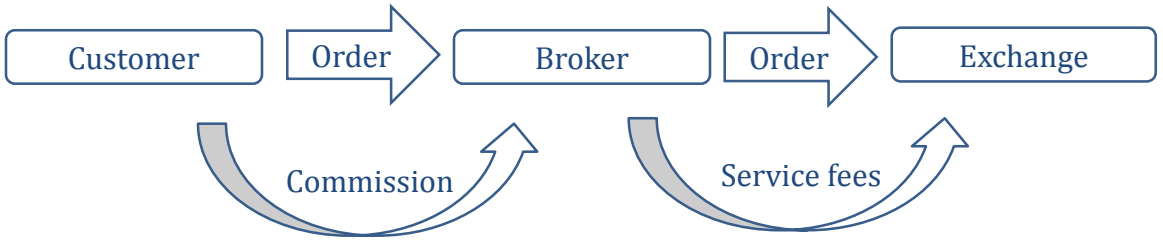
Securities Trading:
Principles and Protocols

The price of trading:
Fees, rebates and other inducements

Outline

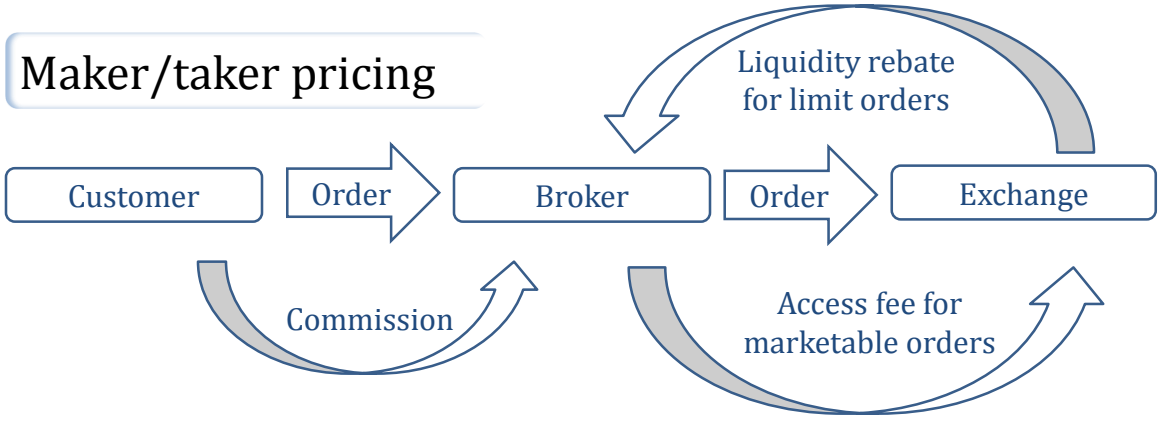
- Background questions
  - How do markets charge for their services?
  - How do these charges affect our trading decisions.
- Examples
  - Maker-taker pricing
  - Take-maker pricing
  - Payment for order flow
  - Soft dollars

The traditional arrangement



- The customer paid a "standard" commission, which covered exchange fees.
- The exchange service fee was usually based on executed shares, no matter how the execution was accomplished.

Maker/taker pricing



- Many exchanges charge a "taker" fee for incoming marketable orders (also called a "liquidity removal fee")
- Executed limit orders receive a liquidity rebate (a "maker" rebate)

BATS BZX ("BATS Z") Exchange fee schedule

http://www.batstrading.com/support/fee_schedule/bzx/

Effective November 20, 2014

Transactions Fees:

- Rebates indicated by parentheses ().
- The rates listed in the Standard Rates table apply unless a Member is assigned a fee code other than a standard fee code. If a Member is assigned a fee code other than a standard fee code, the rates listed in the Fee Codes table will apply.
- Footnotes provide further explanatory text or, where annotated to fee codes, indicate variable rate changes, provided the conditions in the footnote are met.

Standard Rates:

Category	Adding Liquidity	Removing Liquidity	Routing and Removing Liquidity
Securities at or above $1.00	($0.0020)	$0.0030	$0.0029
Securities below $1.00	Free	0.30% of Dollar Value	0.29% of Dollar Value
Standard Fee Codes	B, V, Y	N, W, BB	X

Example

- Jiro sends an order "Sell 100 XYZ, limit 50.00" to BZX.
  - The order goes into the book.
- Kathy sends "Buy 100 XYZ, limit 50.00" to BZX
  - This order executes against Jiro's order.
- Ignoring the taker fee and maker rebate, Kathy would pay $5,000; Jiro would receive $5,000.
- With the taker fee, Kathy pays $\$5{,}000 + 100 \times \$0.0030 = \$5{,}000.30$
- With the maker rebate, Jiro receives $\$5{,}000 + 100 \times \$0.0020 = \$5{,}000.20$.

Embedded problem 1

- The market in ABC is $20.10 bid; offered at $20.15; there are no hidden orders.
  - Dana is alone at the offer, for 100 shares.
- Emma: "Buy 100 XYZ, limit 20.15" to BZX
  - What happens?
  - Who are the maker and taker?
  - What are the maker and taker fees/rebates?
  - What are the net amounts paid and received?
- Answers in online version

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  - There is an execution for 100 shares at $20.15.
  - Dana is the maker; Emma is the taker.
  - The total taker fee is $100 \times \$0.0030 = \$0.30$; the maker rebate is $100 \times \$0.0020 = \$0.20$
  - Emma pays $100 \times \$20.15 + \$0.30 = \$2{,}015.00 + \$0.30 = \$2{,}015.30$
  - Dana receives $100 \times \$20.15 + \$0.20 = \$2{,}015.20$

Embedded problem 2

- The market in ABC is $20.10 bid; offered at $20.15; there are no hidden orders.
  - Brian is alone at the bid, for 200 shares.
- Catherine: "Sell 300 XYZ, limit 20.10" to BZX
  - What happens?
  - Who are the maker and taker?
  - What are the maker and taker fees/rebates?
  - What are the net amounts paid and received?
- Answers in online version

Embedded problem 2

- The market in ABC is $20.10 bid; offered at $20.15; there are no hidden orders.
  - Brian is alone at the bid, for 200 shares.
- Catherine: "Sell 300 XYZ, limit 20.10" to BZX
  - What happens?
  - Who are the maker and taker?
  - What are the maker and taker fees/rebates?
  - What are the net amounts paid and received?
- Answers in online version
  - There is an execution for 200 shares at $20.10.
  - Brian is the maker; Catherine is the taker.
  - The total taker amount is $200 \times \$0.0030 = \$0.60$; the maker amount is $200 \times \$0.0020 = \$0.40$
  - Brian pays $200 \times \$20.10 - \$0.60 = \$4{,}020.00 - \$0.40 = \$4{,}019.60$
  - Catherine receives $200 \times \$20.10 - \$0.60 = \$4{,}019.40$

Price distortion

- Suppose that exchanges *A* and *B* are both posting $10.20, but
  - *A*'s access fee is zero.
  - *B's* access fee is $0.003.
- Someone buying at *A* pays $10.200; someone buying at *B* pays $10.203.
- To determine who *really* has the best bid and offer, you have to net out access fees.

Routing

Removing Liquidity	Routing and Removing Liquidity
$0.0030	$0.0029

- The NBBO in XYZ is 20.20 bid, offered at 20.30
- At exchange P, the offer is 20.30; at BZX, the offer is 20.40.
- BZX receives: "Buy 100 XYZ, limit 20.40"
  - A BZX execution against its own offer would be a trade-through.
  - Normally, BZX would *route* the order to P for execution.
  - BXZ charges $0.0029 per share for this action.

An arbitrage?

- NASDAQ charges a taker/liquidity removal fee of $0.0030.
- BZX charges $0.0029 to route *and* remove.
- Can someone seeking a NASDAQ execution send the order via BZX to save $\$0.0030 - \$0.0029 = \$0.0001$?
  - On 100,000 shares, this would be $10
- This would be a directed order. BZX charges $0.0030 for directed routing.

Why charge *less*?

- BZX charges $0.0030 to remove liquidity on its own book …
- … and $0.0029 to remove liquidity on someone else's.
- Routing involves additional work. Why is the charge lower?

Modifications for non-displayed orders ***(Corrected)***

- On BZX, a non-displayed (hidden) order that adds liquidity gets a rebate of $0.0017 (when executed).
  - This is slightly less than the rebate to a displayed order: BATS wants to encourage people to display their orders.
- Example: Ask side of the book; the (visible) NBO is 20.01.

Price	Shares	Visibility	Trader
20.03	800		Rava
20.02	200		Peter
20.01	300	Hidden	Oliver
20.01	200		Nora
20.00	100	Hidden	Monica

- "Buy 300 shares limit 20.05" executes against Monica and Nora.
  - Monica's 100 shares are hidden: she receives a rebate of $100 \times 0.0017 = \$0.17$
  - Nora's 200 shares are displayed; she receives a rebate of $200 \times 0.0020 = \$0.40$

NBBO Setter/Joiner rebates

- Supplements to the usual rebates for adding liquidity.
- *Setter*: the order establishes a new NBB or NBO
  - A setter receives $0.0002 (in addition to the usual $0.0020)
- *Joiner*: the order matches a previously established NBB or NBO
- A joiner receives an additional $0.0001
- Rebates rise for traders who send significant volume to BZX (starting at 0.07% of total consolidated volume).

Inverted pricing ("taker/maker pricing")

- BATS operates two exchanges "Z" and "Y" (BZX and BYX)
- BZX has standard maker/taker pricing.
- BYX has *taker/maker* pricing:

Standard Rates:

Category	Adding Liquidity	Removing Liquidity	Routing and Removing Liquidity
Securities at or above $1.00	$0.0018	($0.0016)	$0.0029

Taker/maker pricing example

- Jiro sends an order "Sell 100 XYZ, limit 50.00" to *BYX*.
  - The order goes into the book.
- Kathy sends "Buy 100 XYZ, limit 50.00" to *BYX*
  - This order executes against Jiro's order.
- Ignoring the *taker rebate* and *maker fee*, Kathy would pay $5,000; Jiro would receive $5,000.
- With the *taker rebate*, Kathy pays $\$5{,}000 - 100 \times \$0.0016 = \$4{,}999.84$
- With the *maker fee*, Jiro receives $\$5{,}000 - 100 \times \$0.0018 = \$4{,}999.82$

Rationale

- Suppose that BZX and BYX are both offering $50.
- Kathy's decision: "I want to lift the offer. Where should I send my order?"
  - If she sends her order to BZX, she pays the taker fee; if she goes to BYX she receives a taker rebate.
  - She'll send to BYX
- Suppose that BZX has 10,000 shares offered at $50, and the BYX book is empty.
- Jiro's decision: "Where should I send my order, sell limit 50?"
  - BZX: He'll receive $0.0030 if his order is executed, but there are 10,000 shares ahead of his order.
  - BYX: He'll pay $0.0018, but
    - His order will be at the front of the book.
    - Any "Kathy" who wants to buy at $50 will send her order to BYX.

Tick size constraints

- Can Jiro get to the front of the line on BZX by offering at a slightly more aggressive price?
  - "Sell limit $\$50.00 - \$0.0018 = \$49.9982$"
- No. Sub-penny quotes aren't permitted (SEC Reg NMS Rule 612)
  - Recall that trade prices *can* occur and be reported in sub-penny increments.
- Taker/maker pricing provides a mechanism for partially getting around the sub-penny rule.

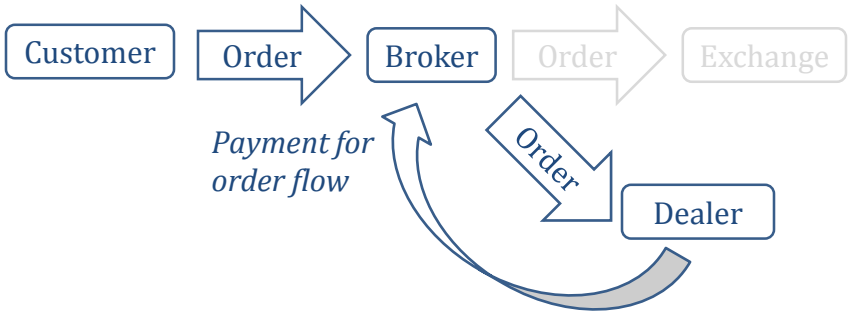
Problems

- 16.1 Maker/taker pricing for marketable buy orders
  - The PAX Exchange charges a $0.003 per share access ("taker") fee and pays a ("maker") liquidity rebate of $0.002 per share. How do these fees/rebates apply to an execution in which Tae's limit order (Sell 100 shares, limit $25.00) is hit by Sam's order (Buy 100 shares, limit $25.00)?
- 16.2 Taker/maker pricing for marketable buy orders
  - (Continuation) For each execution, the ZAP Exchange charges a per share maker fee of $0.0029, and rebates $0.0018 to the active (marketable) order. On PAX, the bid is $25.00 for 10,000 shares, and the book at ZAP is empty. Vanessa enters an order on ZAP to sell 100 shares, limit 25.00. How do ZAP's fees/rebates apply if Sam's buy order is directed to ZAP instead of PAX?

Answers

- Answer to Problem 16.1
  - Tae receives the rebate, 100×0.002=$0.20, which brings the amount she receives from the sale to $2,500.20. Sam pays the access fee, bringing his net payment to $2,500.30. PAX keeps the $0.10.
- Answer to Problem 16.2
  - Since Vanessa's order is the first in an empty book, she's at the front of ZAP's offer queue. Sam's order executes against Vanessa's. Vanessa pays maker fee, so the net amount she receives from the sale is $2,500-0.29=2,499.71; Sam pays $2,500-0.18=2,499.82. ZAP keeps $0.11.

Payment for order flow



- Internalization
  - The NBBO in XYZ is 20.20 bid, offered at 20.30.
  - A broker ("E-Trade") has a customer order ("Buy 100 XYZ at the market.)
  - The broker sends the customer order to the dealer ("G1 Execution Services"), who sells to the customer at $20.30
  - G1 sends to the E-Trade about ("less than") $0.0014

The economic forces

- It is profitable to make a market against retail customers.
  - They are numerous, small, and (usually) uninformed.
- It is unprofitable to make a market against sophisticated proprietary traders.
- Payment for order flow encourages brokers to send retail orders to a dealer.
- Brokers don't usually rebate the payments directly to the customers.
  - They argue that brokerage is a competitive industry, and customers benefit indirectly from lower overall commissions.

Broker's obligations

- A broker has a *agency* duty to the customer.
  - The broker must act as an agent for the customer, and solely in the customer's interest.
  - An *agency* duty is legally weaker than a *fiduciary* duty.
- Payment for order flow has been criticized as being inconsistent with this duty.
- At a minimum, brokers monitor their customers' executions to ensure that their order-routing practices don't adversely affect the terms of execution.

The SEC position

- Payment for order flow is legal as long as it is disclosed.
- Rule 606
  - Entering brokers must document their order-routing practices (including payments for order flow) on their web sites.
  - How many orders did you get? Where did you send them? What inducements did you receive?

From E*Trade's Rule 606 Report

1. New York Stock Exchange Listed Securities

For quarter ending 3/31/2014	Non-Directed Orders	Market Orders	Limit Orders	Other Orders
Orders Routed to:				
G1 Execution Services, LLC[1]	48.08%	69.55%	30.62%	47.30%
EDGX Exchange, Inc.[2]	19.24%	0.00%	38.21%	0.00%
Citigroup Global Markets, Inc.[3]	17.71%	3.24%	25.86%	39.90%
KCG Americas, LLC[4]	6.81%	11.13%	2.53%	11.21%
Citadel Securities, LLC[5]	5.79%	11.24%	2.10%	1.12%
Total E*TRADE Orders	97.4%	41.3%	50.3%	8.4%

[1] G1 Execution Services LLC (G1) was an affiliate of E*TRADE until it was sold in February 2014. In connection with the sale E*TRADE entered into an agreement with G1 for equity order routing and execution services, for which it receives certain payments from G1. Payments received from G1 averaged less than $0.0014 per share. G1 executes on a principal basis and may have profited or lost in connection with such transactions.

[2] Payments received from EDGX Exchange, Inc. averaged less than $0.0034 per share.

[3] Citigroup Global Markets may utilize its affiliate LavaFlow ECN for the display of limit orders. Payments received from Citigroup Global Markets, Inc. averaged less than $.0032 per share.

[4] Payments received from KCG Americas, LLC averaged less than $0.0013 per share.

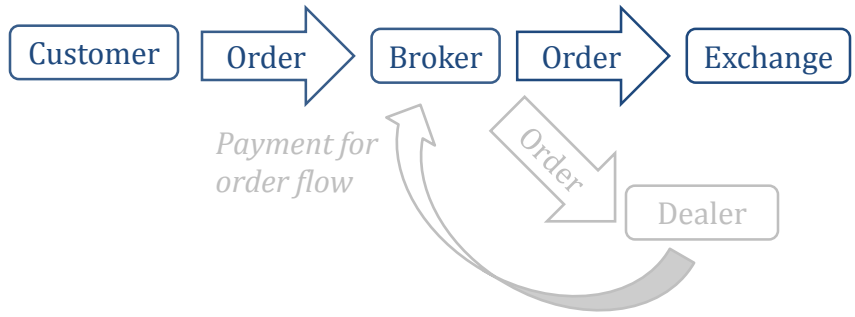
[5] Payments received from Citadel Securities, LLC averaged less than $0.0011 per share.

"At Senate Hearings, Brokerage Firms Called Out for Conflicts"

- TD Ameritrade, a brokerage firm that handles vast numbers of stock trades for average investors, promises to execute those orders on the best possible terms.
- But in practice, TD Ameritrade routes a large number of the customer orders to the exchanges that pay it the most, Steven Quirk, an executive at the firm, said at a Senate hearing on Tuesday.
- …
- "Your subjective judgment as to which market provided best execution for tens of millions of customer orders a year allowed you to route all of the orders to the market that paid you the most," [Senator Carl] Levin said. "I find that to be a frankly pretty incredible coincidence."
- …
  - William Alden, New York Times, June 17, 2014

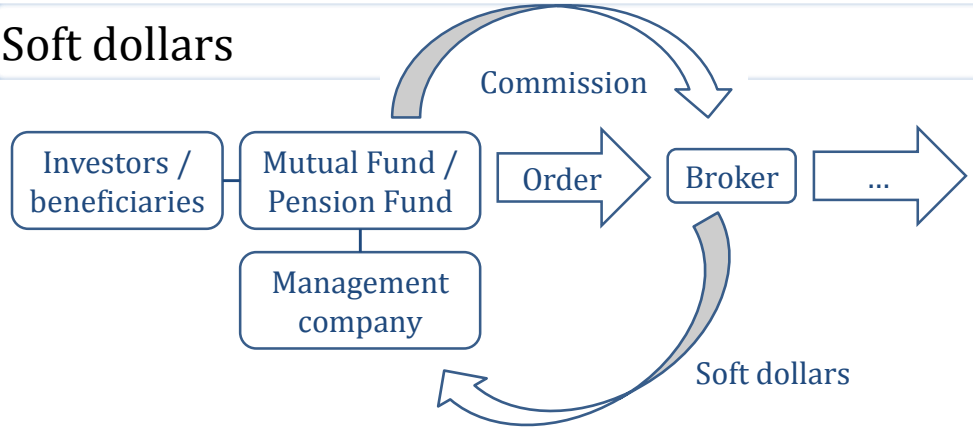
Exchange retail liquidity programs

- Recall the economic force behind payment for (retail) orders:
  - Retail traders aren't "informed"; a market maker has less exposure to private information; it is cheaper to make a retail market.
- Traditional payment for order flow allowed dealers a way to monetize that advantage.
- Newer retail liquidity programs allow traders on exchanges to compete for retail order flow.



- NYSE
  - A retail order originates from a natural person. (It is not computer-generated.)
  - An NYSE member can register to become a "Retail Liquidity Provider" (RLP)
  - An RLP can enter limit orders that can be executed only by incoming retail orders.
  - The RLP's bids and offers aren't displayed, and they guarantee price improvement.

Soft dollars



- SEC: "Soft dollars are credits or rebates from a brokerage firm on commissions that clients pay for trades executed in an investment adviser's client accounts. If appropriately disclosed, an investment adviser may use the soft dollar credits to pay for such expenses as brokerage and research services that benefit clients.

SEC Administrative Proceeding File No. 3-15663: In the Matter of Instinet, LLC (December, 2013)

- On the basis of this Order and Respondent's Offer, the Commission finds that
- From January 2009 through July 2010, Instinet paid approximately $430,000 in client commission credits called "soft dollars" as requested by its customer, J.S Oliver Capital Management, L.P. ("JS Oliver"), a San Diego-based investment adviser, for expenses that JS Oliver had not properly disclosed to its clients.
- The improper payments included
  - $329,365 to the ex-wife of JS Oliver's president, Ian O. Mausner;
  - thirteen months of increased rent payments totaling $65,000 for JS Oliver's offices at Mausner's home;
  - and two payments totaling $40,094.54 for upkeep on Mausner's New York City timeshare.
- Instinet made the payments pursuant to JS Oliver's requests even though the information JS Oliver had provided to Instinet when requesting approval of the payments presented significant red flags and clear suggestions of irregular conduct that each payment was improper.

S	Shares
$44.00	27
$46.00	509
$48.00	3,447
$50.00	10,169
$52.00	16,575
$54.00	19,346

50.75 call −.75

$1.41
−.75
$.66 × 20,000
13,200