

BARRON'S

Bill Alpert

william.alpert@barrons.com

DISCLAIMER: I'm not speaking here for Barron's or Dow Jones

Barron's at EMSAC 02AUG2016

1

THIS IS ME. I DON'T SPEAK FOR DOW JONES OR BARRON'S

BARRON'S

A financial weekly
founded in 1921...



...by the owner of *The Wall Street Journal*:
a gentleman by the name of Clarence Barron.

Barron's at EMSAC 02AUG2016

2

BARRON'S IS THE WEEKLY PUBLICATION OF DOW JONES. WE'VE BEEN AROUND FOR ALMOST A CENTURY AND I'VE BEEN AROUND THE PLACE FOR A THIRD OF THAT TIME. I THINK MY CAREER'S GOTTEN STUCK.

BARRON'S

Clarence Barron helped
expose the swindler
Charles Ponzi in 1920



Barron's at EMSAC 02AUG2016

**PONZI PLAN MEANS
2,463% PROFIT IN YEAR**

AN EASY WAY FOR THE ALLIED TO CLEAN UP
THEIR WAT BERTS OR GERMANY
HER INDEMNITY

One Million in Twelve Months Means in \$1,000,000 in
Two Years to \$62,000,000—Compound Interest.
Exceeds \$100 in \$24.63 in Same Period—
Every Dollar Means \$246.30
By the Century

Decision—is it a pity in these hard-up times that
Ponzi's scheme wasn't earlier invented. Ponzi's
scheme has been out of print for some years now. The
chance was there right along. Chances of earthquakes,
scarcities of various commodities, and other budget bal-
ances, would have found Ponzi a very present help in
time of need trouble. He could multiply later revenue
income and sales.

The individual now using Ponzi for a million on the
basis of \$100 first placed with him an alleged partnership
agreement, but the right idea. For Ponzi's plan means a
total return at the end of a year of 2,463%; at the end
of two years of 62,000%; at the end of three years of
1,600,000%. Why keep on?

One Ponzi a million, and in a twelvemonth he will
repaid it for you to some \$2,463,000; in two years to
\$62,000,000; in three years to \$1,600,000,000. Surely
the Allies could secure him a million, and within three
years clean up that debt, except Germany might have
him to wipe out the indemnity within four years.

Given in the shape of compound interest—how you
start off at the rate of 40% a year for your first forty-
five days, and eventually climb to your full 2,463% per
year for eight 45-day periods, or one year. For who
could refuse from receiving both principal and profit,
with such a winner?

But the average citizen hasn't a million? Let him
start with a mere \$100—a trifle in these times. What
will Ponzi's magic do with it? Simple this:

First year	Second year
\$100	\$2,463.00
100..... 45 days	1,463.31..... 45 days
200..... 90 "	3,596.52..... 90 "
300..... 135 "	6,297.79..... 135 "
400..... 180 "	9,574.08..... 180 "
500..... 225 "	13,426.39..... 225 "
600..... 270 "	17,964.69..... 270 "
700..... 315 "	23,298.98..... 315 "
800..... 360 "	29,539.27..... 360 "
900..... 405 "	36,686.56..... 405 "
1,000..... 450 "	44,841.85..... 450 "
Total profit on \$100 for two years.....	62,000.00
" profit..... 2,463%	Profit..... 2,463%

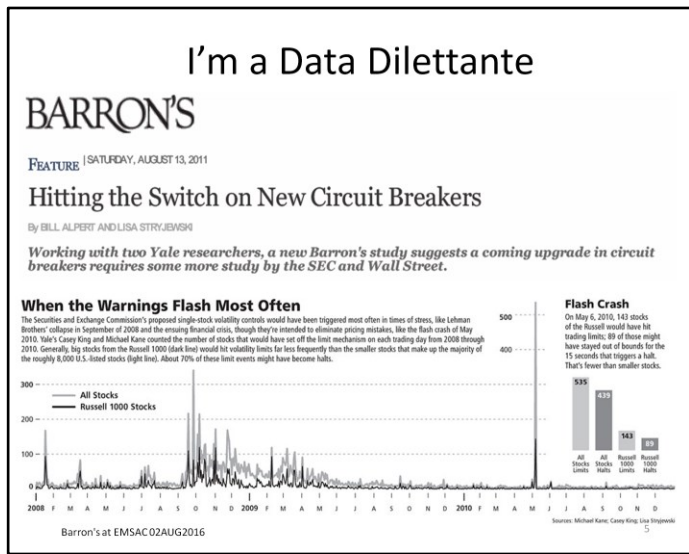
At the end of three years the aggregate profit would
be a trifle over \$1,600,000, on \$100 first loaned to Ponzi!

INVESTOR PROTECTION HAS ALWAYS BEEN PART OF OUR MISSION...THAT'S PROBABLY WHY WE'VE OUTLASTED COMPETITORS.

I've Made Work for the SEC.



AFTER THIS 2010 STORY, THE SEC STARTED AN INTERNAL TASK FORCE TO INVESTIGATE FRAUD BY US-LISTED CHINESE COMPANIES THAT MIGHT BE ABUSING THE U.S. CAPITAL FORMATION PROCESS THROUGH REVERSE-MERGERS OR “BACKDOOR REGISTRATIONS.” I KNOW THAT *POST HOC* DOESN'T NECESSARILY MEAN *PROPTER HOC*, BUT OUR STORY WAS CITED IN SEVERAL PROCEEDINGS.



I'M A DATA DILETTANTE AND HAVE LONG URGED THAT THE SEC SHOULDN'T JUST COLLECT COMMENTS FROM LAWYERS LIKE ME, IT SHOULD BACKTEST POLICY PROPOSALS WHENEVER POSSIBLE.

THIS MORNING'S PANEL TALKED ABOUT SINGLE-STOCK CIRCUIT BREAKERS. DURING THE PILOT TEST OF STOCK-BY-STOCK CIRCUIT BREAKERS IN 2011, BARRON'S COMMISSIONED TWO YALE RESEARCHERS TO DEMONSTRATE HOW TO BACKTEST A POLICY PROPOSAL. THEY APPLIED THE LIMIT UP-DOWN RULES TO THE PREVIOUS THREE YEARS OF TRADING IN U.S.-LISTED STOCKS. IT WAS NOT STATISTICAL ROCKET SCIENCE.

NO ONE AT THE EXCHANGES OR THE SEC WOULD TALK TO US FOR THE STORY.

ALTHOUGH ANALYZING THOSE 24 BILLION TRADES REQUIRED 8,035 HOURS OF COMPUTER PROCESSING ACROSS 60 PROCESSORS IN PARALLEL, IF WE KIBITZERS COULD DO IT THEN THE U.S. GOVERNMENT COULD DO IT.

[WE CONCLUDED THAT THE PRICE-BAND TRIGGERS FOR SMALL STOCKS SEEMED TOO NARROW, PRODUCING TOO MANY HALTS. CONVERSELY, THE SYSTEM LOOKED LIKE IT WOULD HAVE TOO LITTLE IMPACT ON THE BIG STOCKS THAT MOST INVESTORS CARE ABOUT DURING A FLASH CRASH.]

BARRON'S

March 2, 2015

Forget *Flash Boys*—small investors actually get good stock prices from brokers like Fidelity and market makers like Citadel. Here's why.

The Little Guy Wins!

by Bill Alpert In the furor surrounding last year's best-seller *Flash Boys*, by Michael Lewis, many retail investors were spooked by the book's claim that high-frequency traders use their technology edge to pick off the little guys, who, the author claims, were "busy kill" for the professionals. That part of the story was just wrong. While some institutional traders

A groundbreaking Barron's analysis in March showed that retail investors got a better-than-expected deal on trades. New figures support our findings and our broker rankings.

It's Official: Fidelity Top Broker for the "Little Guy"

by Bill Alpert

IT'S EASY TO SEE IF ONE BROKER'S ORDERS are in danger from another's. Before now, however, it was hard to know which brokers were getting you the best money through good trade execution—for example, by getting you a stock price that's better than the quote you see when you placed the "Place Order" button. For each "price improvement," investors' brokers receive \$100 from market makers to give up some of the bid-ask spread to benefit the investor's retail customer.



price quote was only for 800 all-Financial Information Forum trading developed by a New York on RegTech Solutions, under the direction of Wobeser. He says the main difference between retail and institutional orders is that orders and limit orders behave differently. Wobeser says, "I had trouble estimating through wholesale market makers and

Barron's at EMSAC 02AUG2016

6

BUT THIS STORY FROM LAST YEAR IS WHY THEY INVITED ME HERE TODAY.

I WANTED TO INVESTIGATE THE BEST-SELLING CLAIMS THAT MOM AND POP TRADERS WERE VICTIMIZED IN TODAY'S COMPUTERIZED MARKETS. NOT WANTING TO TAKE ANYONE ELSE'S WORD IN THAT POLARIZED DEBATE, I STUPIDLY DECIDED TO DO MY OWN ANALYSIS OF RULE 605 AND RULE 606 DATA. TAKING THINGS A STEP FURTHER, I TRIED TO RANK THE TRADE EXECUTION PERFORMANCE OF MARKET MAKERS AND BROKERS.

I OPEN-SOURCED MY ANALYSIS ON GITHUB, SO OUR RANKING CALCULATIONS WOULD BE AVAILABLE FOR REPLICATION AND CRITICISM. I HAD TO MAKE ROUGH INFERENCES ABOUT THE BROKERS BECAUSE OF GAPS IN THE DISCLOSURE REQUIREMENTS—GAPS WHICH TODAY'S PROPOSALS SEEM DESIGNED TO REMEDY.

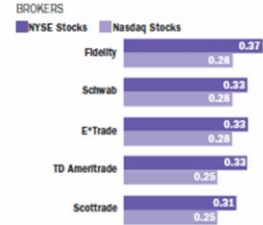
RANKING THE MARKET MAKERS REQUIRED SOME DATA PROCESSING, BUT THEIR RULE 605 DISCLOSURES MADE RANKING THEM STRAIGHT-FORWARD. AS Y'ALL KNOW, HOWEVER, THE RULE 606 REPORTS GIVE NO DIRECT INFORMATION ON EXECUTION QUALITY AND THEY LEAVE OUT MANY KINDS OF ORDERS.

How Market Makers, Brokers Stack Up

Barron's exclusive ranking puts Citadel on top in price improvement for both S&P 500 stocks and non-S&P shares...



...While Fidelity tops the brokers on NYSE stocks and ties with Schwab and E*Trade for Nasdaq leadership. Broker scores are based on the overall execution quality of their market makers.



This quarter 2014 brokers' trading of market orders for NYSE stocks used with market maker NYSE CDO measure. Nasdaq trading used with Nasdaq CDO. Source: Barron's analysis of Rule 605 and 606 reports.

These numbers are dated

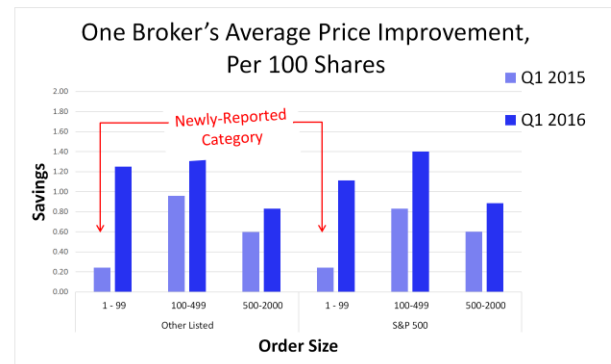
SOME BROKERS VOLUNTARILY SHOWED ACTUAL EXECUTION-QUALITY MEASURES ON THEIR WEBSITES. BUT EACH USED A DIFFERENT MEASURE, MAKING COMPARISONS IMPOSSIBLE.

THE MOST RESPONSIBLE, OBJECTIVE WAY TO USE THE AVAILABLE DISCLOSURES WAS TO SCORE EACH BROKER WITH A WEIGHTED SUM OF THEIR ORDER FLOW FRACTIONS, WITH THE WEIGHTS DERIVED FROM THE EFFECTIVE-OVER-QUOTED MEASURES OF THE RELEVANT MARKET MAKERS. WE'RE HERE TODAY TO CONSIDER MEASURES THAT WILL BE DIRECT AND WILL SAVE FUTURE JOURNALISTS FROM HAVING TO WRITE 1,000 LINES OF COMPUTER CODE.

A FUNDAMENTAL PROBLEM WITH MY INFERENCES, OF COURSE, WERE THAT A MARKET MAKER'S AVERAGE EXECUTION ACROSS ALL OF ITS SENDING BROKERS MAY BE BETTER OR WORSE THAN ITS PERFORMANCE ON A PARTICULAR BROKER'S FLOW. SEVERAL BROKERS TOLD US THAT THEIR EXECUTIONS AT A MARKET MAKER WERE ABOVE AVERAGE FOR THAT MARKET MAKER. ONE BROKERAGE EXEC SCOLDED US FOR EVEN TRYING TO COMBINE THE INFORMATION IN HIS FIRM'S ROUTING REPORT WITH THE EXECUTION MEASURES OF HIS FIRM'S MARKET MAKERS.

BROKERS THAT DON'T REPORT 100% OF THEIR ORDER ROUTING GOT A LOWER SCORE. FIDELITY GOT A LOT OF THE MARKET-ORDER-TYPE TRADES WE ANALYZE IN THIS STORY, WHILE TD AMERITRADE GOT MORE LIMIT ORDERS.

Disclosure Improves Behavior



Barron's at EMSAC 02AUG2016

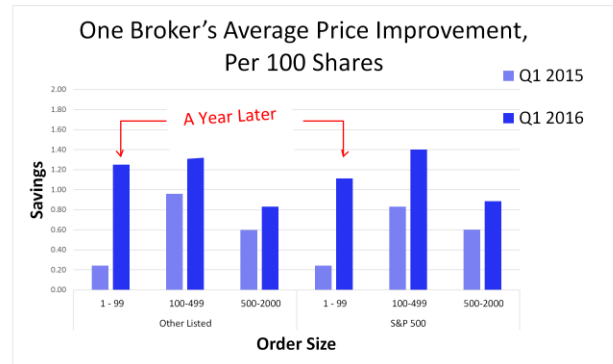
8

DESPITE MY ROUGH-AND-READY CALCULATION, MY RANKINGS TURNED OUT TO BE ROUGHLY RIGHT. SOME MONTHS AFTER OUR MARCH 2015 STORY, A FEW BROKERS AND MARKET MAKERS STARTED VOLUNTARY DISCLOSURES UNDER A SCHEME THEY DEVELOPED WITHIN THE FINANCIAL INFORMATION FORUM.

ANOTHER LARGER LESSON ON THE BENEFITS OF DISCLOSURE EMERGED FROM THOSE VOLUNTARY REPORTS. YOU SEE, OUR FEDERAL SECURITIES REGULATION IS DRIVEN BY THE BELIEF THAT WITH ADEQUATE DISCLOSURE, THE CHIPS WILL FALL WHERE THEY MAY...USUALLY IN THE RIGHT PLACE. HERE'S A LESSON THAT'S EVIDENCE FOR THAT BELIEF.

UNDER RULE 605, EXECUTION REPORTING ON ORDERS OF FEWER THAN 100 SHARES HADN'T BEEN MANDATED. THE VOLUNTARY REPORTS INCLUDED THOSE ORDERS. LOOK AT THE LIGHT BLUE LINES TO COMPARE PRICE-IMPROVEMENT ON THOSE ORDERS TO OTHER, LONG-REPORTED ORDER SIZES IN 2015'S FIRST QUARTER. MOST BROKERS AND MARKET MAKERS PROVIDED SIGNIFICANTLY LESS PRICE-IMPROVEMENT IN THE UNREPORTED CATEGORY.

Disclosure Improves Behavior



Barron's at EMSAC 02AUG2016

9

THE DARK BLUE LINES SHOW THE MEASURES A YEAR LATER, IN 2016'S FIRST QUARTER. LOOK AT THE BIG IMPROVEMENT IN THE 99-AND-FEWER ORDER SIZE....AND THE OTHER SIZES, TOO. WHEN EVERYONE SEES EVERYONE ELSE'S FIT-BIT SCORE, THEY COMPETE HARDER.

TODAY ONLY A FEW FIRMS VOLUNTARILY REPORT THESE DATA. MANDATED REPORTING WILL PREVENT SELECTIVE DISCLOSURE AND, AS NOTRE DAME'S ROBERT BATTALIO POINTS OUT, MAKE FIRMS CAREFUL TO REPORT ACCURATELY.

The Proposed Modifications to Rules 605 and 606 Look Good

Barron's at EMSAC 02AUG2016

10

THAT'S WHY THESE DISCLOSURE IMPROVEMENTS LOOK GOOD.

The Proposed Modifications to Rule 605 and 606 Look Good

Some Suggestions

Data Format:

- Machine-readable plain-text files (for Rule 606, too)
- Standards for file names, column names, format -- all explained in a public codebook
- Platform independent (Mac or Windows)
- No missing values (require "NA" or some such symbol)
- Common variables between Rules 605 and 606

Data Accessibility:

- Central repository (SEC or FINRA)
- Web-scrapable or an API
- All historical periods should remain available

Barron's at EMSAC 02AUG2016

11

MY REPORTING ON EXECUTION QUALITY LEADS ME TO A FEW SUGGESTIONS:

DATA SHOULD ALWAYS BE MADE AVAILABLE SOMEWHERE AS TEXT FILES. TEXT FILES ARE NON-PROPRIETARY, FUTURE-PROOF AND CAN BE READ BY ANYONE AND ANYTHING. THAT ALLOWS FIRMS, ACADEMICS, JOURNALISTS AND CITIZENS TO USE THEM IN MODERN DATA ANALYTIC WORK.

RULE 606 DISCLOSURES, FOR EXAMPLE, ARE SOMETIMES HTML FILES, SOMETIMES PDF FILES. WHEN DATA ARE NOT MACHINE-READABLE, IT DISCOURAGES ANALYSIS AND COMPARISON.

TODAY'S RULE 605 FILINGS BY MARKET CENTERS HAVE IDIOSYNCRATIC NAMES, EMPTY COLUMNS AND OTHER PECULIARITIES THAT MAKE THEM DIFFICULT TO PROCESS WITH A COMPUTER SCRIPT. THEY'VE BEEN SCATTERED AND, IN THE CASE OF ONE BIG BROKER, WEREN'T ANYWHERE AVAILABLE WHEN I DID MY STORIES.

THE ENTIRE HISTORY SHOULD REMAIN AVAILABLE. BUT MANY FIRMS LEAVE ONLY THE LAST THREE MONTHS ONLINE. DATA STORAGE COSTS NOTHING THESE DAYS.

Thanks

Barron's at EMSAC 02AUG2016

12

THANKS.