

CLASS 7 SLIDE

Unit 7. Hertz/Avis Budget/Dollar Thrifty

Professor Dale Collins
Merger Antitrust Law
Georgetown University Law Center

September 19, 2022

UnitedHealthcare/Change

ORDER

This matter is before the Court after a bench trial. Upon review of the entire record and for the reasons set forth in the accompanying memorandum opinion, it is

ORDERED that the Government's request to enjoin the proposed merger of Defendant UnitedHealth Group Incorporated with Defendant Change Healthcare, Inc. is **DENIED**. It is further

ORDERED that Defendants **DIVEST** ClaimsXten to TPG Capital as proposed. And it is further

ORDERED that judgment be entered for Defendants.

This is a final appealable order.

The Clerk is directed to terminate this case.

DATE: September 19, 2022



CARL J. NICHOLS
United States District Judge

Hertz/Avis Budget/Dollar Thrifty



The 2010 Hertz/Dollar Thrifty Deal

2010 Hertz/Dollar Thrifty deal

■ Hertz

- \$7.1 billion in revenues
- Hertz and Advantage brands
- Hertz: 8200 rental locations worldwide
 - Premium global rental car brand
 - Focus on corporate and high-end leisure
 - #1 in U.S. airport rentals (78 major airports)
- Advantage: 26 airports in the U.S.
 - “Flanker” brand to compete for price-conscious travelers at airports
 - Lower price proposition/fewer service attributes



2010 Hertz/Dollar Thrifty deal

■ Dollar Thrifty

- \$1.5 billion in revenues
- \$1.9 global enterprise value
- Dollar Rent A Car and Thrifty Car Rental brands
 - “Middle market” airport brands
- 1558 corporate and franchise locations worldwide
 - 298 corporate-owned
 - 1260 franchisee locations



2010 Hertz/Dollar Thrifty deal

- 2010 merger agreement
 - Signed on April 26, 2010
 - Hertz to buy Dollar Thrifty for \$41.00 per share (= \$1.3 equity value)
 - \$6.88 in special Dollar Thrifty dividend (= \$200 million)
 - \$25.92 to be paid by Hertz in cash (= \$756 million)
 - \$12.88 in Hertz stock (valued at the closing price on April 23, 2010) (= \$317 million)
 - As a result, DT shareholders will hold 5.5% of Hertz after closing
 - 19% deal premium to 30-day closing average on Dollar Thrifty stock
 - → DTAG 30-day closing average = \$34.45
 - \$180 million in annual recurring synergies
 - Primarily in fleet, IT systems, and procurement savings



2010 Hertz/Dollar Thrifty deal

- Two questions

Why did Hertz want to do this deal?

Why did Dollar Thrifty to do this deal?

Hertz business rationale

Significant Strategic & Financial Benefits

Strategic Rationale

- Gain instant scale in middle tier sector with established brand and airport infrastructure
- Allows Hertz to pursue aggressive value strategy without risking dilution to Hertz brand
- Provides Hertz with multiple strategic options to address leisure business and compete with multi-brand peers in all three tiers of the market

Significant Synergy Potential

- At least \$180 million of annual run-rate synergies expected
- Key areas of cost reduction / operational improvement include
 - Procurement: significant portion of Dollar Thrifty's spend is decentralized
 - IT: overlapping systems and future capital spend
 - Fleet: benefit from fleet sharing and reduced cap. cost
 - Public company costs

All cost savings

Positive Financial Impact

- 20% equity used to maintain strong credit profile

(\$ in millions)

As of December 31, 2009

	Hertz Standalone	Hertz Pro Forma
Total Corp. Debt / Corp. EBITDA	4.8x	4.4x
Total Corp. Debt / Corp. EBITDA (w/ syn)		3.7x
Total Debt / Gross EBITDA	3.6x	3.4x
Total Debt / Gross EBITDA (w/ syn)		3.2x

- Earnings accretive

Hertz business rationale

Significant Strategic & Financial Benefits

Unquantified
revenue synergies

Strategic Rationale

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- Earnings accretive

Hertz business rationale

- Slide from Hertz investor presentation on the deal:



- Premium global brand competing with Avis, National
- Corporate, higher-end leisure, special occasions
- High service, higher-end fleet mix
- Making inroads in Off-Airport segment historically dominated by Enterprise



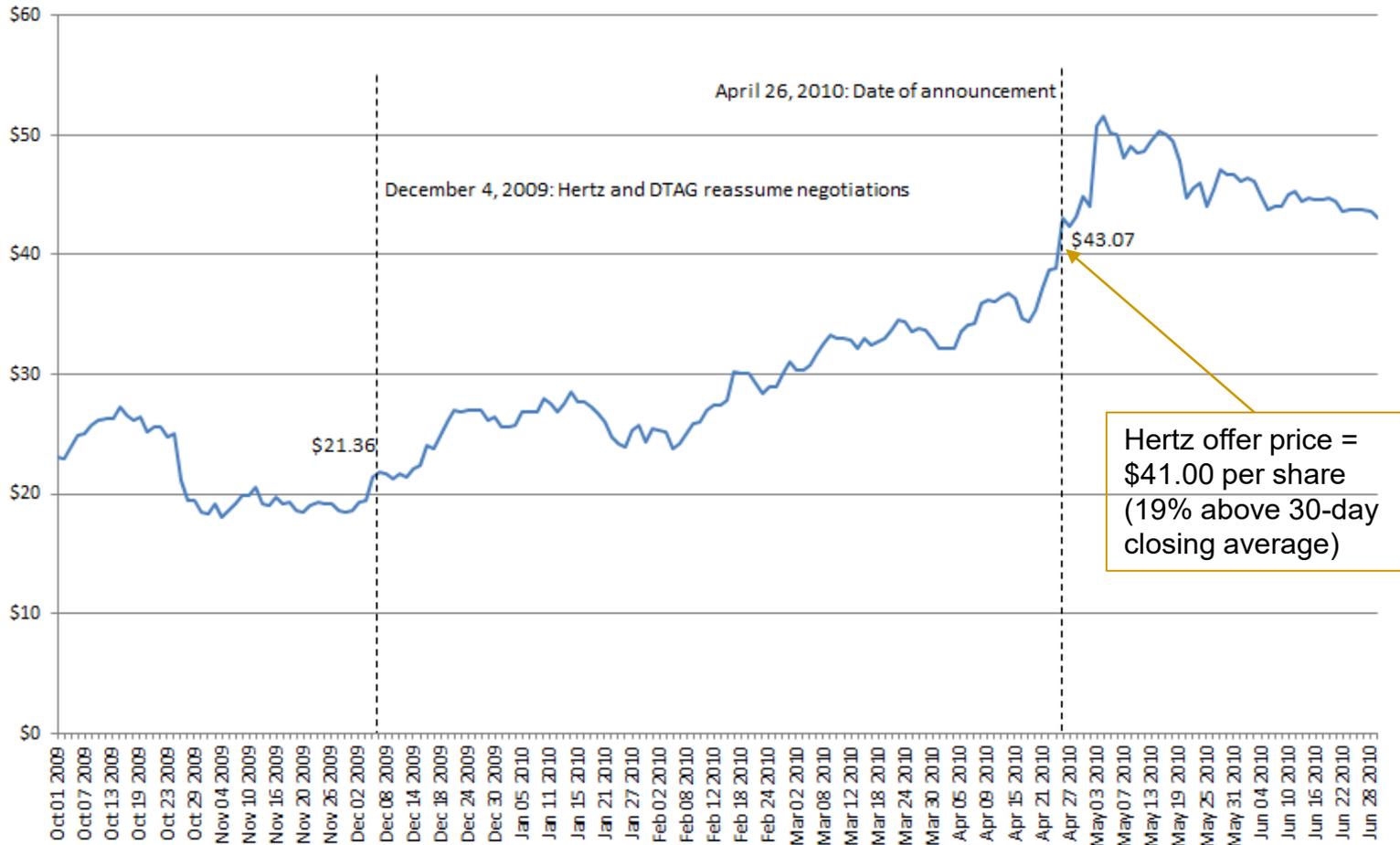
- Middle market airport brands competing with, but differentiated from Enterprise, Budget, Alamo
- Value proposition emphasizing lower price but consistently delivering essential services (speed, reliability)
- Consider dual brand operationally, but keep separate for marketing, positioning, e.g., separate websites



- Flanker airport brand to compete for economy leisure business against Payless, Fox, etc.
- Lower price proposition for price-focused leisure customers
- Reliable, clean cars, but fewer service attributes

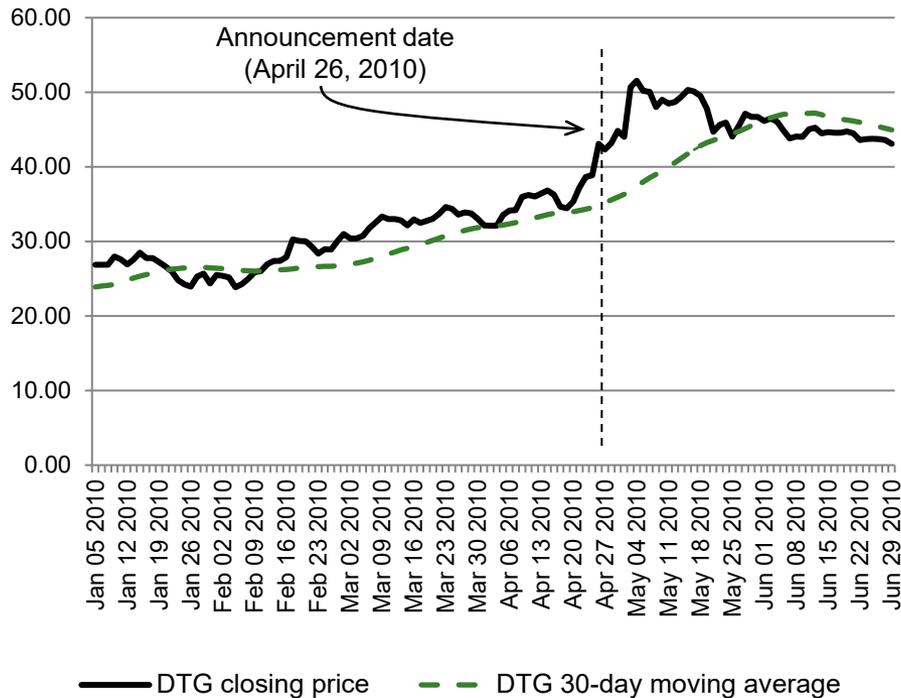
Dollar Thrifty business rationale

Dollar Thrifty Closing Prices
October 1, 2009 — June 29, 2010



Dollar Thrifty preannouncement run-up

Dollar Thrifty Closing Prices
January 4, 2010 — June 29, 2010



Closing Price Changes
(compared to prior months)

	1-month	2-months	3-months
DTG	12.3%	36.9%	56.7%
DJIA	2.9%	9.0%	10.1%

Recall that Hertz contacted Dollar Thrifty in December 2009 to restart negotiations

The deal price

■ Payments to Dollar Thrifty shareholders (per DTAG share)

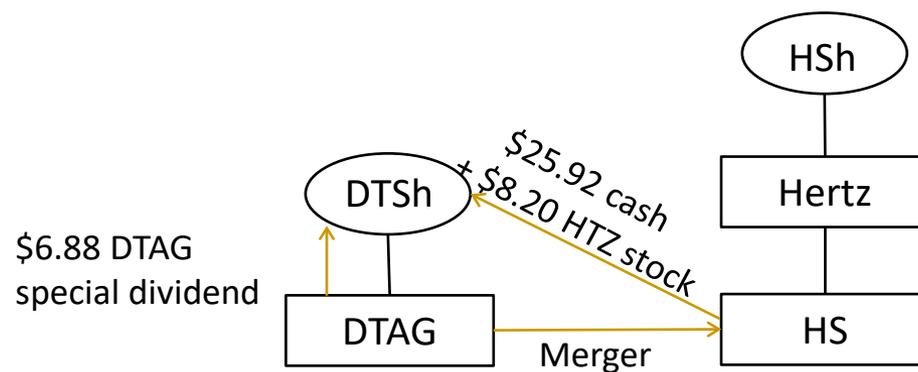
\$6.88	Dollar Thrifty special cash dividend (paid by Dollar Thrifty)
\$25.92	Cash (paid by Hertz)
\$8.20	0.6366 Hertz shares, valued on the closing price on April 23, 2010 (the last business day before the announcement on April 26, 2010)
\$41.00	Total consideration

■ Some implications

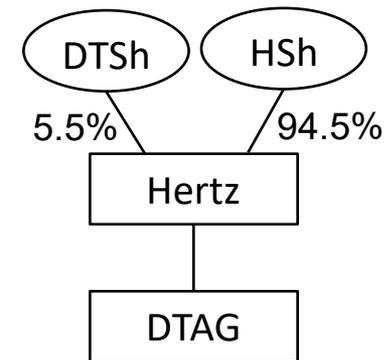
- Special DTAG cash dividend = \$200 million →
 - DTAG shareholders would receive \$953m in cash
 - But Hertz would only pay \$753m in cash
 - For a total Hertz payment of \$25.92 in cash and \$8.20 in stock = \$32.12 per share
 - BUT the \$200 million in the DTAG special dividend is still real money to Hertz because DTAG will be worth \$200 million less with the dividend payout

Hertz/DTAG Reverse Triangular Merger

Before:



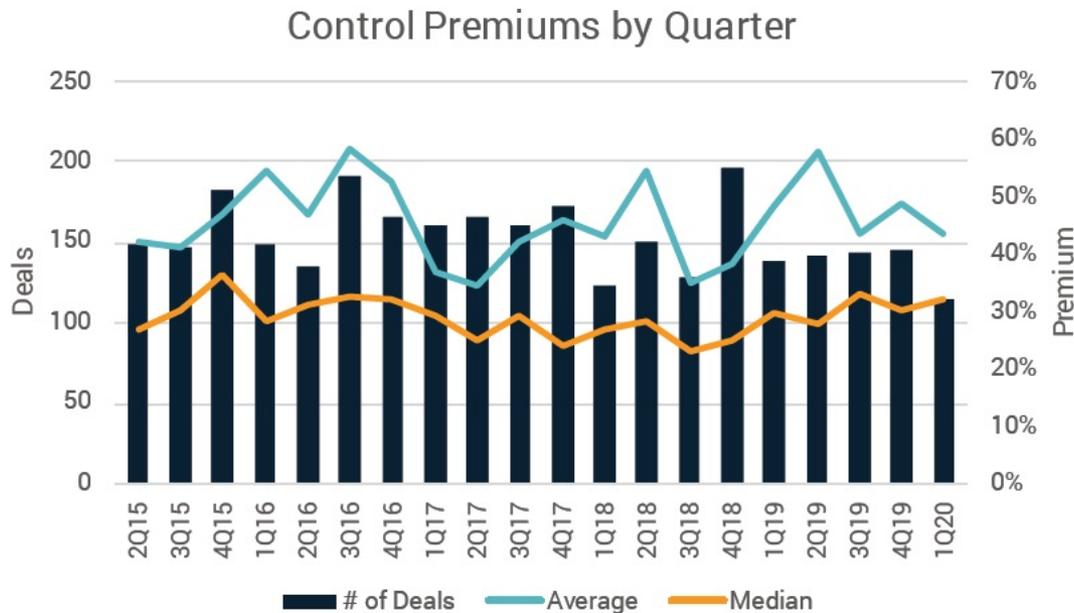
After:



where DTAG Dollar Thrifty Automotive Group (target firm)
 DTSh TS DTAG's premerger shareholders
 Hertz Acquiring firm
 HSh Hertz premerger shareholders
 HS Hertz acquisition subsidiary

Deal premium

- Why did Hertz pay a deal premium?
 - In almost all deals, the buyer pays a price significantly above the price of the target's stock in the period just before when the stock price is affected by the prospect of an acquisition
 - BVR/FactSet Control Premium Study updated for 2020 Q1:



Rolling 12-month historical averages

Average: 35.9%

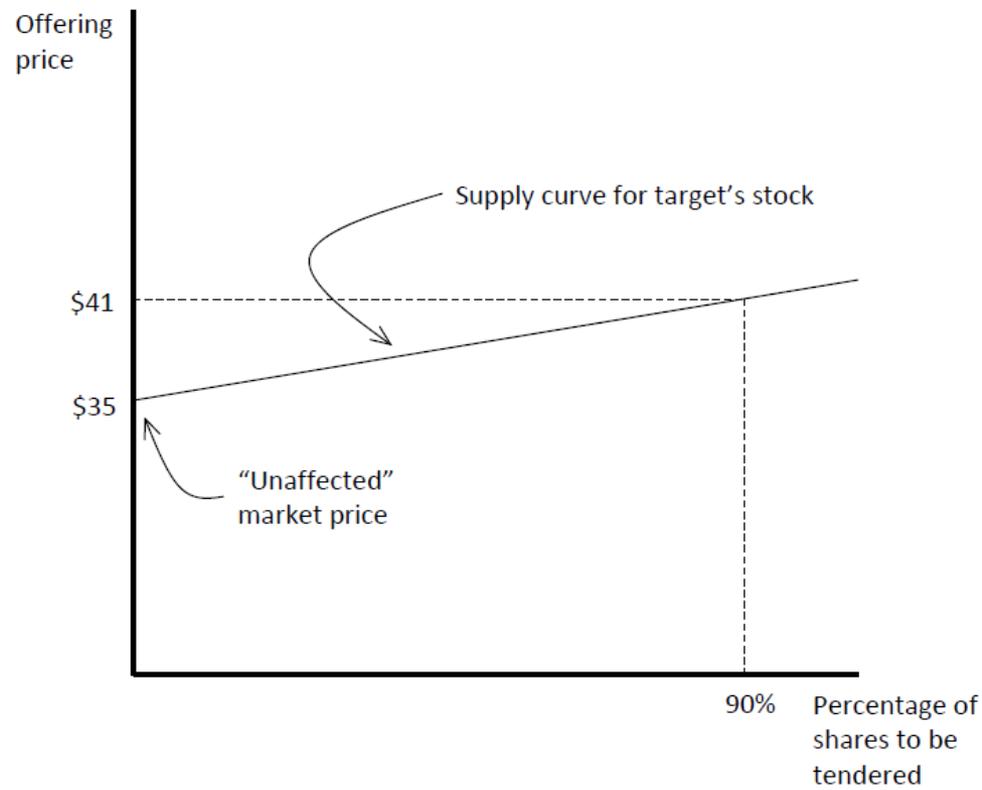
Median: 23.5%

Deal premium

- Why did Hertz pay a deal premium?
 - Two reasons for a deal premium—
 1. Upward-sloping supply curve for DTAG stock
 2. Bargaining game over the synergies gain

Deal premium

- Why did Hertz pay a deal premium?
 - Upward-sloping supply curve for DTAG stock



Deal premium

- Why did Hertz pay a deal premium?
 - Upward-sloping supply curve for DTAG stock
 - Why is the supply curve of stock upward sloping?
 - *Ordinary course*: Different shareholders have different expectations about the value of the stock
 - Different expectations about future dividends
 - Different expectations about capital appreciation
 - *In a deal*: Different expectations of what the selling price will be

If we rank order the shareholders by their reservation sales price from lowest to highest, this traces out an upward-sloping supply curve for the target's stock

Deal premium

- Why did Hertz pay a deal premium?
 2. Bargaining game over the synergies gain—Three parts
 - a. Hertz determines its reservation price (the maximum price it would be willing to pay for DTAG)
 - But does not tell DTAG
 - b. DTAG determines its reservation price (the minimum price the DTAG board would recommend that the shareholders accept)
 - But does not tell Hertz

The difference is the “gain from trade”

- c. *Problem:* Parties must agree on a purchase price (which will allocate the gain from trade)
 - Think of the purchase price as the going concern value + deal premium
 - The allocation of the gains from trade will occur through the deal premium

Let's turn to the bargaining game to determine the deal premium

Deal premium

- Why did Hertz pay a deal premium?
 2. Bargaining game over the synergies gain—Hertz' reservation price
 - Total value to Hertz (V_t) of the DTAG merger is equal to the going concern value of DTAG (V_{DTAG}) plus any synergies gains (V_s) Hertz expects to result from the transaction:

$$V_t = V_{DTAG} + V_s$$

- Hertz sets the going concern value V_{DTAG} of DTAG at \$932 million (after dividend)

Deal premium

- Why did Hertz pay a deal premium?
 2. Bargaining game over the synergies gain—Hertz' reservation price
 - *Background:* Going concern value
 - *Definition:* The economic value of an entity as an operating unit
 - *Components:*
 1. The present discounted value (PDV) of the *free cash flow* during the valuation period
 - *Free cash flow:* The cash a company generates after accounting for cash outflows to support operations and maintain its capital assets
 - Effectively, the cash generated by the company that is available for investment and to pay dividends (does not count borrowing)
 2. The present discounted value of the residual value calculated at the end of the valuation period
 3. The value of the assets considered unnecessary to operate the entity
 - *Examples:* Excess working capital, non-operating assets, assets that can be liquidated

Deal premium

- Why did Hertz pay a deal premium?
 2. Bargaining game over the synergies gain—Hertz' reservation price

- *Background:* Discounted present value

- *Problem 1:* Say someone was going to give you \$1.00 a year from now. How much would you be willing to take today to sell this right to receive \$1.00 a year from now?

- *Answer:* Your reservation price should be that price p^* at which you could invest p^* today and will have \$1.00 a year from now
- This is equal to the amount you receive today (p^*) plus the earnings on that amount over the next year (p^*r):

$$p^* + p^* r = 1.00$$

where r is the percentage annual investment rate

Simplifying:
$$p^* \cdot (1 + r) = 1.00$$

Solving for p^* :
$$p^* = \frac{1.00}{1 + r}$$

If $r = 6\%$, then:
$$p^* = \frac{1.00}{1.06} = 0.943396 \text{ (rounded)}^1$$

So you would be willing to take a little less than \$0.95 to sell your right to receive \$1 a year from now

¹ [MathPapa](#) is a great algebraic calculator.

Deal premium

- Why did Hertz pay a deal premium?
 2. Bargaining game over the synergies gain—Hertz' reservation price

- *Background:* Discounted present value

- *Problem 2:* Same problem, only the \$1.00 gets paid 2 years from now
 - *Answer:* p^* such that p^* invested for one year and then the resulting amount invested for another year yields \$1.00:

$$\begin{array}{c} \text{Amount at end of year 1} \\ \underbrace{(p^*(1+r))(1+r)}_{\text{Amount at end of year 2}} = 1.00 \quad \text{or} \quad p^* = \frac{1.00}{(1+r)^2} \end{array}$$

If $r = 6\%$, then:

$$p^* = \frac{1.00}{(1+r)^2} = \frac{1.00}{(1+0.06)^2} = 0.889996 \text{ (rounded)}$$

So you would be willing to take a little less than \$0.90 to sell your right

- General formula for n periods at a constant investment rate r per period:

$$p^* = \frac{F}{(1+r)^n}$$

Where F is the future value at the end of the n^{th} period (\$1.00 in Problem 2)

Deal premium

- Why did Hertz pay a deal premium?
 2. Bargaining game over the synergies gain—Hertz' reservation price

- *Background:* Discounted present value

- *Problem 3:* Say someone was going to give you \$1.00 a year from now and another \$1.00 two years from now. How much would you be willing to take today to sell this right to receive \$1.00 a year and another dollar two years from now?

- *Answer:* Your reservation price p^* will be the sum of—
 - The PDV of \$1.00 one year from now
 - PLUS the PDV of \$1.00 two years from now

$$p^* = \frac{1.00}{1+r} + \frac{1.00}{(1+r)^2}$$
$$= 0.943396 + 0.889996 = 1.833392$$

- General formula for a constant annuity A at a constant investment rate r :

$$p^* = \sum_{i=1}^n \frac{A}{(1+r)^i} = A \left[\frac{1-(1+r)^{-n}}{r} \right]$$

For a perpetual annuity:
 $p^* = A/r$

Deal premium

- Why did Hertz pay a deal premium?
 2. Bargaining game over the synergies gain—Hertz' reservation price
 - Hertz claimed an expected annually recurring synergy gain of \$180 million (A)
 - The present discounted value V_s of an annual recurring cash payment in perpetuity (that is, a *perpetual annuity*) discounted at rate r (say 7%) is:

$$V_s = \frac{A}{r} = \frac{\$180 \text{ million}}{0.07} = \$2.57 \text{ billion}$$

- But say that Hertz values synergies only over a 10-year period. Then:

$$V_s^{10} = A \left[\frac{1 - (1 + r)^{-n}}{r} \right] = \$180 \text{ million times } \left[\frac{1 - (1 + 0.07)^{-10}}{0.07} \right] = \$1.26 \text{ billion}$$

Deal premium

- Why did Hertz pay a deal premium?
 2. Bargaining game over the synergies gain—Hertz' reservation price
 - So Hertz expects that the total value V_t of Dollar Thrifty postmerger will be:

$$\begin{aligned}V_t &= V_c + V_s^{10} \\ &= \$932 \text{ million} + \$1.26 \text{ billion} \\ &= \$2.17 \text{ billion}\end{aligned}$$

- But Hertz shareholders will own only 94.5% of the combined company
 - The original Hertz shareholders will not own the whole company because their interest is being diluted by the Hertz stock going to the DTAG shareholders
 - The original Hertz shareholders would hold only 94.5% of the Hertz stock postmerger, so they would get only that portion of V_t (= \$2.075 billion)

So Hertz shareholders should be willing to pay a maximum of \$2.075 billion for the deal (or about \$71 per DTAG share)

Deal premium

- Why did Hertz pay a deal premium?
 2. Bargaining game over the synergies gain—DTAG’s reservation price
 - No shareholder would sell for less than the “unaffected” current stock price
 - That is, the stock price in the complete absence of merge negotiations or rumors

To study the negotiated division of the synergies gain separate from the upward-sloping supply curve, we will (unrealistically) assume that all DTAG shareholders have a reservation price equal to the unaffected stock price¹

- In fact, DTAG shareholders expectations about the ultimate division of the synergies gain will be reflected in the DTAG stock supply curve

Suppose that the unaffected stock price is \$32

Deal premium

- Why did Hertz pay a deal premium?
 3. Bargaining game over the synergies gain—The purchase price
 - DTAG shareholders will not accept anything lower than their reservation price
 - BUT they can also bargain for some of the gain resulting from the deal, since unless they agree to the deal Hertz shareholders will receive no gain
 - At \$41 per share under Hertz’s terms, DTAG shareholders receive a significant deal premium over the “unaffected” price:

	Closing price	Deal premium*
Mar. 23, 2010	34.60	18.5%
Feb. 23, 2010	28.37	44.5%
Jan. 22, 2010	24.29	68.8%

- So this looks like a good deal to the DTAG shareholders
- Also looks like a good deal to the Hertz shareholders
 - Willing to pay up to \$71 per share, but paid only \$41 per share

Deal premium

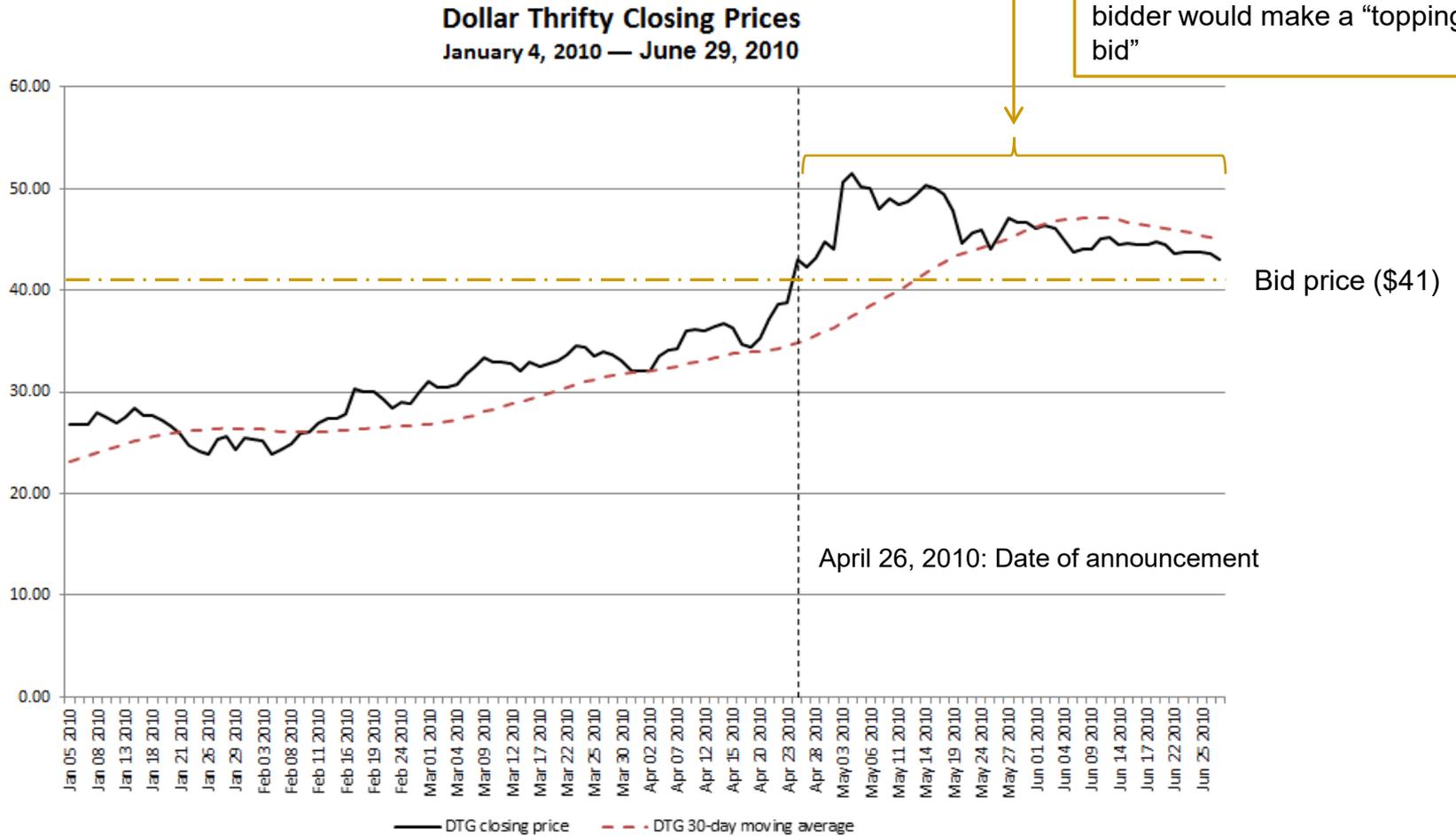
- Why did Hertz pay a deal premium?
 2. Bargaining game over the synergies gain
 - Division of the synergy gains

		Surplus gain
Hertz reservation price	\$71	\$30
Deal price	\$41	
DTAG reservation price	\$32	\$9

- *Query*: Why did DTAG accept so low a share of the synergies gain?
 - Two most likely possibilities (not exclusive):
 - Hertz was better at playing the bargaining game
 - DTAG estimated the deal synergies significantly below Hertz' estimates

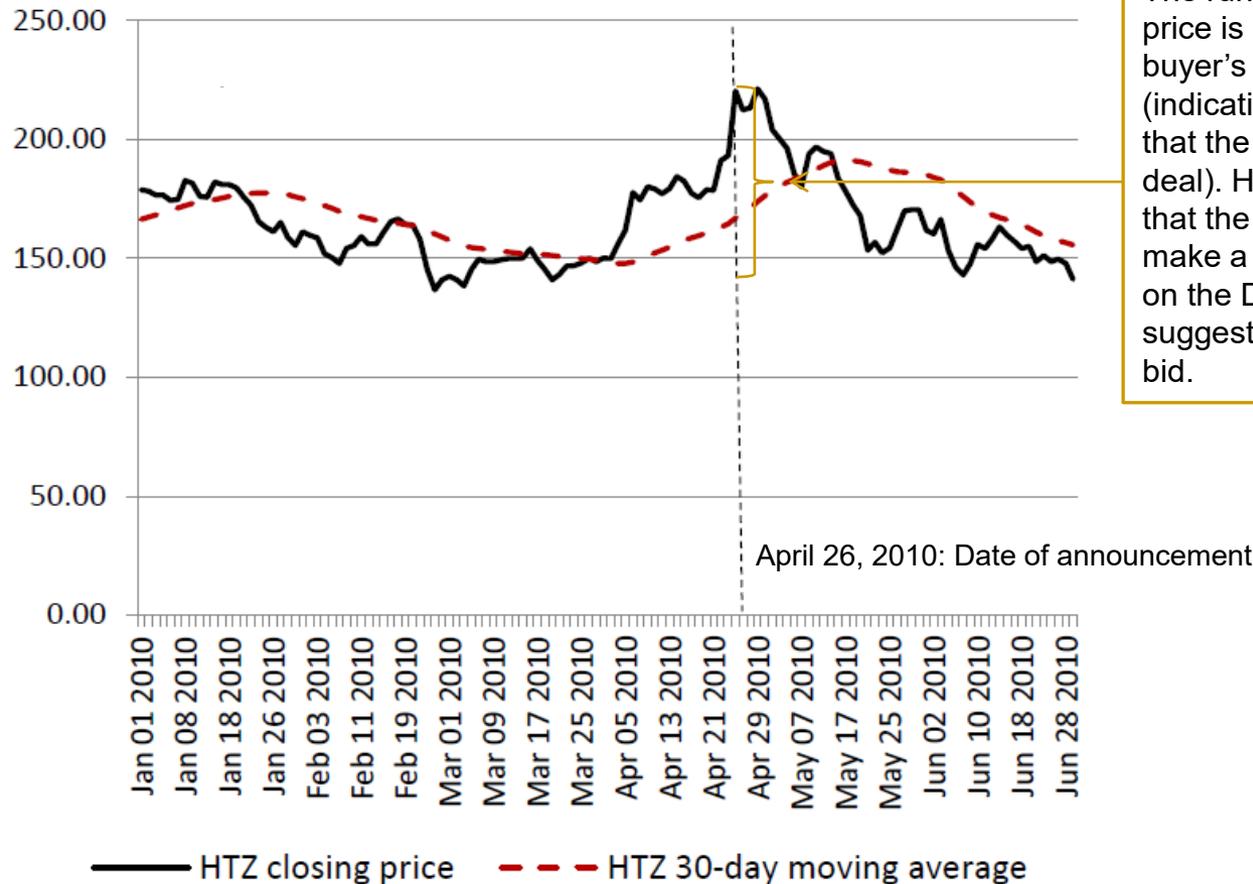
Market reaction

Post-announcement trading prices *above* the Hertz bid price of \$41 indicates that the market expected a second bidder would make a “topping bid”



Market reaction

HTZ Closing Prices
January 4, 2010 — June 29, 2010



The run-up in the buyer's stock price is unusual. More often, the buyer's stock falls in price (indicating that the market believes that the buyer has overvalued the deal). Here, the run-up indicates that the market expects Hertz to make a significant amount of money on the DTAG deal at \$41. This also suggests the possibility of a topping bid.

Class 8 Homework Assignment

Class 8 homework assignment

- The problem
 - On June 16, 2021, the DOJ has sued to block the Aon/WTW deal
 - The trial court said it would likely deliver a decision in February 2022
 - The drop date date in the merger agreement is September 9, 2021
 - If the deal does not close for antitrust reasons, Aon will pay WTW an antitrust reverse termination fee of \$1 billion
 - Aon wants to litigate the merits

Should WTW terminate the agreement on the September 9 drop dead date or extend it to February and litigate?

Class 8 homework assignment

■ Strategy

1. Identify WTW's options
2. Identify the possible outcome(s) for each option
3. Calculate WTW's expected payoff (in PDV) for each outcome
4. Select the option with the highest expected payoff

Class 8 homework assignment

3. Identify the expected payoffs for each outcome

Option
1. Do not extend drop dead date
2. Extend drop dead date

Class 8 homework assignment

3. Identify the expected payoffs for each outcome

Option	Outcomes	Payoff
1. Do not extend drop dead date	Terminate agreement on drop dead date (September 9, 2021)	Receive antitrust reverse termination fee (ARTF)

Class 8 homework assignment

3. Identify the expected payoffs for each outcome

Option	Outcomes	Payoff
1. Do not extend drop dead date	Terminate agreement on drop dead date (September 9, 2021)	Receive antitrust reverse termination fee (ARTF)
2. Extend drop dead date	a. Litigate and lose	i. Loss of litigation costs
		ii. PDV of ARTF received in February
		iii. Further loss of going concern value

Class 8 homework assignment

3. Identify the expected payoffs for each outcome

Option	Outcomes	Payoff
1. Do not extend drop dead date	Terminate agreement on drop dead date (September 9, 2021)	Receive antitrust reverse termination fee (ARTF)
2. Extend drop dead date	a. Litigate and lose	i. Loss of litigation costs
		ii. PDV of ARTF received in February
		iii. Further loss of going concern value
	b. Litigate and win	i. Loss of litigation costs
		ii. Gain of deal premium on closing of the deal
		iii. Gain of pro rata share of synergies as Aon shareholders

To be sure we are comparing apples to apples, calculate the PDVs as of the drop dead date

Class 8 homework assignment

1. Do not extend drop dead date: Terminate agreement
 - Antitrust reverse termination fee = \$1 billion

Payoff for Strategy 1: \$1 billion

Class 8 homework assignment

2. Extend drop dead date and litigate

a. Litigate and lose

- i. Additional litigation costs = $-\$10$ million
- ii. Present discounted value of ARTF received in February 2022 as opposed to September 2021

$$PV = \frac{FV}{(1+r)^n},$$

where

PV is the discounted present value

FV is the future value (here, \$1 billion)

r is the discount rate (here, 5.16% annually or 0.43% monthly)

n is the number of periods (here, 5 months)

Applied:

$$PV = \frac{FV}{(1+r)^n} = \frac{\$1000}{(1+0.0043)^5} = \$978.77 \text{ million}$$

So the loss on the present value of the ARTF for delay is:

$$FV - PV = \$978.77 \text{ million} - \$1000 \text{ million} = -\$21.23 \text{ million}$$

Class 8 homework assignment

2. Extend drop dead date and litigate

a. Litigate and lose

iii. Further loss of going concern value

- ❑ The signing occurred on March 9, 2020, and the drop dead date was 18 months later
- ❑ Most of the damage to WTW's going concern value probably will occur during this 18-month period, with relatively little or no additional damage expected during the additional five months between the drop dead date and the end of the litigation
- ❑ Loss associated with additional diminution in going concern value: **\$0**

Total expected value to WTW shareholders if they litigate and lose:

– \$10 million + \$978.77 million – \$ 0 million = \$968.77 million

For a loss of \$31.23 million compared to terminating on the drop dead date

Class 8 homework assignment

2. Extend drop dead date and litigate

b. Litigate and win

i. Loss of litigation costs = -\$10 million

ii. Gain of deal premium on closing of the deal

- The parties' investor presentation states that the WTW shareholders will receive Aon stock valued at \$30 billion in exchange for their WTW shares, yielding a deal premium of 16.2%
- Consequently, the deal premium is about \$4.86 billion¹
- But the deal premium will not be received until February 2022, so it needs to be discounted to the present (i.e., September 2021):

$$PV = \frac{FV}{(1+r)^n} = \frac{\$4860}{(1+0.0043)^5} = \$4756.84 \text{ million}$$

¹ This is not quite right, but I did not give you the information necessary to do the correct calculation. See note 9 in the instructor's answer to the homework assignment for an explanation.

Class 8 homework assignment

2. Extend drop dead date and litigate

b. Litigate and win

iii. Gain of pro rata share of synergies as Aon shareholders

- ❑ The parties anticipate annual run-rate synergies of \$800 million beginning in year 3
- ❑ They also expect gross synergies to be \$267 million in the first year and \$600 million in the second year
- ❑ Attaining these synergies entail transitional costs of \$1.4 billion split equally in the first two years
- ❑ In addition, the companies expect transaction costs of approximately \$200 million and retention costs of up to \$400 million, all to be incurred in the first year
- ❑ The WTW shareholders will hold 37% of the combined company and hence be entitled to 37% of the combined firm's deal synergies

Class 8 homework assignment

2. Extend drop dead date and litigate

b. Litigate and win

- iii. Gain of pro rata share of synergies as Aon shareholders:

WTW pro rata 37% share of 10 years of net synergies discounted at 8%¹
= \$1072.72 million

Combined Company Synergy NPV (discounted at 8%)						
Year	Synergies	Costs	Net CF	PV	NPV	37%
1	\$267.00	\$1,300.00	(\$1,033.00)	(\$956.48)	(\$956.48)	(\$353.90)
2	\$600.00	\$700.00	(\$100.00)	(\$85.73)	(\$1,042.22)	(\$385.62)
3	\$800.00	\$0.00	\$800.00	\$635.07	(\$407.15)	(\$150.65)
4	\$800.00	\$0.00	\$800.00	\$588.02	\$180.87	\$66.92
5	\$800.00	\$0.00	\$800.00	\$544.47	\$725.34	\$268.38
6	\$800.00	\$0.00	\$800.00	\$504.14	\$1,229.48	\$454.91
7	\$800.00	\$0.00	\$800.00	\$466.79	\$1,696.27	\$627.62
8	\$800.00	\$0.00	\$800.00	\$432.22	\$2,128.48	\$787.54
9	\$800.00	\$0.00	\$800.00	\$400.20	\$2,528.68	\$935.61
10	\$800.00	\$0.00	\$800.00	\$370.55	\$2,899.24	\$1,072.72
11	\$800.00	\$0.00	\$800.00	\$343.11	\$3,242.34	\$1,199.67
12	\$800.00	\$0.00	\$800.00	\$317.69	\$3,560.04	\$1,317.21
13	\$800.00	\$0.00	\$800.00	\$294.16	\$3,854.19	\$1,426.05
14	\$800.00	\$0.00	\$800.00	\$272.37	\$4,126.56	\$1,526.83
15	\$800.00	\$0.00	\$800.00	\$252.19	\$4,378.76	\$1,620.14
16	\$800.00	\$0.00	\$800.00	\$233.51	\$4,612.27	\$1,706.54
17	\$800.00	\$0.00	\$800.00	\$216.22	\$4,828.48	\$1,786.54
18	\$800.00	\$0.00	\$800.00	\$200.20	\$5,028.68	\$1,860.61
19	\$800.00	\$0.00	\$800.00	\$185.37	\$5,214.05	\$1,929.20
20	\$800.00	\$0.00	\$800.00	\$171.64	\$5,385.69	\$1,992.71

¹ I used 8% rather than WTW's WACC of 5.16% given that interest rates could be considerably higher in the future than today and the risk that the combined company will not achieve the anticipated \$800 million in run-rate synergies and the risk that the nominal value of the synergies will decline over time with changes in products or the competitive landscape.

Class 8 homework assignment

2. Extend drop dead date and litigate
 - b. Litigate and win

Total gain to WTW shareholders if they litigate and win:

$$- \$10 \text{ million} + \$4756.84 \text{ million} + \$1072.72 \text{ million} = \$5819.56 \text{ million}$$

Class 8 homework assignment

4. Compare payoffs

Option	Outcomes	Payoff
1. Do not extend drop dead date	Terminate agreement on drop dead date (September 9, 2021)	+ \$1000 million ARTF
2. Extend drop dead date	a. Litigate and lose	+ \$969 million
	b. Litigate and win	+ \$5819.56 million

- The difference in payoffs between taking the ARTF in September and losing the litigation in February is \$31.32 million
- The difference in payoffs between taking the ARTF in September and winning the litigation and closing the deal in February is about \$4.82 billion

So the question is whether the WTW shareholders would be willing to risk losing \$31.32 million in order to gain about \$4.82 billion

Class 8 homework assignment

■ What is the tipping point?

- Let p be WTW's (subjective) probability of winning the case and closing the deal
- If WTW was risk neutral and maximized expected value, then the tipping probability p^* would equate the expected value of extending the drop dead date with the expected value of terminating on September 9:

$$\begin{array}{rcl} & E(\text{extending}) & = E(\text{terminating}) \\ (p^*)(\text{extending and winning}) + (1-p^*)(\text{extending and losing}) & = & E(\text{terminating}) \\ (p^*)(5819.56) + (1-p^*)(969) & = & 1000 \end{array}$$

- Solving for p^* , the tipping point is 0.63%

Bottom line: WTW should terminate and take the \$1 billion ARTF on September 9 only if it believes that the probability of winning is less than 0.63%—EXTEND THE DROP DEAD DATE

Class 8 homework assignment

- What actually happened?



Overview	Stock Information	Investor News	Financial Reports	Events & Presentations
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Aon and Willis Towers Watson Mutually Agree to Terminate Combination Agreement

07/26/2021

[Download this Press Release \(PDF\)](#)

DUBLIN, July 26, 2021 /PRNewswire/ -- [Aon plc](#) (NYSE: AON) and [Willis Towers Watson](#) (NASDAQ: WLTW) announced today that the firms have agreed to terminate their business combination agreement and end litigation with the U.S. Department of Justice (DOJ). The proposed combination was first announced on March 9, 2020.

"Despite regulatory momentum around the world, including the recent approval of our combination by the European Commission, we reached an impasse with the U.S. Department of Justice," said Aon CEO Greg Case. "The DOJ position overlooks that our complementary businesses operate across broad, competitive areas of the economy. We are confident that the combination would have accelerated our shared ability to innovate on behalf of clients, but the inability to secure an expedited resolution of the litigation brought us to this point."

...

Class 8 homework assignment

- How did the market react?
 - WTW stock dropped 9.0% the day of the announcement

Percentage Change in WTW Closing Prices
July 1, 2021 – September 10, 2021



Arbs with WTW shares were betting on an extension to litigate!

Class 8 homework assignment: Bonus question

Should Aon agree to extend the drop dead date in order to litigate, or should it terminate the deal on September 9 and pay WTW the \$1 billion breakup fee?

□ Assume:

- Aon will pay \$15 million in out-of-pocket expenses for its part in the litigation
- On July 15, 2021, Aon's weighted average cost of capital (WACC) was 5.8% and its return on invested capital (ROIC) was 8.47%

□ Analysis

■ Options

- Terminate and pay WTW \$1 billion ARTF
- Extend and litigate
 - Litigate and lose
 - Litigate and win

Class 8 homework assignment: Bonus question

1. Do not extend drop dead date: Terminate agreement
 - Pay antitrust reverse termination fee = $-\$1$ billion

Aon payoff for Strategy 1: $-\$1$ billion

Class 8 homework assignment: Bonus question

2. Extend drop dead date and litigate

a. Litigate and lose

- i. Loss of litigation costs = $-\$15$ million
- ii. Present discounted value of ARTF paid in February 2022 as opposed to September 2021

$$PV = \frac{FV}{(1+r)^n} = \frac{-\$1000}{(1+0.0048)^5} = -\$976.34 \text{ million}$$

where

PV is the discounted present value

FV is the future value (here, \$1 billion)

r is the discount rate (here, 5.8% annually or 0.48% monthly)

n is the number of periods (here, 5 months)

So the *gain* to Aon on the value of the ARTF for delay is:

$$FV - PV = \$1000 \text{ million} - \$976.34 = \$23.66 \text{ million}$$

Total loss to Aon shareholders if they litigate and lose:

$$-\$15 \text{ million} - \$976.34 \text{ million} = -\$991.34 \text{ million}$$

For a *gain* of \$8.66 million compared to terminating on the drop dead date

Class 8 homework assignment: Bonus question

2. Extend drop dead date and litigate

b. Litigate and win

- i. Loss of litigation costs = -\$15 million
- ii. Value of the deal premium: \$4800 million delayed for five months at Aon's 5.8% WACC:

$$PV = \frac{FV}{(1+r)^n} = \frac{\$4860}{(1+0.0048)^5} = \$4,686.44 \text{ million}$$

Class 8 homework assignment: Bonus question

2. Extend drop dead date and litigate

b. Litigate and win

- iii. Gain of pro rata share of synergies as Aon shareholders:

Aon pro rata 63% share of 10 years of net synergies discounted at 8%¹
= \$1826.52 million

Combined Company Synergy NPV (discounted at 8%)						
Year	Synergies	Costs	Net CF	PV	NPV	63%
1	\$267.00	\$1,300.00	(\$1,033.00)	(\$956.48)	(\$956.48)	(\$602.58)
2	\$600.00	\$700.00	(\$100.00)	(\$85.73)	(\$1,042.22)	(\$656.60)
3	\$800.00	\$0.00	\$800.00	\$635.07	(\$407.15)	(\$256.50)
4	\$800.00	\$0.00	\$800.00	\$588.02	\$180.87	\$113.95
5	\$800.00	\$0.00	\$800.00	\$544.47	\$725.34	\$456.96
6	\$800.00	\$0.00	\$800.00	\$504.14	\$1,229.48	\$774.57
7	\$800.00	\$0.00	\$800.00	\$466.79	\$1,696.27	\$1,068.65
8	\$800.00	\$0.00	\$800.00	\$432.22	\$2,128.48	\$1,340.94
9	\$800.00	\$0.00	\$800.00	\$400.20	\$2,528.68	\$1,593.07
10	\$800.00	\$0.00	\$800.00	\$370.55	\$2,899.24	\$1,826.52
11	\$800.00	\$0.00	\$800.00	\$343.11	\$3,242.34	\$2,042.68
12	\$800.00	\$0.00	\$800.00	\$317.69	\$3,560.04	\$2,242.82
13	\$800.00	\$0.00	\$800.00	\$294.16	\$3,854.19	\$2,428.14
14	\$800.00	\$0.00	\$800.00	\$272.37	\$4,126.56	\$2,599.73
15	\$800.00	\$0.00	\$800.00	\$252.19	\$4,378.76	\$2,758.62
16	\$800.00	\$0.00	\$800.00	\$233.51	\$4,612.27	\$2,905.73
17	\$800.00	\$0.00	\$800.00	\$216.22	\$4,828.48	\$3,041.94
18	\$800.00	\$0.00	\$800.00	\$200.20	\$5,028.68	\$3,168.07
19	\$800.00	\$0.00	\$800.00	\$185.37	\$5,214.05	\$3,284.85
20	\$800.00	\$0.00	\$800.00	\$171.64	\$5,385.69	\$3,392.99

¹ I used 8% rather than Aon's WACC of 5.8% for the same reason I used 8% in calculating the PDV for WTW's share of synergies.

Class 8 homework assignment: Bonus question

2. Extend drop dead date and litigate
 - b. Litigate and win

Total gain to Aon shareholders if they litigate and win:

$$- \$15 \text{ million} - \$4686.44 \text{ million} + \$1826.52 \text{ million} = -\$2874.92 \text{ million}$$

Class 8 homework assignment: Bonus question

■ Compare payoffs

Option	Outcomes	Payoff
1. Do not extend drop dead date	Terminate agreement on drop dead date (September 9, 2021)	- \$1000 million ARTF
2. Extend drop dead date	a. Litigate and lose	- \$991.34 million
	b. Litigate and win	- \$2875 million

- The difference in payoffs between paying ARTF in September and losing the litigation in February is \$8.66 million
- The difference in payoffs between taking the ARTF in September and winning the litigation and closing the deal in February is -\$1.875 billion

So unless Aon is essentially certain it will lose the litigation, it should terminate the deal and pay the \$1 billion ARTF to WTW

Class 8 homework assignment: Bonus question

■ What is the tipping point?

- Let p be Aon's (subjective) probability of winning the case and closing the deal
- If Aon was risk neutral and maximized expected value, then the tipping probability p^* would equate the expected value of extending the drop dead date with the expected value of terminating on September 9:

$$\begin{array}{rcl} & E(\text{extending}) & = E(\text{terminating}) \\ (p^*)(\text{extending and winning}) + (1-p^*)(\text{extending and losing}) & = & E(\text{terminating}) \\ (p^*)(-2875) + (1-p^*)(-991.34) & = & -1000 \end{array}$$

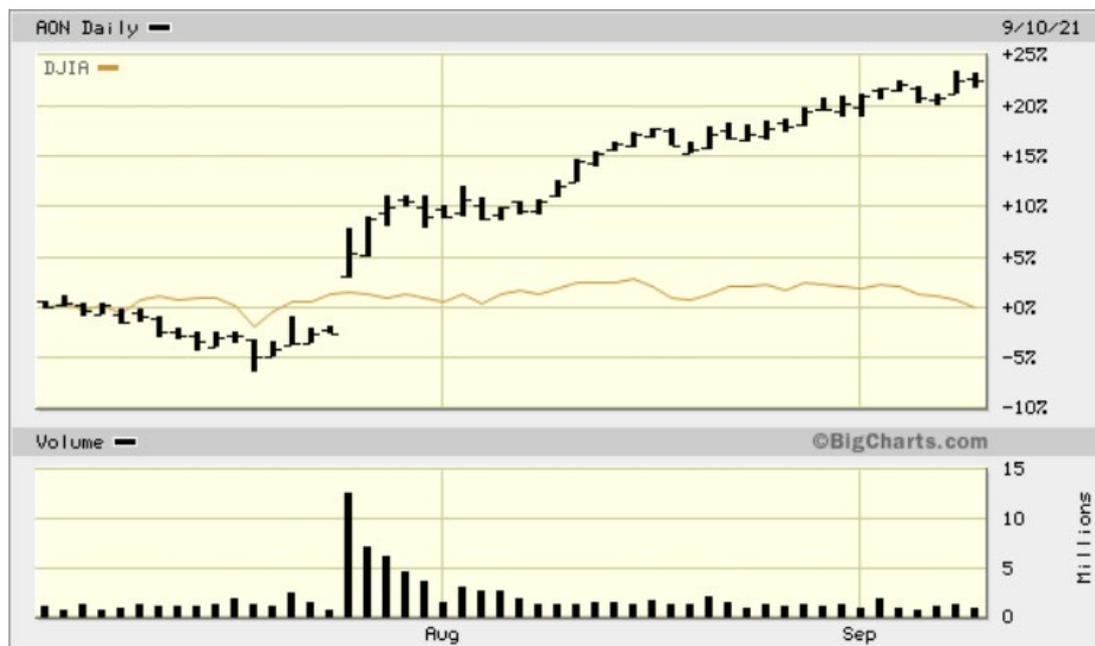
- Solving for p^* , the tipping point is 0.46%

Bottom line: Aon should terminate and pay the \$1 billion ARTF on September 9 if it believes that the probability of winning is greater than 0.46%

Class 8 homework assignment: Bonus question

- How did the market react to the deal termination?
 - Aon stock increased 8.2% the day of the announcement and continued to increase in the following days

Percentage Change in Aon Closing Prices
July 1, 2021 – September 10, 2021



Arbs with Aon stock expected an extension for litigation but were delighted that the deal terminated

Class 8 homework assignment: Bonus question

- What is going on here? Why did Aon do the deal at all?
 - The Aon investor presentation anticipates—

“over \$10 billion of expected shareholder value, from the capitalized value of expected pre-tax synergies and net of expected one time transaction, retention and integration costs.”

- A NPV of \$10 billion for the combined company yields a NPV benefit to the Aon shareholders of \$6.3 billion *at the time of announcement* given Aon’s 63% ownership of the combined company:

$$\$6,300 \text{ million} - \$4,800 \text{ million} - \$15 \text{ million} = +\$1,485 \text{ million}$$

Class 8 homework assignment: Bonus question

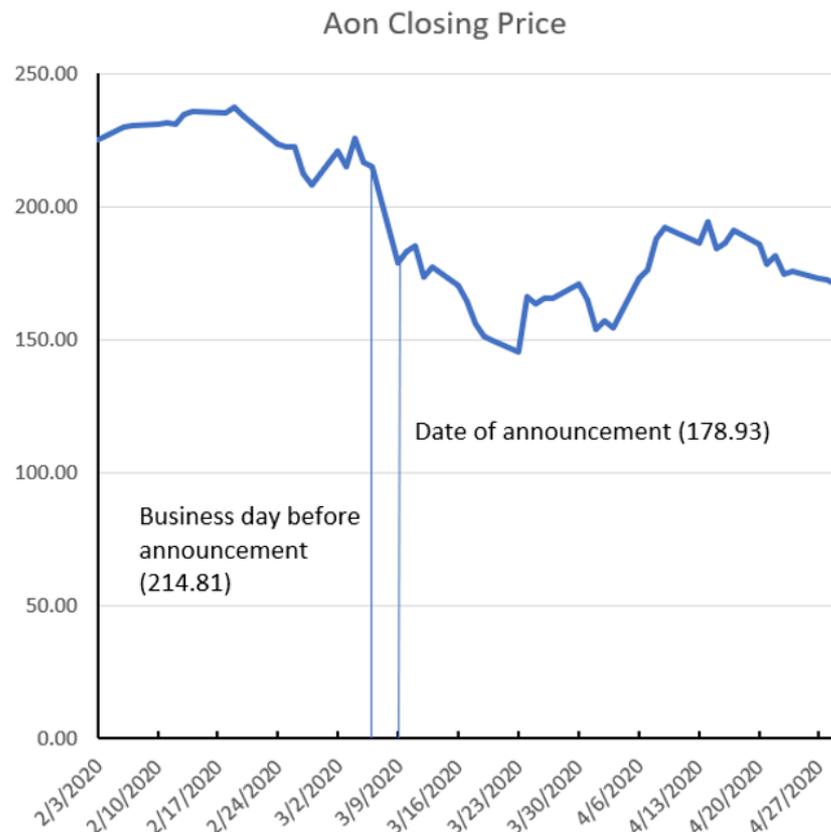
- What is going on here? Why did Aon do the deal at all?
 - *Query:* Does the \$10 billion in the present value of synergy gains net of costs make sense?
 - Implies a PDV synergies gain before transition costs of \$12 billion
 - At \$800 million/year
 - At a 0% discount rate, would take 15 years to earn \$12 billion
 - At an 8% discount rate, would take over 100 years to cover the deal premium
 - How did Aon get \$10 billion in net PDV?
 - Consider a perpetual annuity of \$800 million/year. What discount rate would produce a PDF of \$12 billion (before costs)?

$$PV = \frac{A}{r}$$
$$12000 = \frac{800}{r} \rightarrow r = 6.7\%$$

- A discount rate of 6.7% is—
 - 87 basis points greater than Aon's WACC of 5.8%
 - 1800 basis points lower than Aon's ROIC of 8.47%
- Suggests that a NPV synergy gain of \$10 billion for the combined company is unrealistically high and that, when properly evaluated, the deal did not make sense from the beginning for Aon

Class 8 homework assignment: Bonus question

- The market agreed the deal was a loser:



Aon stock dropped 16.7% on the day of announcement

Class 8 homework assignment: Bonus question

- Moreover, Aon stock did not recover over time when compared to the Dow Jones Industrial Average



- Between of the announcement (March 9, 2020) and the date before termination (July 24, 2021)—
 - Aon stock rose 17.1%
 - The DJIA rose 35.9%