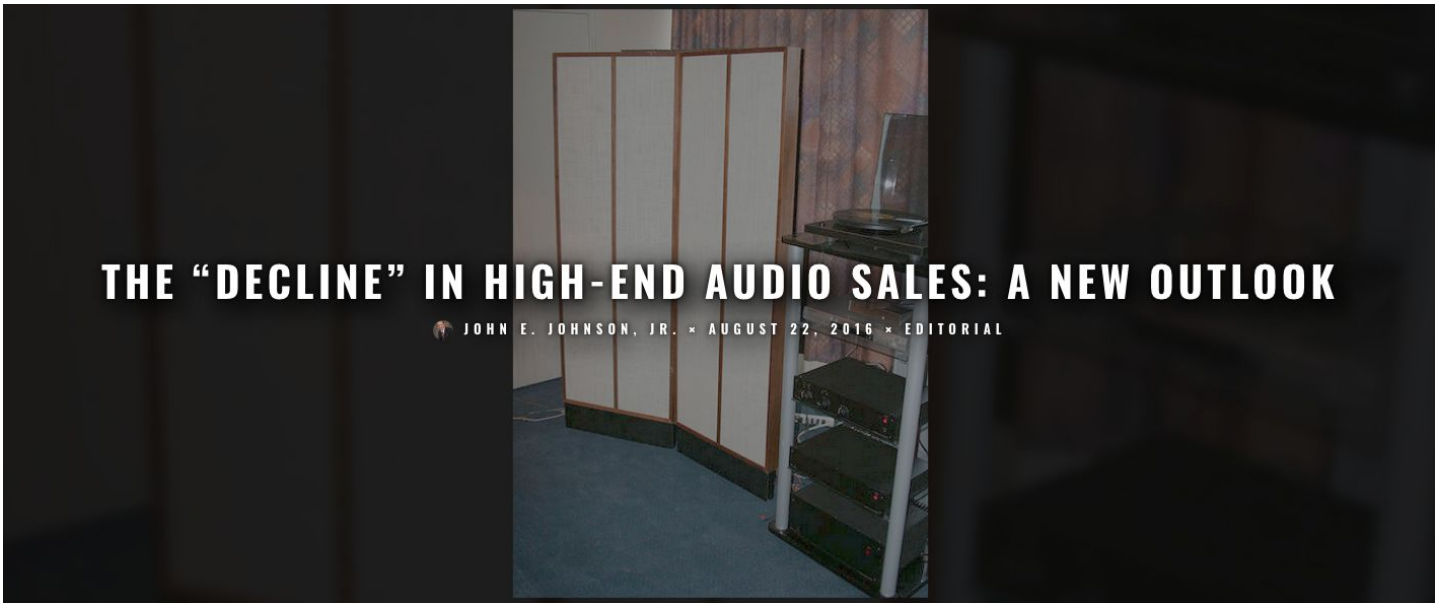
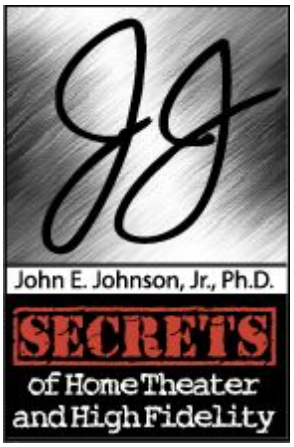
THE “DECLINE” IN HIGH-END AUDIO SALES: A NEW OUTLOOK



JOHN E. JOHNSON, JR. MAY 30 , 2017 EDITORIAL

When I was in high school in 1962 (age 17), my father took me downtown in Seattle, Washington, to look at some stereo equipment because he wanted to buy a hi-fi system.



At Seattle Stereo (the main Seattle dealer of audio products in 1962), my father was in one room listening to a pair of Jensen speakers, at $150/pair, and I wandered into another room where they had set up KLH Model Nine electrostatic speakers.

Each speaker had two panels that were six feet high, connected together, and were set up with the two panels in an approximately 200 V configuration so that they would not need a base, like a room divider. They could also be set up separately (disconnecting the two panels), for stereo operation (this was in 1962, when mono was still common).

One could purchase two speakers and set them up with two panels on one side and two panels on the other side for stereo operation. Setting up two speakers this way, with two panels on each side

was called “Double Nines”. The KLH Model Nine was priced at about $750 for each speaker, so a Double Nine set up was $1,500. The speaker system that I was listening to was a Double Nine.

Below is a photo of one KLH Model Nine speaker. It was posted on audiokarma.org by a consumer (copyright that consumer). This person obviously has a Double Nine setup for stereo. Note that the two panels are at a slight angle from each other so as to make them more physically stable.

The Double Nine KLH speakers that I heard were being driven by a McIntosh MC275 tube amplifier that could deliver 75 watts per channel. The MC275 cost $444 in 1962. It had been released in 1961, so this McIntosh amplifier model was only one year old when I saw it and heard it. (Note that I am not saying high-end audio began in 1961, only that I became aware that I had a passion for it when I saw and heard high-end components as a teenager, in 1962. Consumer hi-fi audio components had their genesis in the late 1940’s and early 1950’s.)

Below is a photo of the McIntosh MC275, 50th Anniversary Model (photo by McIntosh Labs).

A typical family car in those days cost about $2,000. If we multiply this times 15, we have the cost of a typical family car in 2016 of $30,000. Using this same formula, the KLH Model Nine would cost about $22,000 for the Double Nines, and the McIntosh MC275 would cost $6,660. In fact, the current 50th Anniversary McIntosh MC275 is priced at $6,500 (the KLH Model Nine has not been offered for sale in many years, but you can find them used on the Internet).

The sound of the Double Nines and the McIntosh MC275 made my jaw drop. While dad was purchasing the Jensen speakers, I was falling in love with what would eventually be called “High End Audio”. It was my first experience with such amazing sound, and I was obsessed with having this level of sound someday in the future.

The high-end began to flourish, but I was off to college to get my bachelor’s degrees, one in zoology and one in psychology, then off to graduate school two months after my marriage to Susan, and six years later, after graduating with a Ph.D. in Neuroscience, off to a Post-Doc with NASA here in the San Francisco Bay Area. This was followed with another Post-Doc at the National Institutes of Health, in Baltimore, Maryland.

The point of all this is that while in school and at my Post-Docs, I could only dream of having a high-end audio system, not purchase one, as Post-Doc pay was very meager.

Meanwhile, the high-end market was bursting at the seams with growth.

Slide forward to the beginning of the 21st Century. My wife was retired from a partnership with a major accounting firm, and I was about to retire from editing medical journals. Secrets of Home Theater and High Fidelity was 6 years old, having begun publishing in 1994. I was immersed in high-end audio, editing Secrets. The high-end market was still flourishing. I was in the unique position of having high-end product after high-end product flowing through my test labs, and I began selecting some of them as reference products to use when reviewing various audio and video components by listening or viewing, and putting them on the bench with an Audio Precision spectrum analyzer in the case of audio components, and using software with a light sensor for video components.

In 2016, at age 71, I feel I have reached audio nirvana, after a half-century voyage that began when my father took me to shop for his audio system in 1962, and after more than 20 years of having dozens of terrific audio and video components in my home to listen to and view.

In 2013, an article was published in a reputable in-print audio magazine, that the high-end was “dying”. At the Consumer Electronic Show (CES), over the past decade, I have been hearing from numerous exhibitors of high-end audio products, that high-end audio is “tanking” or “declining”. I have also seen other publications saying that the way to increase the penetration of high-end audio products into the general consumer market is to get high-end products in front of more consumers, most of whom have never been exposed to high-end audio components. However, although this is a good suggestion, the problem is much more complicated, as I will now discuss.

What, Exactly, is “High-End-Audio”?

One definition I have seen in the literature is that it is audio equipment that is high priced or high quality. This is overly simplistic. Price and quality are inextricably connected. They are not mutually exclusive. For the most part, price and quality increase together. However, there are plenty of audio products that are true bargains. This complicates the picture.

I have also seen the high-end arena described in a philosophical manner, that it represents a symbiotic relationship of a designer who does not want to cut corners on quality that would deteriorate the sound, and a consumer who wants to hear all that a musical recording has to offer. Unfortunately, this definition is just not specific enough for a consumer to evaluate a product’s appropriateness for his or her purchase.

In several audio magazines, a writer will say that the high-end is declining because high-end products are not being seen by consumers. That is probably true, and we, as high-end aficionados, can help with this issue by hosting evenings with friends and neighbors, where we demonstrate what the high-end can do in terms of presenting a more accurate reproduction of music.

A High-End Equation

We can turn an audio product's value (bargain), considering what it is that he or she expects in performance, and his or her budget, into a mathematical equation, stating that the ratio of performance to price represents a product's value to the consumer.

If we assign the performance (in a product review) a number (dividend) ranging from 1 to 10, and the price with a number (divisor), also ranging from 1 to 10, the product under review would end up with a single number (the quotient: dividing the dividend by the divisor).

Entry-Level-High-End products (see below) are most likely to have high ratios if they perform well, while Ultra-High-End products are more likely to have ratios that are closer to a value of 1.0. Products that perform in a mediocre fashion, but are high priced, will have a value of less than 1.0.

For the sake of clarity, I am placing high-end audio into the following categories:

Entry-Level High-End

Products that cost between $1,000 and $3,000 and include such components as monoblock power amplifiers, surround sound processors, and speakers, with a pair of monoblock power amplifiers or a surround sound processor or a pair of speakers costing no more than $3,000. This category would have the (potentially) highest performance-to-cost ratio.

Mid-Level High-End

Products that cost between $3,000 and $20,000 which include components mentioned above, with a pair of monoblock amplifiers or a surround sound processor or a pair of speakers costing no less than $3,000 and no more than $20,000.

Ultra-High-End

Same as above, with a pair of monoblock amplifiers or a surround sound processor or a pair of speakers costing no less than $20,000, and the highest price has no limit.

The prices of video (HDTVs) are changing so fast, and we have reviewed so few of them, I cannot create categories for them to be used in calculations of their value.

Keep in mind that the above assignment of high-end audio into categories is strictly my own interpretation, based on what Secrets has reviewed over the past two decades. Obviously, there will be some overlap in the categories that any particular manufacturer markets, but it is the best I can do to put numbers into the mix.

An Analysis of High-End Audio Companies' Strategy

I asked five companies about their sales in the last few years. For the sake of confidentiality, they will be labeled as Company A, Company B, etc. They are companies that I know very well, and I appreciate their trust in giving me such private information. Thank you.

Company A is an Ultra-High-End manufacturer. They told me that they have grown by 75% between 2001 and 2015, with a slight dip in 2009, which was the year that the 2008 banking/real estate meltdown (see below) caused the stock market to hit bottom. They are currently in a good financial situation, and are a USA-based company.

Company B is also an Ultra-High-End manufacturer. The only information I could get about them is that they "are not doing very well." This could be just that they are not growing, or growing very slowly than they used to be, or that they are in the red (loss rather than profit). I fear the latter. Their home base is in Europe, and it may be that just the North American division is not doing well.

Company C is a Mid-Level High-End manufacturer. They have grown over the past five years, but stated that this is due to adding new categories of products and that if they had stuck with just their original line of products, they would have had a decrease in sales. They are based in Canada.

Company D is also a Mid-Level High-End manufacturer. They told me that over the preceding year, they had lost $300,000. The products on their website include many that they have been selling for several years, plus some new models. They are based in the USA.

Company E is an Entry-Level High-End manufacturer. They are growing at the rate of 30% per year. They offer a wide range of products, and they seem to be constantly introducing new ones. They have increased the range of categories of products (preamplifiers, power amplifiers, and speakers) as part of this growth. They are based in the USA.

So, it appears that some high-end audio companies continue to do well, while others are suffering.

Possible Reasons that High-End Sales have Changed over the Past 15 Years

MP3s

In 1894, an American physicist suggested that a tone could be inaudible as a result of a simultaneous lower tone. This became known as auditory masking, which was the foundation of the MP3 format, invented in the 1980's. The MP3 specification was finalized in the early 1990's.

While the term Redbook CD means 16 bits at 44.1 kHz sampling, resulting in 1,411 kbps (kilobits per second), MP3's can be at 320 kbps (the maximum bitrate for MP3's), down to 96 kbps. The literature suggests that 128 kbps is the lowest acceptable bitrate, which is more than a 10:1 compression of the original Redbook CD music file. Since the MP3 encoding and decoding process does not recover the original bits in a CD, this is called "lossy" compression.

Apple released their iTunes "Jukebox" software in January of 2001, which managed your music files. The first Apple iPod, released in October of that same year, became the player of these music files, downloadable from the iTunes Store at 99 cents per song, and the promotion was that you could store 1,000 songs on the iPod. It had 5 GB of storage, cost $399, and used MP3 compression for the songs.

If you did not use any compression, 5 GB would store about 8 CDs totaling about 80 songs, so you can imagine how much MP3 compression was used for the iTunes 1,000 songs that could be stored in that first iPod.

Music storage memory increased with each subsequent iPod model, and it soon became capable of storing 10,000 songs, all at about 12:1 MP3 lossy compression.

As an audiophile "purist", I was not interested in listening to lossy compressed music, but with the release of Apple "Lossless" compression, I finally bought an iPod in 2005, with the small hard drive inside having 60 GB of storage. Using Apple Lossless compression, I could store 150 CD's that, when encoded on my computer using Apple Lossless compression in the iTunes software, and decoded in the iPod, would give me the original Redbook CD quality in terms of bitrate.

Of course, the small in-ear "buds" that came with the iPod were not very high quality, so CD sound was lost to a significant degree. These days, ear-buds are an entire industry by themselves, and you can spend more than $1,000 on audiophile-quality buds.

The iPod sold by the millions, and at least three generations (teenagers, twenty-somethings, and thirty somethings) had one in their pockets when out and about. If we move forward to 2016, nearly everyone has MP3 music stored on their smart phones, both iPhones and Android phones, and they all seem happy with what they hear.

As time passes, and a generation moves away from being consumers of high-end audio (about 65 to 75 years old), a young generation moves into being consumers. But all those people who have been perfectly happy with the MP3's on their iPhones and Android phones are not becoming the replacement consumers. This is one of the reasons why the number of high-end audio dealers in the

US appears to have decreased in the last decade. Where there used to be three dealers in my immediate area, now there is only one.

Also, the emergence of Virtual Reality (VR – viewing a complete virtual scene in glasses that do not show actual objects in front of the viewer) and Mixed Reality (MR – viewing a virtual scene in glasses that are partially transparent, so you can also see actual objects in front of the viewer) are competing with high-end audio for entertainment purposes.

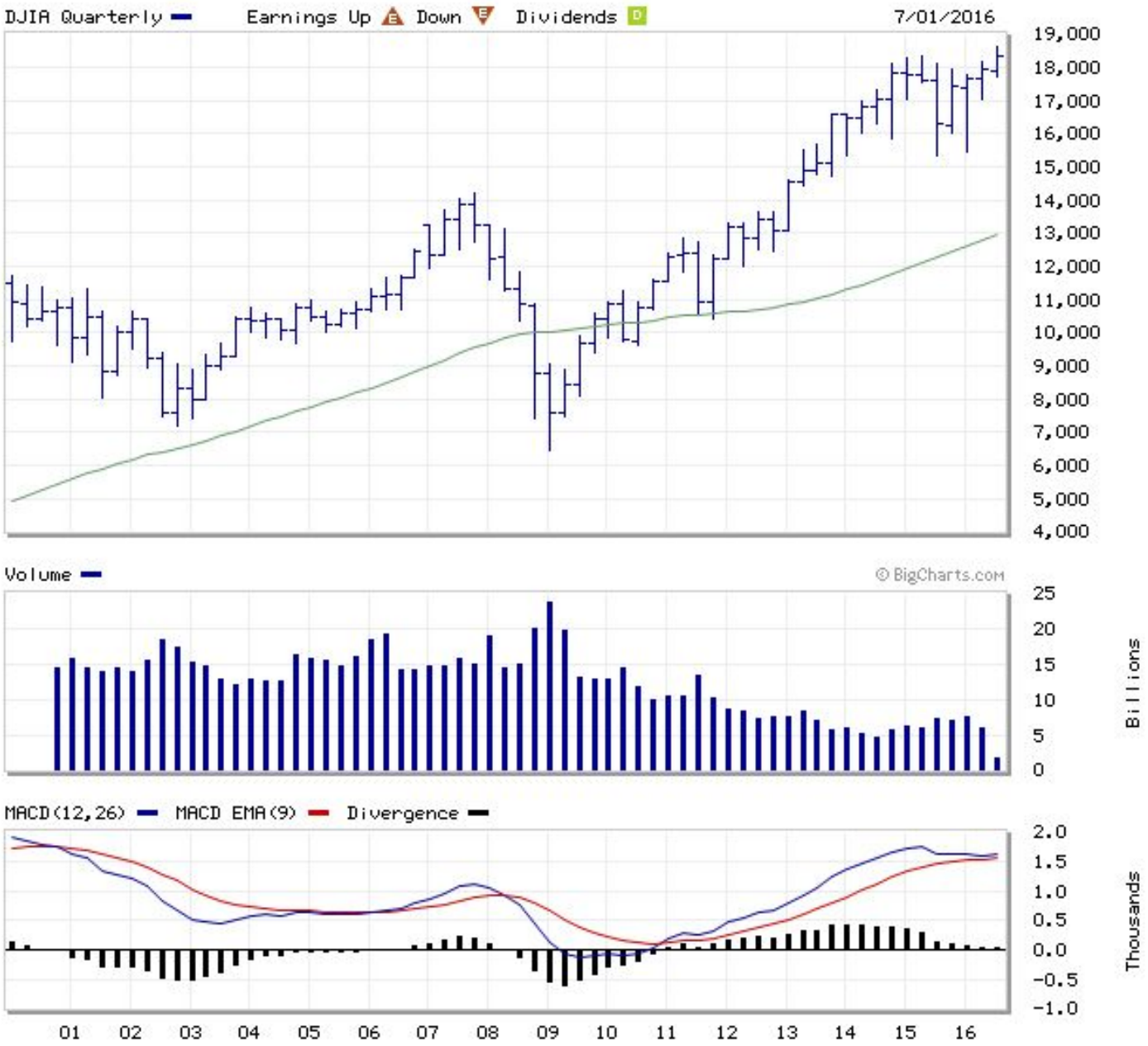
There has been a trend for some high-end manufacturers to sell a few of their products on-line, but from the websites I have seen, this is not a major trend for high-end in general, and certainly not for the ultra-high-end.

The 2008 Banking/Real Estate Meltdown

A much more significant reason, than potential high-end consumers' satisfaction with MP3's on their phones being a contributor to high-end audio sales going into decline, is the banking/real estate meltdown of 2008. This caused the 401k savings accounts of millions of families in the US to drop precipitously, and a large proportion of them to lose their homes altogether. This occurred in the 2008-2013 recession (a product of the 2008 meltdown) which was the largest in 80 years. Countries all over the world were negatively impacted by our meltdown and recession, having recessions of their own.

Here is a plot of the Down Jones Industrial Average from the year 2000 to July 1, 2016 (from MarketWatch). You can see the stock market crash that began in 2008, and the Dow Jones Industrial Average dropped from about 14,000 to about 6,500 in 2009.

The market recovered to its previous high of 14,000 in 2013. That was only three years ago, and I am sure that everyone has been wary of making large purchases since the crash. However, now that the Dow has reached new record heights, I believe that the high-end audio "tanking" may be replaced with better sales. On the other hand, some market analyzers suggest that there is a seven-year cycle of major market "corrections", and that 2016 is the year to have one. I hope they are wrong.



To give you a better understanding of what happened to cause the 2008 banking/real estate meltdown, I asked Mr. Lee Callaway, a highly sought-after consultant to business firms such as Hewlett-Packard, to prepare a detailed analysis of this life-changing event. Mr. Callaway has a Master's Degree from the Stanford University School of Business. His analysis is filled with information because the event had a catastrophic effect on Americans' financial situation and the overall American economy, which then caused a terrible chain reaction in the global economy. It has a long history that precedes it, and what happened was a confluence of numerous events, creating a Perfect Storm.

Here it is.

House of Cards: An Analysis of Why Your 401(k) Shrank to Half its Size (or smaller) in 2008

By Lee Callaway

Disclaimer: This account is based on a layperson's reading of numerous books and articles, Wikipedia's crowd-based research, and several excellent programs about the crisis on National Public Radio, which offered a clear explanation of the calamity in terms that were understandable to the average non-financial person. It is not based on original sources or documents.

John Johnson, editor of the Secrets of Home Theater and High Fidelity website, asked me to prepare this article.

My wife and several friends have looked at it and told me it helped them clearly understand, for the first time, what happened.

Overview

The collapse of the U.S. financial and housing markets was the result of actions in four broad arenas:

- The world economy
- The U.S. economy, and in particular the housing market
- The federal government
- The financial markets

The forces unleashed in these four arenas came together like four rogue waves in the open ocean, resulting in a wave of super-tsunami proportions that hit the entire U.S. economy, including millions of citizens who had absolutely no part in it but who have been suffering the consequences since 2008. (It also rippled across the globe and had serious impact in other countries as well, but this article will address only what happened in the U.S.)

The World Economy

The emergence of a strong global economy in the 1990s and early 2000s, and significant economic growth in many formerly poor countries, created what NPR called a "huge global pot of money"

looking for safe but money-making investments. This pot of money was estimated as high as $70 trillion

The United States was the place where most of that money wanted to go, because the safest investments in the world are U.S. Treasury securities. But the Federal Reserve under Chairman Alan Greenspan was keeping a lid on interest rates, believing that such a policy would prevent the eruption of steep inflation. Greenspan was also a staunch believer in free markets and, other than keeping interest rates low, maintained a largely hands-off policy toward the economy.

As a result, investors couldn't make any money buying Treasuries. So they looked for other low-risk investment opportunities that offered steady returns. What they found was the U.S. mortgage market.

The U.S. Housing Market

The housing market in the U.S. was built on a widespread belief, shared by almost everyone, that housing prices would always increase. A corollary belief also pervaded the country: that, because there had been no housing price collapse in the last 70 or so years, there would not be one now or anytime soon.

With interest rates low, credit was easy. There was plenty of money available for mortgages. Builders and developers seized the opportunity. Houses were going up everywhere. New subdivisions were spreading out from nearly every major city.

In many markets home values were going up so rapidly that a third belief grew up: that one should buy the most expensive house one could afford, and expect to sell it in a few years and move up to an even bigger house. If it took an adjustable rate mortgage to make it work, no problem: just refinance in a couple of years when the rates reset.

The combined effect of these forces led to an increase in debt-financed consumption, many times through second mortgages. Expensive vacations, fine dining and yes, home theater systems, boomed.

The Federal Government

To provide a secondary market for mortgages, the federal government had many years ago established two agencies, Fannie Mae and Freddie Mac, to buy mortgages from banks and other loan originators.

As the 20th century drew to a close, the U.S. government was continuing a long-standing policy of encouraging homeownership as a foundation of a strong community and a deterrent to crime. In 1997 this policy took regulatory form with the passage of the Community Reinvestment Act, which was intended to discourage "red-lining" minority or poor neighborhoods and to encourage loans to all segments of the community, including low- and moderate- income areas.

Fannie Mae announced it would no longer buy mortgages from any bank that practiced discriminatory lending and required banks to make a certain percentage of loans to ethnic minority buyers. When banks said they could not maintain their credit standards by making such loans, Fannie Mae and Freddie Mac told them to lower their standards and they would buy these "sub-prime" mortgages.

In effect, this government-directed policy would unleash mortgage originators to compete aggressively to make sub-prime loans to prospective home buyers with shaky financial means.

Financial Markets

Mortgage Bonds

Banks and mortgage companies were generating mountains of mortgage loans. They sold many of them to Fannie Mae and Freddie Mac. A bank wants to sell the mortgages it initiates to remove them from its balance sheet to free up capital which it can then use to make more loans. Fannie Mae, Freddie Mac and Ginnie Mae, a third government-established agency, as well as investment banks, began to bundle individual loans into mortgage bonds.

A mortgage bond is a pool of mortgages bundled together so they can be sold as a diversified risk package. Mortgage bonds are "stacked" in layers (or "tranches") by credit rating, with the highest credit borrowers at the top and the lowest at the bottom. The bottom layer – usually mortgages rated BBB or subprime loans – pay the highest interest rate.

Collateralized Debt Obligations

But the financial institutions didn't stop there. They began making extensive use of an instrument called a Collateralized Debt Obligation (CDO). A CDO is a security made up of layers or "tranches" of assets that produce income streams. Invented in the 1980s, they were first used to bundle junk bonds, then later car loans, student loans and credit card receivables.

CDOs were created to provide more liquidity in the economy. They allow banks and corporations to sell off debt, which frees up more capital to invest or loan. The creation of CDO's is one reason why the U.S. economy was so robust in the first half of the decade of the 2000s.

When the housing boom took off, CDOs began to be used for mortgage bonds. The mortgage bond CDOs were usually made up of the lowest layers of bonds (the ones with subprime loans) because those layers pay the highest interest rates. An investor buying a CDO receives a promise to be paid in a certain sequence based on the income stream collected from the pool of mortgages.

However, the downside of CDOs is that they allow the originators of the loans to avoid having to collect on them when they become due, since the loans are now owned by other investors. This was another factor (in addition to government regulation) that made loan originators less disciplined in adhering to strict lending standards.

Another downside of CDOs is that they are so complex that often the buyers aren't really sure what they are buying. They often rely on their trust of the bank selling the CDO without doing enough research to be sure the package is really worth the price. Issuers of CDOs relied on experts in mathematics to determine how to price them. How complicated were these methods?

David X. Li is a quantitative analyst and a qualified actuary who in the early 2000s pioneered the use of Gaussian copula models for the pricing of CDOs. The Financial Times called him "the world's most influential actuary," but in the aftermath of the global financial crisis of 2008–2009 Li's pricing model has been called a "recipe for disaster" and considered at least partly to blame for the collapse. Here is a detailed description of the Gaussian copula.

Credit Default Swaps

At this point we need to pause for a slight detour to consider another instrument widely used in the mortgage frenzy: a credit default swap. This is an insurance policy by which the seller ("A") offers to pay the buyer ("B") the full value of a bond ("C") if it fails during the life of the swap (usually 10 years). For this protection, the buyer "B" pays the seller "A" a certain fraction (2% or less) of the face value of the bond each year. "A" is essentially making a bet that the bond will remain good for its life. "B" is betting that it might fail and if so, he wants protection. Here's how they work:

Customer (bank, investor, hedge fund) who has bought a $10 million bond fears it might default, wants a hedge against risk. Insurance company (or bank or investor) says, "I'll sell you insurance (a contract) against a default." Here are the terms of the contract: You pay me 2% of the value of the bond ($200,000), per year, for 10 years (the life of the bond). If at any time during the 10 years it goes bad, I'll pay you the full $10 million. If it stays healthy, you pay me a total of $2 million over the 10 years.

Synthetic CDOs

Now the investment banks began creating bonds made up not of mortgages, or even CDOs, but of credit default swaps. These bonds, called "synthetic CDOs," skyrocketed in valuation. At the time of the collapse in 2008 the total value of the bonds covered by credit default swaps was about $5-6 trillion. The total value of the swaps – or the bets on the bonds – was $60 trillion – almost equal to the value of all the stocks traded in the world.

Credit Rating Agencies

STANDARD &POOR'S
MOODY'S
Fitch

The three credit rating agencies certified by the federal government (Standard & Poor's, Moody's Investment Service and Fitch Ratings) repeatedly gave high (AAA) ratings to the CDOs and synthetic CDOs issued by investment banks. They reasoned that the odds of all the mortgages in a given bond defaulting simultaneously were so small that the high ranking was justified.

The agencies were being paid by the banks and giving high ratings helped assure them of retaining the business. Purchasers of the bonds relied on the agencies' ratings and in some cases could buy only those bonds with high ratings. (Investigations of the crisis after 2008 would find that the agencies were key enablers of the meltdown.)

The System Starts to Break Down

In 2006, the U.S. housing market peaked. Suddenly there was an oversupply of houses and home values began to fall. Also, adjustable mortgage rates began to reset, raising monthly payments beyond the means of many new homeowners. Many found themselves "under water," with their mortgages greater than the market value of their homes.

Defaults and foreclosures increased, pushing house prices down further. With home values falling, the value of mortgage bonds and derivatives such as CDOs and synthetic CDOs began to drop. Expected revenue from the underlying securities packaged in these bonds began to dry up. Overextended financial institutions began to look shaky, and their access to credit was threatened.

In February 2007 Freddie Mac said it would stop buying the riskiest mortgages and mortgage-backed securities. In April, New Century Financial Corp., a leading subprime mortgage lender, filed for Chapter 11 bankruptcy protection. In January 2008, Bank of America said it would buy Countrywide Financial, another huge mortgage issuer, for $4 billion.

Two months later the New York Fed provided $29 billion in term financing to help JPMorgan buy Bear Stearns. In early September the U.S. government put Fannie Mae and Freddie Mac into conservatorship. A week later Lehman Brothers Holdings Inc. filed for Chapter 11 bankruptcy and Bank of America announced plans to buy Merrill Lynch for $50 billion.

AIG

AIG was the world's biggest insurer. In the late 1990s, the London office of AIG began insuring CDOs with credit default swaps. AIG sold various banks and hedge funds $400 billion worth of credit default swaps against mortgage-based securities. For a few years this practice made a lot of money for AIG. But when foreclosures soared, AIG took some huge profit hits. That, plus accounting problems, threatened AIG's solvency. However, AIG was considered "too big to fail." If it had gone under, it would have taken mutual funds, pension funds, hedge funds and investment banks with it. The whole U.S. financial system might have gone down. Faced with such an unthinkable disaster,

Uncle Sam (i.e., the U.S. taxpayer), bailed out AIG to the tune of $182 billion and became owner of a big chunk of what was left of the company. (Uncle Sam also bailed out the banks.)

Subsequent mergers and bankruptcies in the collapse are detailed in the timeline which follows this article. The timeline starts in 1933, believe it or not, because that's when the first "card" in this house of cards was played – the Glass-Steagall Act. The removal of that card in 1999 was one of the factors that led to the collapse.

The Bottom Line

The financial crisis of 2007–09 is considered by many economists to have been the worst financial crisis since the Great Depression of the 1930s. It threatened the collapse of large financial institutions, which was prevented by the bailout of banks by national governments, but stock markets still dropped worldwide. In many areas, the housing market also suffered, resulting in evictions, foreclosures and prolonged unemployment. The crisis played a significant role in the failure of key businesses, declines in consumer wealth estimated in trillions of U.S. dollars, and a downturn in economic activity leading to the Great Recession of 2008–2012 and contributing to the European sovereign-debt crisis.

The human factors underlying the crash included greed, reliance on economic myths, misplaced reliance on arcane mathematical models, ineptitude, misguided government policy, weak regulation and poor judgment. Even today, eight years later, people are still feeling the pain of lost money, jobs, homes, financial security and general well-being.

Unfortunately, the preceding explanation will not restore a single dime of purchasing power for those now unable to buy that home theater system they wanted. But perhaps it will give readers at least a fairly complete and factual understanding of what happened and why. And maybe that understanding will provide at least some closure on the worst economic crisis in the U.S. since the Great Depression.

To further clarify the 2008 meltdown, here is a time-line of how the banking system changed during the 20th and 21st centuries.

Timeline of Financial Crisis of 2008

To understand the financial crisis of 2008, one has to unravel numerous threads, many of them being acts of Congress dating back to the 1930s, when the nation was in the grips of the Great Depression.

Interestingly, the first thread is the Glass-Steagall Act, which prohibited commercial banks from engaging in the investment business. Its repeal in 1999 was considered an enabling factor that led to the crisis. The Republican Party's 2016 platform, published on July 18, 2016, calls for reinstatement of the act. Here's the full timeline:

1933	**The Glass-Steagall Act**, also known as the Banking Act of 1933, prohibited commercial banks from engaging in the investment business. It was enacted as an emergency response to the failure of nearly 5,000 banks during the Great Depression.
1934	**National Housing Act** passed, creating **Federal Housing Administration** to help the U.S. housing market, which had been hit by a surge in home foreclosures resulting from high unemployment rates of the Great Depression. It was a national mortgage loan insurance program encouraging banks, building and loan associations and other institutions to make loans because of the government insurance against losses.
1938	Mortgage defaults continued, banks were hard pressed for cash. FDR and Congress created the **Federal National Mortgage Association (Fannie Mae)** to buy mortgages from lenders, freeing up capital to lend to other borrowers.
1968	**Housing and Urban Development Act** split Fannie Mae into two separate corporations: **Fannie Mae**, to purchase conventional loans (non-U.S. government insured or government-guaranteed) that conformed to specific underwriting standards, and the **Government National Mortgage Association (GNMA or Ginnie Mae)** to focus on providing a guaranty backed by the full faith and credit of the United States for the timely payment of principal and interest on mortgage-backed securities (MBS) secured by pools of home loans insured by one of several government agencies (FHA, HUD, VA, etc.)
1968	Ginnie Mae began securitizing mortgages, buying them from lenders, combining them in pools and issuing securities backed by these pools to lenders, who could in turn sell them to investors. Principal was guaranteed by Ginnie Mae, which insulated banks from the risk of default by borrowers and provided a way to attract money to the housing market from a wide range of investors.
1982	National banks allowed to offer adjustable rate mortgages
1982	**Garn-St. Germain Depository Institutions Act** lifted many regulations on the savings and loan industry, allowing S&Ls to expand further into new businesses, such as commercial lending and investing in corporate bonds (including junk bonds); act also authorized state-chartered banks to offer mortgages with adjustable rates.
1983	Acting under provisions of Garn-St. Germain, the Comptroller of the Currency lifted all restrictions on loan-to-value ratios (the percentage of a house's appraised value that could be borrowed), maturities and amortization schedules (meaning that banks could offer mortgages where the principal balance went up over time). Garn-St. Germain also allowed interstate mergers between banks and S&Ls.

1984	**Secondary Mortgage Market Enhancement Act** gave investment banks the ability to buy up virtually any mortgages, pool them together, and resell them in slices with varying levels of risk.
1986	**Tax Reform Act of 1986** created the Real Estate Mortgage Investment Conduit, or REMIC, which created tax advantages making mortgage-backed securities more attractive
Late 1980s and early 1990s –	Many S&Ls began gambling on high-risk investments in which they lacked experience (as did regulators.) This expansion into new business was permitted under the **Garn-St. Germain Depository Institutions Act**; more than 2,000 banks failed between 1985 and 1992.
1994	**Riegle-Neal Act of 1994** practically eliminated restrictions on interstate banking, allowing bank holding companies to acquire banks in any state and allowing banks to open branches in new states.
1994	Lobbying killed off attempts to regulate derivatives
1995	Fed allowed bank subsidiaries to earn up to 25 percent of their revenues from securities operations, up from 10 percent.
1997	**Community Reinvestment Act** passed to encourage commercial banks and savings associations to reduce discriminatory credit practices against low-income neighborhoods, a practice known as redlining, and to help meet the needs of borrowers in all segments of their communities, including low- and moderate-income neighborhoods
Late 1990s –	Fannie Mae and Freddie Mac began to rapidly increase the purchasing of mortgages and securitized mortgages. Because of directives from Fannie and Freddie, banks could issue more mortgages with lowered lending standards, collect the fees associated with origination, then sell the loans and getting rid of the risk.
Late 1990s –	Wave of increased lending was facilitated by low interest rates. Decreased lending standards plus government programs encouraging home ownership for low-income families pushed demand, which inflated property values.
Late 1990s –	Loan originators began operating beyond the Fannie and Freddie system, also selling high-risk mortgages them to Wall Street investors and other banks. Many of these loans were hybrid adjustable-rate mortgages with balloon payments that required repeated refinancing or negative amortization
Late 1990s and early 2000s –	Credit rating agencies (Standard & Poor's, Moody's Investors Service and Fitch Ratings – repeatedly gave high ratings to the CDOs issued by investment banks. The agencies were being paid by the investment banks and giving high ratings assured them of retaining the business. Purchasers of the bonds relied on the agencies' ratings and in some cases could buy only those bonds with high ratings. (Investigations of the

	crisis after 20008 would find that the agencies were key enablers of the crisis.)
1998	Brooksley Born, chair of the Commodity Futures Trading Commission (CFTC) tried to initiate a move to regulate derivatives, but free market advocates including Robert Rubin, Secretary of the Treasury, Alan Greenspan, chairman of the Federal Reserve, and Arthur Levitt, chairman of the Securities and Exchange Commission, mounted a successful effort to defeat Born's idea.

1999	Not satisfied that derivatives were unregulated, the financial industry continued to use its influence to ensure that derivatives would never be regulated (see entry below under 2000.)
1999	**Gramm-Leach-Bliley Act** repealed Glass-Steagall and created a new category of financial holding companies authorized to engage in any activities that are financial in nature, including banking, insurance and securities; freed Citigroup, Bank of America, J.P. Morgan, Chase, First Union, Wells Fargo and other commercial banks to plunge headlong into the business of buying, securitizing, selling and trading mortgages and mortgage-backed securities. This meant that the government guarantee of the banking system was extended to investment banking.
2000	**The Commodity Futures Modernization Act** was inserted by Sen. Phil Gramm into the Consolidated Appropriations Act for Fiscal Year 2001. It foreclosed any possibility that derivatives (mortgage backed securities, swaps, etc.) would ever be regulated. Passed earlier by the House, it was introduced in the Senate the evening of Dec. 15, the last day of the Congressional session before the Christmas holiday. There was no substantive discussion of this rider to the appropriations bill.
2000-2006	Housing prices continued to increase. In mid-2005, Alan Greenspan said "at a minimum, there's a little 'froth' (in the U.S. housing market) … it's hard not to see that there are a lot of local bubbles." The *Economist* magazine, writing at the same time, went further, saying "the worldwide rise in house prices is the biggest bubble in history."
2004-2006	Subprime lending increased. The percentage of lower-quality subprime mortgages originated during a given year rose from the historical 8% or lower range to approximately 20% from 2004 to 2006, with much higher ratios in some parts of the U.S. A high percentage of these subprime mortgages, over 80% in 2006 for example, were adjustable-rate mortgages. These two changes were part of a broader trend of lowered lending standards and higher-risk mortgage products. Further, U.S. households had become increasingly indebted, with the ratio of debt to disposable personal income rising from 77% in 1990 to 127% at the end of 2007, much of this increase mortgage-related.
2006	U.S. home prices peaked and began a sharp decline. It became more

	difficult for borrowers to refinance their loans. As adjustable-rate mortgages began to reset at higher interest rates (causing higher monthly payments), mortgage delinquencies soared. Securities backed with mortgages, including subprime mortgages, widely held by financial firms globally, lost most of their value. Global investors also drastically reduced purchases of mortgage-backed debt and other securities as part of a decline in the capacity and willingness of the private financial system to support lending.

February 27, 2007: Freddie Mac says it will no longer buy the most risky subprime mortgages and mortgage-backed securities.

April 2, 2007: A leading subprime mortgage lender, New Century Financial Corp, files for Chapter 11 bankruptcy protection.

August-December 11, 2007: Fed cuts discount rate four times by a total of 1.5 percentage points to 4.75 percent, and continues to do so eight more times in 2008 as the economy weakens.

January 11, 2008: Bank of America announces plan to buy Countrywide Financial in a $4 billion all-stock deal.

March 24, 2008: New York Fed provides $29 billion in term financing to help JPMorgan buy Bear Stearns.

September 7, 2008: The U.S. government places Fannie Mae and Freddie Mac into conservatorship.

September 15, 2008: Lehman Brothers Holdings Inc files for Chapter 11 bankruptcy protection and Bank of America announces plan to buy Merrill Lynch & Co for $50 billion.

September 16, 2008: The U.S. government gives AIG a bailout of $182 billion because it was “too big to fail.”

September 25, 2008: JPMorgan Chase acquires the banking operations of Washington Mutual Bank.

October 3, 2008: President Bush signs into law the Emergency Economic Stabilization Act, which creates the $700 billion Troubled Asset Relief Program, or TARP.

October 12, 2008: The Fed approves Wells Fargo’s acquisition of Wachovia Corp. The deal trumped Citigroup’s efforts to buy Wachovia’s retail bank operations with support from the U.S. government.

October 28, 2008: The Treasury buys $125 billion worth of preferred stock of nine banks in first TARP funding wave.

November 10, 2008: The Treasury buys $40 billion of AIG shares through TARP.

November 17, 2008: Lincoln National, Hartford Financial Services Group and Genworth Financial seek TARP funding.

November 18, 2008: Ford, General Motors and Chrysler executives seek TARP access for federal loans in Congressional testimony.

November 20, 2008: Fannie and Freddie suspend mortgage foreclosures until January 2009.

November 23, 2008: Citigroup and Bank of America are both bailed out again by the government. The Treasury gives both another $20 billion, and agrees to protect them from losses from some of their worst assets. Bank of America's protection was never put in place.

December 15, 2008: The Fed approves PNC Financial Services Group Inc's acquisition of National City Corp to create the fifth-largest U.S. bank.

December 19, 2008: The Treasury authorizes a TARP loan of up to $13.4 billion for GM and $4 billion for Chrysler.

December 24, 2008: The Fed approves conversion of GMAC Bank into a commercial bank and, as part of the agreement, GM reduces GMAC ownership interest to less than 10 percent.

December 29, 2008: The Treasury says it will buy $5 billion of GMAC equity and lend $1 billion to GM.

January 16, 2009: The Treasury announces it will lend $1.5 billion in TARP funds to Chrysler to extend new consumer auto loans.

February 17, 2009: President Barack Obama signs into law the American Recovery and Reinvestment Act, a $787 billion stimulus package.

February 25, 2009: The Fed, FDIC and other government offices announce plan to "stress test" banks by April 2009.

May 7, 2009: Regulators release results of stress tests on 19 biggest U.S. banks, all of which received TARP funds, and say 10 of them need to raise a combined $74.6 billion to withstand a possibly deeper recession.

June 1, 2009: GM Corp and three domestic subsidiaries announce they have filed to reorganize in bankruptcy.

November 1, 2009: CIT Group Inc files for bankruptcy protection under Chapter 11, wiping out the $2.3 billion stake the government bought in CIT through TARP in December 2008.

December 2, 2009: Bank of America says it will buy back all the stock it sold to the Treasury under TARP.

December 14, 2009: Citigroup and Wells Fargo make similar announcements.

JEJ – So There You Have It.

I think that the high-end market is not “tanking”, “dying”, or currently “in decline”. Sure, it was affected by the 2008 meltdown, but all markets were down, including global ones. The Dow has hit a new record-high recently, and Americans will respond by getting back to purchasing the things that they really want, which includes fine audio equipment. Some audio companies may not make it, but I think most of them will survive and prosper.

Each time that I have attended the Consumer Electronic Show (CES), in Las Vegas, Nevada over the past several years, I have noticed that several new companies have emerged. This is a good indication that high-end audio is growing and becoming stronger.

I would like to suggest to our readers with high-end audio systems that they host evenings with their friends and neighbors, and show them what a high-end audio system can do. Perhaps there is only a small percentage of the population who would be impressed enough to go out and purchase such systems, but if a significant portion of our readers do this, they will reach many of those who have the passion for great sound and just didn’t know they have it. This is what happened to me when I first went to Seattle Stereo so long ago in 1962.

Let me be so bold as to suggest to manufacturers, based on the information I obtained, that you regularly introduce new products and to expand the types of products that you market. Don’t introduce all of them at the same time, but, rather, introduce them one at a time to constantly keep readers going to your website. Also, develop distribution divisions in all three major markets: North America, Europe, and Asia. If necessary, use OEM to make your new products. There is nothing to be embarrassed about doing this. It is a common method.
You might want to consider making a few of your products available on-line with companies that sell audio equipment, such as Audio Advisor, Acoustic Sounds, and Music Direct. I receive catalogs by regular mail from several such companies, and I see that some high-end manufacturers are already doing this. Such a strategy will familiarize your company name with a huge number of audiophiles.

Last year (2015), I had an interesting experience with Lexus (a luxury car manufacturer). They called me and asked if I would give them permission to use a quote from one of my reviews of Mark

Levinson products as part of their plan to put kiosks in their dealership show rooms. The kiosks were designed to advertise that Lexus offers a Mark Levinson sound system in their cars as an upgrade from the standard factory sound system. They said they were going to try it out in their Los Angeles show rooms to start with, and then go nationwide by moving a set number of kiosks from city to city. I gave them permission. I didn't follow up, so I don't know what happened after that. They may have created kiosks and placed them in Lexus show rooms, or it may have only been just a potential plan. The point is that high-end audio is being offered as a factory option in some automobiles, and you might consider contacting companies that manufacture various brands of cars and seeing if they would be interested in having you develop a car-audio sound system for their top models.

John E. Johnson, Jr.

Editor-in-Chief

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