

PANTERA

BITCOIN LETTER

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Bitcoin's volume-weighted price on the Bitstamp exchange fell 16% in July. Year-to-date, bitcoin is off 33%, although four times higher than one year ago. Below we discuss the effect of margin trading on bitcoin's price and bitcoin versus gold as a store of value.

8/31/14	Price Change
Month	-16%
Year-to-Date	-33%
Year-over-Year Return	4x

Source: Volume-weighted price on Bitstamp according to www.bitcoincharts.com.



In September, we will be visiting major cities for a series of meetings regarding the Bitcoin ecosystem and our views on the future of bitcoin:

New York City and Connecticut, September 4-9th

New York City and Connecticut, September 30-October 2nd

Other North American and European cities, dates to be determined

If you are interested in a one-on-one meeting, please contact Pantera's investor relations department at 415-360-3600 or ir@panteracapital.com.



We want to share our thoughts on why the price of bitcoins fell last month.



We believe bitcoin initially came under pressure because of uncertainty over New York State regulations. Responding to a chorus of disapproval from most of the Bitcoin community, prices¹ fell \$69.06 between July 16th (the day before New York's regulations were released) and August 13th, including \$27.04 on the 13th, when Circle² said that it might have to stop doing business in New York if the proposed regulations went into effect.

It appears that margin trading was the primary cause of prices plummeting \$87.77 over the next few days, from \$543.08 on the 13th to an intra-day low of \$455.31 on August 18th.

The Bitcoin ecosystem is slowly maturing with the development of margin trading and swaps and futures markets. Margin trading began with Bitfinex in June, 2013, and OKCoin, China's largest Bitcoin exchange, began offering this service in June, 2014. BTC-e and other small exchanges also offer margin trading. We believe that, over time, these products should help decrease bitcoin's wild price swings. Market participants will be able to more effectively hedge their positions and have more options to manage their risk besides selling. However, since these products are in their early development, they may contribute to volatility during points of stress.

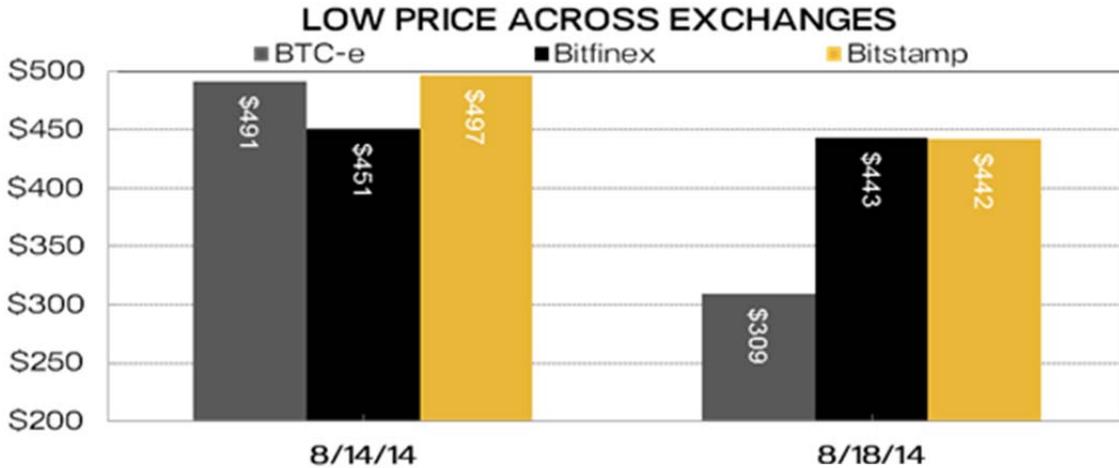
Combining the ability to leverage with a market that can be illiquid seems to have caught traders off guard, leading to a cascading effect where margin calls resulted in forced selling, which in turn led to additional margin calls and selling. As Matlab pointed out, "Running some quick math based on the maintenance margin of Bitfinex of 13% and assuming Bitcoin as collateral we find that margin calls should start around the 520-540 USD/BTC mark. Yesterday [August 13], prices came close and today they finally fell off the cliff." This was exacerbated by the difficulty of moving fiat currencies into and out of exchanges offering margin.

We find persuasive evidence that the plunge in prices was due to forced margin selling in that the lowest print among all exchanges belonged to the smaller, leverage-offering exchanges BTC-e and Bitfinex. While arbitrage normally ensures that these three exchanges trade within 1% of each other, Bitfinex's closing price on the 14th was 9% (\$46) less than the closing price on Bitstamp and BTC-e was 30% (\$133) lower on the 18th.

¹ Bitstamp price at 4PM New York time.

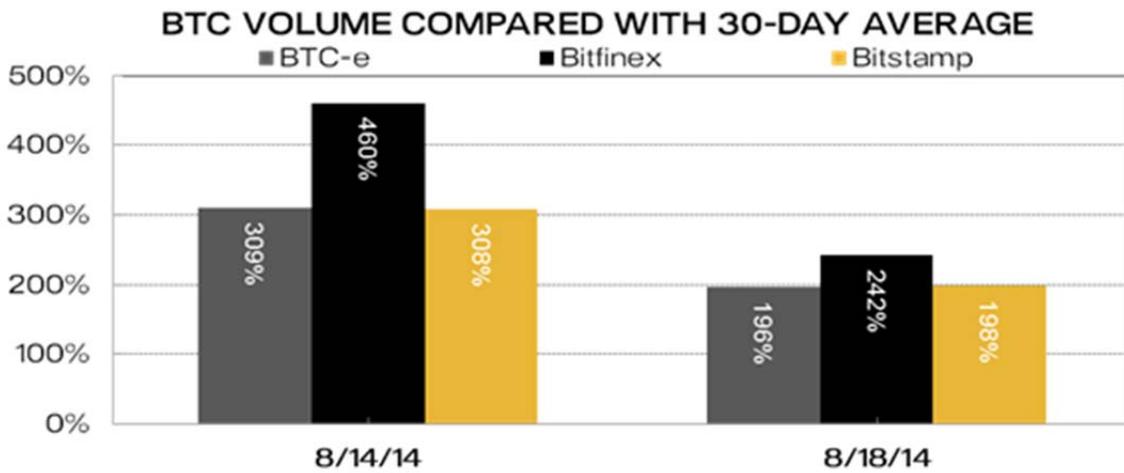
² Circle is a Pantera portfolio company.





Source: bte-e.com, bitfinex.com, bitstamp.net

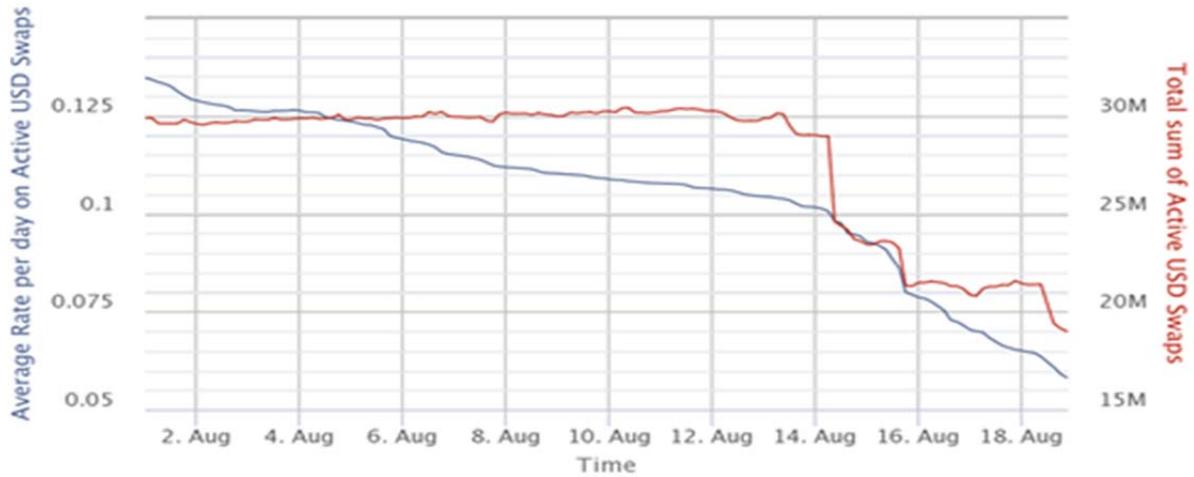
Additional evidence that prices were affected by margin calls is that trading volume, especially at Bitfinex, was significantly higher than the average over the previous 30 days.



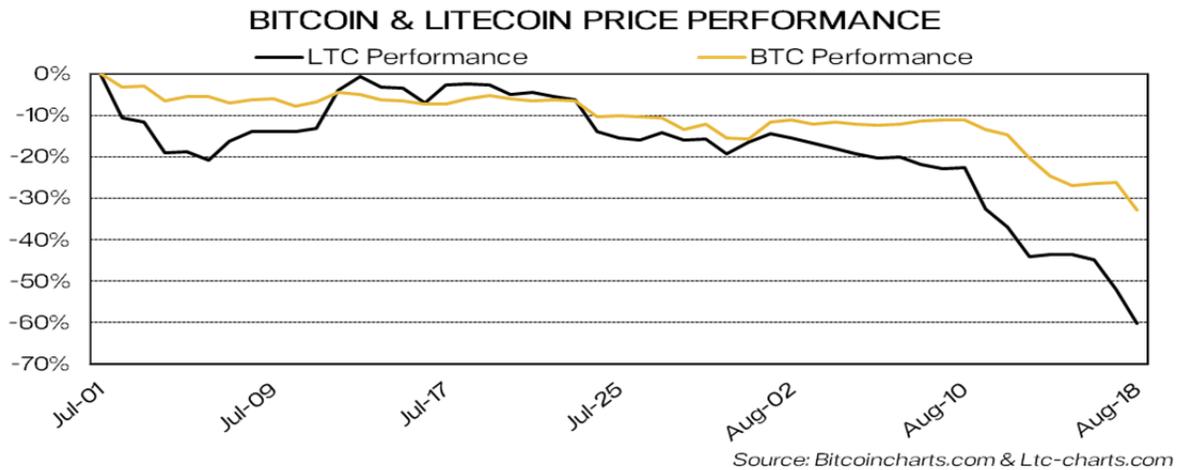
Source: bte-e.com, bitfinex.com, bitstamp.net

Finally, bitcoin swaps fell by more than a third during the August 14-18 price collapse. Long swap positions were above \$30 million on August 13th, about five times the average daily trading volume on Bitstamp, falling to \$19 million by the 18th.





Altcoins were even more volatile than bitcoins in August. For example, Litecoin, the second-largest digital currency, plunged relative to bitcoin.



Bitcoin accounted for 94.9% of the market capitalization of all digital currencies on August 18th compared with 89.6% on March 18th. In fact, Litecoin has lost over 50% of its value relative to bitcoin this year.

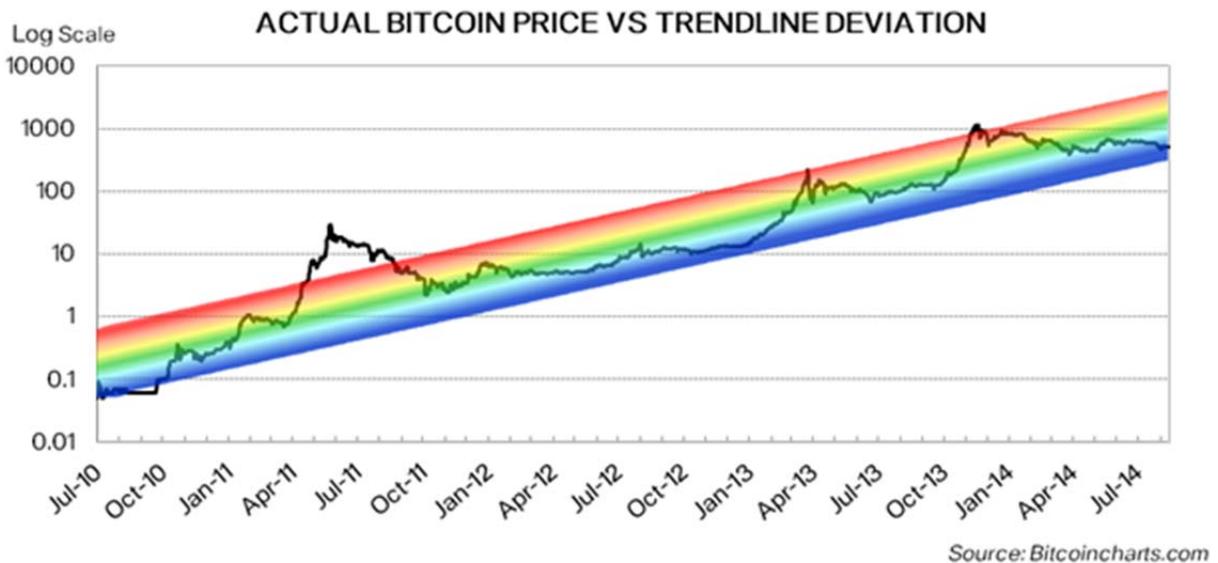


LTC Market Cap as a Percentage of Bitcoin



BITCOIN PRICE VESUS TRENDLINE

Over the last four years, bitcoin prices have increased at an 842% compound annual growth rate. The recent price decline has resulted in bitcoin being at the bottom end of the historic deviation from trend.



GOLD VERSUS BITCOIN AS A STORE OF VALUE

Of the 118 known elements, how did #79 become a store of value? Why not #78, platinum, #80, mercury, or some other element? There have been many explanations over the years:

- Gold was the first metal to be discovered (circa 3500 BC). Unlike other metals which had to be mined and processed, gold was found in nugget form in stream beds.
- Supplies are scarce, but not rare enough to be impossible to find.



- Gold's unique color allowed it to be easily identified.
- Gold is the most malleable and ductile of all known metals and does not decay, corrode, or tarnish when exposed to air, making it a preferred medium for decoration and jewelry dating back to prehistoric times.
- Gold is unreactive, a desirable characteristic for physical currencies.
- High density makes transportation easy and counterfeiting difficult, as simple weight and volume calculations can determine authenticity.
- Fungibility allows for a standard and uniform basis for currency.
- It has a sufficiently low melting point that it can be inexpensively made into uniform and divisible units.
- Compared with other early potential stores of value, like livestock or foodstuffs, gold is relatively inexpensive to store and maintain.

Precious metals were used in commerce in Mesopotamia since the Bronze Age, but coins originated much later, during the 6th century BC, in Anatolia (present-day Turkey). Gold eventually became a primary form of money, falling into disuse in the early 20th century. Most of the world stopped making gold coins by 1933, as countries switched from the gold standard due to hoarding during the Great Depression.

"Economics is often a contentious subject, but economists agree about the gold standard – it is a barbarous relic that belongs in the dustbin of history. As University of Chicago professor Richard Thaler points out, exactly zero economists endorsed the idea in a recent poll. What makes it such an idea non grata? It prevents the central bank from fighting recessions by outsourcing monetary policy decisions to how much gold we have – which, in turn, depends on our trade balance and on how much of the shiny rock we can dig up. When we peg the dollar to gold we have to raise interest rates when gold is scarce, regardless of the state of the economy. This policy inflexibility was the major cause of the Great Depression, as governments were forced to tighten policy at the worst possible moment. It's no coincidence that the sooner a country abandoned the gold standard, the sooner it began recovering."

Matthew O'Brien, *The Atlantic*, August 26, 2012

Inflation (and deflation) was much worse under the gold standard than it has been since. In fact, there has only been 4% of the variance in U.S. CPI since the Fed started quantitative easing than there was under the gold standard. For example, CPI fell from 23.7% in June 1920 to -15.8% one year later, in June 1921. Under quantitative easing, CPI has ranged from 3.9% in September 2011 to 1.0% in October 2013. In fact, CPI growth was higher in each of the 11 months (November 2007 – September 2008) prior to the beginning of quantitative easing than in any month since.

What makes the belief that the gold standard leads to price stability so odd is that the Austrian school of economics, the most prominent group advocating the gold standard, is actually quite notable for its criticism of the very idea of "price stability".

What Underpins Gold's Value Today?



Gold: "It gets dug out of the ground in Africa, or some place. Then we melt it down, dig another hole, bury it again, and pay people to stand around guarding it. It has no utility. Anyone watching from Mars would be scratching their head."

Warren Buffett, 1998

While there have been extended periods of underperformance, gold prices increased at a 4.62% CAGR in the 80 years between July 1934 and July 2014, almost a percentage point better than the 3.66% CAGR of U.S. CPI – little wonder that people have a high regard for gold as protection against inflation.

So far this decade, only 9% of gold demand has come from industry. Jewelry (48%) has been the most important use, followed by private investments (34%) and official holdings (8%).

Gold Demand

	Metric Tons				Total	Pct.
	2010	2011	2012	2013		
Jewelry	2,034	2,030	1,999	2,361	8,424	48.0%
Investment	1,607	1,758	1,626	886	5,877	33.5%
Industry	420	415	377	373	1,584	9.0%
Dentistry	49	43	39	36	167	0.9%
Central Bank Net Purchases	77	457	544	409	1,487	8.5%
Total	4,187	4,702	4,585	4,065	17,539	
India	1,006	864	864	975	3,710	21.2%
China	667	818	848	1,120	3,452	19.7%

Source: World Gold Council

Gold has retained its value as an investment asset largely because of India and China, although demand has increasingly reflected prices, one explanation for the dip in 2013 and so far in 2014.

- Jewelry in many cases is an investment. The single largest buyers of gold have been Indians, who wear their net worth every day, distrusting or not having access to banks, and China, taking advantage of their recent wealth. Widespread adoption of bitcoin could significantly reduce demand, as rural Indian women would be less willing to wear their household's entire net wealth when they leave their house.
- Industrial and dentistry have declined in recent years, responding to higher prices.
- Central banks sold 2,260 tons of gold in 2004-09. Since then, they have been net buyers (1,487 tons in 2010-13), primarily to diversify their portfolios, especially from USD-denominated assets. At the end of 2013, there were 31,320 metric tons of gold in official reserves. Over the last decade, Russia's Central Bank acquired 570 metric tons of gold, 25% more than China. China, however, is suspected of downplaying its actual gold purchases as it prepared to introduce the Yuan as a reserve currency.

Bitcoin Versus Gold



Bitcoin's superiority over gold lies in its protocol. Bitcoin mining reaps more than just the creation of bitcoins. Mining for gold just adds more gold to the market. The concept of gold's intrinsic value is ultimately misplaced, as gold's value lies not in the material itself but instead in its potential utility. In contrast, Bitcoin's intrinsic value lies in its ability to provide secure, reliable transactions of arbitrary value within an ecosystem that self-strengthens through mining.

There are some similarities between bitcoins and gold, but certain key differences are glaringly important. It is similar in that:

- Speculation causes it to react to surges in consumer sentiment.
- It is not immune to international movements in markets.
- It functions as an intermediary means of exchange-value storage: if you invest X amount in either, at some point in the future you assume the ability to extract the initial X amount invested plus or minus the change in its market worth.

Unfortunately for gold, it is relatively stagnant in terms of its use. It does have a few industrial applications, and generally gold has been a hedge against market fear and fiat-currency inflation. Mostly, gold acts as a crude storage of historically-induced, market-imposed value.

In comparison, bitcoin is remarkably different – its market ecosystem is unique compared with all other contemporary forms of value (e.g., gold, fiat money, and barter systems cannot “teleport” arbitrary-sized value between individuals, nor do they come with third-party ledgers). Bitcoin is anything but a crude storage of value, and the “intrinsic value” of bitcoins is readily apparent. In comparing the varied “protocols” inherent to gold and Bitcoin, the key differences become clear:

- Gold as an ecosystem has two parts that rely on each other's output. Gold markets serve as a means for consumers to trade gold, and gold mines serve as a place to find gold and transfer newly-acquired gold to these markets. It is a crude yet functional system with significant value because of the number of players, its market capitalization, its supposed actual value, and the intrinsic relationship between mined gold and gold which has not yet been mined. More important, banks consider gold to be a semi-prime asset.
- In comparison, Bitcoin is an ecosystem that also has two parts; but unlike gold, these two parts are symbiotically integrated as an undeniable and fundamental function of the protocol which underlies Bitcoin. Like gold's provisional system, the bitcoin mine also functions upon a need for efficiency and the potential for profit – bitcoin miners certainly compete against each other because only one miner can earn the right of seigniorage for a given “block”, but they have extremely limited control over the rate of new bitcoin issuance. Gold mining is market-driven, while bitcoin mining is algorithm-driven.

Yes, both types of miners are rewarded for their hard work. In addition to their award of newly-created bitcoins, bitcoin miners confirm transactions to the rest of the network, providing comprehensive security for the use, transfer, and storage of all bitcoins. For gold to have these traits, it would be analogous to expecting contemporary gold miners to simultaneously act as transaction security for every trade in gold: armed guards, checkpoints, concealed transaction



values, guaranteed delivery of every transaction worldwide, and a constantly updated ledger for confirmation.

Unlike gold, Bitcoin has embedded transaction security and reliability in its protocol. Bitcoin's security gets more robust as more individuals participate in both the market and the mine. Bitcoin facilitates frequent, secured, and valued transactions of varied amounts between varied individuals, all without person-to-person trust, in a manner that is both globally visible and publicly auditable.

Bitcoin's intrinsic value lies in its ability to provide secure, reliable transactions every time as a protocol (although humans do make mistakes in specific implementations of said protocol, so it's not "perfect"). Bitcoin's embedded security with a lack of central bank manipulation, nearly instantaneous and free transactions, increasingly liquid markets, and accelerating adoption rate is attractive to any contemporary investor that is looking for the new safe haven of exchange-value and the future of technological innovation.

We believe Bitcoin has many advantages over gold:

- Difficult to steal. Unlike in *Goldfinger*, there is no central location holding a significant percentage of bitcoins. Nor can a thug snatch a bitcoin chain from around someone's neck.
- Gold's weight and value make it difficult to ship. The Federal Reserve Bank of New York holds 7,716 metric tons of bullion. Transactions between countries involve a forklift moving gold from one pile to another. Bitcoin's protocol allows value to be quickly moved around the globe.
- Can be used for small purchases, while gold isn't used as currency anywhere in world.
- Limited supply, while precious metals continue to be mined. The U.S. Geological Survey estimates that there are 52,000 metric tons of gold still in the ground, with more to be discovered.
- Easy to verify. Our gold reserves haven't been examined since 1950, and then without outside observers. Three-time presidential candidate Ron Paul isn't the only one wondering whether Ft. Knox's vaults are empty.
- Less wasteful of manpower. With gold at \$1,300 per Troy ounce, the 8,133.5 metric tons of gold in our official reserve are worth \$339.9 billion. This is the equivalent of 12.3 million years of work with U.S. median personal income at \$27,659, 84 times the 146,000 man-years of work estimated to build the Great Pyramid of Giza. At least people can see the pyramids.

Hass McCook has written a thorough comparison of bitcoin and gold costs. Here are some highlights from his [report](#):

- The annual cost of mining gold is \$105 billion vs. \$0.79 billion for Bitcoin.
- Gold mining uses 475 million gigajoules of energy versus 3.6 million for Bitcoin.
- Gold mining produces 54 million metric tons of CO2 vs. 0.6 million for Bitcoin.
- Gold costs over 100 worker deaths each year versus zero for Bitcoin.
- Gold incurs about \$600 million in corruption, money laundering, and black market costs each year versus a negligible amount for Bitcoin.



Bitcoin capitalization is a fraction of world foreign exchange reserves, official gold reserves, gold bars and coins held for investment, and gold in jewelry, an important store of wealth in countries such as India. What will happen to the price of gold with widespread adoption of bitcoin?

What Could Bitcoins Be Worth?

<u>Category</u>	<u>Competition</u>	<u>Market Capitalization (Billions)</u>	<u>Price Per Bitcoin</u>
Inflation Hedge/ Investment	Privately-held bars and coins	\$ 1,164 E	\$ 88,153
Official Holdings	Gold in jewelry	3,782 E	286,496
Industrial	Gold	1,309	99,172
Unaccounted	Gold	873 E	66,114
Gold	All Gold	145 E	11,019
Official Holdings	Foreign exchange	\$ 7,273 E	\$ 550,954
Remittances	Western Union, MoneyGram	11,434	866,237
Payments	VisAmExSterCard	10	480
World M2	Governments	341	16,246
Total		60,000 E	2,857,143
		\$ 79,058 E	\$ 4,291,060

Source: World Gold Council. Gold at \$1,300 per troy ounce.

NEW WHITE PAPER

A new white paper has been added to our website, *The Bitcoin Blockchain*. It delves into the potential of blockchain-based applications. Some of these include: smart contracts, eliminating consumer fraud, and codifying reputation. [Read more...](#)

Regards,



BITFLASH HIGHLIGHTS

8/5/14: Startup Blocksign is using Bitcoin's giant records database, the blockchain, to build an entirely un-financial application. Their service lets you sign legally binding documents and agreements in the same system that keeps all records of bitcoin transactions. [Betabeat](#)



8/15/14: ASICrising GmbH says it is developing a more efficient computer chip for bitcoin mining. These new chips would only use half as much electricity as the chips currently in use. [[WSJ Digits](#)]

8/22/14: Major Chinese exchange OKCoin has passed a Proof of Solvency/Proof of Reserves audit with a 4.9% reserve surplus. This is more than what banks in many countries, including the United States, have on hand to fulfill their legally required reserve ratios. Providing Proof of Reserves is a new industry standard for Bitcoin exchanges following the MtGox disaster. [[CCN](#)]

8/24/14: Y Combinator-backed startup San Francisco Open Exchange is a new online trading platform that facilitates finding the best price among the many Bitcoin exchanges. [[TechCrunch](#)]

8/24/14: Counterparty, a peer-to-peer financial platform built on the Bitcoin blockchain, announced that they have added support for multi-signature addresses, enabling smart contract capabilities for transactions. Smart contracts aim to provide security superior to traditional contract law and to reduce other transaction costs associated with contracting. [[CT](#)]

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