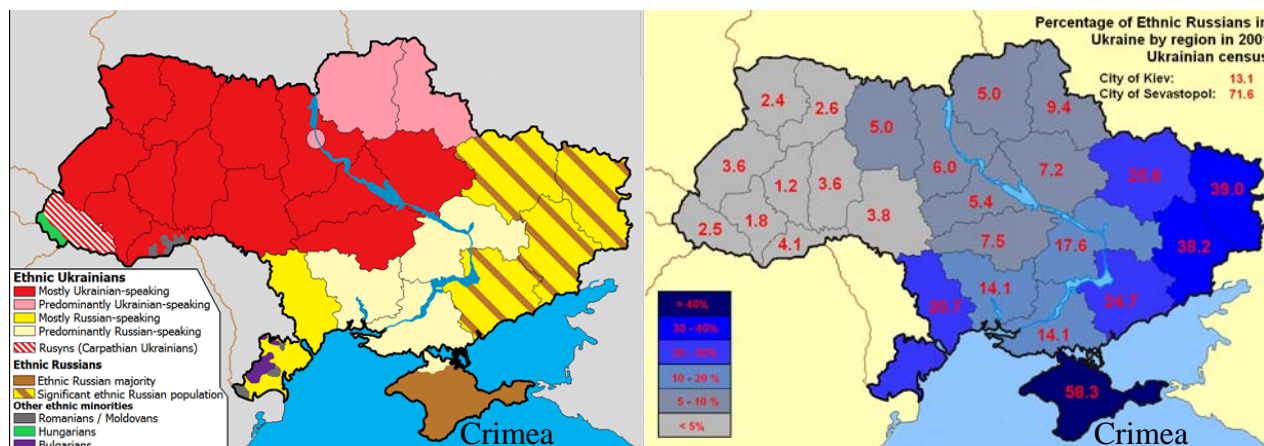


Mailbag: Q&A on Ukraine, US equities, emerging markets, Puerto Rico, Bitcoin and hedge funds

This week, answers to 5 questions we have received on markets and investments.

Before we begin, some information on the Ukraine and the Russian occupation of Crimea. Note below the high concentration of ethnic Russians on the Crimean peninsula (in part a by-product of the Red Army deporting Crimean Tatars after their collaboration with Germany during WWII; some have since returned, but only make up 12% of the Crimean population). In the 1950's, when Crimea was "given" to the Ukraine, it was probably seen as little more than a book-keeping entry by the Soviet Union given the control it exercised over its Republics. Crimea is also home to the Russian Black Sea fleet in Sevastopol, whose port is leased from the Ukraine through 2042.



Sources: Ukrainian 2001 Census, Wikimedia Commons

In this regard, Crimea (when considered separately from the Ukraine) looks different from other former Soviet Republics. While Russian *language* usage is high in many of these countries, the percentage of ethnic Russians tells a different story in terms of the size of the Russian diaspora.

	Latvia	Kazakh	Estonia	Ukraine	Belarus	Moldova	Kyrgyz	Azerbai	Georgia	Lithuania	Uzbekis	Turkmen	Tajikis	Armenia
% Russian ethnicity	27%	26%	24%	17%	11%	9%	9%	7%	6%	6%	6%	4%	1%	1%
% actively using Russian language	58%	67%	39%	61%	78%	57%	29%	25%	37%	22%	20%	4%	17%	30%

Sources: Country census reports, Temple University. 2008.

It is difficult to know what happens from here; no one knows what Russia's intentions are beyond Crimea. You will find comparisons to Germany's 1938 annexation of the Sudetenland in the press, and there are risks of greater escalation¹. Our contacts that specialize on defense and military issues tell us that (as in 1938) the chances of European or US military support for the Ukraine are very low. The US is considering economic sanctions on the Russian government and its banks, and the State Department has drafted a list of Russian assets held abroad that could possibly be frozen, but that is all we have heard so far. For investors, this episode is likely to bring even more scrutiny on the pricing of emerging markets assets, the rising risks of a recession in Russia (growth is only running a little over 1% as things stand now), and the geopolitical risks facing countries like Turkey.

As for Europe specifically, Russia controls the natural gas pipelines that cross the Ukraine and provide much of its energy, reducing EU leverage below whatever might have existed in the first place. One interesting thing to watch: the debate over US LNG exports. We wrote last year that we expect project approval to proceed very slowly, but there could be an acceleration of approvals if the US decided that it wanted to try and reduce the energy-related leverage that Russia has over its European natural gas customers.

¹ We also do not know the degree of any "Bay of Pigs" issues in play, i.e., the extent to which Ukrainians acted out of the belief that Western powers would financially and militarily support them.

“Are US equity markets too expensive to own?”**No, but they’re not cheap anymore, and small cap is getting more expensive.**

During the equity rally of 2009-2013, P/E multiples rose despite intermittent weakness in GDP and corporate profits. With the exception of the late 1990’s, US large cap P/Es² are now edging toward the higher end of mid-cycle valuations. If so, future investor returns in equities may be more closely linked to earnings growth (which we expect to be in high single digits), and the success of active equity managers versus benchmarks. As one marker, consensus earnings growth expectations for 2014 have fallen from 11% last summer to around 9%.

Small cap valuations³ look more expensive now, even when using 2014 consensus earnings estimates of 20%. From an historical perspective, 20% is not unreasonable; from 2003-2007, 3% GDP growth resulted in 20%-25% annual small cap earnings growth, and the same was true in the mid-1990’s. But this is not a normal earnings environment: top-line revenue growth is weaker than usual, and earnings have been boosted by weakness in labor, interest and energy costs. Using a 10% earnings growth assumption instead, small cap valuations look more elevated.

Given the worst winter/snowfall disruption in 35+ years, some US economic weakness appears weather-related, and I expect some catch-up in the spring. However, some of the weaker data (housing’s response to higher interest rates last fall) pre-dated cold weather, and the weather theory itself will take a couple of quarters to validate, leaving markets vulnerable to the kind of ups and downs we have seen so far this year. There’s a reason that we depicted markets as taking a pit-stop on the cover of the 2014 Outlook; after a fantastic run, markets may need more proof of the good news that’s currently priced in.

**S&P 500 forward price to earnings ratio**

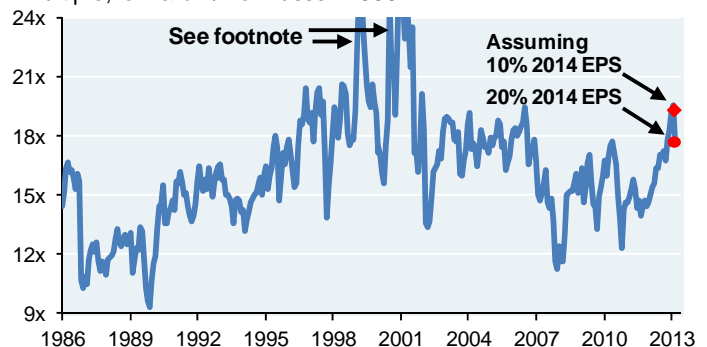
Multiple



Source: Datastream. February 2014.

Small cap valuations

Multiple, forward P/E of Russell 2000



Source: BofA Merrill Lynch, Russell Investment Group. January 2014.

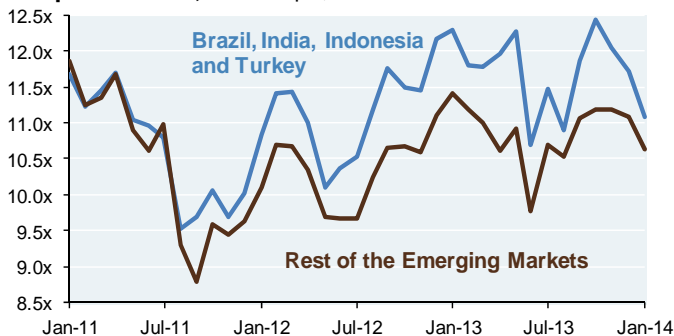
² **P/Es look higher when stripping out the tech sector, which trades as a discount to its history.** We wrote about this on June 24, 2013. The difference between the haves and have-nots in tech is more extreme than in other sectors (when measured by dispersion of revenue growth), and the disruption from cloud/mobile computing has negatively affected some companies. A model forecasting P/Es based on revenues, earnings, dividend yield, margins, RoE, RoA, etc. shows that tech P/Es are more rational than they might appear at first glance, with the results showing that investors pay for growth. We separately looked at “size”, and found that today’s large tech companies are twice as big relative to the overall economy as they were during the 1990’s. This may also explain lower overall P/Es on tech stocks than in the past.

³ The **spikes in small cap P/Es** indicate the two ways that P/Es can run ahead of market fundamentals. In the first episode in Q1 2000, small cap stocks sky-rocketed while earnings estimates were stable. In Q4 2001, small cap stocks staged a relief rally after 9/11 while earnings estimates were still falling sharply.

"Are emerging market equities very cheap yet?"

Short answer: No. If you own little and plan to own some, slowly averaging into a position avoids the need to pick the bottom.

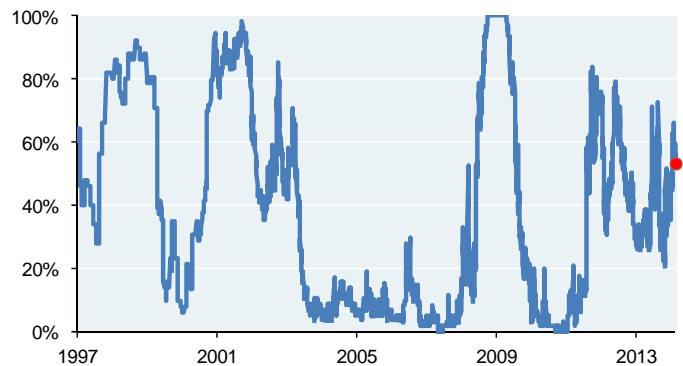
Big 4 EM debtor nation equities have fallen by ~15% in US\$ terms since December 2012. However, we have only seen a modest decline in their P/E's since earnings expectations have fallen almost as fast as equity markets have. On a technical basis, the second chart looks at the number of EM sectors (there are 62 of them) trading below their 2-year moving averages. "Distress" on this kind of chart typically looks more like 80%-90% than the current 55%, so this is not a sign of capitulation.

EM debtor nations trade at higher multiples than surplus nations, P/E multiple, 12-month forward


Source: MSCI, JPMS LLC. January 2014. Sector neutral P/E's used. The rest of the emerging markets are the other countries in the MSCI EM Equity Index.

Sectors trading below their 2-year moving averages

Percent of 62 MSCI EM sectors

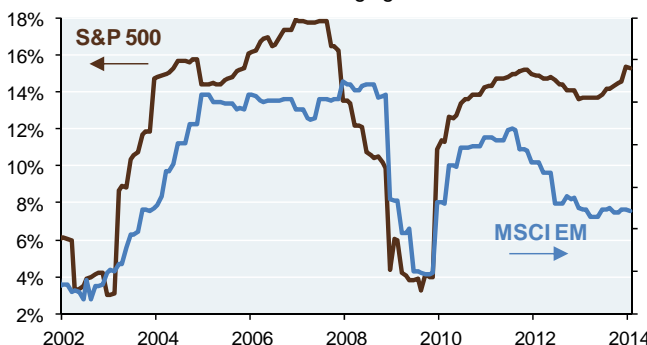


Source: MSCI, BCA Research, JPMS LLC. February 2014.

As for return on equity, while the trend in the US has been improving, EM trends have been weaker. I am not sure that all of this is cyclical; our Chief Economist Michael Vuknin has done some interesting research suggesting that the US outsourcing cycle may have hit some kind of limit (see Appendix on % of US consumption goods based on imports). As for the latest news, debtor nation interest rates are still rising⁴ and negatively impacting retail sales, employment and capital spending. While current accounts are improving in India (due in part to a collapse in gold imports), there is still more to go in the other EM debtor nations. It feels like we are at least a few months away from some kind of economic stabilization. Consider averaging in if your positions are well below targeted levels, since it will be difficult to pick the bottom.

Return on equity

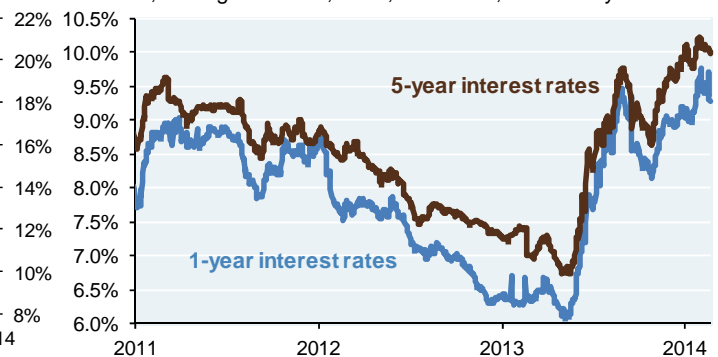
ROEs for S&P 500 vs. MSCI Emerging Markets



Source: MSCI, Bloomberg, JPMS LLC. January 2014.

EM debtors experience rising rates

Percent, average of Brazil, India, Indonesia, and Turkey



Source: Bloomberg. February 2014.

⁴ To me, the speed of increase in debt is more relevant than the level of debt. After China, countries like Turkey and Brazil lead the pack in terms of EM private sector debt growth since 2008. **Petrobras** (arguably the world's most indebted and highly leveraged major oil company) presents a related challenge for Brazil: based on its current cash flow and expenditure plans, it would need to borrow \$20 billion per year.

"Will the Commonwealth of Puerto Rico default?"

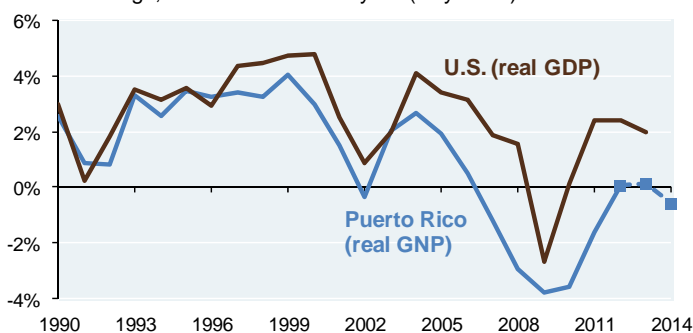
If the CPR can execute a critically important ~\$3 bn bond offering this month, it should get two years of breathing room, but the long run does not look good.

My experience tells me that a country whose population and employment are falling will eventually hit the wall, since income growth may never catch up to rising debt service, even if the country slashes spending. Here's an outline of the situation in the Commonwealth of Puerto Rico (CPR):

- The CPR has been in recession for 7 years, in part a consequence of manufacturing incentives for the US pharmaceutical industry expiring in 2006 (some companies have since decamped to Singapore and Ireland). The government is the largest employer by a large margin, and ~45% of CPR citizens live below the poverty line; this compares to 22% in the worst US state (Mississippi).
- With its \$70 billion in debt (85% of which are revenue bonds), the CPR debt to GDP ratio is ~70%, which is a high for a country whose cost of debt is much higher than its growth rate. That's also *recorded* debt; its pensions are abysmally funded at the 5%-20% level. The ratio of active to retired workers in the Employee Retirement System is around 1.1x (e.g., very low).
- Some good news: CPR debt maturities are back-loaded, with only 9% maturing within the next 3 years. If the CPR issues \$3 billion in March, it should obtain a couple of years of breathing room before the next round of maturities. It remains to be seen what terms are required to get buyers interested. Long maturity, uninsured CPR general obligation debt is trading at 65-70 cents on the dollar with a 7.5% yield⁵, so new issue buyers may have to be incented with higher yields and/or sub-par issue prices. The new CPR bond reportedly offers investors a New York jurisdiction of issuance; if markets ascribe value to it, what does that suggest about options the CPR has regarding its domestically issued debt? [Holding local law Greek debt made bondholders more susceptible to legal maneuvers that compelled their participation in a debt exchange that resulted in substantial debt forgiveness; UK-jurisdiction Greek debt was paid in full].
- The CPR has been scrambling to get to a balanced budget from a 5% deficit: spending cuts, corporate tax hikes, airport privatization, a plan to reduce oil-fired electricity in favor of cheaper natural gas (the CPR gets 68% of electricity from oil), draconian cuts to pension benefits and a shift to defined contribution for future retirees. Some of these steps put downward pressure on GDP, so their medium-term impact on debt sustainability is unclear. Rating agencies expect that it will take 1-2 years to achieve a balanced budget, a year longer than the CPR's timeframe.

Puerto Rico in recession since 2006

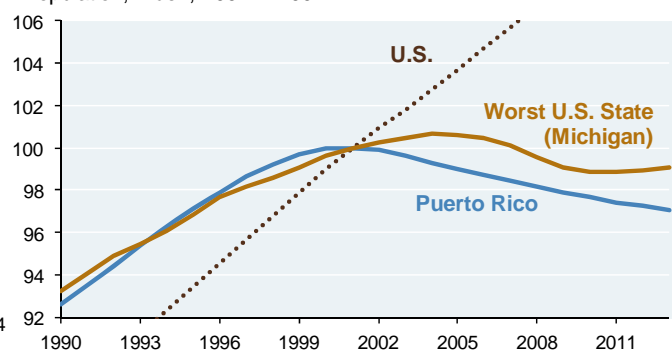
Y/Y % change, Puerto Rican fiscal year (July-June)



Source: Planning Board, Government Development Bank. Estimates based on high frequency government data. February 2014.

CPR: population decline

Population, index, 2001 = 100

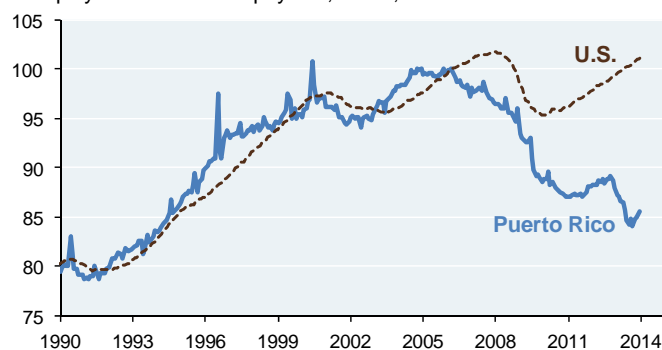


Source: United Nations, U.S. Census Bureau. 2013.

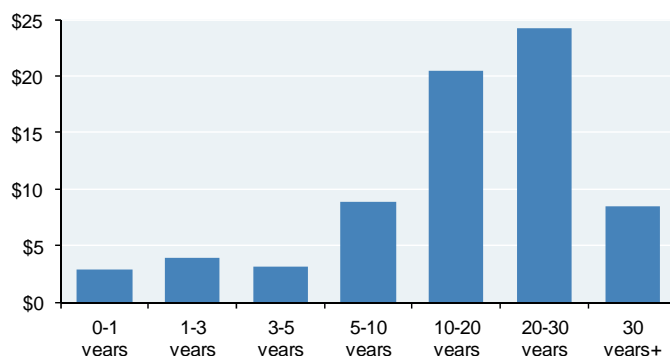
⁵ J.P. Morgan Securities has published extensively on the important differences between various CPR issuers: different collateral (e.g., sales taxes, essential service utility revenues), guarantors (~25% are insured by third parties), and overlays (some are hedged with interest rate swaps that are out of the money). The February ratings downgrade to BB does allow some investors to accelerate debt and require additional collateral, so total debt is a moving target. There's language in the CPR constitution that prioritizes bondholders ahead of other claimants, but this kind of thing was written before people really had to contemplate the consequences of not paying social services and pensions. **It's not clear how enforceable such clauses are in any jurisdiction.**

CPR: labor force decline

Employees on nonfarm payrolls, index, March 2006 = 100

**CPR: debt term structure**

Billions of USD



If the March debt offering goes well, there may be a further relief rally in the bonds, which are already trading ~10 points off of their lows. **If that's the case, it might be a good time to make further reductions in uninsured general obligation exposure, and the in the weaker revenue bond issuers, given the weight of the economic and demographic evidence (and assuming no Federal bailout of bondholders).**

"What do you make of Bitcoin?"**A lifeline for the financially oppressed, operational challenges, and the risk of it actually working**

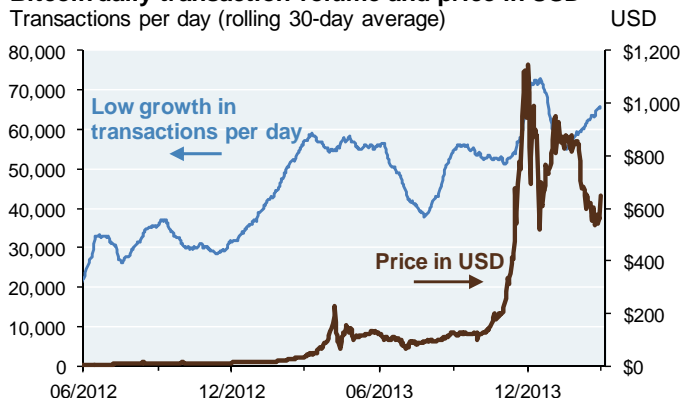
The ingenuity behind the electronic currency Bitcoin is that it replicates the supply limitations of gold. Its architects might have thought that was the hardest part, but on any road to broader acceptance, it may turn out to have been the easiest. J.P. Morgan's Investment Bank wrote a piece on Bitcoin and focused on whether it represents a "store of value" the way fiat currencies and precious metals do⁶. The authors concluded it does not: it is illiquid (daily turnover of the Mauritius Stock Exchange; massive ratio of value in circulation to daily float), volatile (20x more than the Yen; largest one-day drops to-date: 38%, 36%, 33%) and it offers no means of interim return to holders (e.g., cash yield). These are of course all static observations that could change if Bitcoin were much more broadly used.

There is a constituency for whom Bitcoin may make sense even with this backdrop: **the financially oppressed**. Examples: businesses and individuals in countries with capital controls, dual exchange rates and persistently negative real deposit rates on savings (yes, there are countries even worse than the US; in Venezuela, real interest rates have been negative for 25 years). Whose citizens are in such a predicament? There's an academic measure of capital controls on businesses and individuals that attempts to quantify this, and the worst two categories appear in the box below. Around half the people on the planet fall into this box, and they represent 28% of World GDP.

Countries with capital account restrictions

Most restrictive		Next 10	
Venezuela		China	
Ukraine		India	
Angola		Thailand	
Uzbekistan		South Africa	
Myanmar		Pakistan	
Sudan		Malaysia	
Malawi		Philippines	
Guinea		Bangladesh	
Bahamas		Algeria	
Sierra Leone		Kazakhstan	
GDP (bn \$)	Population (mm)	GDP (bn \$)	Population (mm)
1,238	260	22,012	3,245

Source: Menzie and Ito, University of Wisconsin-Madison. IMF, 2011.

Bitcoin daily transaction volume and price in USD

⁶ "The audacity of Bitcoin", John Normand, J.P. Morgan Global Rates & FX Research, February 11, 2014

Other (legal) uses could include cross-border trade, individual remittances to developing countries, small-denomination transactions for which processing fees are usually high, and a variety of small business transactions. **So far, however, Bitcoin is the Esperanto of currencies: an elegant idea to transcend national borders that attracts a community of intensely avid followers, but which hasn't yet achieved broad acceptance.** Ignore its price for a moment; actual purchase transaction growth has been low compared to the rise in trading activity. This could be a function of Bitcoin's challenges, which can be described as follows:

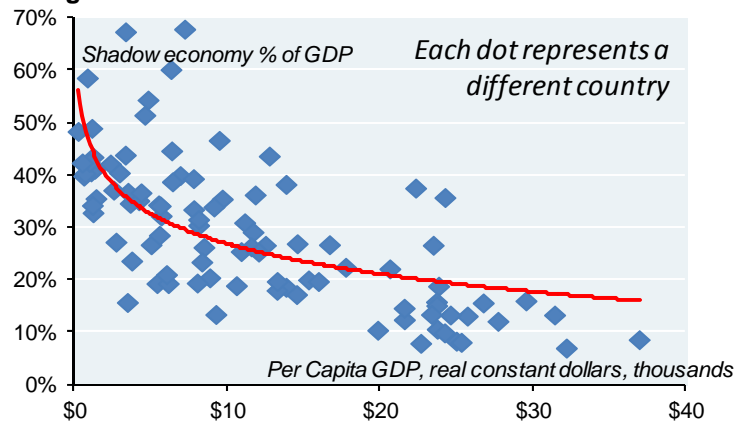
- *No free lunch.* While the number of merchants accepting Bitcoin has risen to ~35,000, a steady flow of buyers, sellers and "currency remitters", particularly those seeking to reduce frictional costs of the fiat currency system, might only participate when they can **instantaneously** convert Bitcoin receipts to cash. In the US, this can be done using merchant services like Bitpay and Coinbase, which currently charge ~1.0%. Are these sustainable fee levels given the Bitcoin price risk they are effectively taking, and are they properly capitalized? I'm not sure.
- *Regulation.* In December, China announced that financial institutions and payment institutions cannot use Bitcoin, exchange it for RMB, or act as an intermediary for Bitcoin payments. Other countries may follow with similar restrictions, or regulate Bitcoin as a "payment system" which requires that intermediaries build anti-money laundering and know-your-client procedures.
- *Safety.* Bitcoin's image took a hit with the collapse of the Mt Gox exchange and reported theft of 6% of all Bitcoins outstanding. How did this happen? Unclear, but our understanding is that Bitcoin transactions can take up to an hour to clear due to the complexity of the algorithms, which is a large enough window for fraudulent interference to divert Bitcoin flows. A related question: why did people hold Bitcoins at an exchange in the first place? Apparently, since "Bitcoin wallets" on your computer can be hacked, so much so that some are maintained on a "cold" basis (on computers that are not plugged into the internet). My head is spinning.

There are also issues around irreversible transfers, forgotten passwords leading to stranded Bitcoins and the lack of consumer protections. We hear from our contacts in Silicon Valley that a *lot* of time and money is being spent on addressing these issues with the goal of creating a more robust Bitcoin food chain. This all sounds completely feasible, but my guess is that it meaningfully raises the cost of execution vs. the fiat currency system that Bitcoin attempts to arbitrage.

After digesting all the hyperbole and the pessimism, my biggest concern is not that Bitcoin will fail, but that it or one of its many virtual currency competitors will one day succeed. In

the extreme, Bitcoin may lead to economic activity moving from the regulated economy to the underground "shadow" economy (after all, one of its primary selling points lay in its inability to be traced), even if some Bitcoin recipients faithfully declare it as income. If this were to happen, the tax burden would fall disproportionately on the regulated economy that remains, creating a lot of unwelcome distortions. Perhaps this is why there is a clear inverse relationship between the size of a country's shadow economy and its wealth per capita. In other words, no one likes paying taxes, but when no one actually *does* pay them, everyone suffers. Libertarianism has its limits.

Large shadow economies coincide with less wealth



Source: Conference Board, "Shadow Economies and Corruption", Buehn and Schneider. Economics E-Journal. October 2009.

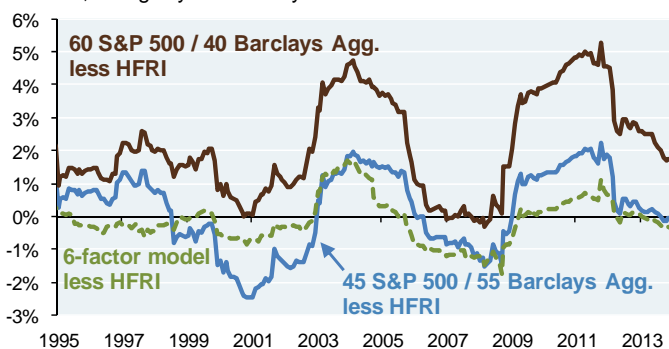
"My hedge fund portfolio returned 8% annually over the last 3 years. Was that any good? And are hedge funds generally less leveraged than before the financial crisis?"

8% is below a simple stock-bond proxy, and above one that does a better job capturing the risk of diversified hedge fund ownership. Yes, HFs are now less leveraged, but leverage is rising.

What's the best way to assess performance of a diversified HF portfolio? Absolute thresholds (8%, or Libor + 3%) are unrealistically high in some markets and too low in others. A shorthand way is to compare it to returns on a stock-bond portfolio with a similar risk profile; and where "risk profile" is the volatility of monthly returns over the long run. What stock-bond portfolio mix makes sense? As shown below, while a 60 Equity / 40 Bond portfolio mix is popular, it has consistently generated a lot more volatility than the HFRI Composite. A benchmark of 45 Equity / 55 Bond is much closer, albeit with a +/- 2% margin of error. From 2011 to 2013, this mix delivered a 9.1% annual return, so 8% on hedge funds looks a little light. This is unsurprising given the magnitude of the recent equity rally.

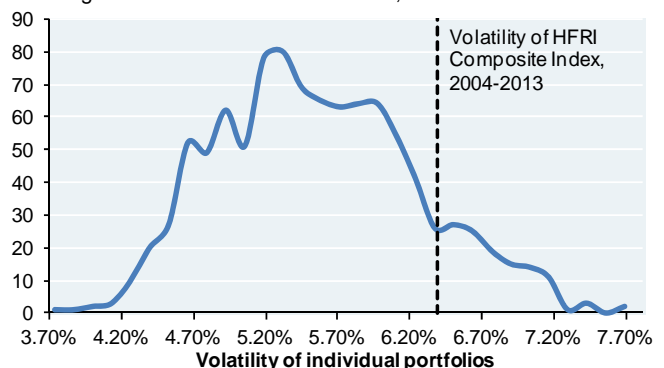
In search of the best risk match for the HFRI Composite

Percent, rolling 3-year volatility difference



Source: Bloomberg. January 2014.

Distribution of return volatilities of randomly generated portfolios of 20 hedge funds based on stated criteria, 2004-2013



Source: Pertrac, Bloomberg. January 2014.

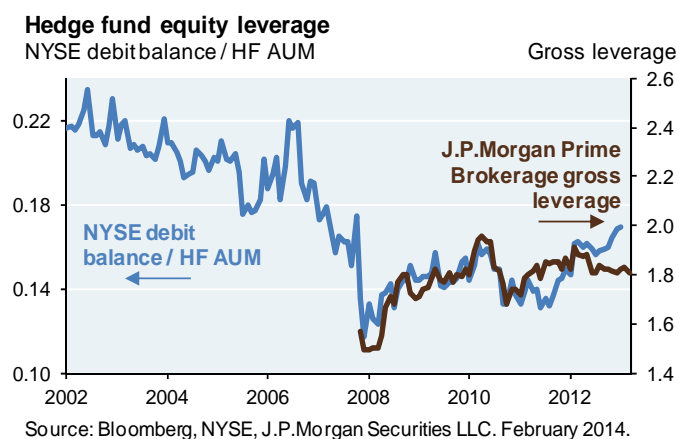
What if the HFRI Composite (which an investor cannot buy) understates the risk of owning actual hedge funds? To examine this question, we created 1,000 random portfolios of 20 hedge funds based on certain criteria (at least 7 years of performance, at least \$750 mm of AUM, and equal weighted among long-short, macro, event-driven and relative value). The volatilities of these random portfolios were usually less than the HFRI Composite (see chart, right), so we proceed under the assumption that the HFRI does not understate diversified hedge fund portfolio return volatility.

Next step: we can improve the accuracy of the stock-bond proxy, since there are better ways of capturing the risk of hedge fund ownership. As shown in the chart (green dotted line), we can replicate the volatility of the HFRI Composite more closely using a 6-factor model of US large cap, US small cap, emerging market equities, high yield, commodities and cash. Since 2001, the model's combined equity weights are ~30% rather than 45%-50%, implying a much lower equity risk component of the HFRI. Using this factor model, the benchmark delivered 4% annually over the last three years, in which case 8% on a hedge fund portfolio looks better.

If 4% seems bizarrely low as a benchmark, you might be over-estimating the volatility that diversified hedge fund portfolios have been generating. An "equity vs. hedge fund" comparison may have some appeal in terms of simplicity, but does not appear to have a foundation in the realized experience of diversified hedge fund investing, particularly over the last decade. Another way to say it: if you sell equities and buy a diversified HF portfolio on a 1:1 basis, you are probably making a very large risk reduction in your portfolio.

For even more diversified HF portfolios (e.g., 40-50 funds, or those comprised of hedge fund of funds), volatilities are often lower, around 3%-4%. In this case, we would benchmark the HF portfolio against the Barclay's Aggregate on its own. By extension, this is why some investors have added low-vol hedge fund exposure and reduced fixed income, in anticipation of rising rates.

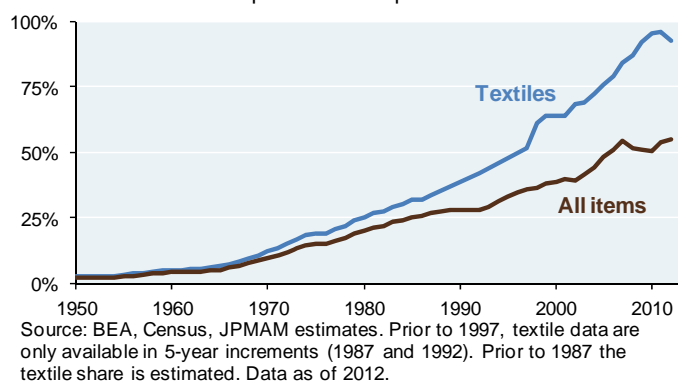
Has hedge fund equity leverage declined since the crisis? Some press articles refer to the elevated level of debit balances (margin debt) on the New York Stock Exchange as a sign of elevated hedge fund leverage. Margin debt is a very imperfect proxy for hedge fund leverage, but can be directionally accurate. However, after normalizing these balances for the assets that hedge funds manage, implied leverage is considerably lower than 2002-2007 levels. This conclusion dovetails with data from J.P. Morgan's Prime Brokerage department (which tracks the cash equities gross leverage of the hedge funds it does business with), as well as other prime brokerage desks. Both measures tell the same story: equity leverage is now rising after the depths of 2008, but is lower than it was pre-crisis. Note that this does not include measures of leverage related to certain credit strategies.



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Appendix chart: have we reached the limit of US outsourcing?

Half of U.S. goods are outsourced, some already at the limit
Percent of U.S. consumption that is imported



Sources

"Rocky start to new year for small caps," DeSanctis, Giannini, and Wang. BofA Merrill Lynch. February 11, 2014

"US Fixed Income Markets Weekly," Puerto Rico Research Compilation, J.P. Morgan Securities, Oct 25, 2013 with subsequent updates through February 2014.

"What Matters for Financial Development? Capital Controls, Institutions, and Interactions," Chinn, Menzie D. and Hiro Ito. Journal of Development Economics, Volume 81, Issue 1, Pages 163-192, October. The Chinn-Ito financial openness index incorporates four metrics of restrictions on capital account transactions: (1) whether a country has multiple exchange rates; and whether restrictions are placed on (2) the current account, (3) the capital account, and/or (4) the use of export proceeds.

"Why Bitcoin Matters," Marc Andreessen, January 22, 2014

AMBAC: American Municipal Bond Assurance Corporation; **AUM;** Assets under management; **BEA:** Bureau of Economic Analysis; **CPR:** Commonwealth of Puerto Rico; **HFRI:** Hedge Fund Research Inc.; **IMF:** International Monetary Fund; **NYSE:** New York Stock Exchange; **P/E:** Price-to-earnings multiples; **EPS:** Earnings per share; **RoA:** Return on Assets; **RoE:** Return on Equity.

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