

COFFEE RESEARCH NEWSLETTER

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New York Coffee Exchange 101

If you looked at coffeeresearch.org recently you will have noticed the addition of an entire section dedicated to coffee markets. This development was a result of the interest showed by a number of readers of coffeeresearch.org. The section is filled with information about how the New York Coffee Exchange functions as a cash and futures market as well as statistics on consumption, exportation, and importation. In this article we will introduce the NYCE and how the futures market functions through a simple example. Although, the market and how people play it can make matters much more complicated, this will give a general overview of the goals behind the development of a futures market. There are two markets for coffee: the cash market and the futures market. The cash market is the market today. It is the price you would pay for coffee today if you could receive it today. The futures market is used to help determine the price for future deliveries. It is used to purchase a contract today to guarantee a future shipment of coffee. More importantly, however, it is used to help protect against the wild variations that occur due to market



speculation. The latter reason will be explained in further detail through the help of an example.

Assume it is currently October and assume the "C" market price for December shipment is at 95 cents/lb. Now pretend that today a coffee producer sells two units of coffee (1 unit = 37,500 lbs) to a coffee roaster or importer for 5 cents/lb over the "C." The coffee traded is Class 3 (Exchange Grade) Guatemalan coffee to be shipped to New York. The 5 cents/lb premium is paid to cover the price of storage and insurance to carry the coffee for two months (Oct-Dec) until the delivery month (Dec). The two parties agree on 100 cents per pound for two units of Guatemalan

Class 3 coffee to be delivered in December.

Now imagine it is early December and consider two hypothetical scenarios:

1) The happy buyer / frustrated coffee producer scenario: A frost occurs December 2nd in Brazil and coffee prices skyrocket to 150 cents/lb. Due to the aforementioned contract the producer must still sell his coffee at the previously agreed upon 100 cents/lb and therefore loses \$37,500 (37,500 lbs x 2 units x 0.50 cent loss) compared to what the seller could have received had he or she sold the coffee today.

2) The broke buyer / pleased coffee producer scenario: A frost that was ex-

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pected to occur in Brazil did not and there is a huge excess of coffee on the market. Prices in December drop to 60 cents/lb. Due to the aforementioned contract the buyer must still pay 100 cents/lb of coffee and therefore loses \$30,000 compared to what he or she would have paid for the same exact coffee today.

In either case someone wins big and someone loses big. The risk is too severe for anybody whose livelihood is based upon this system. Therefore the coffee market was established to provide a system by which people could hedge against losses in the cash market.

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NYCE (Cont.)

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Let's go back to our previous example and ignore the hypothetical scenarios for now. The coffee producer produced two units (+2) of coffee and sold two units of coffee (-2). His or her net coffee volume is zero, but price gain is \$75,000. The coffee buyer produced nothing, but bought two units of coffee. The buyer's net gain of coffee is +2 units, but he or she loses \$75,000. This is a somewhat mathematical look at any common purchase: an exchange of money for a product. But rather than taking the risk of facing either of the two previous hypothetical scenarios, both the buyer and seller take an extra precaution.

Since the producer sold two units of coffee at 100 cents/lb, he or she would also place an order for two units of coffee at the same time for 100 cents/lb. Therefore the producer maintains his or her 2-unit surplus of coffee, but has made no money.

Since the coffee buyer bought two units of coffee at 100 cents/lb, he or she would also sell two units of coffee at the same exact time for 100 cents/lb. Therefore the coffee buyer or roaster has a zero net gain of coffee and a zero loss of cash.

No one has gained or lost anything at this point. The coffee producer sold his coffee and bought somebody else's coffee for the same price. The coffee buyer (roaster or importer) sold some coffee only to buy back an equivalent coffee at the same price. However, the coffee producer prefers money rather than coffee in payment for his or her coffee, and the coffee buyer does not really have any coffee to sell since he or she is not a producer. Then why did this somewhat backwards-sounding transaction occur?

Imagine again a scenario 1 change in the market. A frost occurs on December 2nd and coffee prices skyrocket to 150 cents/lb. However, this time the producer is both pleased and disappointed (i.e. unaf-

ected) by the change in the market. The producer again loses \$37,500 compared to what could have been made had he or she sold the coffee today (early Dec), but since the producer also acted as a buyer and bought two units of coffee at 100 cents/lb he or she made \$37,500. The total loss is zero. Now consider the coffee importer. Again the importer is happy since they profited \$37,500 from their purchase, but since they also sold coffee at 100 cents/lb versus the 150 cents/lb they could get today they also lost \$37,500. The same result will occur for scenario 2. Neither the coffee producer nor the coffee importer was affected by the variation in the market.

When the coffee producer feels the time is right, he or she can then sell the extra two units of coffee to finally turn a cash profit, and during the course of one of these transactions the coffee importer must not sell coffee so that they may finally have the surplus of coffee that they need to distribute it to the coffee roasters. These transactions will typically occur on the cash market and not the futures market. Only 1% of the future contracts that are actually made take place.

This is the general idea of how a market works. Let's look into the previous explanations a little more closely.

- 1) The price set in October of 95 cents/lb of coffee for a December shipment was not determined arbitrarily. The price is determined in the following manner: hedgers and investors gather in the trading area ("the pit") of the New York Coffee Exchange (NYCE) where an open outcry auction system occurs. Hedgers can place bids to buy or offers to sell coffee until the buyer and seller mutually agree on a price (called "price discovery"). This is how the price at that moment is fixed and explains the fluctuations seen throughout the day.
- 2) Trading takes place from 9:15 AM to 1:32 PM (EST) M-F.
- 3) Deliver months are March, May, July, September, and December. This is why the nearest neighboring delivery month is used to set the current cash price.
- 4) The basis is the difference between

today's price and the futures price for the nearest deliver month. For instance in our example the buyer bought the coffee for a 5 cent premium in October over the December futures price. This extra five cents is called the basis and is used to pay for the storage and insurance during the two months before it is shipped. As it gets closer to December the future price and current cash market price converge since storage and insurance are no longer an issue.

5) The price also depends on where the coffee is shipped. New York shipment is at par with the NYCE price for that month. New Orleans and Miami demand a 1.25 cents/lb discount, whereas San Francisco shipment has a discount of 0.75 cents/lb. The seller determines the delivery point.

6) The quality of coffee also affects the premium or discount paid for a coffee. There are five classes of coffee:

- a) **Class 1.** Specialty Coffee – 0-5 defects.
- b) **Class 2.** Premium Grade – 6-8 defects.
- c) **Class 3.** Exchange Grade – 9-23 defects. This is the grade traded on the NYCE. Class 1 and 2 demand premiums to this price, whereas Class 4 and 5 coffees demand discounts.
- d) **Class 4.** Below Standard Grade – 24-86 defects.
- e) **Class 5.** Off Grade – More than 86 defects.

7) The producing country also determines the differential paid. Costa Rica, El Salvador, Guatemala, Kenya, Mexico, New Guinea, Nicaragua, Panama, Tanzania, and Uganda are at par (basis). Colombia has a differential of plus 200 points (2 cents/lb). Honduras and Venezuela have differentials of minus 100 points. Burundi, India, and Rwanda deliver at discounts of 300 points, whereas Dominican Republic, Ecuador, and Peru deliver at minus 400 points.

Inside Italian Espresso: The Start of a Six Month Study

I have been in Italy for almost two months and I find myself very excited about the quality of espresso available. Many coffee professionals duly warned me that I would be disappointed with what I found in Italy. I was pleasantly surprised to find that this was not the case. As in any country around the world not every cup will be prepared correctly and in fact the vast majority will not be perfect. Yet, in Italy I find a very good proportion of cafés who are preparing excellent drinks. The only stores in the United States where I have found a comparable quality to what I find here are Caffè D'arte, and Espresso Vivace. There are many excellent cafes that come close but these cafes in the United States and cafes such as Naninni, Gilli, Piansa, Regisigna, and Giacosa in Italy are a head above the rest. I will focus solely on what I have learned in the Italian cafes because I am convinced after living here for two months that the superior cafes in the United States learned almost everything they know from Italians.

The most important aspect I find in Italian bars is passion, and I find this is most evident in Napoli. However, there is a general professionalism among the predomi-



nately senior staff in bars throughout Italy that helps assure that coffee is taken seriously. More than once I saw a mentor barista push aside his apprentice in frustration with how the coffee was being prepared. The pride and attention to detail is refreshing. It also brings about a healthy sense of competition between

bars and among residents. In fact, Italians love to get my opinion on the best (and worst) bars in town compared to what they have come to know are the best. Our opinions are very often in accordance. In fact, I draw on the opinions of the Italians as an indicator of which bars are the best. If you ask an Italian where you can find good coffee they promptly reply "everywhere." Yet, this is a testament to their pride and not necessarily the full truth. In reality, Italians flock to a small number of bars scattered throughout the city and leave the others relatively empty. I will try almost any bar one time, but I often return several times to the bars that are popular with the residents to try to figure out why. Usually after a couple of drinks it becomes evident.

As a result of their passion and pride for espresso the Italians have nearly perfected a few techniques, which are starting to be employed throughout the United States. Firstly, Italians texture milk beautifully the majority of time. The only time I get frothy sea foam on a cappuccino is when they catch on that I

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Inside Italian Espresso (Continued)

an American. Generally, however, the milk is creamy, smooth, and incredibly sweet. They often start off with milk that has been sitting in cartons on the counter, which was surprising since I advocate that the milk should be kept just above its freezing temperature before it is steamed. The difference is that they either do not employ a stretching phase where the steam wand is right at the top of the milk making the familiar hissing sound or the stretching phase is very short. If the wand is kept near the top—but not on the surface—the milk will stretch naturally and in the meantime will be nicely textured without too much trouble. Temperature is typically gauged by hand, but this results in a great deal of inconsistency. The barista, however, typically errs on the side of stopping when the milk is too cold rather than scorching the coffee. The techniques of swirling the coffee on the counter as well as pounding the bubbles away both originated in Italian espresso bars. The vast majority of coffee bars in Italy pour patterns into their espressos or at least attempt a pattern. The beauty of all of these techniques is that they are not a rarity or ostentatious display, but rather common techniques that are ingrained in the barista's mind and actions.

The tamping technique is generally quite good, but Italians face many of the same problems we face in the United States. Rarely are any of the tampers a perfect match for the porta-filter, which causes problems of uneven extraction due to uneven tamping. Next, tamping is done relatively strongly, but there is also a trend towards giving the coffee what I call "The lucky tap." The lucky tap is just that—a tap that is as effective as waving a magic wand over the coffee in hopes that it will brew correctly. The best bars, however, will tamp the coffee at least twice and in between these tamps knock the residual grinds along the sides of the basket down into the center. Additionally, I have not seen one flat-bottomed tamper, but after testing both I believe that they are more effective.

Brewing time is typically quite short.

Twenty seconds is about average. If brew time was much shorter or much longer than this, the beverage is generally served anyway. In Florence the drinks are quite large and typically well over an ounce. After about the first ten seconds the espresso quickly changes from a dark brown reddish color to a light yellow color indicating over extraction. I believe this is a result of insufficient tamping, large particle size, and insufficient surface area on the grounds. Of course, not grinding to order can be a problem as well, but since the pace is fairly quick during peak hours the ground coffee does not spend more than a couple of minutes in the hopper.

The coffee blend is almost always made up of both Arabica and Robusta. The only bar that does not do this is Resegna in Napoli, which uses Illy's 100% Arabica blends. So is Robusta as evil as I once thought it was? I guess not. In fact, I think in small proportions it can help tame the acidity of Arabica coffees, which I find more offensive than the bitterness contributed by Robusta coffees. The key is to keep the espresso balanced and promote the sweetness and aroma. If Robusta helps achieve these ends, then by all means use it. However, the wonderful espressos I had at Resegna gave me hope that a pure Arabica blend, if done right, can be better than blends that use Robusta. Additionally, the crema enhancing aspects of Robusta can be found in Arabica coffee as long as the Arabica coffee is used within three to four days after roasting.

By now some espresso perfectionists might be cringing. Italians seem to be disobeying the natural laws of espresso preparation: 23-25 second extraction, stopping the brew before the light colored espresso every surfaces, a one ounce maximum beverage size, and using a tamper that perfectly fits the brew basket. In fact, sometime I too cringe when I see drinks being made. Here's the paradox: the coffee often tastes quite good. I believe the reason is that espresso is so beyond our comprehension that currently the best we can expect is a somewhat

sweet, somewhat bitter, aromatic cup with a good body and a nice long after-taste. I believe the claim that espresso should taste as good as it smells is a good goal, but not a present day actuality. One day when we are able to precisely control the brewing process we can make this goal a reproducible reality. There is always room for improvement in espresso preparation, but Italians are just as critical of our techniques as we are of theirs. To say that either technique is superior is a bit subjective.

I would also like to mention two other techniques that I learned in Napoli. Firstly, it is well know that coffee glasses should be hot before espresso is brewed into them. However, this rule is generally ignored besides maybe rinsing the cup for a second under the hot water wand. In Napoli almost every bar had a bath filled with boiling water where all the cups were kept before use. They were removed with tongs or the desensitized hands of the barista, used immediately, and came burning hot to the customer. If drunk immediately upon receipt you can burn your lips. However, if you wait the few seconds necessary for the rim to cool you will be amazed at how well this technique helps maintain the crema and enhance the beverage quality. Secondly, almost all of the coffee in Italy Napoli was poured as a ristretto, thereby restricting the output into the cup to the very best the coffee has to offer. Many myths exist that Napolitana coffees are very long, darkly roasted, and almost one hundred percent Robusta, but these were quickly dispelled with my visit. In fact, I would say that the people in Napoli are a step ahead of the rest of Italy in the preparation of espresso.

My trip to Italy is just beginning at this time and I will have the chance to explore the rich espresso tradition and culture even further in the next three months. My next goal is to get a better idea of how the coffee is roasted and blended. To this end, I will be visiting roasting plants and spending some time with coffee importers.

Coffee Research Institute Logo



In preparation for future possible business ventures, the Coffee Research Institute has created a logo in order to trademark the name and protect the work of the coffeeresearch.org website. The logo is shown to the left and was designed to have a subtle periodic table motif. The goal was to develop a clean, but effective emblem that can be printed in both black and white or color. Please let us know if you have any comments.

Advanced Cupping Skills

The following “Advanced Cupping Skill” is probably one of the simplest and most useful techniques used in the industry. I often see many people smelling the green coffee in order to predict any defects it might possess. Sometimes they are right, but this technique is both difficult and somewhat dangerous due to the use of pesticides on coffee that are normally dissipated or destroyed during roasting. Instead you can simply take a green bean and rub it over sand paper thereby exposing the inside of the

bean. Instead of smelling the bean, simply smell the sandpaper. Often by analyzing the green coffee in this manner you will be able to detect flaws that might not be potent in the roasted coffee or might be more difficult to identify.

You will easily be able to pick out the smell of over fermented coffee as a sour, rancid, and fruity smell. A vinegar odor is indicative of a sour coffee caused by fermentation with dirty water, high humidity, or over fermentation. Mold infestations can also be detected.



Coffeeresearch.org Updates

Once again the coffeeresearch.org website has expanded significantly. Due to the high number of letters received daily about consumption and market statistics, I have created an entire new section of the website to focus on this very important aspect of coffee. I have also explained the futures market since I have yet to find a clear and logical explanation of how it works on the Internet.

Additionally, I have gone through all of the 300 pages within the site updating the text and making the explanations flow more logically. The menus have been updated again to reduce the size of each page by 20 KB as well as to prevent confusion from the architectural hierarchy of the website. Pictures have also been updated.

The next and most daunting venture is to add to the science portion of the website. I have begun compiling data about the chemicals found in coffee and their functions. I will also detail the important research discussed at the ASIC conference and explain the research of various laboratories around the world.

We have decided to abandon the development of a section dedicated to the health topics of coffee. There are already two very good sites that focus on this at www.coffeescience.org and www.cosic.org. Since this is not my field of expertise, I believe it is best to leave it to others for the time being. Of course, as we expand the science section of the site, any interesting news about health advances will be detailed.

As always we are passively looking for writers who can discuss their research, shed light on agricultural techniques or coffee preparation techniques, etc. If you have interest in contributing and thereby promoting the advancement of coffee and your work please write Michael Griffin at migriffin@coffeeresearch.org.

Perhaps the most exciting news is that the coffeeresearch.org website has received a record 10,000 hits in one day. Fortunately, this is not just an aberration, but hits often reach eight or nine thousand in a day. Besides being rewarding to us, I think the number of hits are a beautiful testament to the passion of people for coffee and their willingness to understand the slightly more scientific explanations behind coffee. Thank you for your continued support and keep reading!