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The FUTURE of FINANCE

A NEW MODEL FOR BANKING AND INVESTMENT

Moorad Choudhry | Gino Landuyt

Foreword by Professor FRANK J. FABOZZI

The Future of Finance

*A New Model for Banking
and Investment*

MOORAD CHOUDHRY
GINO LANDUYT

藏书章



WILEY

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Foreword

Economic and financial crashes are nothing new. Students of finance will be familiar with the pattern of crises that has beset markets since the 1700s. However, the crisis of 2007–2009 was unique in certain respects. First, it took place in an era of globalization, with its consequent almost instantaneous transmission of events. Second, it followed no set pattern. There was no initial shock followed by recovery; rather, economies and markets were beset by a series of shocks, each of greater impact than the last. Thus, the initial events—the crisis in the U.S. subprime residential mortgage market, the losses at two Bear Stearns hedge funds, the illiquidity in the asset-backed commercial paper market, the run on the UK bank Northern Rock—led seemingly to a still greater crisis, culminating in the bankruptcy of Lehman Brothers and the government bailout of the insurance giant American Insurance Group (AIG). It was at this point that governments in the United States and Europe had to step in and save their banking sectors from imminent collapse. The crisis of 2007–2009 differed from previous market corrections in that for a time there appeared to be no end in sight for it.

The near failure of the banking system and the worldwide recession that followed provoked considerable debate on how it had been allowed to happen, and what steps should be taken to reduce the likelihood of another crash and, if such a crash should occur, how to mitigate taxpayer exposure. It was evident that egregious errors had been made in bank governance, regulatory policy, and risk management regimes. The diversity of firms impacted by the crash, however, suggests there is no simple, universal cure for the financial markets. Banks and investors are better advised to learn the lessons of the crash and adopt policies and processes that mitigate the effects of the next crash, rather than think that they can avoid its impact altogether.

The financial crash and its aftermath have already been covered extensively in the literature. Academics, practitioners, and journalists have provided the market with numerous treatises and analyses, some of it polemic in nature and all too often offering little added value. Wisdom in hindsight is abundant. When we remember that John Kenneth Galbraith's seminal study of the 1929 stock market crash was published 25 years after the event, it is clear that the lessons to be learned from the latest crash will take some

time to formulate and digest; much of the material published so far on the crash suffers from being written in haste, and that brings me to this present work by Moorad Choudhry and Gino Landuyt. The authors have benefited from taking a longer term perspective at the causal factors behind the crash, and this has paid off in the value and tractability of their policy recommendations. They point out the paradox of financial markets: unlike many other asset types, an increase in financial asset prices leads to increasing demand. A proper understanding of the markets, and how to position oneself for changes in conditions throughout the economic cycle, will serve bank boards and investors best.

Another lesson of the crisis, which Messrs. Choudhry and Landuyt point out, is that market stability itself plants the seeds of the next crisis. In an environment of stable interest rates, low inflation, and economic growth, banks and leveraged investors extend their risk-reward frontiers and take on more debt. This makes sense if one makes an implicit assumption that growth will be continuous, and that asset prices will only move upwards. But to make this assumption is to be unprepared for the inevitable downturn. The paradox of stable markets needs to be built in to any practical implementation of efficient market theory and modern portfolio theory. The authors review the conundrums at hand, and list practical steps that investors can take in their approach to more efficient fund management. The crisis of 2008 was also a crisis in bank liquidity; helpfully, this book reviews liquidity policy and how banks can set up a more effective liquidity risk management infrastructure.

I have known and worked with Dr. Choudhry for ten years, and it is a pleasure to write this Foreword. Investors will find much valuable insight in this succinct and accessible book, as well as recommendations of practical import to take with them into the changed, more risk-averse era of finance.

Frank J. Fabozzi

Professor in the Practice of Finance, Yale School of Management

Editor, *Journal of Portfolio Management*

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Preface

The year 2008 was an *annus horribilis* for investors in financial markets. No investor was protected against the downfall in asset prices. Even the stars of the past decade, the wizards of Greenwich who promised that investment portfolios would be made immune to downward correction by adding portable alpha to their portfolios, had to admit that there was no safe haven. Diversification across several different asset classes didn't work either, since every major asset class appeared to be under attack.

What the 2007–2009 credit crunch and economic recession reminded us was that diversification and the efficient portfolio theory do not apply at all times. What is apparent is that a cornerstone of modern finance, the modern portfolio theory (MPT), did not withstand the test during the financial market crisis of 2007–2008. Moreover, in a bear market it can be observed that diversification to hedge or spread risk sometimes destroys value rather than creates it, because it merely magnifies the existing risk exposure for no further reward.

Consider the Credit Suisse/Tremont Hedge Fund Index returns in Table P.1 (also shown in Chapter 6 as Table 6.1). All the strategies shown (except for dedicated shorts and managed futures) reported a negative performance for 2008. We can argue that both dedicated shorts and managed futures are pure directional plays, like betting in a casino, and anticipate a negative downturn, and so would always perform positively in a bearish environment. These two strategies cannot be said to represent the application of MPT.

The problem is that MPT and the diversification argument, like so many good investment ideas, only work in a bull market, when investors pay at least lip service to “fundamentals” and attempt to apply some logic in share valuation. In a bear market, or in any period of negative sentiment, all asset prices and markets go down. And in times of crises, as we have observed during 2007–2008, correlation between asset classes is practically unity.

It does not matter what industry, country, or level of managerial expertise is being considered; all prices go down and all credit spreads widen in a bear market such as the one we experienced in the recent crisis. In that crisis, everyone lost money: banks, hedge funds, volatility traders, private

TABLE P.1 Credit Suisse/Tremont Hedge Fund Index Performance 2008

	Index Value		Return		YTD
	Dec-08	Nov-08	Dec-08	Nov-08	
Credit Suisse/Tremont Hedge Fund Index	351.08	351.2	-0.03%	-4.15%	-19.07%
Convertible Arbitrage	221.62	223.82	-0.98%	-1.88%	-31.59%
Dedicated Short Bias	88.94	90.46	-1.68%	3.04%	14.87%
Emerging Markets	264.49	263.92	0.22%	-1.87%	-30.41%
Equity Market Neutral	225.47	224.54	0.41%	-40.85%	-40.32%
Event Driven:	395.52	400.56	-1.26%	-3.21%	-17.74%
Distressed	452.18	463.96	-2.54%	-5.00%	-20.48%
Multi-Strategy	371.03	372.86	-0.49%	-2.17%	-16.25%
Risk Arbitrage	277.63	273.26	1.60%	-0.02%	-3.27%
Fixed Income Arbitrage	166.79	168.13	-0.80%	-5.60%	-28.82%
Global Macro	582.69	576.3	1.11%	1.54%	-4.62%
Long/Short Equity	401.98	397.78	1.06%	-1.41%	-19.76%
Managed Futures	284.19	277.61	2.37%	3.22%	18.33%
Multi-Strategy	275.79	280.04	-1.52%	-4.63%	-23.63%

Note: All currencies in USD.

Source: Credit Suisse/Tremont Hedge Funds Index. Reproduced with permission.

equity, long/short investors, and traditional long-only fund managers all registered losses.¹ More significantly, if we look closer at the Credit Suisse/Tremont Index we notice that even the long/short equity index is down in this period as well, by over 30 percent. This refutes the claim that these strategies generated alpha.

On paper, diversification principles carry elegance and neatness but where modern portfolio theory suffers the greatest weakness is in its assumption that in every market, correlation is below 1.00. What we have observed over the past five years, whether it is managed on the basis of fundamental factors, momentum, arbitrage, or any other rationale, is that everything tends to end up on the same side of the trade at the same time. Believers in portfolio theory are convinced that (for instance) alternative investments are somehow negatively correlated with basic equities. During 2007–2008 they learned the hard way that this was simply not true. Bonds, equities, commodities, and currencies aren't asset classes in their own right.

The same argument applies to banks that diversified by branching out and operating globally. The rationale was that moving into different geographical regions spread and diversified risk. In fact all this did was magnify

risk across economies so that when the credit crunch came it hit them everywhere. While the ultimate global bank, HSBC, weathered the storm fairly well despite its geographical dispersion, due largely to its conservative liquidity management policy and strong capital base, some of the largest losses, in relative terms, occurred at global banks such as Citibank, RBS, and UBS.

The efficient market hypothesis and MPT clearly had their merits over the past 35 years. They were the basis for an investment and banking model that generated significant returns from the 1980s onward. However, in a severe bear market this philosophy has been seen to be flawed, and contributed to the development of a banking business model that suffered large losses. The inaccurate assumptions on which it is based suggest that a paradigm shift in economics needs to take place that modifies or completely replaces MPT. Portfolio diversification only makes sense if one has the possibility of picking out assets which are uncorrelated. Unfortunately, in a severe recessionary environment, correlation tends to go to one within every asset class, so this is a nonstarter for anything other than a short-term (less than five-year) investment horizon.

Our suggestion is that the paradigm shift in financial economics should be a reversion to traditional markets. Not only does diversifying across asset classes and geographical regions *not* spread risk, in a bear market it actually amplifies risk. The clear lesson from the crisis is to know one's risk, and that is best done by concentrating on assets and sectors that one is familiar with. Diversifying in the name of the MPT will only erode value.

Some of our policy recommendations include the advice to:

- Restructure the business model to assets and regions in which one has genuine understanding and expertise.
- For banks, secure long-term liquidity to allow for times of market corrections and illiquidity. We further recommend avoiding overleveraging on the capital base.

These and other recommendations are explored in detail in Part Two of this book. In essence, we hope to demonstrate our belief that a paradigm shift that results in a greater concentration on familiarity and an acceptance of lower average returns will do much to prevent large-scale losses at the time of the next market correction.

This book reviews the causes and consequences of the financial market crash of 2007–2009, and presents recommendations on how to create a more sustainable bank and investment model for the future. Specifically, we look at how banks should be structured and governed, particularly with regard to their liquidity risk management and board corporate governance,

and at a set of investment guidelines that would be least susceptible to the next market crash. Highlights of Part One of the book include a wide-ranging review of the causes of the financial crash, and note that many of the causal factors behind it remain in place. Part Two of the book presents our recommendations for a revised model for both banking and principles of investment, which we believe, if followed, will produce a more sustainable business environment.

Crashes of one sort or another are an integral part of the free-market economy. Rather than trying to prevent them or, worse still, thinking that they can be avoided or legislated away, it behooves financial market practitioners and regulators to place themselves and the firms in which they work in a position where they suffer least from the impact of crashes when they do occur. We believe that implementing some of the recommendations in this book will assist firms to achieve this goal.

Moorad Choudhry
Surrey, England
April 2010

Gino Landuyt
London, England
April 2010

The spread of secondary and tertiary education has created a large population of people, often with well-developed literary and scholarly tastes, who have been educated far beyond their capacity to undertake analytical thought.

—Peter Medawar, quoted in R. Dawkins,
*The Greatest Show on Earth:
The Evidence for Evolution*
(London: Bantam Press, 2009)

Introduction

The financial markets have always been plagued by crises and bubbles of one sort or another. Students of economic history will be familiar with the South Sea Bubble, the Dutch Tulip Bubble, and the Wall Street crash of 1929, as well as more recent events such as the 1997 Asian currency crisis and the 1998 bailout by the U.S. Federal Reserve of the hedge fund Long Term Capital Management (LTCM). Crashes are nothing new and, far from being viewed as something rare or odd, should instead be viewed as the norm, and inherent to the nature of free markets. Finance has always suffered from crises, and this is true irrespective of whether the financial system in place is open or closed, simple or sophisticated.

Financial markets promised prosperity, and in large part they delivered, especially in the postwar period. The impact of the adoption of managed floating foreign exchange rates, free movement of capital, and a host of other free market principles has been an exponential rise in prosperity and human economic development, all over the world. If one wants to observe the end result of the application of technology that has been made possible solely via the availability of large-scale, cross-border finance, then look no further than one's cellular phone. When one sees a rickshaw puller on the streets of Dhaka, earning an average salary of \$1.00 per day, and using a mobile phone, one is observing the obvious, material benefit to humankind of the free market in banking and finance. The development of affordable, accessible mobile phone telephony would not have been possible without the existence of global banking and securitization markets to provide the billions of dollars necessary to finance the mobile phone companies' research and development process. The benefits of financial markets are many and all around us.

During 2007–2008, however, the structure and behavior of the financial markets themselves caused an implosion that resulted in a banking crisis, recession, and much human misery. Certain financial instruments, the more sophisticated ones, were viewed in the mainstream media as being part of the problem. CDO (meaning collateralized debt obligation) became a household term and a byword for seemingly bad practice. In fact, losses suffered by banks were highest in another category of structured finance product, the mortgage-backed security, but that is beside the point.

In essence, it is the inherent nature of the markets themselves that makes them prone to busts after a boom, as part of a cyclical process. Let's consider some salient points now.

MARKET INSTABILITY

Free movement of capital is the cornerstone of the Anglo-Saxon financial market model. This in itself can create problems over the long term. In an earlier era, after the 1973–1974 oil shock that resulted in a fourfold increase in the price of oil, the oil-exporting countries found themselves sitting on large pools of U.S. dollar foreign exchange reserves. This they placed on deposit at Western banks, creating a large cash surplus for said banks. The banks needed to put this cash to work, which is understandable because (1) they need to generate return to enable them to pay deposit interest, and (2) the balance sheet has to balance—the OPEC liabilities needed to be lent out as assets. Many of these *petrodollars* were therefore lent to Latin American and other sovereign governments, and the rest, as they say, is history: The countries either defaulted on this debt or were close to default, and to prevent a wholesale crash of the U.S. banking system, the U.S. Treasury Secretary, Nicholas Brady, came up with a plan in 1989 (the famous Brady bonds) to save it. Sound familiar? Around the same time, Secretary Brady was also behind the plan to bail out the U.S. savings and loan banking sector, which eventually cost the U.S. taxpayer \$124 billion. Again, a familiar process.

In the most recent crisis, capital inflows can be seen to be part of the originating causal factors. Excess foreign exchange reserves from Asian and oil-exporting countries, most significantly China, were placed in the West, either directly via holdings of government bonds, principally U.S. Treasuries, or at Western banks. For example:

- The United States between 2000 and 2008 received \$5.7 trillion, equal to 40 percent of its 2007 GDP.
- The United Kingdom and Ireland received over 20 percent of their combined 2007 GDP as foreign reserves investment from exporting countries.
- Spain received over 50 percent of its GDP in such investments.

By any standards these are large infusions of cash. What is the impact of such capital inflows? Well, the full impact is large, but it is apparent that some of the results of this abundance of funds, especially in the banking sector, were that (1) credit becomes cheaper and domestic savings decline; (2) assets prices are driven up, partly due to the availability of cheap credit; and (3) there is a housing boom.

The four countries named earlier all experienced housing booms and busts during the period 2002–2008.

We stated right at the beginning, in the Preface, that economic downturns and crashes are an inherent part of the free-market system. In that respect, the events of 2007–2008 are nothing new. They do have a unique feature, however, and that is the speed at which the crisis unfolded. Globalization, the instant electronic transmission of money, the Internet—these are all features of the crash of the past decade. The instantaneous nature of the financial market, worldwide, is a structural feature that aided the generation and transmission of the crisis, and will do so again. It is a fact peculiar to the financial industry. An industrial corporation, for example, must build its plant, rent space, hire workers, and so on, all of which takes time. In finance one can deal—and suffer the consequences—right away. This aspect helps fuel a boom.

Consider also the following peculiar and virtually unique feature of finance: It is the only industry in which rising prices lead to higher demand. In almost every other industry, such as automobiles, energy, airlines, white goods, and a whole host of other sectors, holding all else equal, if the price of the product goes up demand will fall. This isn't so in finance. Here, people treat rising asset prices differently: Rising prices lead to *increased* demand! As equity or house prices rise, more and more customers, the investors, start to pile into the product. When prices fall, investors pull out, often at a loss. Financial assets are virtually the only asset class or commodity for which rising prices lead to increased demand. This paradox of finance helps fuel an asset price boom and inevitable bust.

Tie this in with the first factor noted earlier, the availability of easy and cheap credit, and the ingredients of the boom start to fall into place. As prices rise, credit becomes more abundant. This fuels the boom—and everyone, including retail buyers and politicians, enjoys a boom. Hence, regulatory and policy actions that might constrain a boom, such as increased regulation or a rise in interest rates, become difficult to implement. Finally, financial stability itself during an era of rising prices fuels a boom.¹ This breeds confidence and increases the level of risk taking. In other words, just as one should start to become more risk-averse as the market reaches ever higher highs, risk aversion starts diminishing and investors take on ever more risk and make bigger bets.

DERIVATIVES AND MATHEMATICAL MODELING

In 1998 the hedge fund LTCM imploded in a deluge of losses on its trades and had to be bailed out by the U.S. Federal Reserve, which worried about

the systemic risk arising from a failure of the fund, given that its counterparties included many major U.S. banks. LTCM was an example of the use of high leverage; at the time of its demise it was said that the debt-to-equity ratio of the fund was around 100:1. In 2008 Lehman Brothers was leveraged at between 40:1 to 50:1 when it went bust. Excessive leverage is a recipe for disaster. When everyone trades the same way, it creates a crisis. In 1998 LTCM's positions were not replicated by hundreds of large banks all around the world; in 2008 one could not say the same.

In a crisis, correlation is virtually 1.00. This is a danger that arises when everyone piles into one asset class and that asset class goes bad: There is nowhere to turn to except the government. This is an example of *reflexivity*: For example, once people believe that house prices will never fall, they will all get into this asset class and end up buying too much property; at that point, house prices will fall. So, while investment funds believe that diversification always pays, they will all invest in the same product and instruments. At that point diverse markets cease to be that diverse and actually have something in common: the investment funds that bought into them!

For 2007–2008 that asset was the housing market, and the instrument that helped banks share the benefits was the mortgage-backed security (MBS) and its derivative cousin, the collateralized debt obligation (CDO). Now, MBSs had been around since at least 1979, if not earlier; CDOs dated from about 1998. But what made this time different was that the underlying asset class (mortgage loans) failed, and it was only at this point that investors, which included banks, realized that their lack of understanding of how MBSs and CDOs were modeled was an issue.

The statistical modeling used to value (and rate) CDOs was seen to be inaccurate. The same was true for MBSs. Rating agencies had applied quantitative analysis and statistical modeling as part of their rating process to CDOs. Unlike a corporation, which is subject to qualitative analysis when its debt is being rated (such as the quality of its management, its position versus peer-group competitors, and so on), a CDO can only be rated quantitatively. There is no “qualitative” analysis that can be applied, and which would influence the rating, because, unlike a corporation, a CDO is simply a brass plate on a wall.

Unfortunately, CDO quantitative analysts and the rating agencies did not take into account—partly because their methodology can't actually account for it—falling mortgage underwriting standards. The increasing amount of “self-certified” mortgages were not accounted for in valuation models. This made credit rating levels awarded during 2006 and 2007, when the U.S. mortgage market was reaching its peak and loan origination standards were at their lowest, particularly inaccurate guides. The methodology used, which investors should have done more to understand, had

assumed perpetually rising house prices, or at least no fall in house prices, and historical default rates, which unfortunately were about to rise. And once rates rose, the investor lost his proverbial shirt. In a rating agency model, a BBB-rated tranche will pay out at (say) 6 percent default but not at 6.5 percent (although this is irrelevant where secondary market liquidity dries up). Hence, one fraction over the tranche attachment point and the investor has lost his capital.

The conclusion from this experience is that mathematics can only take an investor so far; there remains a big role for judgment and intuition, and this was forgotten at many banks.

SENIOR MANAGEMENT AND STAYING IN THE GAME

At most times, during both a bear market and a bull market, both investors and senior management display a herd mentality that makes bucking the prevailing trend difficult. In a booming market, those who urge restraint or conservatism are often ignored, or simply excluded altogether. The most famous quote that (inadvertently) revealed this mentality came from Chuck Prince, former CEO of Citigroup, who stated in an interview with the *Financial Times* in July 2007, “When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you’ve got to get up and dance. We’re still dancing.”

One month later the U.S. subprime crisis broke when investors pulled out of the asset-backed commercial paper market, triggering the start of the interbank liquidity crisis. As for Mr. Prince and Citigroup—well, the rest is history.

Perhaps the fact that managers don’t own the firm (the age-old agent-principal argument and a well-studied subject in industrial economics) leads to excessive risk taking. But consider the following: The CEO of Lehman Brothers, Dick Fuld, owned millions of the firm’s shares, as did many of the employees, at the time of the firm’s collapse. Much of the bonus payment at the company was paid in shares in the company.

MACROPRUDENTIAL FINANCIAL REGULATION AND CYCLE-PROOF REGULATION

Perhaps a starting point for financial market regulators should be an acceptance that crashes and crises in markets are an inherent part of the system. They should be expected, if not every year then at least every decade. There is no point in attempting to prevent banks from failing or asset bubbles

from bursting, because this is futile. Rather, the emphasis should be on mitigating the impact on the rest of the market when such events do occur. In other words, regulation can never be infallible, given the inherent market instability.

Another of the causal factors of the crash was the buildup of an unregulated *shadow banking* system, which regulators did not keep up with. This included:

- Hedge funds.
- Special purpose vehicles (SPVs), used to implement all manner of structured finance transactions, including structured investment vehicles (SIVs), collateralized debt obligations (CDOs), and asset-backed commercial paper vehicles (ABCPs).
- Nonbank institutions acting in a bank-like manner, such as GE Capital and AIG.

Regulators did not monitor these vehicles or firms, and in the case of SIVs and ABCP conduits they were ignoring a significant liquidity and credit risk exposure for banks that were kept off the balance sheet, via the SPVs. In addition, while hedge funds cannot be said to have caused the crash, they remain big players in the markets and ones that represent significant counterparty risk for banks.

Regulation is always strengthened in the midst of a bust. Ironically, faith in draconian regulation is strongest at the bottom of the cycle, when there is little need for participants to be regulated (because risk aversion self-regulates them). The paradox is that demand for stringent regulation is at its weakest at the top of an economic cycle, which is precisely when it is most needed—when bank loan origination standards are at their weakest.

To make regulation countercyclical, it needs to be (1) comprehensive, (2) contingent, and (3) cost-effective. Rules that apply comprehensively to all leveraged financial firms are likely to discourage the drift from heavily regulated to lightly regulated firms during a boom. Regulations should be contingent so that they have the most force when the private sector is most likely to do itself harm (during a boom) but impose fewer restrictions at other times. Of course, the problem is deciding exactly what type of economy we are in at any time! Perhaps central banks and regulators can use a range of market indicators and metrics when assessing whether the economy is in danger of overheating?

As for the form of regulations, it may be that instead of firms having to raise permanent capital it is better to have them arrange for capital to be infused when they or the system is in trouble. This would take the form

of so-called contingent-capital instruments, such as debt that automatically converts to participating equity when both of two conditions are met: The system is in crisis and the bank's capital ratio falls below a certain value. Another version of such a capital requirement would be to buy collateralized insurance policies (from the government or from foreign investors) that capitalize the firm when it gets into trouble.

Banks' capital is another area for reform. Capital needs to be made *countercyclical* so that it is built up during periods of economic stability, ready to act as a stronger buffer when times turn bad. But there are market arguments about why forcing banks to hold more capital than necessary in a boom is distortional: Business will (as it did in the shadow banking system) move to areas where capital can be reduced.

THE WAY FORWARD

One of the first impacts of the crisis was deleveraging of banks. This was of course a long overdue process. For instance, Lehman Brothers was leveraged at between 40 to 50 times its capital base at the time of its collapse. In the wake of its bankruptcy, banks started to reign in lending and build up their capital base, a natural reaction to a crash.

The preceding narrative gives some flavor of the issues and problems raised by the financial crisis. The final impact on financial markets remains to be seen. In the rest of this book we present recommendations for fixing finance and placing the markets on a firmer footing to withstand the effect of future crises. In the first instance we recommend reregulating finance. A sample of our recommendations includes the following:

- Do away with separate bodies regulating the industry, and merge them into one institution.
- Review the UK Financial Services Authority and Bank of England debate: It makes sense for the regulator to also be the supervisor and lender of last resort (LOLR) for the banking sector.
- Remove tax relief in the mortgage market, to stop fueling a housing boom. Three of the four countries noted earlier for their housing market collapses had such a tax in place (the exception was the United Kingdom, which removed mortgage tax relief some years ago).
- Require all over-the-counter (OTC) derivatives including credit default swaps (CDS) to trade through a central clearinghouse.
- Regulate all firms: no more shadow banks. Put another way, if an entity acts like a bank, and/or engages in leveraged finance, then it should be regulated as a bank.