UNITED DEFENSE INDUSTRIES (UDI):
THE FOG OF WAR FUNDING

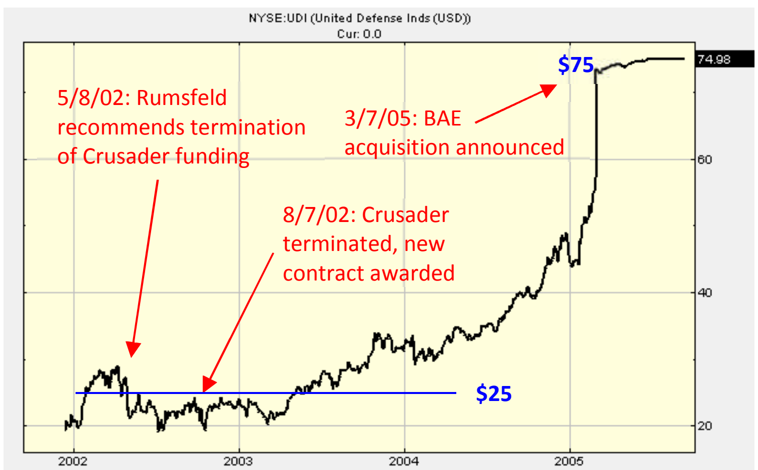
Synopsis
Many of the best investments defy easy categorization, and United Defense Industries ("United Defense," "UDI" or the "Company") was one of them. In many respects a deep value play, it is perhaps best described as a *political event-driven* investment.

Generally speaking, event-driven investments are exactly what the name implies – investments with outcomes determined by events specific to those companies or assets. In practice, much of event-driven investing focuses on recurring events that follow predictable procedures or processes, such as mergers, acquisitions and bankruptcies. For example, although every bankrupt company is inevitably unique, the bankruptcy process itself follows very established and consistent rules. Professional investors naturally gravitate toward such events not only because they provide a steady flow of investment opportunities, but also because they are largely uncorrelated with the wider markets and reward specialized expertise.

The event that precipitated the United Defense investment opportunity occurred in May 2002, when the Department of Defense recommended termination of the Crusader artillery program, which constituted approximately twenty percent of UDI's revenue. This made UDI an atypical event-driven investment, because unlike a merger or bankruptcy, the future of the Crusader was subject to an entirely unique, byzantine, and intentionally politicized process. This, of course, was the beauty of it.

With investing, opacity tends to breed opportunity; the greater the informational inefficiency, the larger the potential mispricing and subsequent profit. The very fact that UDI's prospects couldn't be assessed without immersion into an inarguably arcane subject – NLOS artillery (explained below) – virtually ensured that an interesting investment opportunity existed.

The initial analysis made clear that the investor misperception was two-fold: They were both overestimating the likelihood of the program being cancelled entirely and underestimating the residual value of the Crusader's constituent technologies should the program be downsized. Admittedly, divining the destiny of the Crusader program, which was central to UDI's financial future, was as much about the machinery of politics as the instruments of war. But those investors willing to work through the details had over the course of 18 months the opportunity to purchase shares for as little as $20. What was on its face an excellent risk/reward ultimately proved to be a superb return. Less than 3 years later BAE acquired UDI in its entirety for $75/share – a profit to investors of over 350%.



Disclosure
This document summarizes a much longer analysis originally generated in 2005. Excluding historical stock price data, it has not been updated to reflect subsequent developments.

UDI's History in Brief
United Defense, the Army's fifth-largest contractor, had a history as a defense contractor that dated back to the military's first order for an amphibious landing craft in 1941. The Company was owned by the Food Machinery Corporation (FMC) until 1994 when FMC merged its defense business into a new joint venture with the BMY division of Harsco. FMC, the 60% owner of this JV, continued to run it until October of 1997 when the Carlyle Group ("Carlyle"), an extremely well-connected, multi-billion-dollar private equity fund, acquired 100% for $880 MM, $707 MM (or 80%) of which was debt. Carlyle continued to expand the business both organically and by acquisition, acquiring Bofors Defence of Sweden for ~ $19 MM and the assets of Barnes and Reineke for ~ $4 MM in 2000.

Having succeeded in paying down almost all of its acquisition debt, in August 2001 UDI raised $600 MM in new debt which was utilized to retire higher coupon debt (repurchasing $182.8 MM of 8.75% senior subordinated notes) and to dividend to Carlyle approx. $382 MM, a recap that left the Company with negative equity.

Later that year, in December 2001, UDI went public by issuing 23.5 MM shares to the public at $19, raising $446 MM before underwriting costs and fees. $271 MM of that amount constituted sales by management, directors, and Carlyle, which left $163 MM after fees for UDI. After the IPO and including the overallotment, Carlyle owned approx. 48% of the equity (25 MM shares), management/non-Carlyle directors owned approx. 2%, and employees held the remainder, leaving 45% publicly-held.

In 2002, UDI acquired another company controlled by Carlyle, United States Marine Repair, for $325 MM. The use of a $300 MM increase to its secured credit facility and payment of $105 MM of USMR's existing debt lifted UDI's debt level to $730 MM, over 100% of total capital. However, USMR both diversified UDI's revenue into ship maintenance and modernization services and increased the proportion of the US defense budget that UDI could bid for.

Let's review some of that math. In 1997 Carlyle contributed $173 MM to the acquisition of UDI. In the August 2001 recap it received a $382 MM dividend, and in the IPO that December likely received the lion's share of $271 MM (which was shared with management and directors). Even if we're exceedingly conservative, and also exclude the profit it realized on the USMR sale, by 2001 Carlyle had plausibly extracted approx. $600 MM from a $173 MM investment it had made only 4 years earlier, *and it still owned 48% of the equity.* Nice work if you can get it.

The Crusader: A Little Background on a Very Big Gun
To be technically accurate, the Crusader isn't a gun. It's a howitzer, which is in fact a type of artillery that is a cross between a gun (which is characterized by a longer barrel, larger propelling charge, smaller shell, higher velocity, and flatter trajectory) and a mortar (which fires at higher angles of ascent and descent than a howitzer). Over time, "howitzer" became a generic term for any kind of artillery piece designed to attack targets using indirect fire (also referred to by the military as Non-Line-of-Sight, or "NLOS").

Any investor inclined to dismiss these details as mere *artillery arcana* was missing a point at the very heart of the investment analysis: The Crusader was facing extinction *not* because it hadn't performed as promised, but because the purpose it was designed to fulfill was *itself* being questioned. The fate of the Crusader – as well as its constituent technologies – thus came down to tactical imperatives. And, naturally because tax dollars were involved, politics.

The Crusader Controversy in Context
The importance of the Crusader to United Defense, its sole supplier, was self evident. Initiated in 1994, the Crusader program was estimated to cost the taxpayers at least $11 BN, even after a 1999 reduction in the procurement objective from 1,138 to 480 units. And $2 BN of that sum had already been spent through FY2002. Although the profit margins were difficult to estimate, the revenue-by-program data that UDI began providing in 1999 indicated that the Crusader constituted approximately one fifth of the Company's total revenue.

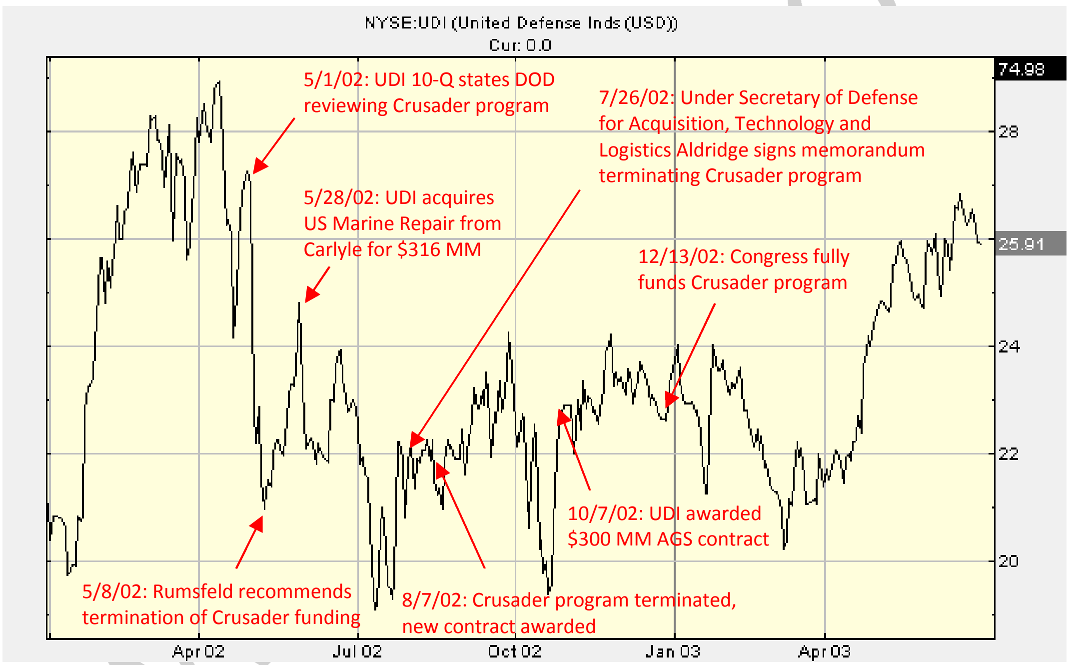
(000s)	1999	2000	2001
Total Revenue	1,214	1,184	1,319
Crusader Revenue	252	185	262
Crusader Revenue (% of total)	21%	16%	20%

It was clearly impossible to assess UDI's investment potential without first arriving at a conclusion as to the Crusader's fate. Fortunately, the dispute that gave rise to the clouded political firefight followed a fairly straightforward narrative.

Upon assuming office the Bush Administration was determined to not only support the Army's transformation into a lighter, more mobile force, but accelerate it. The President had explicitly campaigned on the concept of "skipping a generation" in weapons deployment, and Secretary of Defense Donald Rumsfeld was aggressively pursuing this agenda. A self-propelled 40 tons (slimmed down from 80 in its first format), the Crusader was mobile but certainly not fleet-of-foot. But the dispute also concerned precision. The Crusader was a massive improvement over the existing howitzer, the 40-year old M109A6 Paladin. It could fire ten rounds per minute, while the Paladin could only fire one. But the administration, staffed with many like-minded neocons, was convinced that the Future Combat System (FCS) should be anchored by precision weapons. To its critics, the Crusader was a cold war legacy of limited application in the age of asymmetric warfare that should have gone the way of the enemy it was originally designed to confront, the Soviet Union.

The Crusader's advocates disagreed with its critics' premises as well as their conclusions. As General Shenseki argued in his testimony before the Senate Armed Services Committee (SASC), the Crusader fulfilled a vital need that precision weapons couldn't: Massed suppressive fires against close-in but imprecisely located enemy forces. Apparently, to many in the military imprecise fire was still important. Moreover, certain guided artillery munitions that the administration favored, such as the Excalibur round, not only required a 155 mm howitzer to fire, but were apparently best utilized in conjunction with the Crusader's advanced computers and battlefield networking capabilities. But its critics only saw the Crusader as a clumsy weapon admittedly more potent than its predecessor, but insufficiently precise to justify its adoption.

The Fog of War Funding: A Visual Timeline (January 2002 – June 2003)



As the visual timeline above illustrates, the fog of the Crusader funding war was punctuated by a series of interim developments. But most of these were only highlights of a much more involved process unfolding across Capitol Hill.

Although the cost of the entire program was estimated to be $11 BN, in 2002 UDI was in fact developing the Crusader under a $665 MM contract issued in the fall of 2001 called the Program Definition and Risk Reduction (PDRR) phase, which was scheduled to run through April 2003. In order for the Crusader program to be cancelled, the first step was for the Department of Defense (DOD) to formally notify Congress and UDI. This process would likely include the Administration sending Congress an amendment to the FY 2003 budget requesting that the Crusader allocation be reduced to zero. Because FY 2002 was already under way, the contract would have to be amended, most likely by the Army contracting officer, who would exercise the "cancellation for the convenience of the government" clause in the contract and issue a "stop-work" order.

However, if during this period either the House or the Senate passed a bill instructing the DOD to continue the program, or was even in the process of passing such a bill, it was customary for the DOD to wait until a final bill was agreed upon before issuing the stop-work order. In the event that Congress authorized and appropriated FY 2003 funding for the Crusader, it would continue despite Rumsfeld's opposition.

Against the backdrop of this meandering, esoteric process, investor confusion was more than evident; even after the program was fully funded the shares proceeded to trade down to nearly $20. On the one hand investors couldn't be blamed for losing the forest for the trees. But they were also arguably guilty of allowing the minutiae of the budgeting process to distract them from the larger, more important procedural reality: The Department of Defense *recommends*, but Congress *decides*, and the legislature has a long history of siding with the individual military service when it comes to weapons procurement. With 50 contractors in 28 states, the Crusader represented a formidable political constituency that cut across broad geographical and ideological lines. With the Crusader responsible for all of those jobs – also known as *votes* – what were the odds that Congress *wouldn't* approve funding when it typically sided with the military *anyway*? Investors didn't need to have a seasoned lobbyist on retainer to predict which way that decision would fall…

Again, the factual question that catalyzed the circus on Capitol Hill was ultimately very specific:

Was NLOS suppressive fire still a military necessity, and if so did the Crusader's capabilities fulfill current and anticipated needs?

The answer to the second clause of the question was indisputed. The Crusader's capabilities were inarguably a vast improvement over the existing artillery, as well as a formidable rival to its foreign competition.

In terms of NLOS capability in general, if the need for imprecise suppressive fire disappeared with the Soviet Union, dismissing the Crusader as merely an updated version of a Cold War relic was at least defensible. However, this portrayal was directly contradicted by contemporary battlefield experience. More than one study concluded that during Desert Storm in 1990-91 the US military was outranged on the ground and that its artillery capability couldn't keep pace with the maneuver forces. Military leadership also made clear, citing specific examples, that the Crusader would have seen significant use in Afghanistan as well.

The Army's position was clear: Transformation to the new Objective Force and Future Combat System would not be complete until 2032, at the earliest. In the meantime, the Crusader would provide critical fire support to the Interim Force – including the Legacy force of Abrams tanks. The Army wanted and needed them.

Ironically, perhaps the most dispositive point in the debate was also the most obvious: Of the alternatives suggested by DOD leadership, most were still in R&D; in the case of the FCS indirect fire variant, the technology *hadn't even been determined*. It was beyond question that the Paladin was outdated, and however critical of the Crusader, the DOD had offered no alternative.[1] However strong their beliefs, the neocons held an objectively weak hand.

The UDI Business Model: A Lethal Franchise

If the only logical conclusion was that the Crusader would survive in some form, that was only one piece of the UDI puzzle. Notwithstanding the question of price, what made United Defense an attractive enterprise? Two attributes unique to its revenue stood out.

Firstly, as it entered 2002 35% of UDI's revenues were contracts or "cost-plus," vs. fixed price. Generally speaking, a cost-plus contract provides that the contractor is paid for all of its allowed expenses to a set limit *plus* additional payment to allow for a profit. In other words, the seller's profits are largely insured against unpredictable or unrelated subsequent costs because the price they charge can be increased if their own costs rise. If not absolute protection, think of the insulation that provides to one's profit margins. Every reason that taxpayers have to hate cost-plus contracts is potentially another reason for UDI shareholders to love them.

The second intriguing aspect pertained to what might be called the "persistence" of its revenue.

United Defense sold combat vehicles and weapons delivery systems such as the howitzer. While in a literal sense these are "products," from a business point of view this type of complex military equipment constitutes a kind of *lethal franchise.* Once the seller secures the contract, not only does she not have any competition, but because she's the sole supplier the buyer is essentially captive until that equipment is replaced, which may be literally decades later.

[1] An excellent synopsis of the Crusader controversy can be found in the CRS Report for Congress, Order Code RS21218, updated 6-25-02: *Crusader XM2001 Self-Propelled Howitzer: Background and Issues for Congress*, by Edward F. Bruner and Steve Bowman. Among other resources, RS21218 was material to the analysis expressed herein.

Consider the Paladin, the howitzer manufactured by UDI that the Crusader was slated to replace. First produced as the M109 in 1963, it still hadn't been replaced 40 years later. Needless to say, the orders and upgrades provided by UDI during that four decade period generated significant profits for the Company. Similarly, UDI's Bradley Fighting Vehicle entered service in 1981, and although no longer produced, updates and reconfigurations of the 6,742 still in service generated $275 MM of the Company's $1.3 BN in revenue in 2001. And according to the 2001 10-K the U.S. Army's funding allocation to upgrade 1,037 BFVs extended through 2007.

The recurring, persistent nature of franchise weapon revenue gave UDI every incentive to expand its portfolio, whether organically or by acquisition. Although it wasn't a large transaction, the purchase of the artillery business of Bofors Defense (specifically Bofors Weapon Systems) from Celsius Group was a perfect bolt-on for UDI. Close readers of the share purchase agreement (8-K filed 9-12-00) noted the care UDI took in securing the franchise embedded within the assets. This was clearly the intent behind the language ring-fencing the seller, permitting them to "manufacture, retrofit, install, repair, overhaul, service, market and sell Excluded Products" – which are itemized in that section – but stipulating that "(i)n no event shall Excluded Products be interpreted to mean a complete vehicular system." Why? Because the vehicle is the franchise, the platform from which all future upgrades – and resulting profits – would flow. Ultimately,

From a financial perspective, weapons like the Crusader are *annuities*.

Consider the composition of UDI's revenue from 1999 through 2001:

	1999	% of Total	**2000**	% of Total	**2001**	% of Total
Crusader	252.3	21%	184.5	16%	262.0	20%
Bradley Family of Vehicles	223.6	18%	284.8	24%	275.7	21%
Naval Ordnance	112.8	9%	175.5	15%	230.7	17%
Vertical Launch System	119.0	10%	98.8	8%	85.4	6%
Combat, Engineering & Recovery Vehicles	175.8	14%	144.5	12%	102.0	8%
M109 Howitzer System	128.4	11%	42.1	4%	30.1	2%
Assault Amphibious Vehicles	90.3	7%	57.0	5%	55.3	4%
Other	111.3	9%	196.7	17%	277.3	21%
	1,214		**1,184**		**1,319**	

The commentary that accompanies the above data in the 2001 10-K provides substantial detail regarding the revenue expectations for each program, some of which is excerpted/summarized below:

<u>The Bradley Fighting Vehicle (BFV)</u>
Although new BFVs are no longer being built, "the Company derives significant revenue from upgrading the Army's existing fleet" (a total of 6,742 were manufactured, 400 of which were for the Saudi Arabian Army). Regarding the latest upgrade, the BFV A3 version, "*The U.S. Army is currently planning to upgrade 1,037 older version BFVs to the A3 configuration, with annual funding allocations over the eleven-year period between FY1997-2007*. The Company has been awarded four single year contracts (FY1997-2000) for a total of 203 vehicles, and in May 2001 the Company received a multi-year contract (FY01-03) for an additional 389 vehicles. Of these 592 vehicles, 45 were sold in 2001 and 114 in prior years."

The above does not include what UDI refers to as *BFV Derivatives and Support* , which includes the Multiple Launch Rocket System ("MLRS") carrier, the Fire Support Vehicle (a BFV conversion), the Command and Control Vehicle ("C2V"), or the Army's Linebacker air defense vehicle. [2]

<u>Naval Ordnance</u>
Naval ordnance includes the Mk 45, Advanced Gun Systems ("AGS"), and other naval services and equipment. UDI is the sole source producer of the Navy's 5-inch Mk45 gun system for the Navy's newest class of destroyers, the Arleigh Burke DDG 51 class ("DDG51"), and is under contract for FY00 and FY01 requirements, though the Navy currently "plans to continue building DDG51 class ships through FY07."

UDI is also the prime contractor for the Naval Surface Fire Support ("NSFS") program, which includes upgrading the Mk45 gun system with the capability to fire Extended Range Guided Munitions. Due to the NSFS program, the

[2] United Defense 2001 10-K, filed 3-22-03, pgs 2-3.

Company anticipates a sole-source contract to upgrade Mk45 guns on the Navy's Ticonderoga class ships from Mod2 to Mod4 configuration, which extends the Mk45's range and improves surface fire support capability.[3]

The preceding descriptions are incomplete summaries, and only address two programs, but they are representative of the persistent nature of UDI's revenue. Any investor in 2002 who took the time to consider the details provided in the 10-Ks and 10-Qs could only have been struck by how much of UDI's future revenue was already accounted for. Even allowing for the inevitable cancellations and modifications – the C2V program was basically killed in the crib – the revenue persistence was striking. For UDI, if past wasn't prelude, it was a revealing glimpse into the foreseeable future.

Investment risk is a function of long-term unpredictability.
The persistence of UDI's revenue materially diminished its investment risk.

Intelligent investors, and especially adherents of the Buffett-Graham-Dodd value investing philosophy, naturally seek out opportunities that require as few assumptions about the future as possible. *Investments*, in other words, rather than *speculations*. If they took note of nothing else, the value tribe in particular should have noticed the degree to which UDI's future was dictated by existing programs and products. That revenue persistence was intrinsically valuable, influencing the value of United Defense as a whole as well as the basis upon which that value was calculated.

The Valuation Exercise

Notwithstanding the necessity of the valuation process, it's accurate to say that investors didn't even need to begin that effort to get a sense of UDI's investment potential – it was staring them in the face. The simple fact that the Company had generated free cash flow sufficient to retire a whopping $524 MM of its debt between 1997 and 2001 made it abundantly clear that the underlying business threw off tremendous amounts of cash. If investors took note of nothing else, this was the glaring tip-off of the profit potential humming under UDI's hood.

That observation aside, arriving at a reasonably reliable valuation of UDI was complicated by two somewhat related factors: the variability of the underlying business and the abundance of one-off accounting events.

Among other accounting events, the purchase from FMI resulted in substantial non-cash amortization charges that varied significantly from year to year. Additionally, the losses UDI generated prior to being taken public resulted in substantial tax loss carryforwards, an asset that would boost EPS until exhausted, probably sometime in 2004. There was also the issue of goodwill, the impact of which was complicated by prospective changes in accounting treatment. Cash provided from operating activities totaled $189.6 MM, $95.3 MM, and $90.3 MM in 1999, 2000, and 2001, respectively – a steady decline. But that fall-off had to be viewed in terms of the reasons why working capital was fluctuating.

Management's commentary in the 2001 10-K noted that cash flow was negatively impacted in 2001 by a significant build-up of inventories net of advance payments associated with producing units for several foreign customers, which would ship in later periods. And in 2000 operating cash flow was adversely affected by increases in working capital used primarily to fund an increase in receivables, as well as non-recurring costs (net of recoveries of allowable costs under U.S. Government contracts) of $9.4 MM incurred in connection with UDI's unsuccessful bid for the Interim Armored Vehicle program. Those receivables would eventually convert into cash, presumably at very attractive margins. As for the non-recurring costs, at $9.4 MM they weren't terribly material, though investors might ponder the accounting treatment. Unless UDI intended to stop bidding for government business, which was the only way to win it, the expense of doing so would have to recur. Perhaps these were better characterized as *infrequently recurring expenses*? (Just an observation).

Sporadic accounting events of course had the power to influence short-term earnings and perhaps dissemble the true economic value being created by the Company. But they couldn't change it. Accordingly, the best way to assess the authentic value of UDI was weigh accounting earnings against the cash that could be extracted from the business over time, a.k.a. free cash flow (FCF). By its simplest definition, free cash flow is what remains of revenue after deducting operating costs, taxes, net investment and the working capital requirements. Because net income is calculated by subtracting all of the expenses related to converting revenue into profit (including taxes), adding back the non-cash charges of depreciation and amortization to net income provides an indicative if not perfect proxy of free cash flow.

[3] Id.

Utilizing this method and $20 as the basis for calculating market capitalization results in a FCF yield ranging from 10% to 17% for the three years ending 2001:[4]

(000s)	1999	2000	2001
Net income	2,938	18,845	8,776
+ Depreciation	55,528	23,882	22,663
+ Amortization	72,408	68,422	46,595
+ Amortization of financing costs	5,791	2,759	3,938
= Free Cash Flow	136,665	113,908	81,972
Market Cap @ ~ $20	800,000	800,000	800,000
FCF Yield on Market Cap	17.1%	14.2%	10.2%

If backlog (see below) was a reasonable indicator of future revenue, investors had every reason to believe the FCF yield wouldn't decline below double digits.

Backlog (MM, approximate)				
1997	**1998**	**1999**	**2000**	**2001**
1,500	1,400	1,400	1,900	1,900

Historical backlog naturally incorporated revenue generated by the Crusader program. Pursuant to our earlier commentary, <u>the anchoring assumption of this analysis was that the Crusader would survive in some material form – *but nothing more*</u>. The investment thesis didn't rely on any salutary macro-level assumptions, such as a sharp increase in defense spending, nor did it assume the introduction of new products or services by United Defense. In fact, it only inferred that the most mediocre year of UDI's recent past was a reasonable baseline for performance in the future. Even in this sober light,

United Defense was a classic value investment, providing a margin of safety as well as a healthy return *even if* future performance failed to surpass its weakest recent results.

If FCF yield at the low end of the range was unlikely to be below 10% but could plausibly reach as high as 20%, there was no question about it: UDI shares in the low $20s offered an extremely attractive risk/reward.

In Conclusion

Like a lot of great investments, United Defense arose as an attractive prospect precisely because of the confusion that surrounded it. The unusual subject matter (NLOS artillery?), the intricate, abstruse process through which UDI secured much of its revenue, the abundance of one-off accounting events – all of these factors conjured an informational inefficiency that effectively obscured the otherwise apparent economic value of the Company. That said, all of the facts necessary to see through that brume to the most probable outcome of the Crusader controversy, as well as the intrinsic value of United Defense in general, were both public and easily available - it was just a matter of effort. As the historian Thomas Fuller said, "All things are difficult before they are easy."

Steven R. Grey (2005)

[4] It is noted that alternative methods produced largely similar results. For example, if one calculated FCF by subtracting cap ex from operating cash flow, free cash flow for 1999 – 2001 would have been $164,387 MM, $75,625 MM and $67,946 MM, respectively. Per the 2001 10-K, management anticipated cap ex to be in the $25 MM to $30 MM range "for the next several years."

DISCLAIMER

These materials shall not constitute an offer to sell or the solicitation of an offer to buy any interests in Grey Value Management or any of its affiliates. Such an offer to sell or solicitation to buy interests may only be made pursuant to a definitive agreement between Grey Value Management and an investor.

The information set forth in this synopsis has been obtained from publicly-available sources. It is provided for informational purposes only and should not be deemed as a recommendation to buy or sell the securities mentioned or to invest in any investment product. The information has not been independently verified by Grey Value Management or any of its affiliates. Neither Grey Value Management nor any of its affiliates makes any representations or warranties regarding, nor do they assume any responsibility for the accuracy, reliability, completeness or applicability of, any information, calculations, estimates or projections contained or reflected herein.

The information in this synopsis is provided as of the date hereof and is subject to change at any time thereafter.

Grey Value Management may have a position in any of the securities discussed in this presentation. Grey Value Management may reevaluate its holdings thereof and purchase, sell or cover certain positions.