CNBC and the Space and Time of the Market

Aaron Heresco*

The CNBC television network is a key site in the cultural transmission of the discourses and representations of finance. The network immerses itself in a culture of financial markets, offering live coverage of price movements from across the globe, including a set on the floor of the New York Stock Exchange. At the core of CNBC's coverage is a televisual representation of the new spaces and times of financialization. Market flashes give up to the second updates on major market news, while live reports and cut-ins from across the globe compress global geography into a financialized televisual space. In this way, the flow of CNBC's content connects the emerging power of finance to the spatial and temporal horizons of a financially connected world. In such a context, the sweeping lens of CNBC manifests a frenetic search for yield across shortening time spans and widening locales. The "liveness" of CNBC content, a feature oft-promoted by the network, also captures the discursive instantaneity of global finance and positions CNBC as a window to financial markets from the U.S. to Asia, Africa, Europe, and the Middle East. The discourses found on CNBC are both reflective and constitutive of new spatial and temporal dimensions of finance and the growing reach of global capital.

The Consumer News and Business Channel (CNBC) is situated at the center of an emerging global politics of communication and finance. The cable network's programming speaks to a market discourse that not only shapes perception of the market itself, but also its participants. From the superstar CEO to the humble day trader, CNBC fosters a reverence for those who are attuned to the market and perpetually on the lookout for trading pitfalls and opportunities. Such a panoptic disposition places financial participants in a precarious situation; how much can they afford not to know? CNBC, as the most popular financial news network, both represents and capitalizes on this demand for information. Tracing the contours of the financial world, CNBC programming, hosts, and graphical packages race across the globe in search of market news and fluctuations. The dimensions of this information – its speed and geographic expanse – foster a frenetic televisual representation of the financial world. CNBCs "televisuality" in this sense connects the televisual representations of the cable network with the social and historical forces of financialization (Caldwell, 1995). From this vantage point, a closer consideration of the network's temporal and spatial representations will reveal how financialization constructs and colonizes a new sense of space and time.

Put another way, the way CNBC shows and talks about the market helps inculcate particular ways of viewing market spaces and market times. The network's rhythm, both in its regularly scheduled programming as well as its fast-paced and global financial coverage, is derivative of the spatial and temporal changes within financialization itself. How, for instance, does CNBC's pronouncement of its real-time nature connect with the expectations of market participation and global reach? Moreover, when one watches the cable network it is difficult not to notice the plethora of screens that appear in the televisual frame: the hosts have laptops and smartphones, there is a big-screen serving as the backdrop for a number of programs, market flashes and updates often take place in close proximity to multiple computer screens, and the act of investing is presented as depending on ubiquitous access to a screen of one sort or another. The association of the screen - either through watching CNBC on television or accessing market data on another device – with the world of the market contributes to an emphasis on the real-time and the global (Preda, 2009). How this emphasis corresponds to macroeconomic and cultural shifts positions CNBC at the heart of the cultural circuit of financialization. It is not the only site, certainly, but it is a key site from which discourses of financialization circulate. Understanding how the network represents shifting senses of space and time can shed light on social processes and institutions of financialization and the ways in which they are reshaping the world and the subjects that inhabit it.

CNBC: Live and Real-Time

Both this analysis and the program *Closing Bell with Maria Bartiromo* will share the same opening:

Maria Bartiromo: [sounds of the closing bell and applause] Alright, its 4 o'clock on Wall Street, do you know where your money is? Hi everybody, welcome back to the Closing Bell, I'm Maria Bartiromo coming to you from Post Nine on the floor of the New York Stock Exchange. ("Closing Bell with Maria Bartiromo," 2012)

The opening of *Closing Bell* oozes presence. The sounds of the closing bell of the NYSE and the applause that accompanies it serve as the bridge into the program. Bartiromo hosts the show from Post Nine on the floor of the NYSE, with the movements of the market in background – both in terms of human movement on the trading floor as well as the market indexes that populate the screens in the background. It is, in many ways, a messy televisual presentation – with many people moving in the background and a wealth of diegetic noise that carefully positions the program as live and on-site. It is the action, the pace, the excitement on the floor of the stock exchange that gets captured televisually in this setting. The two figures (Figures 1 and 2) below were taken roughly four seconds apart as part of the opening sequence of the program. Figure 1 captures the opening visual of *Closing Bell*, with a medium shot of Maria Bartiromo featured in front of a screen displaying NYSE performance and with a number of traders walking through the background. The first visual cut then takes the viewers through banks of trading stations in which monitors are prominent at all visual layers (foreground, meso, background) while Bartiromo talks about the May 10 comeback of the market after a poor opening. In addition to the communication of presence, note the "RT" in the bottom right corner of the screen – "RT" is CNBCs abbreviation for "real-time." The televisual presence – the sense of being there – is bound up both with the space of the market (in this case the physical locale of the NYSE) and the time in which that market purports to operate ("real time"). Before continuing, some notes on the CNBC set itself are also worthy of mention.

Figure 1: Closing Bell with Maria Bartiromo, May 9, 2012

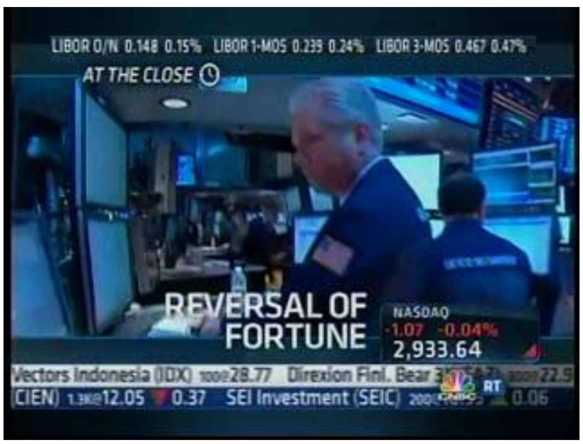

Figure 2: Closing Bell with Maria Bartiromo, May 9, 2012

On the 27 of February, 2012 CNBC debuted its new set on the floor of the NYSE, becoming the first media entity to have a permanent broadcast set on the trading floor (CNBC.com, 2012). CNBC was also the first network to broadcast live from the floor when Maria Bartiromo did so in 1995. Regarding the new set, CNBC proudly wrote of the set on CNBC.com:

Suffice to say, CNBC has always had a presence at the NYSE since its launch in the late 1980s. To really capture the ambience of the NYSE, though, CNBC would have to find a permanent home on the floor. The idea had long been on Fastook's [Vice President, Technical and Commercial Operations] wish list and the project finally moved forward when the NYSE began a massive, multi-year renovation of the trading floor. It's rebuilding each of its old wooden trading posts with more modern looking glass posts that feature flat screen TVs and other display technology, Fastook said. In conjunction with the redesign of the NYSE trading posts, CNBC began work on its new set . . . "This is the next step in our evolution," said Fastook, who oversaw the set's design and construction, adding it "puts us smack dab into the middle of the trading floor. You can't get closer to the action than that." . . . The set features five LED television monitors, including a large touch screen that will allow commentators to draw trend lines, make notes and highlight market date. It also has five ultra-miniature HD robotic cameras on a custom made track system. (CNBC.com, 2012)

Notions of "presence" and "action" permeate this description. Having a set on the floor connects, either implicitly or explicitly, the televisual presentation of CNBC and the world of the stock market. The desire to have a set on the floor of the exchange speaks to the connection - which CNBC is more than happy both promote and display. Figure 1, for example, shows a market background complete with passers-by and audio (that is sadly not communicable in transcripts) highlighting the hum of an anonymous crowd, bells and shouts, and finally applause. Being "smack dab in the middle of the trading floor" and "close to the action" communicates an affect of the market. The excitement and urgency of investing become a background – both in a literal and figurative sense - in front of which CNBC positions itself. Excitement and busy-ness characterize CNBC's televisual presentation and the rapidity with which the market news of the day is covered. A cursory glimpse at Figures 1 and 2 illustrate two related points: 1) the television frame and its layers reflect the intensity and urgency of the market, and 2) screens themselves occupy a prominent position in the televisual representation of finance. CNBC's set is strategically placed such that it captures the movement of the market and the screens through which the market itself become apprehensible. Indeed, as Knorr-Cetina (2003) claims, the screen it the medium through which the market becomes real. Neither the background movement of traders nor the prominent display of screens are accidental – they both create a market ambiance. The set, even absent any other content, communicates both the urgency and presence of the market.

The set, of course, is only part of the story. A number of screens and monitors, including a large touch screen that hosts and guests will often use for illustration purposes, are representative of a screen technology that allows for a worldwide telepresence at instantaneous speed. CNBC highlights this "screening" of the market, prominently displaying televisions, computer monitors, and cell phones as technologies necessary not just for playing the market, but also for the identification of an individual as financially savvy. Can you afford not to be constantly tuned in to the market? Figure 1 is a screenshot taken from a twenty-eight second opening segment in which, while Bartiromo voices over upcoming stories, a camera moves through the trading floor focusing on monitors and trading stations. Thanks to internet trading platforms such as E*TRADE or Scottrade, the screen has become not just a means of keeping up with market news, but also the technology through which market participation occurs. Both casual and career traders can tune into the market on CNBC and follow all of its movements through electronic data systems and platforms on computer screens. It is noteworthy that, with barely a word uttered, CNBC's televisual presentation 1) symbolically connects the cable network channel to the physical stock market, 2) revolves around "the screen" as a necessity in/of the market, and 3) actively promotes "liveness" and "real-time" as key temporal markers of financialization.

Of course, if issues of "liveness" began and ended at the opening of *Closing Bell*, there would not be much of interest to say here. Instead, references to being "live" and "real-time" permeate CNBC's discourses and representations of the market, especially during trading hours in the U.S. markets. *Power Lunch* (1 pm – 2 pm), *Closing Bell with Maria Bartiromo* (4 pm – 5 pm), and *Fast Money* (5 pm – 6 pm) all make regular references to the "liveness" of CNBC's broadcast and their (often physical) connection to the markets. The May 9 episode of *Power Lunch*, for example, included the following:

Sue Herrera (to camera): The market is starting to better itself a little bit. We are only
down about 44 points on the trading session. We are counting down though to the close of the metals markets when we come back a live update from the NYMEX on the final floor trades of the day. (Franklin, May 9, 2012)

Figure 3: Power Lunch, May 9, 2012

Figure 4: Power Lunch, May 9, 2012

While Sue Herrera was addressing the viewer regarding market movements and the close of the metals market, the camera shifted from showing a medium shot of the host to focusing on a clock displayed on the big screen that was counting down (live) the closing of the metals market. There are a few semiotic points of interest here. First, note the "RT" tag beside the CNBC logo in the bottom right corner of the screen has expanded out to explicitly state "real-time." Also worthy of note, however briefly, is the continued prevalence of "screens" – they are indexes squared. They are indexical (semiotically) of the market indexes that represent, in numeric form, an aggregate of market performance. The screen, as a medium of both participation in and communication of the market, feature prominently. Lastly, note the character walking through the background in Figure 3; "liveness" here constitutes a broadcast in which a trader walking through the televisual frame is not seen as taking away from the continuity of the narrative, but rather contributing to the discursive positioning of the CNBC broadcast as eminently "there." The sterile and controlled environment of the studio is replaced with a televised *accident* where the focus on speed – in this case live television – entails both a loss of visual control as well as the possibility of near-instantaneous transmission of televisual events that may not have been planned (Redhead, 2006; Virilio, 1997).

Following a commercial break, *Power Lunch* returns with Sharon Epperson reporting from the floor of the New York Metals Exchange (NYMEX). Figure 4 shows the market-background behind Sharon Epperson as a throng of traders jockey for position both on the floor and in the market. An on-screen graphic counts down the seconds to the market closure and Epperson, looking over her shoulder at the local stock trackers, gives a rundown of the NYMEX moves of the day; all the while the bustle of the trading crowd provides an aural background. A counter-factual question may be fruitful here: why is Sharon Epperson reporting from the floor of the NYMEX? Surely the information she reports would not change if the report was done from inside the CNBC studio. Being live does not necessitate being on-site.

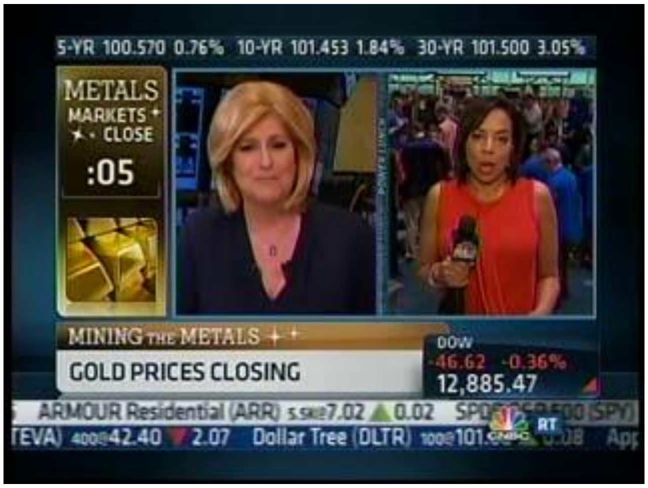

Figure 5: Power Lunch, May 9, 2012

Being live and on-site do not *need* to be thought of together, as you can certainly cover markets outside of a "live" framework, but their connection through CNBC televisual discourses effectively communicates the ubiquitous urgency of the market and its proclivity for "random walks." Put another way, what the *Power Lunch* report communicates far exceeds words that are spoken by the host and reporter; it also communicates an affect and disposition of the market and the financialized individual (as well as a logic of televisual reportage). A necessary presence and roaming attention brings the markets within the financial gaze of CNBC and its viewers. CNBC's televisual framing that seems to go out of its way to include background motion and marketization situates both the telecast and the viewer in the world of finance and financial sources of information.

CNBC's communication of liveness does not rely solely on the spaces and places of trading markets. Often, liveness entails on site interviews at trading conference, listen-ins to conference calls, and reports from various sites that may influence the market. *Fast Money*, even outside its proclamation of reporting live at the NASDAQ market, speaks the speed and urgency of finance from both the title of the show as well as its televisual content. The May 10 episode of *Fast Money*, for example, sees host Melissa Lee addressing JP Morgan CEO Jamie Dimon's conference call:

Melissa Lee: the JP Morgan conference call is getting heated. Right now, this is after
stock hits after-hours session lows. The analysts are grilling CEO Jamie Dimon, so let's listen in to this call [Audio of the conference call plays while CNBC shows the image in Figure 6.]
Melissa Lee: we want to go back to Mary Thompson for a wrap. We are
approaching, I believe, the end of the conference call here, but take a look at that stock - not reacting favorably since the call got under way.
Mary Thomspon: not at all, you know I wanted to bring up a couple highlights from
the call, um, between my last report and now. (Melloy, 2012)

The specifics of the conference call are not immediately relevant here, however, the immediacy of its televisual presence is. Host Melissa Lee notes that the conference call is getting heated "right now, "Mary Thompson reports on the up-to-the-second updates since the last time she spoke of the conference call, and one of the (many) graphic layers visible in Figure 6 reads: "Jamie Dimon Live on Conference Call." As the audio of Jamie Dimon's conference call is concluding, CNBC's television image shifts to an hourly tracker of the JP Morgan stock price, as well as the noticeable downward dip in the wake of news regarding a bad bet the bank recently made. Mary Thompson reports from the newsroom following this stock chart display, as seen in Figure 7. Again, notice the background complete with multiple screens and, in essence, diegetic people – images of individuals who are part of CNBC's televisual world and representation of the market.

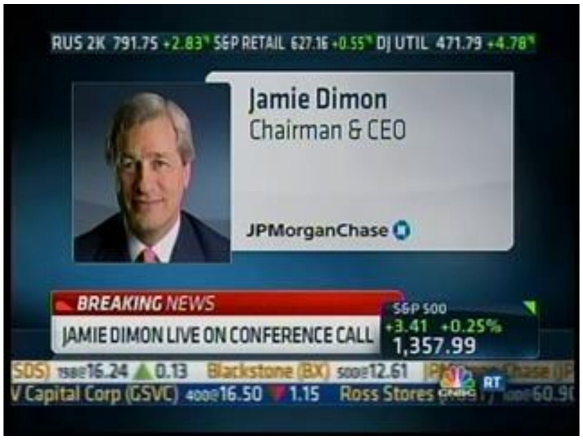

Figure 6: Power Lunch, May 15, 2012

While the examples of liveness detailed above are exemplary, they are not uncommon on CNBC. The network prides itself on being live and "real-time," such that "RT" is a ubiquitous marker of its televisual presentation, existing alongside the network ID tag. The noted liveness contributes to a feeling of co-discovery; that both the viewer and CNBC personnel exist in the same constructed temporality. Consider the previous discursive excerpt from *Fast Money* and host Melissa Lee's "let's" and "we" – speech acts that temporally link the viewer to the broadcaster. Taking this a step further, if time is money, then time differentials (for example, live vs tape delay) position some market participants at something akin to an existential disadvantage – they are living in an entirely separate timeworld than others. Perhaps even more problematic, with the possibility of losing vast sums of money in seconds, a constant attunement to the market and one's position in it is treated as the hallmark of successful market participation. The opening line of *Closing Bell with Maria Bartiromo* is: "It's 4 o'clock on Wall Street, *do you know where your money is*?" The idea of liveness is here not just a televisual phenomenon, but rather an important point of intersection between an affect of the market and CNBC's televisual style.

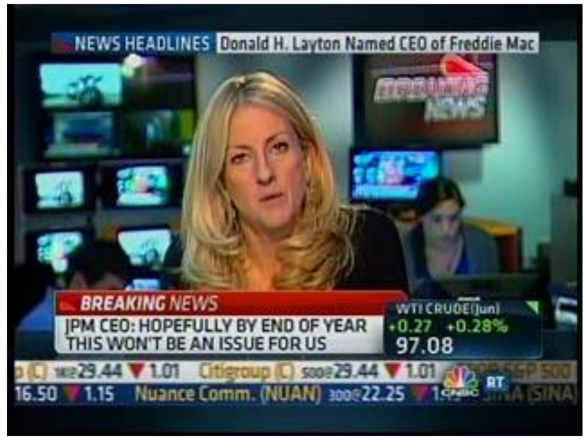

Figure 7: Power Lunch, May 15, 2012

Flashes, Crashes, and Dashes

Issues of liveness obviously do not fully encapsulate the intersections between financialization, CNBC, and the social construction of space and time. There are a number of other features of CNBC broadcasts that speak to a quickening rhythm of financialized life and, relatedly, to the way CNBC is both symptomatic and constitutive of a culture of financialization. The issues of liveness and immediacy will remain in the background in the following section, but there are important components that must be teased out to get a better understanding of the how CNBC's televisual presence is related to shifting ideas of space and time. The first of which is a frequent daytime CNBC segment called "market flash" – which interrupts the general flow of the CNBC programming with breaking news from or about the markets. Running primarily during NYSE market hours, the market flash segment features Brian Shactman giving updates on up-to-the-second market events and storylines; examples below include movement in

Priceline and Monster Beverage price shifts after a news release.

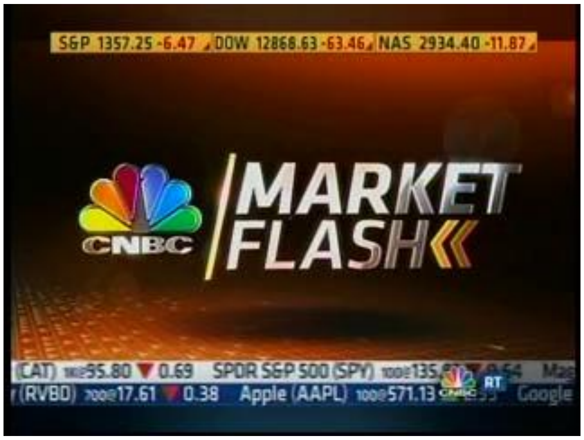

Figure 8: Power Lunch, May 9, 2012

Figure 9: Power Lunch, May 9, 2012

The market flash graphic (Figure 8) slides onto the screen for approximately two seconds while the host transitions from whatever topic was currently being discussed to an introduction of Brian Shactman in the newsroom. Shactman, as seen in Figure 9, is barely visible amongst the glut of screens showing various stock activity. A number of the screens, noticeably the ones in the foreground, also promote CNBC Pro – a subscription service that allows investors worldwide and real time access to markets and investment opportunities, courtesy of CNBC. CNBC's overview of CNBC pro is below in Figure 10 (collected on May 2, 2013); a cursory glance shows numerous instances of "live" and "real-time" and an emphasis on mobile accessibility for up to the second market updates. More will be said about CNBC Pro momentarily.

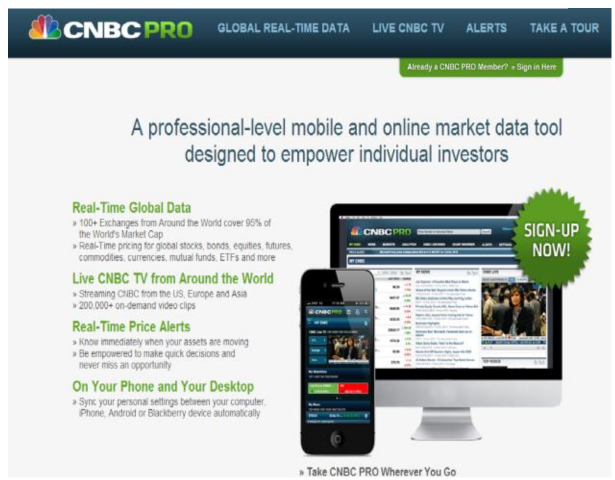

Figure 10: CNBC Pro Web Page ("CNBC Pro," 2011)

Following a May 9, 2012 segment, Herrera throws to Shactman with the "Market Flash" as she notices the market is improving slightly. After Shactman reports on MetroPCS and the fluctuations within the telecomm market, Tyler Mathisen, a co-host on *Power Lunch*, throws to Diana Olick in Washington for a "Realty Check" segment in which the problems in the European markets are linked with the US housing markets. From New York to Chicago (whilst talking about Europe) to Washington all in a little over two minutes, CNBC's coverage, complete with market flash, represents the frantic global temporality of the market; eyes sweeping from one place to another perpetually searching for new opportunities and dangers. Comporting oneself to this market rhythm, tracking global events in "real-time," is a crucial part of the affect of financialization – the set of emotions and dispositions that are taught and reified as virtues within the televisual culture of the financial markets. The "interlude" element of market flashes are less a matter of attention deficit and more one of attention surplus: a televisual schizophrenia in which at every moment, somewhere, events are occurring that could impact your portfolio. Who can afford to ignore market news? If individual investing is a contemporary cultural virtue, then acculturating oneself to the temporality of the market is a step toward financial self-actualization: a marker of independence and acumen.

CNBC Pro's webpage ties in to this discourse of temporal comportment with its discourse of *empowerment, professionalism*, and *opportunity*. For a fee of $29.99 per month, CNBC Pro offers a "subscription news and data service for traders who want to play in lots of markets — including commodities, exchange traded funds, futures, bonds, real estate and currencies" (Lieberman, 2010). In the same *USA Today* article, Ariel Nelson, Director of Market Data and Content Services for CNBC, was quoted as saying: ""Most of the retail brokerages will only give you data for what you can trade. If you can't trade in Vietnam, then they aren't going to give you (data about) Vietnamese securities. If you can't trade commodities, they aren't going to give you all of the futures contracts" (Lieberman, 2010). Can a market participant be truly informed if they are not aware of the goings-on in the Vietnam securities market? CNBC Pro will send an email alert to computerized or networked devices (such as the Ipad or Blackberry) complete with market news and charts showing up to the second updates. As such, CNBC Pro provides a "market flash" even when outside the CNBC televisual environment, having access to "real-time" global data and "live" CNBC programming from the U.S., Europe, and Asia. As one works, plays, or otherwise goes about their day electronic devices connect them to the markets from New York to Phuket. Worldwide market information at one's fingertips allows for near perpetual market flashes not just on CNBC, but also while out and about and living a financialized life.

What if even a constant attention to the market were still not enough? A digital clock measuring time down to the second became far too slow as technological advances enabled computerized trading. High Frequency Trading (HFT) – a subset of algorithmic trading – took advantage of temporal gaps in the bid and ask price at the time-horizon of milliseconds. Algorithmic trading is generally the process by which computer algorithms manage elements of the trading process – such as timing or stock sales or the number of shares bought/sold at a time (Chaboud, Hjalmarsson, Vega, & Chiquoine, 2009; Hendershott, Jones, & Menkveld, 2011).

Algorithmic trading does not necessarily *replace* the need for human traders, as the programmed parameters of the algorithm will determine its behavior; but it does certainly augment the spatial and temporal awareness of the trader. An *Economist* article, worth quoting at length captures the process of algorithmic trading:

Algorithmic trading accounts for a third of all share trades in America and the Aite Group, a consultancy, reckons it will make up more than half the share volumes and a fifth of options trades by 2010. On June 18th the London Stock Exchange unveiled an electronic system catering to the growth of algorithmic trading, which cuts trading times down to ten milliseconds. On its first day, it processed up to 1,500 orders a second, compared with 600 using its previous system. The ability to push up volumes should help dissuade customers from moving to faster platforms elsewhere.

The aim is to reduce the delay between order and execution, known as latency. Every moment is crucial in "black-box" and "statistical arbitrage" trading, where computers prowl through the market for price distortions that may last only for a split second. Order-handling algorithms, which break up large trades, must also move faster than the blink of an eye to ensure they get the best electronic prices.

According to TowerGroup, a research firm, $480m is likely to be spent in America this year on developing technology for algorithmic trading. Such is the focus on speed that even location counts. Servers positioned nearest to a trading venue can shave milliseconds of the timing of a trade and get a better price.

Low latency could also help investors get a jump on news of economic data as it flashes across the wires. According to Andrew Silverman of Morgan Stanley the use of news feeds for algorithmic trading is at an early stage. The software, which relies on keywords to generate buy and sell orders, may misunderstand the context surrounding a headline. For example, a market-moving word such as "surprise" may indicate numbers are better, or worse, than expected. Mr. Silverman explains that news algorithms are best used with other variables, such as share price and volume, which may reinforce the buy or sell signal. ("Ahead of the tape," 2010)

The excerpt above corroborates James Carey assertion that improved communication technology has (generally) moved arbitrage opportunities out of space and into time – here down to ten milliseconds, and sure to increase as computer power assumes its continued growth (Carey, 2009, p. 218). Arbitrage opportunities in the market have here exceeded human cognition – market time, one of many social times, is measured in nanoseconds and electronic time that has set its sight on the speed of light (Adam, 1995). Space has not been annihilated, but rather subsumed by electronic time while being made all the more important by the physical limits of communication speed.

High Frequency trading, a subset of algorithmic trading, uses an automated process to buy and sell small(ish) amounts of stock in fractions of a second. Whereas algorithmic traders may be looking for long-term positions, the HFT trading house will hold a stock for a fraction of a second, making small gains on each individual buy/sell pair but executing thousands of trades per day (Biais & Woolley, 2011; Chlistalla, Speyer, Kaiser, & Mayer, 2011; Lattemann et al., 2012). Following recent stock market volatility, interest in HFT has risen dramatically. The literature on the topic is perhaps more full of heat than light, as, depending on what source you choose to read, HFT is either a market-making tool ushering in an era of truly efficient markets, or technology run amok and a contributing factor in increased market volatility. The economic pro's and con's of HFT, while interesting in themselves, are not the primary object of this line of investigation. Instead, algorithmic trading can be seen as a symptom of the interconnections between markets, media, and the space-time contingencies of financialization (Lee, 2012). As information spreads across the globe in a matter of seconds, the need for live and real-time information becomes paramount.

The “arms race” of speed in the market, however, has it dark side; namely in the form of flash crashes and tilting the market toward large institutional players.

Two major flash crashes have occurred since 2010; the first on May 6, 2010, the second of April 23, 2013. Increased speed in trading, much like increased speed in travel, increases the severity of accidents. A *New York Times* article reviewing the events that led to the 2010 crash stated:

[A] mutual fund started a program at about 2:32 p.m. on May 6 to sell $4.1 billion of futures contracts, using a computer sell algorithm that over the next 20 minutes dumped 75,000 contracts onto the market, even automatically accelerating its selling as prices plunged . . . After the firm started to sell, the report found, many of the contracts were bought by high-frequency traders, computerized traders who buy and sell at high speed and account for a big part of trading in today’s markets.

As they detected that they had amassed excessive “long” positions, they began to sell aggressively, which caused the mutual fund’s algorithm in turn to accelerate its selling. Startlingly, as the computers of the high-frequency traders traded contracts back and forth, a “hot potato” effect was created, the report said, as contracts changed hands 27,000 times in 14 seconds, but with eventually only 200 actually being bought or sold (Bowley, 2010).

The 2013 crash was caused when a hacked Associated Press Twitter account sent out the following tweet: "Breaking: Two Explosions in the White House and Barack Obama is injured." In response to the tweet, to S&P 500 lost $121 Billion in value within minutes, only to recover immediately thereafter (Farrell, 2013).

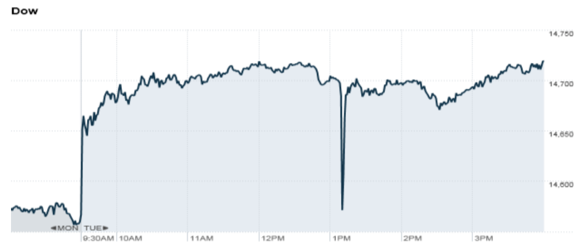

Figure 11: Flash Crash Timeline, (Farrell, 2013)

The point, again, is not to get too deep “into the weeds” regarding the economic component of these flash crashes, but rather to point to the relationship between mediated information, financialization, and spatio-temporal compression (Giddens, 1984; Harvey, 1989). Algorithmic trading, and HFT in particular, points to a financialized market in which the competition is over getting market news and executing trades milliseconds faster than other market participants.

CNBC’s relationship to algorithmic and high frequency trading is complex. On the one hand, CNBC’s televisual presentation is immersed in representations of speed, urgency, and the desperate need for more and faster information. On the other hand, that such a need for speed positions powerful computer systems as key players in the markets may alienate some portion of CNBC viewers to the ultimate fairness of the market – the conception of which is vital if viewers are to continue to play in the market.

The May 15 episode of *Power Lunch* saw host Ty Mathisen and guests Amon Javers and John Carney discussion HFT in the market and how it impacts home viewers and traders.

Tyler Mathisen: Amon's big story, that's topic 1 today, high frequency trading, he's

been reporting on why individual traders should not trade between 9:58 AM and 10:02 AM. Trading analytics firm NANEX says that is when they see an *increase in a hit and run type of trading before major economic releases. So, Amon, is this, number 1, ammunition for regulators to clamp down on precisely this kind of trading, and is it yet more evidence that the little guy doesn't stand a chance.*

Amon Javers: Well look, the expert who gave me this tip is a guy named Eric

Hunsader out of Chicago and he says this is a general rule of thumb because there is so much HFT activity in the lull period before these major economic news events that you want to stay out of there because you could get a quote that is very different from the price you end up buying at by the time you actually just physically execute your trade. So the answer is, he would say, regulators in Washington need to pay attention to what is going on in this HFT space and watch out for the little guy a little bit. Because if you don't have a hundred million bucks and a supercomputer that can trade in milliseconds, you might not be able to play at this level of detail.

John Carney: we know that the markets are rigged against the little guy, you

probably shouldn't be trading all that much anyway if you are a little guy. Over and over again we are seeing this in the markets; the HFT IS the market right now, they make up 50 - 90% of the market on slow days, you are not going to get rid of them, so you have to trade with caution, because we have to deal with them.

Tyler Mathisen: I don't know about you Sue, but I think that when you trade and

you try to take on and play in these big pools, the sharks are gonna get ya.

Sue Herrera: I think that is absolutely true, Ty. I am still not sure why some of this

isn't front running. Some of these guys are getting this information quickly, are profiting in milliseconds, and I just wonder . . . (*Power Lunch*, 2012)

Here, CNBC hosts inform viewers that 9:58 AM – 10:02 AM is a dangerous time to be in the market. As HFT traders buy and sell shares in millionths of a second, even if the execution of a trade goes through in one second, in that amount of time a particular share or group of shares may have been traded countless times. The day trader trying to keep up with super-computer-equipped trading houses is like an individual trying to run a NASCAR race on foot. CNBC's emphasis on being "real time" belies the fact that a great deal of trading in the stock market is done in surreal time – units of temporal measurement so small they are imperceptible to the human experience.

Rhythm and Flow

There is one more element of CNBC's televisual presentation that fosters a conceptualization of time that deserves mention here. The idea of *flow,* a concept that relates to audience viewing time in relation to behavior, was made famous by Raymond Williams' (Williams & Williams, 2003) and is one that has been well-developed in academic studies of television. For Williams, flow is the "defining characteristic of broadcasting, simultaneously as a technology and as a cultural form." Williams' flow folds in traditional notion of "interruptions" with the televisual continuity of programming to capture something novel about the form: "watching television" or "watching CNBC" is fundamentally different from more traditional and discreet viewing experiences. For example, as a television program segment ends and transitions into a bumper which turns into a network promotional spot which moves into a range of commercials and then another bumper appears which leads back into program content, the idea of unitary viewing experience (for example, watching a play) is replaced by a much more fluid and commodity-driven experience. Although flow does seek to analytically address something unique to television, the nature of this "uniqueness," and of flow itself, has been debated. Feuer (1983) and Ellis (2002) argue that the primary feature of television is "segmentatation," the disjuncture and ruptures between its discursive and semiotic moments. Newcomb & Hirsch (1984) suggest that the way to analyze television is not by shrinking one's view down to individual segments, but by expanding it to include "viewing strips" – blocks of programming that, when viewed together, reveal something about television as a cultural forum. What is revealed is quite often the overt "commodity flow" of television (Budd, Craig, & Steinman, 1999; Matthew P. McAllister, 2002; M. P. McAllister, 2006; M. P. McAllister & Giglio, 2005). Whatever else might be said about television, or CNBC, the cultural form of television is often dominated by its commercial imperative.

Thinking about flow from a more macro (day-long) perspective, the CNBC lineup is split into a "Business Day" block and a "Prime Time" block:

Business Day

5-6 a.m. - "Worldwide Exchange"
6-9 a.m. - "Squawk Box"
9-11 a.m. - "Squawk on the Street"
11 a.m. - 12 p.m. - "The Call"
12-2 p.m. - "Power Lunch"
2-3 p.m. - "Street Signs"
3-4 p.m. - "The Closing Bell"
4-5 p.m. - "The Closing Bell with Maria Bartiromo"
5-6 p.m. - "Fast Money"
6-7 p.m. - "Mad Money w/ Jim Cramer"

Prime Time

7-8 p.m. - "The Kudlow Report"
8-9 p.m. - "CNBC Reports"
9-11 p.m. – Mixed programming
11 p.m. - 12 a.m. - "Mad Money w/ Jim Cramer"
12-1 a.m. – "Fast Money"

In addition, *Suze Orman* appears on the weekend block of programming, primarily at 9 PM and 12 AM EST on Saturdays. CNBC programming mirrors the financial markets: *Squawk Box* providing news and analysis around the opening of the NYSE, *Power Lunch* providing viewers market updates over the lunch hour, and *Closing Bell with Maria Bartiromo* reviewing the market news of the day and looking ahead to the following trading session. *Suze Orman*, running primarily during weekend evening hours, is far removed, both in style and timeslot, from the action of the markets. The prime time block, operating outside of the NYSE trading hours, is headlined by (the as yet unmentioned) *Kudlow Report* and a rotating block of programming that often features biopics, docudramas such as *American Greed*, and replays of some daytime programming. The sequence of programs follows the rhythm of the market, with market-site action during the day and political talk shows and docudramas in the evening.

It is on the short-range or micro level – the close consideration of the means by which words, images, and sounds operate – that CNBC's discourses of financialization and their relationship to a compression of space and time become more apparent and important. Just as the financial market does, CNBC conditions the financialized subject to be tuned-in at all times, to stay captivated without interruption and stay connected to its flow. It accomplishes this with an amazing televisual aesthetic density comprised of rapid-fire commentary, constantly moving graphics, and frequent sound effects. While this rapidly changing and dense televisual spectacle does not lend itself well to a written description, the following section will aim to analyze its look, feel and impact in numerous illustrative ways. Both the network, and the financialization it televisually represents, try to capture and commodify time, constructing a temporal flow that constantly recreates the conditions through which the financialized subject experiences an urgent sense of time. To put this is less abstract terms, CNBC's televisual presentation is centered on the concept of following the markets, often leading to a hyperactive style that never pauses to reflect on its own position but instead races off to the next event. The abrupt breaks between segments leads Feuer (1983) to describe flow as "segmentation without closure" – a description of the dialectical relationship between segmentation and flow that fits CNBC programming better than Williams' rather fluid notion. An examination of the CNBC's temporally urgent and ever-changing televisual frame, replete with a variety of graphics, layers, motions, and background – often none having anything to do with the others – give some manifest form to this concept. Flow here does not *just* indicate constant motion, but also constant tease and transformation; both the market and CNBC's coverage of it are perpetually reinvented and reconstituted, one moment urging anticipation for the next. Pro-cyclical market moves (an investor thinks the market is moving downward and so begins to sell positions, thus precipitating the event s/he was looking to avoid) point to something akin to an anti-ontological market – one that does not exist as such, but is constituted by its representation (Ayache, 2006, 2008; MacKenzie, Muniesa, & Siu, 2007).

These representations, which may take the form of prices of various investments, at each and every moment must be re-calibrated and recalculated such that traders don't as much participate in the market as *create* it. In this vein, traders, economists, and CNBC (among other financial news outlets) make and shape the markets and the ideas surrounding them. With this in mind, CNBC's flow – in various conceptions – positions both representations of the market and the network's viewers in a temporal context that privileges the perpetual present and helps craft the financialized individual; through its visual field, the network helps create the conditions that it seeks to reflect and to discipline the financialized subject it needs to entice.

Both in its aural composition as well as its visual orientation and style, CNBC communicates the spatial and temporal logics of financialization. Perhaps the most noticeable element of CNBC's televisual style is its visual density; there are multiple videographic layers, an abundance of information, and near-constant motion. Two of the most prominent videographic features are a double-layer stock ticker that runs along the bottom of the screen, with an individual stock updates scrolling every six seconds, and a "bug bar" that runs at the top of screen which updates various stock indexes every five seconds.

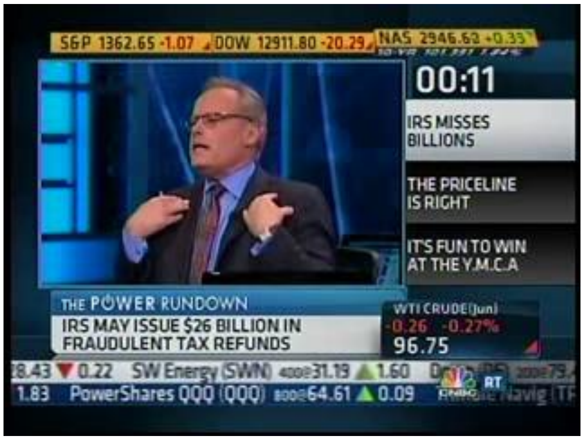

Figure 12: Power Lunch, May 14, 2012

Figure 12, from the May 14 episode of *Power Lunch* and Figure 13 from the May 22 episode of *Closing Bell with Maria Bartiromo* capture some of the visual density that characterizes CNBC's televisual presentation. The stills do not, however, indicate the speed with which information is communicated, nor the audio which often bookends segments or highlights key features (a point to which we will soon return). Just as the market privileges speed and amalgamates data, so too does CNBC in its representation of the market. Space and time need to be shrunk down, squeezed together, and packaged in such a way that they become useful – they matter inasmuch as they are actionable. And so we see the CNBC screen – its televisual frame – densely populated with:

1. index performance (Dow, Standard and Poor's 500, NASDAQ)
2. stock price movements,
3. notable commodity price movements,
4. multiple "live" background images, often featuring screens and market participants
5. videographic panels and alerts of market news
6. Station identification
7. RT tag promoting "real-time" disposition of the network

Figure 13: Closing Bell with Maria Bartiromo, May 22, 2012

All of which move! Rotation, scrolling, fly ins, fly outs, fades, highlights - the entirely hyperkinetic televisual presentation of CNBC is predicated on perpetual motion. There is an intentional vertiginous quality inherent in this representation of the market; one never quite knows where one stands, or what to expect next. The only way to comport to the information demands of market participation is by a constant, if often distracted, temporal connection with market news. As Maria Bartiromo asks at the beginning of every *Closing Bell*, its 4 o'clock on Wall Street, do you know where your money is? If not, availing yourself of CNBC Pro and watching the cable network can help you get a handle on your money and the dizzying amount of market information that the proper investor should know. The chaotic market, constantly undulating, gives no quarter to ignorance.

Part of the visual density, as Corner (1998) notes, can be traced back to the character of economic news and its need for visuals and relations between market events. This does not fully account however, for the constructive potential of such (re)presentations – they do not just reflect the market, they help build and shape it (Cetina, 2003). Knorr-Cetina's analysis of the flow architecture of contemporary foreign exchange markets provides a fitting connection between the flow of television and the flow of markets. The ubiquitous ticker that runs along the bottom on the CNBC frame is not just a news device, but also serves as a metronome of the market – a way to keep the market rhythm and indicate a global co-presence within the context scrolling stock reports – what Knorr-Cetina refers to as a "community of time" among traders (2003). Here I extend Knorr-Cetina's argument, contending that much as investing platforms create a community of time for traders, CNBC's coverage of the market helps normalize a financial sense of time (and space) in the public at large.

The stock ticker becomes even more noticeable, and jarring, when taken out of its "natural" environment. The ticker continues to run during commercials, often creating a stark visual contrast between timeworlds. Consider the following two screenshots from ads that ran during the May 14 episode of *Fast Money.*

In the first, seen in Figure 14, a car advertisement features wide open spaces and a relaxing atmosphere punctuated by a slow acoustic guitar soundtrack. As the car drives through open countryside and away from the noise and busyness of the workday, the stock ticker and bug-bar pull the viewer back into the world of the market, juxtaposing the rapid pace of investing with comfortable and relaxing lifestyle attainable through road trips and luxury products. Also contrast the openness and sparseness of the image with Figures 12 and 13, in which the televisual frame is virtually overflowing with information and objects. The contrast between the compression/expansion of space is here visually represented quite effectively. Figure 15, which aired immediately following the ad in Figure 14, reframed financial positions in terms of family and close social bonds: shareholder meetings and research and development were linked to familial relationships and leisure time. The investment company calls the

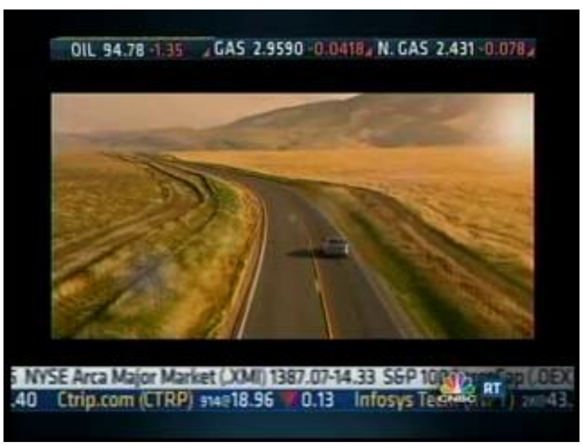

Figure 14: Fast Money, May 14, 2012

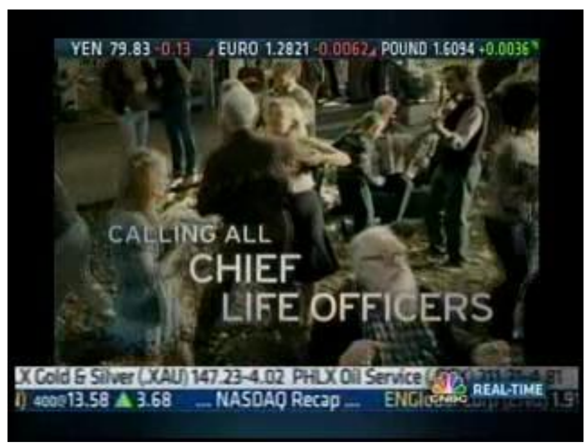

Figure 15: Fast Money, May 14, 2012

viewer the "Chief Life Officer" and offers assistance in planning for retirement and the implied promise of a life of comfort and relaxation. Here financial security is linked with love of family; employing the assistance of financial professionals allows one to enjoy the fruits of the market without acculturation into its temporal expectations. Again, a slow acoustic soundtrack overlays the spot, communicating a certain slowness and emotional calmness that is awkwardly positioned behind (televisually) the rapid movement of CNBC stock updates and real-time updates on market indexes.

The dialectic of flow and segmentation manifests itself in this disjuncture. At the same time that CNBC programming is characterized by the procession of multiple, often unrelated segments, the stock ticker manages to connect the rapid representations of market news and events with advertising spots that sell everything from pain relief cream to wealth management firms. The ads in particular often serve as temporal relief from the rapidity of market news and information. The promise of peace and escape from the demands of both labor and the market itself vivifies the idea of investing and wealth management; it is through finance that one escapes the world of labor and its commodification and becomes autonomous. The frequent appearance of wealth management and investment ads often background this promise, displaying the independence and freedom of financial success. Of course, immediately following advertising images of the promised land of financial independence, one is thrust immediately back into the market flow, replete with fast-paced music, market flashes, and a dense discursive and semiotic environment. The flow that connects these two worlds – the harsh temporal expectations of the market and the soothing image of success within it – is broken up by the basic reality of television as a technology and cultural form. Television programming, as much as it may work to maintain continuity among its viewing audience, is characterized by distracted viewing and segmentation. As Feuer argues, "segmentation is already a property of the text" (1983, p. 15). Although Caldwell (1995) warns against putting too much emphasis on distracted viewing, the prevalence of CNBC in financial spaces (investing offices, business centers, and the domestic space itself) would indicate that tuning into CNBC often entails something other than rapt attention and a close reading of the television "text." Altman's (1986) analysis of flow echoes that of Caldwell, at least inasmuch as it seeks to denaturalize flow as an essential and necessary aspect of the medium of television. Instead, for Altman, the concept of television flow is contingent upon "household flow" and that "the soundtrack is specifically charged with mediating the relationship between these two flows" (1986, p. 40). The social space of "television" is haunted by distraction: children, spouses, pets, work, cell phones, internet, books, dinner, and even the commercials themselves that "pay the bills" for networks break up both narrative continuity and attention. A recent Harris Interactive poll found that: "while watching TV most Americans also surf the Internet (56%) and many do other activities like read a book, magazine or newspaper (44%), go on a social networking site (40%) or text on their mobile phone (37%)" (Braverman, 2011). This is not to deny analysis of commodity or promotional flow and the myriad ways in which commodities transverse the televisual landscape, operating fluidly between program, advertisement, and promotional spots. It does suggest, however, that the flow of television programming might not map neatly on to the experience of television as an object of viewer attention. Or, to reframe this in the terms of Stuart Hall, the flow that issues forth from the moments of discursive encoding (from the network programming and display) might not match up with the lifestyle or workstyle flow of its viewers in the decoding process (2006).

For Altman, it was the soundtrack that resolved this problem, uniting the segmentation of viewer experience (the "lifestyle flow") and the flow of the television broadcast itself. The audio track serves a number of functions, perhaps the most important here consisting of what Altman calls discursification:

In a similar way, American TV news has moved increasingly toward the presentational, merging a primary level composed of a neutral announcer image and a highly charged presentational sound with a secondary level composed of a highly charged image and tributary sound. The truth is thus recognized, paradoxically, as double: the announcer tells us the truth ("Today Mt. Elba erupted again, producing a lava flow which destroyed two villages, cut three roads, and took at least ten lives"), but that is historic truth, an event which took place elsewhere involving others, and which thus does not involve us. But if I could see the events, if they could be reoriented from their historic position into a new slant where they would be played for me, then they would change form and function, becoming part of a discursive circuit. The deeper, paradoxical truth of our television is this discursification of the world. It is not that seeing is believing (an earlier assumption of TV audiences), but that images collected just for us give us a sensation that no flat, historical account could possibly give. And only the prior announcement on the sound track can make those images seem to be made just for us. (1986)

The daytime programming of CNBC prominently features this discursification, as the cut between segments is often punctuated only by a brief "whoosh" sound that presages either a new segment or a graphic fly-in. During the daytime programming the din of the market provides an aural background for CNBC programming, inviting viewers into the world of the market and conveying the excitement of the trading act. With CNBC running in the background of various offices and homes, aural markers invite the audience to re-engage with visual content, as well as buttress the visuals and general pacing of the cable network. The "whooshing" sound of segment notifications indexes speed, whereas the bumper audio that leads into and out of commercial breaks is most often fast-paced rock featuring electric guitars and rapid drum beats. Additionally, various buzzers, bells, whistles, and beeps signal, for the viewer, segments that should be of interest. CNBC's presentation and style are all oriented around speed, action, and movement.[1] The rapidity of the audio fits

---

Caldwell, *Televisuality : Style, Crisis, and Authority in American Television*.

[1] *Mad Money* is here a special case, but worth a mention for its near anarchic soundscape. Jim Cramer's soundboard features sound clips for everything from machine gun fire to babies crying to the sound of people jumping out of windows. Scoreboards, sports buzzers, and his frequent shouting makes a spectacle of the

so neatly into the CNBC televisual style that it becomes noticeable primarily when contrasted with the leisurely soundtrack of commercial spots. The slow music and casual sound effects of the majority of CNBC commercial spots situate the viewer into a world in which space and time and decompressed; where space and time are stretched and enjoyed thanks in large part to the miracle of financial independence and wealth. For Gitlin (2001), this is part of the "dialectic of speed and slowness" – the commercial spots providing a fleeting relief from the rhythm of the market. The sonic world of CNBC thus works against its own promises, positioning viewers (inasmuch as they are actually viewing) in a fast-paced world in which fractions of a second count and a constant appraisal of one's money and tolerance for risk is positively virtuous. However, the ultimate goal of this world is to escape it – to leave the noisy, rushed, and compressed sphere of the market and enjoy the fruits of finance from outside its grasp.

Expanding

It is unfair, of course, to attribute CNBC's spatial and temporal presentation purely to a discursive connection to the stock market. The challenge of making finance televisually interesting was not an easy puzzle to solve, and constant motion, speed, multiple graphics, and some bombast helps to dramatize the market and bring in viewers to the often arcane world of finance (Gavin, 1998; Kurtz, 2000). Making the market televisable was a necessary step in making the cable network marketable. One could imagine, for instance, the difficulty in obtaining viewers for a financial network that features long, slow exposition regarding price/earning ratios or the inner workings of put/call parity. Snappy style and rapid-fire action demystify the market largely through accessibility. The need to entertain, and, even more importantly, to capture viewers, leads to what it essentially a triple commodification of time (Lee, 2012). First, the watching-time of the viewers is sold to advertisers in the form of advertising rates; second, the network bills itself as "live and real-time" as a selling point for potential audience members who wish to join the temporal community of the market; third, the networks advertising frequently commodify their products according to a perceived or implied leisure-time. The first two instances point to the television industry and CNBC's role as a capitalism enterprise in its own right. The third leans toward a more cultural understanding of CNBC and the ways its representations function to discursively construct both the market and its participants.

Ratcheting up the drama, tension, and the seeming omnipresence of the market (and CNBC itself) added a layer of intrigue to CNBC's representation of the world of finance. The presence of the stock ticker links CNBC semiotically to the market and its

---

market; a feast for the eyes and ears. The audio features of CNBC, which sadly do not translate well into manuscript form, not only serve to highlight various aspects of the programming, but also mirror the pace of visual content and its density. *Mad Money* contains a number of fascinating aspects, but it is different enough from the daytime CNBC content that to focus on it would detract from the more quotidian elements of CNBC programming.

rhythms, while the growing visual density of the networks' offerings spectacularize finance and it makes manifest its temporality. If you miss market news, you miss an opportunity to make money or a chance to save yourself from a stock price decline. Stock market trading is exciting, competitive, fast-paced, and demands constant attention (not to be confused with casual investing, which often consists of a buy-and-hold strategy that may be good for portfolios but bad for investment houses and electronic trading platforms that profit from frequent trading activity). Indeed, the excitement of market participation includes, as its obverse, the stress of money at risk. The drama, tension, and urgency that CNBC highlights in the market drive people toward the network as a means of affect management. The ritual of tuning in to CNBC, of "tuning in" to the market, helps ameliorate the stress of risk and uncertainty inherent in investing; the very same stress the network helps create! CNBC's primary goal is not to make home investors' money, but to make its shareholders money through the sale of advertising. Mark Lichtenfeld, writing for Investment U, argues that:

While I believe that most of the reporters are committed to doing their best on a story, the structure of CNBC is to keep you on the edge of your seat, depending on them for information on what to do next.

For instance:

- The jobless numbers were higher than expected – what do you need to know to keep your portfolio safe?
- Inflation ticked higher – can your portfolio withstand a higher inflation environment?
- How should you get your portfolio positioned before the Fed meeting next week?

. . . They want you to live in fear and react to every little hiccup in the market so that you're glued to their network in order to receive the investment advice from their guests and anchors (2012).

The first comment on the story is also revealing:

I enjoy CNBC as entertainment, like a stock market soap opera. I will active trade and have no intention of following the market urgency touted by CNBC. But I have learned vernacular from them and now I am less perplexed by narratives I hear regarding equities investment and trading. Jim Cramer's antics had a lot to do with my getting into stock market investing and trading.

These two excerpts tie together market urgency and televisual entertainment, as well as the ways in which the representations of the market help shape individuals' experience of investing and willingness to enter the market. The forum post also returns us, however briefly, to Hall's notions of polysemy and resistant reception of discourses. Just because CNBC represents the market in particular ways – in this case frantic and omnipresent – does not mean that either a) the vast majority of people accept such representations, or that b) those who watch CNBC take the same meaning from its programming. Nonetheless, Lichtenfeld's comments reflect the relationship between the emotions of the market ("to live in fear and react to every little hiccup") and the temporal compression and urgency represented by the network; this is, in Hall's term, the *preferred meaning*. Market flashes and the emphasis on being live and real-time help to frame the market as an institution demanding new ways of thinking about time and space; ways that privilege constant attention, technological connection, and a worldwide scope. Stock markets have always had a close eye on times and spaces as dimensions of profit opportunity: CNBC brings this market logic into the homes and offices of millions of people as something perpetually urgent and necessary for the process of trading. Operating within a cultural circuit of financialization, CNBC helps to make the spatial and temporal compression seem normal and natural; as an aspect of the financialized life that is beyond question. The emphasis on liveness, real time, and flashes do not, by themselves or by definition, reconstitute the financialized individual. But taken as part of a larger discursive regime, found both on the cable network and beyond it, these discourses and representations work upon individuals and help mold conceptions of the world. Mediated through the screen, CNBC helps change those notions and aspects of the world that seem natural. Much like the derivatives that increasingly drive the processes of financialization, this compression reconstitutes and normalizes all of the variability of space and time and encourages participants not to consider this phenomenon, but to, as the CNBC tagline puts it, “Capitalize On It.”

References

Adam, B. (1995). Timewatch: The social analysis of time.

Ahead of the tape. (2010). Retrieved from http://www.economist.com/node/9370718

Altman, R. (1986). Television/sound (pp. 39–54). Presented at the Studies in entertainment: Critical approaches to mass culture, Indiana University.

Ayache, E. (2006). What is implied by implied volatility. *Wilmott*, 28–35.

Ayache, E. (2008). I Am A Creator. *Wilmott Magazine*, 36 – 46.

Biais, B., & Woolley, P. (2011). High frequency trading. *Manuscript, Toulouse University, IDEI*.

Bowley, G. (2010, October 1). Lone $4.1 Billion Sale Led to "Flash Crash" in May. *Newe York Times*. Web. Retrieved from http://www.nytimes.com/2010/10/02/business/02flash.html?_r=2&scp=1&sq=flash+crash&st=nyt&

Braverman, S. (2011). *Most Americans surf online while watching TV and many people do other activities as well*. Harris Interactive. Retrieved from http://www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/mid/1508/articleId/818/ctl/ReadCustom%20Default/Default.aspx

Budd, M., Craig, S., & Steinman, C. M. (1999). *Consuming environments: Television and commercial culture*. Rutgers University Press.

Caldwell, J. T. (1995). *Televisuality : style, crisis, and authority in American television*. New Brunswick, N.J.: Rutgers University Press.

Carey, J. W. (2009). *Communication as culture : essays on media and society* (Rev.). New York: Routledge. Retrieved from http://www.loc.gov/catdir/toc/ecip0812/2008009267.html

Chaboud, A., Hjalmarsson, E., Vega, C., & Chiquoine, B. (2009). Rise of the machines: Algorithmic trading in the foreign exchange market. *FRB International Finance Discussion Paper*.

Chlistalla, M., Speyer, B., Kaiser, S., & Mayer, T. (2011). High-frequency trading. *Deutsche Bank Research*.

CNBC Pro. (2011). [Web]. Retrieved January 1, 2011, from http://www.cnbc.com/id/39656554

Corner, J. (1998). Television news and economic exposition. *The Economy, Media and Public Knowledge*, 53–70.

Ellis, J. (2002). *Visible fictions: cinema: television: video*. Routledge.

Farrell, M. (2013). High speed trading fueled Twitter flash crash. Retrieved from http://money.cnn.com/2013/04/24/investing/twitter-flash-crash/index.html

Feuer, J. (1983). The concept of live television: Ontology as ideology. *Regarding Television*, 12–22.

Gavin, N. T. (1998). *The economy, media, and public knowledge*. London ; New York: Leicester University Press.

Giddens, A. (1984). *The constitution of society : outline of the theory of structuration*. Berkeley: University of California Press.

Gitlin, T. (2001). *Media unlimited : how the torrent of images and sounds overwhelms our lives* (1st ed.). New York: Metropolitan Books. Retrieved from Contributor biographical information http://www.loc.gov/catdir/bios/hol051/2001039838.html Sample text http://www.loc.gov/catdir/samples/hol041/2001039838.html Publisher description http://www.loc.gov/catdir/description/hol021/2001039838.html

Hall, S. (2006). Encoding/Decoding. In M. G. Durham & D. Kellner (Eds.), *Keyworks in cultural studies* (Rev., p. xxxviii, 755 p.). Malden, MA: Blackwell. Retrieved from http://www.loc.gov/catdir/enhancements/fy0827/2005014104-b.html http://www.loc.gov/catdir/enhancements/fy0827/2005014104-d.html http://www.loc.gov/catdir/enhancements/fy0827/2005014104-t.html

Harvey, D. (1989). *The condition of postmodernity : an enquiry into the origins of cultural change*. Oxford England ; Cambridge, Mass., USA: Blackwell.

Hendershott, T., Jones, C. M., & Menkveld, A. J. (2011). Does algorithmic trading improve liquidity? *The Journal of Finance*, *66*, 1–33.

Kurtz, H. (2000). *The fortune tellers : inside Wall Street's game of money, media, and manipulation*. New York: Free Press. Retrieved from http://www.loc.gov/catdir/description/simon033/00042190.html http://www.loc.gov/catdir/enhancements/fy0707/00042190-b.html http://www.loc.gov/catdir/enhancements/fy0707/00042190-t.html

Lattemann, C., Loos, P., Gomolka, J., Burghof, H.-P., Breuer, A., Gomber, P., … Riordan, R. (2012). High Frequency Trading. *Business & Information Systems Engineering*, *4*, 93–108.

Lee, M. (2012). Time and the Political Economy of Financial Television. *Journal of Communication Inquiry*, *36*, 322–339.

Lichtenfeld, M. (2012). Why I Don't Watch CNBC. Retrieved from http://www.investmentu.com/2012/June/why-i-dont-watch-cnbc.html

Lieberman, D. (2010, December 14). CNBC to launch CNBC Pro trading service with real-time info. *USA Today*. Retrieved from http://usatoday30.usatoday.com/money/media/2010-12-14-cnbc14_ST_N.htm

MacKenzie, D. A., Muniesa, F., & Siu, L. (2007). *Do economists make markets?: on the performativity of economics*. Princeton University Press.

McAllister, M. P. (2002). Television News Plugola and the Last Episode of Seinfeld. *Journal of Communication*, *52*, 383–401. doi:10.1111/j.1460-2466.2002.tb02551.x

McAllister, M. P. (2006). Selling Survivor: The Use of TV News to Promote Commercial Entertainment. In A. N. Valdivia (Ed.), *A companion to media studies* (p. xiii, 590 p.). Malden, MA: Blackwell. Retrieved from http://www.loc.gov/catdir/toc/fy0701/2006280221.html http://www.loc.gov/catdir/enhancements/fy0902/2006280221-b.html http://www.loc.gov/catdir/enhancements/fy0902/2006280221-d.html

McAllister, M. P., & Giglio, J. M. (2005). The commodity flow of U.S. childrens television. *Critical Studies in Media Communication*, *22*, 26–44.

Melloy, J. (2012). *Fast Money*. CNBC.

Newcomb, H., & Hirsch, P. M. (1984). Television as a Cultural Eorum.

Power Lunch. (2012). CNBC.

Preda, A. (2009). *Framing Finance: The Boundaries of Markets and Modern Capitalism*. Chicago: University Of Chicago Press.

Redhead, S. (2006). The art of the accident: Paul Virilio and accelerated modernity. *Fast Capitalism*, *2*, 1–2.

Virilio, P. (1997). *Open sky*. London ; New York: Verso.

Williams, R., & Williams, E. (2003). *Television : technology and cultural form*. London ; New York: Routledge. Retrieved from http://www.loc.gov/catdir/toc/fy0708/2003015009.html http://www.loc.gov/catdir/enhancements/fy0701/2003015009-d.html