank J. Parker, Professor of Real Estate Development at Boston College: "[i]n the rush to keep these instruments solvent the large financial institutions involved went to the highways and byways to attract virtually anyone and everyone of individual high net worth to purchase these instruments." Similarly, the Congressional Research Service reported at the same hearing that auction-rate issues were "sold principally to retail investors," especially after "some large investment banks began to market [auction rate securities] more aggressively to small investors in an attempt to reduce their inventories" (citing the complaint in *Cuomo v. UBS Securities LLC et al.*).

Broker-dealers had built up these inventories by supporting the auction market with their own bids. However, as the subprime market problems began to spread, investors became increasingly wary of risky investments; there was a general reassessment of credit risk, and ultimately a rash of credit downgrades. Given that the DARPS market is highly credit-sensitive (see Alderson and Fraser, 1993), increased risk aversion led investors to retreat from the DARPS market. Dealers' inventories of DARPS became so large that continued support became untenable. To divest their holdings, these dealers had to make a concerted effort to market DARPS as a cash equivalent to individual investors.

These retail investors may have been anxious for a good quasi-cash alternative. Alderson and Fraser (1993) note that, unlike ARPS, DARPS were popular in the 1980s when interest rates were high. These authors expected that the benefits of this novel security for both issuers and investors would be smaller when rates were lower. Ironically, however, the recent extremely low level of rates is one of the factors that undoubtedly attracted individual investors to DARPS over the last few years, as they moved away from traditional CDs and money-market assets in search of higher yield.

Engel, Erickson, and Maydew (1999) assert that "investors are reluctant to purchase exotic-sounding securities... unless they receive a slightly higher yield." DARPS offered that yield, and thus may have seemed attractive to retail investors. However, DARPS were not money market instruments—in fact, money market funds were prohibited from owning them. We believe that DARPS were *sold* to retail investors. Maxey (2008c) notes that at UBS, financial advisors received part of the 25 bp DARPS management fee as a commission for selling these securities, but received nothing for putting their clients into the firm's money market fund. These fees, undoubtedly, were part of the "substantial incentives" that motivated advisors to sell auction rate securities, according to Massachusetts' Secretary of State William Galvin. In 2006, the SEC sanctioned 15 broker-dealers for "irregularities" in the auction-rate market, including failures to disclose to investors that dealer bids were supporting many auctions (CFS, 2008). Downplaying the liquidity risk of auction-rate securities allowed these dealers to expand the market. The broker-dealers are anxious to continue this expansion, even in the wake of DARPS'

meltdown: as closed-end funds replace their DARPS with LPPs, the chief investment officer for Eaton Vance says that, “The hope is to open up a much larger market for LPPs than ever existed for auction-rate preferred shares” (Maxey, 2008a).

CONCLUSION

DARPS was created in the 1980s to accommodate corporate cash managers who wanted a less volatile dividend capture strategy. The focus then was on the dividends-received deduction: corporate investors wanted to benefit from their unique ability to shelter 85% of their dividends from taxes. They just needed to be protected from the volatility inherent in preferred shares. As DARPS have been marketed more heavily toward retail investors in recent years, the original DRD motivation has been eclipsed by a focus on DARPS’ cash-management possibilities. However, without the DRD, these possibilities—originally just a means to an end—have proved too risky. Not surprisingly, DARPS have not performed well in a role for which they were never intended.

In this paper, we review the traditional role of DARPS as a way for lightly taxed issuers and fully taxable investors to trade tax benefits. This perspective is critical for understanding the meltdown of the market in 2008. There have been changes on both the supply and demand sides of this market since its inception, although the latter are more pronounced. As long ago as 1993, Alderson and Fraser wondered if DARPS were a market-enhancing innovation or “a ‘speculative balloon’ slated for virtual extinction.” Their question was prompted by changes in regulatory and tax changes that made DARPS less attractive to both issuers and corporate investors. They concluded that DARPS could still add value, but only to “a market that is too small to be of consequence.” The market did survive, however, because of a concerted effort by broker-dealers to expand it to retail investors. This expansion toward counterparties for whom the security was not designed corresponds with the value shift that Plesko (2005) documents: DARPS went from offering benefits to both issuers and investors (as documented by Alderson, Brown, and Lummer in 1987), to benefitting issuers almost exclusively.

We conclude that this shift toward retail investors was a failure. James Preston, President and CEO of Pennsylvania Higher Education Assistance Agency, testified to the U.S. House of Representatives’ Committee on Financial Services that “the auction rate market is not a viable product now or in the future. If it does come back, it will have to come back as a specific, *institutional* product where the risks are clearly understood and they are willing to hold it” (CFS, 2008; emphasis added). Future research, informed by the outcomes of the numerous ongoing lawsuits and regulatory actions investigating the auction-rate collapse, may be able to determine the relative contributions of ignorance and malfeasance. It will also be important to track the performance of the new securities being substituted for DARPS, especially those with hard puts, to assess their ability to accommodate the needs of both issuers and investors.

More importantly, future research will need to untangle the regulatory mishmash that has been created to clean up the auction-rate mess. Carfang (2008) described DARPS’ structure as an amalgam of “periodic auctions, bizarre fail-rate formulas and myriad caps, maximums, exclusions and look-back provisions—which combine to challenge even the most astute treasurers and CFOs.” However, what we may get instead could be even worse. Now, DARPS issued by closed-end funds is accepted as collateral at the discount window, even though the Fed considers it a hybrid debt/equity security. Now, VRDOs are considered equity for tax purposes, and yet are acceptable investments for money market funds. Now, we allow closed-end fund leverage from debt to have the same 2:1 coverage ratio as leverage from preferred stock. Appreciating the origins of DARPS as a corporate tax benefit-sharing mechanism may help individual investors evaluate the risks of the convoluted system arising to replace it. Trying to keep DARPS alive when its environment had died turned DARPS into a “financial roach motel”—an

investment investors to get into, but not out of (Spencer Bachus, CFS, 2008). Not understanding that mistake may mean we are doomed to repeat it.

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