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Hyman Minsky and behavioral finance

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Abstract
Hyman Minsky is best known for his analysis of the instability of capitalism stemming from human psychological propensities. When optimism prevails, financial institutions make risky loans. As these loans get repaid, this generates greater optimism and more risk taking. Herd behavior reinforces this. Also, in good times financial institutions demand deregulation so they might make even riskier loans. At some point, the economic system cannot support the growing debt levels; unable to repay their loans, firms have to borrow money just to pay the interest on their debt. A financial crisis begins when loans are not repaid, financial institutions are in jeopardy of failure, and lending ends. For Minsky, the government can reduce the probability of financial crises by strictly regulating financial institutions; however, the government cannot prevent financial crises because it cannot control human psychology. The paper concludes with some remarks on Minsky and contemporary work in behavioral finance.

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Hyman Minsky was born in Chicago in 1919. He attended the University of Chicago, majoring in math and minoring in economics; he then went on to do graduate work in economics at Harvard University. While at Harvard he studied with Keynesian economist Alvin Hansen (1953), and with Joseph Schumpeter (1942), who examined the long-term viability of capitalism. Minsky felt that Hansen's Keynesianism was too mechanical. It looked at things like how much we need to change government spending, or interest rates, in order to get to full employment. This left an important factor out of the story– how people react to actual economic circumstances and policy changes. On the other hand, Minsky felt that Schumpeter ignored the Keynesian insight that good government policy *could* improve economic outcomes and make capitalism more stable and more viable.

Throughout his career, Minsky (2000, p. 414) sought a middle ground between Hansen and Schumpeter. He recognized that government policy could reduce the probability of a major financial crisis, and reduce its severity; but he also thought that human behavioral tendencies counter this and prevent the government from averting another Great Depression. His work presents a theory of the business cycle driven by human psychology, a behavioral theory of economic and financial crises, and an analysis of the possibilities and limits of economic policy when economic actors are not perfectly rational.

After receiving his doctorate from Harvard in 1954, Minsky went on teach at Carnegie Tech (now Carnegie Mellon), Brown University, the University of California at Berkeley, and Washington University in St. Louis. While teaching at Berkeley he also served as an advisor to the Commission on Money and Credit (1961), the first in-depth study of the US financial system since the creation of the Federal Reserve in 1913. While at Washington University he served as a director of the Mark Twain Bank in St. Louis. These experiences gave Minsky first-hand knowledge of how the US financial system actually operated, and it helped form his views concerning how human psychology and behavior, as manifest in finance, led to periodic economic crises.

Minsky's (1982, p. 101) view of capitalism is best encapsulated in his pithy aphorism: "Stability . . . is destabilizing". This seeming paradox stems from how human behavior impacts the economy at the same time that the economy itself affects human behavior. John King (2013, p. 220) clearly summarizes the process– caution leads to confidence and then exuberance before everything collapses due to risky loans that cannot possibly be repaid (by consumers, homeowners or firms).

For Minsky, a stable economy leads people to expect stability in the future, and it drives them to seek greater risks in the hope of receiving a greater return on their money. In addition, Minsky thought that people tend to behave in a herd-like fashion; as a result of this behavioral propensity, more and more people take on greater risks because they see others doing so. During economic upturns, as people and firms strive for higher returns, they take on additional debt. As debt burdens rise, it becomes harder to repay the money borrowed. At some point borrowers cannot even make the interest payments on their loans, let alone repay the principal. This leads to bankruptcies, pessimism regarding the future, reduced spending, and a sharp economic downturn, maybe even an economic crisis. Economic stagnation continues until debt gets reduced to manageable levels. Only then will banks willingly lend again, and people and firms willingly borrow again.

Keynes's theory of investment provides a fulcrum for Minsky (1975). According to Keynes, business investment was volatile because decision makers cannot rationally determine the best possible investment since they do not know what the future will be like when the goods produced by a new factory finally reach consumers. So they look for signals, particularly signals regarding what other firms are doing. Keynes (1936, p. 156) famously compared the investment decision to a beauty contest, where everyone tries to figure out who *others* will think is more beautiful rather than who they think is the most beautiful. Other people, of course, will go through the same process; they will choose based on what they think others will do. This sort of business decision-making makes sense because the profitability of any investment will depend on the state of the entire economy, or on overall demand, when the new investment results in goods and services brought to the market for sale. When many firms are investing and hiring more workers, and when workers spend their incomes, most new investments will turn out to be profitable. On the other hand, if other firms are not investing and hiring, the investment made by one particular firm will lose money since its sales will be low.

These social and psychological aspects of business investment, led Keynes to conclude that capitalism was unstable. Minsky followed Keynes on this point, but he differed from Keynes along two lines. First, unlike Keynes, Minsky see economic instability arising from decisions made by Wall Street to finance new investment. This, too, is at root psychological and social– just like the investment decision. When Wall Street is optimistic and funds a great deal of new investment, these investments will pay off in a booming economy and financiers will earn large returns. On the other hand, if Wall Street becomes pessimistic and cautious, funds will be hard to obtain, and investment will not take place, resulting in firms and Wall Street financiers losing money due to poor economic circumstances. Second, Keynes believed that good government policy could prevent a major crisis and also remedy economic problems. Minsky was more skeptical. He thought that the government could *reduce the probability* of an economic—financial crisis; however, human behavioral tendencies made it impossible *to prevent* a crisis.

A large part of the problem, according to Minsky, is how psychology impacts behavior. When optimism reigns, leverage (the debt-to-income ratio) will rise for households as well as for firms. The more leverage I have, the more I gain (proportionately) from asset appreciation. There is a big difference whether I buy a house with 10% down compared to 50% down. If my house cost $300,000 and doubles in price, I make $300,000. With 50% or $150,000 down, the gain on my initial investment is 100%; when I put down 10% or $30,000, my gain is 9-fold or 900%. This means that people have economic incentives, as well as psychological and social incentives, to borrow. Similar things are true for firms; this helps explain why corporations rely more on borrowing (debt financing) than on printing new shares of stock (equity financing), especially in booming economic times.

Problems arise for firms and individuals when debt levels become too high. This makes it less likely they can repay their loans, whether they be business loans from bond holders or mortgages. Increased leverage also means that at some point borrowers will have to cut their spending in order to repay their debt. This slows down economic growth and makes it even harder to make good on debt obligations.

Similarly, at some point debt levels will get so high that financial institutions begin to fear the consequences of loan defaults and begin tightening their credit standards. A bad loan portfolio can even threaten the solvency of financial institutions. A bank panic, where people run to their bank seeking to withdraw their cash before the bank fails and it is too late to get it back, becomes possible. All this leads to a severe economic contraction, which then worsens debt burdens due to falling incomes. Recovery begins only when households and business firms reduce their debt burden to manageable levels and are able to spend money more freely at the same time that financial institutions recover and have few bad loans on their books, so can think about lending freely again.

Minsky (1975, 1982, 1986) identifies several reasons why economists have neglected this property of capitalism. First, economic policies and government regulation of financial institutions stabilized the world economy during the mid-20th century. This led to a belief that stability had become a permanent feature of capitalism and disinterest in studying the instability of capitalism. Second, economists came to expect that, because they understood how the economy worked, the government would rescue the economy from any crisis, mitigating damage and ensuring that any problems would be short-lived.

Third, herd or social behavior led economists and financiers to believe that capitalism was stable because everyone else thought that this was the case. The efficient-markets hypothesis, developed by economist Eugene Fama (1970), made the case that financial markets were stable. This doctrine holds that investors are rational as a whole and put their money to its most productive uses, appropriately evaluating the risk of holding any asset. On this view, assets tend to be priced at their true values, speculative bubbles cannot develop, and we don't have to worry about the consequences of irrational financial exuberance. Infatuated with individual rationality, and at the same time behaving in a herd-like fashion, economists came to believe the efficient-market hypothesis.

Besides detracting attention from the instability of capitalism, the efficient-markets hypothesis had one important policy implication– government regulation of finance was deemed unnecessary because Wall Street could effectively regulate itself. The result was a concerted effort in the US to deregulate banking and finance starting in the 1980s.

The Garn-St. Germain Depository Institutions Act of 1982 deregulated credit unions as well as savings and loans, and allowed non-bank banks (mortgage companies, payday lenders, and hedge funds that take in money from wealthy individuals and use this money to make loans) to exist. These "shadow banks" grew rapidly, unhampered by the many restrictions placed on banks. Their depositors or investors received higher returns on their money because they made risky loans at high interest rates. Deregulating these institutions increased the pressure to deregulate large commercial banks, so that they could compete with lightly regulated shadow banks.

The 1994 Riegel-Neal Interstate Bank Efficiency Act repealed restrictions on interstate banking. This fueled the rise of mega financial institutions that became too big to fail. Knowing that the government would have to bail them out if they were in jeopardy of going under, large banks could take on even greater risks since the downside of aggressive lending (bankruptcy) was mitigated by the implicit promise of a government bailout.

Finally, in November 1999 President Clinton signed the Gramm-Leach-Bliley bill, thereby repealing the Glass-Steagall Act of 1933. A New Deal reform, Glass-Steagall established deposit insurance and limited the risks that commercial banks could take with insured deposits. Under Glass-Steagall a bank could accept deposits and also make loans, or it could sell securities. However, it could not do both. If a bank made a loan, it had to keep that loan on its books, since it was prohibited from selling it. In addition, Glass-Steagall required that banks offer only standard fixed-rate mortgages.

The repeal of Glass-Steagall encouraged risky lending. Banks could approve loans, package a bunch of them together, and then sell them as a set. Their only incentive was to lend. Each loan earned the bank a fee; and since the loan would be sold off, the bank didn't have to worry about whether the borrower could repay the loan. This led banks to peddle subprime loans, no-income-check loans, 'liar loans' (borrowers were counselled to lie about their income and assets to obtain a mortgage), loans with low initial "teaser rates," and loans with no money down. Borrowers were told that housing prices would always rise, and they would be able to refinance their mortgage before any teaser rate expired and sharply increased their monthly mortgage payments.

These loans then got packaged together (into a mortgage-backed security) and then sold to unsuspecting investors, lacking the time and inclination to examine all mortgages in the package as well as the expertise to do so. Instead, investors thought that there would be safety in numbers. A few mortgages in the package of securities might go into foreclosure, but the entire package would likely continue to pay interest to its owner when mortgage payments were made on the loans comprising the package. Investors were further reassured by the top AAA rating given to these mortgage-backed securities, not knowing that rating agencies were paid by the firms packaging and selling the securities, and so these rating agencies had economic incentives to give the securities a top rating. Here, too, herd behavior came into play; everyone thought that the mortgage-backed security was safe because everyone else thought so and was buying them.

Minsky (1982, 1986) strongly opposed the deregulation of finance and feared its consequences. His argument against deregulation was based on his view of human psychology and behavior. Minsky thought that expectations were irrational and cyclical, and that they led to changes in lending and borrowing behavior that ultimately created an economic crisis. A financial crisis would make banks conservative about lending. But things change with time. As loans get repaid, optimism rises. Lenders come to feel that lending is good, and that it generates repayment and profits. Standard risk analysis begins to be viewed as too conservative because there have been no recent financial problems. So financial institutions make riskier loans, and push borrowers to take on more debt (Minsky 1982, p. 123). Optimism also leads consumers and business firms to take on more debt.

Herd behavior reinforces and perpetuates these problems; people engage in such behavior for good reasons. First, until we ourselves do something and see the consequences of our actions, it is hard to figure out what the consequence of possible actions would be and so it is impossible to follow the dictates of economic rationality. Second, there is social pressure for conformity and people are social animals. Third, herd behavior has survival value-that is why animals live in packs and fish swim in schools. People with a tendency to follow the herd in the distant past were more likely to survive, and they have passed their penchant to herd to their offspring. Finally, it is always easier to be wrong when everyone else is wrong. If everyone is acting in the same manner, then if things go wrong it is easy to save face by deflecting blame and being able to say that "no one knew".

For the banking sector, there is also a practical reason to engage in herd behavior. If one bank experiences financial difficulties, it can be allowed to fail. But when many banks are in jeopardy of failing, the government will have to step in to prevent an economic crisis. Further, since the government insures bank deposits (up to $250,000 per person per bank), taxpayers are on the hook whether banks are saved or whether they go under and bring the economy crashing down.

Rejecting the standard view of finance as driven by rational investors, and instead seeing investor psychology as volatile and following the lead of others, Minsky sought to explain how actual human behavior generates economic and financial problems. He began by distinguishing three types of borrowing. Hedge financing occurs when expected income flows are sufficient to repay a loan. This is safe and conservative lending, such as a car loan that gets paid off in five years. For reasons discussed above, when optimism sets in, safe lending becomes speculative and then what Minsky called "Ponzi finance". Speculative finance occurs when expected income flows can pay the interest on a loan but not repay the principal. In this case, the loan must be rolled over or restructured regularly. Interest-only mortgages are one good example of this. Ponzi finance occurs when expected income flows cannot even pay the interest due on the loan. In this case, indebtedness rises continuously and there is no chance the loan will be repaid. Minsky thought that optimism moved economies from a situation where hedge finance dominated to a situation where speculative finance was the dominant form of lending, and then finally Ponzi finance dominated. These changes in the financial structure of firms and households also moves economies from stability to quasi-stability and then to instability (Minsky 1964).

This three-fold financing classification can easily be applied to the financial and economic crisis of the early twenty-first century. Hedge borrowers were those with a standard mortgage that they paid off in 30 years. Speculative borrowers had a variable-rate loan with a low initial (teaser) rate. This enabled them to afford a bigger mortgage and a bigger home, but it creates cash-flow problems when the loan resets at a higher rate; consequently, borrowers had to refinance periodically. This was not a concern as long as home prices continued to rise. Exotic mortgages, whose principal actually grew over time are good examples of Ponzi finance.

The movement from hedge to speculative and then Ponzi finance led to a huge housing boom. Easy credit drove up home prices and reinforced the belief that home prices could only rise (conveniently ignoring the sharp drop in home prices during the Great Depression). The boom became a speculative bubble as more and more mortgages went to those who could not possibly repay them. This was aided and abetted by sharply rising asset prices that could be used as collateral for loans.

Problems began when home prices first stabilized and then declined in 2007. This meant homeowners could no longer refinance their mortgages or take equity out of their homes to increase consumption. Failure of the auction-rate securities market (where packages of mortgages were auctioned off each month to the highest bidder) in February 2008 demonstrated a reluctance to hold mortgages or mortgage-backed securities. It also left many investors holding the bag. They were promised that their investment provided them with liquidity. But starting in February 2008 they couldn't sell what they owned because there were no buyers for auction-rate securities (Lee 2008). The collapse of Lehman Brothers (heavily invested in mortgage-backed securities) in September 2008 became the proverbial straw that broke the camel's back. Financial institutions began hoarding cash and became reluctant to lend. Unable to refinance, homeowners defaulted on their mortgages. Home prices fell, and both banks and households found themselves in financial difficulty. With little lending and less spending, the economy fell into a severe slump.

For Minsky, the inherent instability of capitalism, and the ever-present possibility of a financial crisis, had a number of important policy implications.

Minsky continually stressed that the state has to regulate financial institutions. Regulation is necessary to reduce speculation, or risk-taking, and also to prevent speculative euphoria from leading to boom and bust cycles that ultimately damage the economy. Minsky (1982) thought that New Deal financial regulations, such as Glass-Steagall, promoted economic stability. They were designed to keep financial institutions from taking on too much risk and speculating with depositor money that was insured by the government. Dismantling these regulations, he thought, would lead to a financial crisis like the Great Depression. Pressure by finance for deregulation during good economic times had to be resisted. But Minsky also recognized the difficulty of doing this. He thought that the psychological and political pressure during good times would lead to reduced regulation on financial institutions, thereby setting the stage for the next crisis.

Agreeing with Keynes, Minsky (1982) thought that the state could reduce the incidence and the severity of economic crises. To do this, central banks needed to act as a lender of last resort during times of crisis, as the US Federal Reserve did during the Great Recession. Otherwise, the collapse of one financial institution will put other financial institutions in jeopardy, making them all reluctant to lend. In addition, fearful of losing their money, people may run to the bank to withdraw it; since most of the money deposited in a bank gets lent out, the bank cannot pay all depositors and may incur bankruptcy. With less lending and less spending, the only result could be a sharp economic contraction. However, Minsky recognized that the more successful central banks were in preventing a crisis, the more everyone would believe that another crisis could not happen, leading to greater leverage and increased risk of another crisis.

Minsky also thought pragmatic government responses were required to limit the damage from a financial crisis. He supported an activist Keynesian fiscal policy, with the government serving as employer of the last resort. Minsky (1986, ch. 13) modeled his employment plan on the Works Program Administration (WPA) and Civilian Conservation Corps (CCC) programs of the New Deal. He wanted the government to provide public sector jobs at minimum wage to anyone unable to find employment in the private sector. He also saw this as a way to get the private sector to offer jobs at more than the minimum wage. All this would both help spur consumer spending and economic growth, while higher wages mitigate the debt burdens plaguing households (see Wray 2016).

Minsky (1986) also pointed out that the growth of government as a fraction of the overall economy helped stabilize the economy because government investment (infrastructure, buildings, research and development) is more stable than business investment, and because a larger government comes with larger economic stabilizers, such as unemployment insurance. Here too Minsky feared that success and low unemployment would lead to pressure to reduce the size and influence of the government so that private enterprise could thrive.

Nonetheless, while the state can reduce the probability and severity of a crisis, it could not prevent a crisis. Because of the psychological and behavioral tendencies of people, as described earlier, Minsky thought capitalist economies would always be subject to some crisis. The problem, as he saw it, was that good economic performance made people complacent and over-confident; they would come to feel that their success was due to their own brilliance and that the government was hindering them from achieving even greater success. Pressure from Wall Street on politicians to reduce regulations would result in less regulation and more speculation, especially when everyone could point to the lack of any crisis for a long period of time. This would then open the door for the next crisis.

His analysis of the psychological and social causes of financial crises makes Minsky one of the founding fathers of behavioral finance, an area within economics and finance that looks at financial decisions as being based not on rationality, but on how people actually behave in the real world. The work of Nobel Laureate Robert Shiller (2016), a leader in this area, stands firmly on the shoulders of Minsky. Shiller (2003) has criticized the efficient market hypothesis promulgated by Fama and identified the many ways that financial markets are irrational. In contrast to Minsky, Shiller (2012) has sought to devise mechanisms and schemes to increase economic incentives for financial firms to behave rationally. But if financial markets are inherently irrational because this is a human trait, then Minsky's policy conclusion remains correct-strong government regulations, rigorously enforced, are necessary to keep finance under control and prevent finance from creating a major economic crisis.

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