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Crises

It was a cold day in January 2008, and I was sitting in Zurich airport waiting to board my plane, when I heard the sound of a U-boat sonar. It came from my pocket.

Piiiiiing, Piiiiiing.

It was my mobile phone. I pulled it out and pressed the green button. "Lars . . .", I said. The voice on the other end was one of my friends. What he told me sounded alarming:

"Lars, I just came out from the bank seminar. They were the most bearish I have ever heard. In fact, it's the first time I heard them really worried—just thought you should know."

The seminar he referred to was an annual forecast seminar in Zurich, which as usual was held at a famous hotel by the shores of Lake Zurich. My friend and I used to go to this presentation every year, since it tended to be very good. But this time I couldn't come.

The message in my friend's call didn't come as a total surprise; I had in fact already sold a lot of my shares and hedged the rest by selling equity index futures at the end of 2007. But what he said still worried me. We kept talking for a while, and then we hung up. The plane was still not ready, so I sat and reflected for a while. "If this thing *really* tanks—and it could—then I don't want to get in trouble because of it," I thought. The issue was that I had invested in a lot of private equity, which you cannot sell easily, and I had committed myself to invest even more. And I also had hedge funds and small caps that you could not get out of quickly. I called a broker and sold more equity futures, before finally boarding the plane.

In retrospect I should have sold even more, of course. The meltdown that followed was even bigger than I feared, and probably also bigger than almost any investment banker would have guessed. It was the bust of a lifetime, and in spite of my foresight, my net equity ended up declining during its late phases, as I covered my hedge positions in futures too early.

So, what on Earth was it that happened in that crash? Some said it was *bubbles* that were bursting in 2007. However, even though some markets were too high at the top, I personally wouldn't call them by that name. U.S. real estate, for instance, wasn't in my opinion insanely expensive at the beginning of 2008, and nor were equities.

There were others who mainly saw the crises as a *systemic failure* in the financial system, which I think is definitely correct. Still others said it was a traditional *business cycle* event, which is clearly a part of the story. So, let's take that aspect first.

It would be risky to look into the future and not consider business cycles. There are two reasons for that. First, they have an enormous impact on our lives, so how they play out in the future will impact everything else. Second, the ways business cycles behave depend a lot on the longer term trends in innovation and inflation. And, third, I think that people often confuse cycles with trends, which is avoidable if you understand both. So, I will spend the next few pages going through the few facts that I think any investor or businessman needs to know.

The main reasons for business cycles are some phenomena that you may call "ketchup effects". A ketchup effect is when you keep hitting a ketchup bottle and nothing comes out—and then, suddenly, you get much too much. Similar effects will typically occur in three unstable areas of the economy

- inventories
- capital spending
- property.

Inventories is the most predictable and least troublesome of these. If you make a snapshot of any modern economy during normal economic times, you are likely to find that inventories constitute approx. 6% of annual GDP. Here is a step-by-step overview of how it creates cycles:

1. As we enter the last phases of a recession, inventories are lower than normal, because companies for a while haven't ordered anything.
2. As demand picks up from that point, companies will be forced to increase inventories. This catching up process increases new orders and thereby gives extra stimulus to the economy.
3. With an accelerating economy, companies keep trying to increase their inventories to still higher levels, but since their sales orders also increase, they get behind with restocking for a while. Furthermore, as the economy expands, delivery times for inventory get longer, which may compel companies to order more than they really need.
4. However, eventually they seem to have enough. Once that happens, the factory orders level off and suddenly many managers get worried that they actually overdid it now they have too much inventory. So, they stop ordering for a while, and the inventory-driven cycle turns down.

Inventory fluctuations tend to create a mild business cycle that turns down every 4–5 years, which makes it the shortest of business cycles. One reason that it is short is that inventories are easy to order and arrive fairly quickly (albeit slower in booms). You don't have a nuclear reactor or a skyscraper in your inventory; you have smaller or simpler stuff, like screws and bolts, raw materials, or simple products like shavers, vacuum cleaners, or cases of wine. If an economy is contracting 5% in a deep recession, then there is actually still 95% that is moving, so companies can fairly easily reduce their inventories. The reality is that once businesses panic at the beginning of a recession and start the de-stocking process, it will very rarely take more than 9–12 months before inventories are down to almost nothing, which is why the inventory cycle is short.

The next business cycle driver is *capital spending*, which is investments in machines and equipment like assembly lines, trucks, packing machines, and computers. Capital spending comprises approx. 9–10% of most modern economies, and more in high-growth emerging markets.

Why do capital investments cause economic fluctuations? Well, when the economy grows, companies will after a while decide that they need to increase their production capacity, so they order more equipment. This creates a boom among vendors of capital equipment, who then need to increase *their* capacity, so they will also order more equipment. The boom is, in other words, now self-feeding. Finally, when everyone feels that they have reached a sufficient capacity, the order flow is reduced, and many vendors will now suddenly sense that they have ordered too much equipment. Sales begin to fall, and then even more, and so on. This ketchup effect is very similar to the inventory phenomenon, but it is

slower, since capital equipment is far more complicated and thus time-consuming to produce than inventory. The reason the capital-spending cycle is larger is that capital spending is a bigger part of the economy and because longer timelags make the excesses in both directions worse. Capital-spending cycles will on average create a downturn every 9–10 years.

Capital-spending cycles are serious, and the crash in information technology from 2000 to 2003 was a good example. However, the most violent business cycle is caused by inherent volatility in *property markets*. The typical developed economy spends on average around 9% of GDP on construction of residential property and 3% on commercial property. Around half of that is improvements and maintenance while the rest is new construction. Perhaps 20% is financed by government and thus fairly stable, but the rest is private, and it is here that this nasty cycle emerges.

So, how does it look? First, the average duration is 18–20 years. Just after a property market crash there is hardly any new construction activity—people are too scared, and existing property trades well below replacement cost anyway, so why build? Furthermore, a large proportion of developers are at this stage bankrupt, and financing for new development is difficult to get—developers or buyers will have to come up with large downpayments.

However, time passes and natural demand eventually catches up with the supply of unsold property. Property prices begin to rise and after a while reach levels where replacement becomes profitable. Developers now start looking for new plots, projects are drafted, building permits obtained, and construction begins. All of this takes years, of course. Meanwhile the market continues to improve and speculators join the fray. Furthermore, many private individuals may decide to purchase a second home now—partly for fun, perhaps, but also in the expectation that it will be a good and safe investment.

The final climax of the property cycle happens as a huge supply of new property is offered at price levels that only few can afford. Selling becomes difficult now, prices stall and trading volumes decline. Approximately a year after sales volumes have fallen, the prices start to drop too and continue down for 3–4 years.

It is in this phase that many banks realize to their horror that some of the speculators they have financed won't be able to repay their loans. As each speculator typically has several banks, the lenders conclude that the last to cancel loans will be left with the loss, so they make a competitive ''run'' on the client.

As property prices now are falling, the damage spreads from highly leveraged speculators to builders, brokers, and owners of real estate of all sorts. Bankruptcies follow, and lenders—who are typically themselves leveraged some 10 times—are forced to book mounting losses. Soon some of the weaker banks reach the brink, and whereas banks made runs on clients in the early phases of the crises, it's now clients that make runs on the banks. The weakest financial institutions are soon brought to their knees. Forced by risks of bankruptcies and declining asset bases, the banks will now cut off lending to all sectors, and the resulting contraction in overall liquidity leads to a severe recession, if not depression.

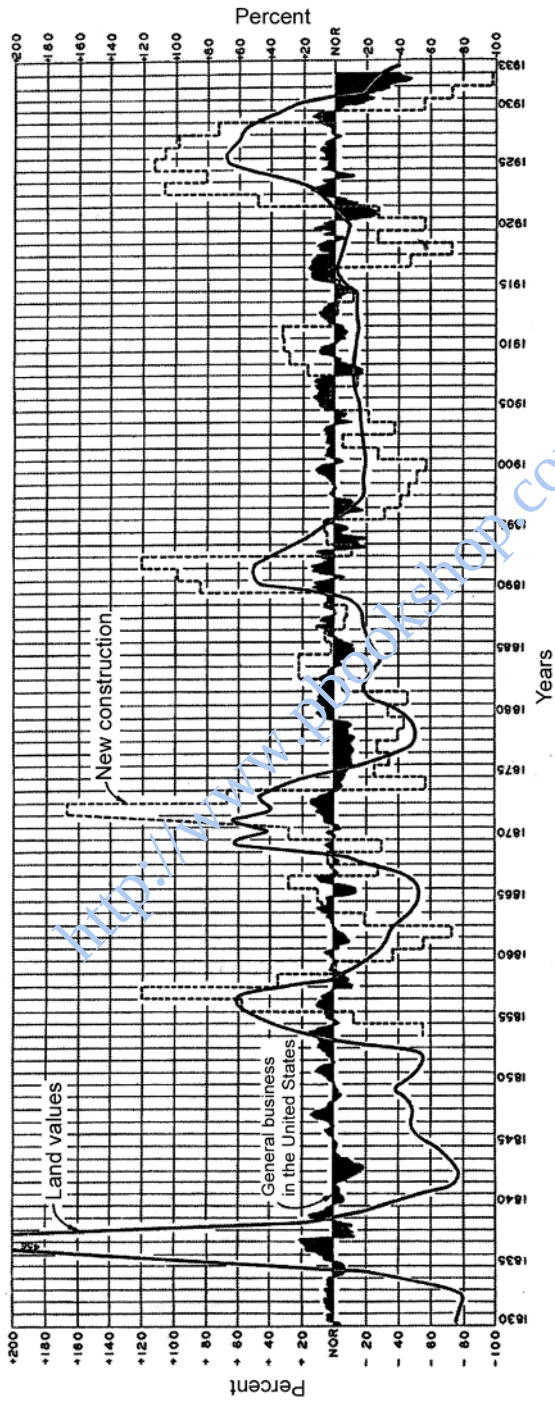
The property cycle has been known for more than 150 years and has been shown to behave in much the same way across different countries and regions as well as over the ages. Whereas each cycle can deviate substantially from the historical average, the typical scenario is this:

1. Beginning of a bust: One year where property prices stall and trading volume declines.
2. Then 3–4 years of price declines.
3. This is followed by a couple of years where trading resumes and prices slowly creep up.
4. Finally 10–15 years of rising prices, which accelerate just before the next bust.

As I said: This is the historical *average* and should only be understood as such. But, as mentioned, it has been robust over centuries and has been much the same in many different countries.

Here is a question: Why is it that property cycles are more dramatic than capital-spending cycles in developed countries? After all, we just saw that capital spending is approx. 9% of GDP and property approx. 12%. That's not such a huge difference, is it?

The answer relates partly to the so-called "wealth effect". When property prices go down, and as they pull equities with them, people suddenly feel a lot less wealthy, and that makes them stop spending. However, the bigger part of the reason why property downturns are so mean is that, whereas most other variable price assets are owned by non-leveraged investors such as pension funds, the property market rests on two layers of leverage. First, *the owners of property have normally borrowed a substantial part of the money for it*, and, second, *the institutions that lent them the money are typically themselves leveraged around 10 times* (excluding off-balance-sheet activities, which we review later).



The Chicago property cycle over a 103-year period (1830–1933). It is fairly easy to see a pronounced, long-term cycle in land values and new construction in this long-term graph. *Source*: Hoyt, Homer: *One Hundred Years of Land Values in Chicago*, Chicago: Chicago University Press, 1933.

The three business cycles

There are three business cycles:

- *Inventory cycle*. Limited cycle with approx. 4.5-year average duration.
- *Capital-spending cycle*. Potentially strong cycle with approx. 9–10 year average duration.
- *Property cycle*. Strong cycle leading to banking crises. Average duration: 18–20 years.

There is a tendency that if one business cycle—say, the property cycle—turns down, the others turn down as well. This is called ''mode-locking''. Think about when people start clapping randomly after a concert and then quickly settle into a collective rhythm—it's something like that. Mode locking in business cycles happens because everything is connected, and it is especially pronounced during property crises, since these hurt the banking sector, which everyone depends on whether for financing inventory, capital spending, and, well, property.

I think that anybody who ever wants to invest or do business needs to be familiar with the cycles I just described. However, it is also extremely useful to know about normal ''market rotation''. This is a cyclical rotation between money markets, bond markets, and equities, and even within each of them. The typical overall sequence around (property-based) business cycles is given as a table on the next page.

The rotation around a capital spending–based business cycle is largely the same, except that with pure capital-spending or inventory-driven business cycles, the property market may not decline in the economic down phase, as benefits from falling interest rates more than offset the deteriorating economy.

Within each of the asset classes involved in market rotation there are also leaders and laggards. For the equity market, for instance, the sequence of outperformance before and during an economic upswing is typically that (1) financials and consumer discretionary rise first, then (2) information technology and industrials, and finally (3) resources. As the economy peaks, it is first consumer staples and then utilities that outperform.

Here is another thing that everyone should know (but many apparently don't): *Equities have on average peaked some 9 months before a peak in the economy* and then normally either gone into a trading range or

Financial market rotation over business cycles	
Boom	1. Increasing money rates (interest rates on bank loans)
	2. Declining bond prices (which means that interest rates for bonds go up)
	3. Declining stock prices
Decline	4. Declining economy
	5. Declining commodity prices
Crises	6. Declining real estate prices
	7. Low money rates
	8. Increasing bond prices
	9. Increasing stock prices
Recovery	10. Recovering economy
	11. Increasing commodity prices
	12. Increasing real estate prices

turned down. Goldman Sachs has measured that cyclical bear markets in the U.S. economy from 1847 to 1982 lasted an average of *23 months* and brought equity prices down an average of 30%. The behavior is somewhat different at troughs, where *equity markets on average turn back up some 5 months before the economic trough*.

So, equities are leading indicators at peaks as well as at troughs; in fact some of the best leading indicators we have. It can nevertheless be mentally challenging for those who bought near the bottom to hold on to their shares for 5 months while they see economic conditions continue to deteriorate. However (and this is often forgotten), when you buy a share it's not only the corporate profits or losses for the next 5 or 12

months you buy into, but discounted cashflows for the next 15 years or more. Seen in that light, financial markets overreact madly to cyclical fluctuations in the economy.

Why are lead times longer at peaks than at troughs? One reason can be that economic peaks are drawn out due to the momentum of capital spending and property construction activity, which is difficult to terminate quickly. For that reason equity markets will often commence a multi-month period with high volatility, but no clear trend, before they turn down before a peak in the economy. Financial price patterns at lower turning points are often more abrupt since the lower economic turning point can come quickly, mainly kick-started by inventory restocking. In any case, Baron Rothschild once said that the time to buy equities is "when there is blood in the streets—even if it's your own," which is very right. Equities should be bought even before the economy reaches its lowest point, and one of the early signals to do so is often a recovery in bond prices, including corporate bonds, followed, perhaps, by a period where equities stop falling in spite of deteriorating news.

Commodities also play a big role in market rotation. First, they are clearly laggers in the business cycle. Gordon & Rouwenhorst studied how different commodities fluctuated over U.S. business cycles from 1959 to 2004 (*Facts and Fantasies about Commodity Futures*). Below are their average price performance compared with bonds and equities, where I have highlighted strong performance phases in gray:

	Early expansion	Late expansion	Early recession	Late recession
Copper	2.3%	18.8%	11.3%	−21.6%
Zinc	3.3%	11.9%	−8.6%	−1.7%
Nickel	3.4%	14.1%	6.9%	−11.2%
Aluminum	−0.6%	4.6%	5.6%	−3.8%
Lead	2.6%	11.6%	−16%	−9.7%
Corporate bonds	11.5%	3.6%	−2.9%	25.7%
S&P Total return	18.1%	10.4%	−15.5%	17.3%

Source: Gordon & Rouwenhorst: *Facts and Fantasies about Commodity Futures*.

The difference is clear. Corporate bonds explode upwards even during late recession and continue into the recovery, as inflation melts away, as liquidity expands, and as a better future is discounted. These are closely followed by equities, for the same reason and because the discount rate of futures earnings (which is bond yields) is dropping. Commodities kick in late in the expansion, where in particular copper and zinc perform well. Copper even stays high into early recession since construction projects that had been started during the expansion typically will be continued until they are finished.

Investing well over business cycles is not a question of whether one has invested at given times or not, but of *what* one has invested in during each phase. There is always a bull market. And a bear market.

Enough about business cycle theory. Let's instead give the great bust of 2007–2009 a closer look. It started with a peak in trading activity in U.S. residential real estate in 2006 followed by falling real estate prices from 2007. The timing is interesting here, because the previous time the U.S. experienced this was in 1986–1991, which was exactly 20 years earlier. This previous event was called the "savings and loan crises", and it was ugly: during that period so-called "housing starts" (new homes constructed) fell by 45% to its lowest level since World War II, and the savings and loan crises led to the default of no fewer than 745 savings and loan associations.

My point here is that what happened in 2007–2009 was textbook business cycle stuff, and since the banking sector as usual got paralyzed by its losses, it cut off funding for capital spending so that this also fell dramatically. The fact that there was a banking crisis was also in accordance with standard business cycle models—all property crises lead to banking crises, so that banks have to reduce lending. Needless to say, companies reacted by reducing inventory, which led to a synchronized collapse in all three business cycles. As I said: textbook stuff. However, there were other aspects of the 2007–2009 meltdown that wasn't by the book. To explain this I would like to tell a few fictive tales.

We start in good old Germany, where property wasn't expensive at all by 2006 (I invested with some friends a lot in German prime-location property in the previous years, at around 40% of replacement value and with annual cash yields of around 6–8%. That's very cheap!). Anyway, we imagine we are at a bank affiliate in the imaginary German village of Hochdorf, where Mr. Schmidt is responsible for the local mortgage department.

Just after lunch Mr. Schmidt receives a phone call from an old client, Mr. Müller, who says that he would like to buy a new house. ''I have been saving up for a downpayment for a number of years'', he says. ''Aber gut'', answers Mr. Schmidt, and adds that Mr. Müller can expect to get 70% financing, since the bank has known him for many years, and since they know that he is in a safe job and that he also has a stable marriage, life insurance, a healthy life style, and that he earns enough to handle this.

Mr. Schmidt and Mr. Müller are here both behaving responsibly and exhibiting what the Germans call ''geschäftssinn'', which means business acumen. The world is full of *geschäftssinn*.

However, let's now go across the pond and imagine that it is still 2006, but we are now in the U.S. A salesman called Daniel Williams works in *Golden Opportunity Finance, Inc*. in an imaginary city called Maimi. One sunny Monday morning Daniel makes a phone call to an unemployed man called Joe Johnson. Daniel now asks Joe if he would like to buy a condominium. It has already been arranged that he can get cheap financing from *Local Finance Inc*., he explains; a financial package, where Joe doesn't even have to pay any interest the first few years. Not a single dollar! And furthermore, Joe can then sell his condo if he wants to, as soon as its price has gone up, which means that he can get rich without working. If the worst should happen and Joe can't pay (for which reason should that be, by the way?), then he can just send back the keys and all will be forgotten. The condo will be the only collateral for the loan; no personal guarantee.

Joe just had five beers and doesn't quite understand everything Daniel says (what does ''collateral'' mean, for instance?), so Daniel explains again that he doesn't really take any risk here. ''... so if property prices go up, you get rich, and if they go down, you can just walk away.''

Joe still doesn't fully get it, but the core of the story—that he can get rich without working—does resonate. So, they meet the next day, Joe signs the agreement soon after, and Daniel is pleased, because he works on commission only; the more loans, the more commissions. And Daniel isn't particularly worried about risk, because everyone knows that real estate always goes up, so what he just did was basically to do Joe a huge favor, wasn't it?

Daniel's boss in *Golden Opportunity Finance* may be a bit more cynical. He knows that you are not allowed to issue property loans that exceed the value of the real estate. So, he calls in a local appraiser to put a value on each property they deal with. Now, there are many of these appraisers around, and some have a more optimistic view on things than others, to

put it that way. Fortunately Daniel's boss has found one who is distinctly forthcoming (which, by the way, is why this appraiser seems to get more business than his competitors).

All of this may sound very risky for *Golden Opportunity Finance*, but it really isn't, because they sell all of these loans to *Big Bank Ltd.* with a profit. So, whether Joe can repay the loan doesn't actually matter to *Golden Opportunity Finance*. Amazingly, it doesn't matter to *Big Bank* either, because they have a whole team of academics, who slice these loans into different financial products, like you would slice salami. Different slices of this salami are then sold on to "special-purpose vehicles" or "SPVs". *Big Bank* writes contracts that stipulate how payments from the lenders (Joe and others like him) first will go to the most privileged bundles and then be distributed to the others.

This sounds complex, perhaps, but brace yourself, because there is more. The SPVs are sold on to *Global Megabank Inc.*, which has some Ivy League people-class experts, who use them as a basis for creating "collateralized debt obligations", or "CDOs". The basis for the CDOs is the money flowing from the SPVs, but the CDOs are not directly tied to the underlying loans. There is no direct connection between Joe in Maimi and the CDOs, only an indirect one.

Now it gets really hairy, because *Global Megabank* calls *Global Rating Agency, Inc.* and asks if they could issue official credit ratings for each of the salami slices. *Global Rating Agency* agrees and asks for documentation, which *Global Megabank* sends over in the form of some enormous electronic spreadsheets containing information about

- how many of the transactions have reduced interest payments for the first years
- where the properties were located
- whether they were primary residences or second homes
- how much of the estimated property value was financed, or had no downpayments
- how many were made without any valid documentation for the buyer's economic status, etc.

Global Megabank has a good dialog with *Global Rating Agency*, which puts all of this into their computers to calculate the ratings. Because of the good relationship (*Global Megabank* is a great client), the bank knows exactly how the ratings models work. They also know how to create each salami slice so that it just—*just!*—qualifies for a given credit rating. The best bundles will now be rated "AAA" (barely), which to an investor

means that they should be really, really safe. But there are typically around 12 risk layers, and some of those will evidently get low ratings and thus have a higher interest rate to compensate for the risk.

I promise to end this soon, but we aren't finished yet. *Global Megabank* has found a way to turn the junk slices of salami into financial gourmet food: Buy loss insurance from *Global Credit Insurance, Inc*. That has a price, of course, but it's worth it, since it turns financial toxic waste into AAA.

It doesn't stop here. The people at *Global Megabank* establish some empty CDO companies and give these some clear, written investment mandates and calls *Global Rating Agency* to get these CDO companies rated as well. That whole process is then repeated with other CDO companies intended to own car loans, credit card loans, student loans, and what not. All of this is called "asset-backed securities" or "ABS", and the CDOs that hold them don't need to appear on the bank's balance sheets.

And what does *Global Megabank* do with the loans it actually keeps? It establishes so-called special-purpose vehicles (SPVs), or "off-balance-sheet conduits", which buy (CDOs/ABSs) based on different loans from third parties and finances them with so-called "commercial paper"; a sort of very short-term bonds. In order to achieve high ratings on these, it issues credit default swaps (CDSs). These SPVs are incorporated in offshore locations, and *Global Megabank* doesn't need to put them on its balance sheet, as it neither owns the assets nor handles the financing. The idea is that these vehicles should simply run forever and generate an interest differential that can be brought back to the bank from time to time, which will be good for the stock price as well as for the bonuses and stock options of management.

I think you get the picture, and stuff like this *did* happen on a very large scale—the *financial sector was building the biggest house of cards in the history of business on a foundation of people like our Joe in Maimi*.

Did they know this? There is every indication that most of the players didn't fully comprehend it. After all, the salami slices were bundled, rebundled and sold and resold globally, and spread to international pension funds, hedge funds, small banks, and even local counties. Some of these buyers would even use them as collateral for highly leveraged investments, which at times were funded though other departments in the same banks that sold the salami slices in the first place. When the crash came, apart from a few people from J.P. Morgan, Goldman Sachs, and Credit Suisse plus some hedge funds, I think very few market participants understood how dangerous the whole thing had become. If they had, would the banks have bought the stuff themselves?

We are done here, as far as the mechanics of the salami machine goes, even though my description was highly simplified. However, one may ask what the purpose of all this activity essentially was? The answer, I think, is predominantly two things: (1) to create fees and (2) to increase leverage. The former wasn't a systemic threat to society, but the latter was. Both will be repeated numerous times in the future, although I think it will take a long time before we see it on a scale similar to the runup of the 2007–2009 collapse.

Now, whereas this convoluted story was about excesses at *financial* institutions prior to the 2007–2009 collapse, the *commercial* business sector seemed much sounder. Commercial companies are car manufacturers, for instance, or courier services, food processors, and pharmaceutical companies—real stuff. Profits were here on average extremely high up to 2007. Furthermore, capital spending wasn't excessive, and balance sheets actually looked sounder than at almost any time since World War II.

However, there was also a problem within commercial companies—it was about how they funded themselves. The traditional sources of funding for a commercial corporation are either (1) to issue equity, or (2) to issue bonds, or (3) to arrange for bank loans, and collateral for the last two could be anything. It might be government bonds, high-grade corporate bonds, etc., which would be almost entirely financed after deduction of a so-called "haircut" of perhaps 10, 15, or 20%. The collateral could also be tangible assets of many kinds. Lots and lots of assets could be converted to cool cash in this way; a process that was called "securitization".

If you issue equity you have no legal obligation to pay anything back; and bonds are paid over a long time schedule according to predefined terms. So these two arrangements are fairly safe for the issuing company. The third option, funding via bank loans/credit lines may in principle be dicier, since the bank could terminate the agreement, or choose not to prolong ("roll") it after expiry. In reality the bank will often be interested in working with the company to solve any issues, unless the case is hopeless, since brutally turning off the tap may severely damage the value of any collateral and even hurt the bank's reputation.

Now, from 2004 to 2006 a change happened. The market witnessed a marked increase in the use of a fourth funding method: so-called "commercial paper", which was a sort of ultra-short-term bonds (or more correctly "promissory notes") that were not backed by any collateral. There was a good reason for this: Banks are expensive to run, you know, with their management bonuses, marble palaces and stuff, and with com-

mercial paper you could essentially bypass them and thus avoid contributing indirectly to the overheads of banking.

However, whereas banks do have overheads, there are good reasons for that (apart from their palaces). They have management teams, for instance, who can negotiate with an issuer in trouble, and they have access to funds from central banks during liquidity squeezes.

The commercial paper market didn't have these safety valves. When you issued commercial paper you just hoped that someone picked them up. Every time some of these expired, you just issued some new ones, which would be snapped up in the market.

But what if one day nobody wanted to buy your commercial paper? When the crises broke out, the buyers vanished, and thousands of companies suddenly were left out of cash. Imagine your private economy was perfectly fine and that you had a short-term variable-rate mortgage on your house that was renewed every 6 months. And then imagine, that you suddenly couldn't renew it and had to come up with all you owed here and now. Just imagine! It was often like that.

So, there we have it: The property market had become too expensive and was beginning a natural, cyclical correction; the financial system had inadvertently built a huge house of cards, and due to securitization credit had expanded beyond anything meaningful. Furthermore, the commercial sector was increasingly funding itself through a system with no safety valves. The name for all of what happened in this financial house of cards was "shadow banking", and we can call the wealth that had piled up in variable price assets "shadow money". Some of this was very shady indeed, but all of it was fragile. It could go very wrong, and it did. Here are the 10 easy steps to disaster:

1. People like Joe from Maimi defaulted on mortgages they should never have had. They returned their keys ("jingle-mail") and abandoned their property.
2. Property prices began to decline, thus beginning the downturn phase of the property cycle. Leveraged players defaulted. Paper values for trillions disappeared.
3. Banks began fearing each other's exposure to collateralized debt obligations and special-purpose vehicles, etc. Consequently, they stopped lending to each other.

4. The stock market crashed, wiping out further trillions in paper wealth. Leveraged players were forced to sell.
5. Building construction declined and home builders and developers went bankrupt.
6. Rising fear and declining liquidity meant that the commercial paper market shut down, thus cutting off financing to the banks' off-balance-sheet structures as well as to the commercial sector.
7. Issuers of credit default swaps were overwhelmed by claims and became insolvent, thus rendering default-insured bonds far more risky than buyers had expected.
8. Credit ratings agencies got sued and downgraded instruments from AAA to junk status in a single step, thus forcing pension funds and others who were only allowed to own AAA-rated paper to dispose of them, which created new waves of forced selling.
9. Commercial companies terminated their capital spending due to lack of funding and because of fear of the future. At the same time they began reducing their inventories, which added to the overall contraction. The decline phase of the capital-spending and inventory cycles was in other words starting, and cyclical mode-locking was playing out.
10. Companies were forced to lay off people, which created unemployment. This meant falling demand and increasing defaults on credit cards, consumer loans, etc.

These events were not simply a case of one following the other as falling dominoes, but rather a global, vicious circle, where each and every part was simultaneously fueling the others, with the result that property prices, equity prices, corporate bond prices, capital spending, inventory, and credit in general all were brought down to levels that were far below the long-term trend.

While every property down cycle leads to banking crises, this one was unusual, because it was a real "bank run" like the ones that were common in the 19th century. The only difference was that this one started not as a retail bank run—like many of those had been—but in the wholesale sector. This particular run was instigated by institutional investors and by the banks themselves, as they stopped lending to each other.

As the collapse unfolded, the assets that could be securitized before and which therefore had appeared very "money-like" suddenly lost all collateral value. Meanwhile, money stopped changing hands—a phenomenon economists call "a decline in the velocity of money". It was probably the steepest such decline in money flows in 80 years, and one of the steepest

declines in average global asset values for just as long. All of this made it an important lesson for the future, and so was the role of money and assets in it. The next chapter is about what money and assets are, and what they do.