

Bubble, Fraud, Price Instability, and Financial Instability: A Common Denominator

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Abstract

For more than 40 years, Hyman P. Minsky thrived to develop a theoretical framework that can help to understand the instability of capitalist economies. At the core of his analysis is the Financial Instability Hypothesis that states, “stability is destabilizing,” i.e. that a period of economic stability creates a financial environment that makes an economy susceptible to a debt-deflation process. This framework emphasizes the importance of studying the needs and sources of position-making operations, and defines the essence of financial fragility as Ponzi finance. The latter, contrary to bubbles or financial imbalances, is easy to capture, is non-arbitrary, and is strongly related to fraud and price instability. This approach to financial instability focuses on the financial practices sustaining a specific price and growth trend, rather than on arbitrary norms of “prudence,” or the “irrational” behaviors of individuals. By defining financial fragility via the Ponzi finance criterion, central bankers will increase their powers of persuasion and justification, as well as the legitimacy of their actions. This criterion also provides the foundation for a new regulatory framework that is highly proactive at capturing changes in financial practices. By discouraging, and if necessary forbidding, legal and illegal Ponzi processes, the central bank will promote price stability, will help to constrain fraudulent behaviors, and will promote financial stability.

Keywords: Financial Crisis, Economic Boom, Minsky, Regulation, Supervision, Central Banking

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Introduction

Since the end of the 1990s, economists have been increasingly interested in issues related to the role of financial stability and asset prices for central banking. Those issues includes, among others, the relationship between financial stability and price stability, the role of asset prices for inflation targeting, and the role of the central bank in the management of asset-price bubbles (Tymoigne 2009a). The current financial crisis has reinforced this interest in financial issues, and concerns about systemic risk are at an all time high with many major reports on financial reform dealing with this issue (Tymoigne 2009b).

While some contemporary economists have provided some interesting explanations of the causes of financial instability and their implications for central banking, most economists have ignored the contribution of Hyman P. Minsky. He spent his entire career studying those issues, and his framework of analysis provides a solid point of departure to study them. Minsky argues that the common denominator of all systemic financial crises is found in the way economic activities are financed and funded. He argues that during periods of relative calm, when economic results are good, people tend to rely more and more on funding methods that require growing refinancing and/or liquidation at rising prices in order to service debt commitments. Minsky calls this Ponzi financing and argues that its growing use is the normal result of long-term economic stability, rather than the results of market or individual imperfections (asymmetry of information, behavioral biases, lack of financial education, etc.).

The concept of Ponzi finance provides several insights when one tries to provide an answer to the role of asset prices for central-bank policy, and, more broadly, to regulatory and supervisory issues. For example, rather than focusing on the notion of bubble, central bankers should focus on the financial practices underlying a given asset-price trend. Similarly, rather than

focusing only on the detection of fraudulent practices, regulators and supervisors should focus also on the financial practices sustaining an activity because Ponzi finance can be perfectly legal.

The first part of this paper provides a quick refresh on Minsky's financial instability hypothesis. The second part explains the notion of Ponzi finance. The third part presents some of the implications Ponzi finance in terms of asset-price management and regulation. The fourth part quickly shows how this Ponzi approach to financial instability can be implemented.

Financial Instability Hypothesis

The current literature on economic instability focuses on imperfections in order to explain booms and busts. Those imperfections concerns market mechanisms (leading to market failures) or individuals (leading to irrational exuberance and pessimism). In terms of the former, Mishkin (1991, 1997) and Kiyotaki and Moore (1997) explain how an initial adverse shock propagates in the economy through asymmetries of information in order to create a debt-deflation process. Suarez and Sussman (1997, 2007) have completed this imperfection view of economic instability by focusing on the reversion mechanisms. In terms of individuals' imperfections (relative to the *homoeconomicus* framework), behavioral finance provides an explanation "anomalies" and "behavioral biases" like excess optimism, excessive confidence, excessive rationalization, or excessive agreement among analysts (De Bondt 2003). This provides an understanding of how mania, panics, and crashes occur even if there are no market imperfections. Both types of imperfection can be combined to provide a broader view of financial instability.

Minsky and other Post Keynesian economists provide a very different explanation of economic stability that does not focus on imperfections but rather on the internal logic of capitalist economies. Contrary to the previous economists, Minsky argues that market

mechanisms do not lead to a stable equilibrium but rather generate instability. This holds true even if there are no imperfections from the part of markets and individuals. One of the main reasons Minsky reaches such a different conclusion is because the premises of his analysis are very different. He focuses on monetary economy rather than a real exchange economy. In the former, money is never neutral (because it is needed to begin the economic process and because the relevance of an economic activity is judged in relation to its monetary profitability rather than its productivity), and people live in an uncertain world, which leads to a social rationality (in which behaviors based on social conventions and other heuristics are rational) rather than a hedonistic rationality.

Given such different premises, the explanation of the financial crisis is also very different and is summarized by the financial instability hypothesis. According to the latter, over enduring economic expansion, the economic units leading the growth process (possibly followed by other economic units if time allows) tend to become more and more financially fragile to the point that a not unusual adverse fluctuation in key economic variables (income, interest rate, etc.) generates economic instability. This tendency does not result primarily from mania and over-optimism and may not be accompanied by any bubble.

In order to conceptualize the degree of financial fragility (i.e. the propensity of an entity to be financially unstable), Minsky created three categories that characterize a specific financial state: hedge finance, speculative finance and Ponzi finance. Each of these categories is expected to require more or less position-making operations, i.e. refinancing and/or asset liquidation, in order to meet debt commitments (e.g., hedge finance is not expected to require any position-making operations). Position-making operations are needed each time net cash flows from core

economic activity (operating income less operating expenses) and cash reserves are too low to service debts.

According to Minsky's financial instability hypothesis, over enduring economic expansions, there are forces in the economic system that push more and more economic units away from hedge finance and toward Ponzi finance. This growing use of Ponzi finance results from deliberate choices (induced by will or by necessity) and from forces beyond economic agents' control that weaken their financial position. The forces at play are numerous and varied (Tymoigne 2009a, 2010) and Minsky always emphasizes their dialectical aspects. If one focuses purely on the economic forces at play, there are at least four economic factors that promote instability.

First, competition for monetary accumulation pushes economic agents to try to guess an uncertain future in order to obtain a bigger monetary profit relative to their competitors. This race toward the future is the source of the productivity of the capitalist system, but also of its instability. Indeed, it forces individuals to forget about the big picture concerning where the economy is heading, and to narrow their effort on beating the competition by all means (sometimes illegal) because their own economic survival is at stake. One of this means is the use of debt; for example, managers are not rewarded for managing a stable business but for an aggressive expansion of their market.

Second, competition is an essential ingredient in the formation of conventions and their wide use by economic agents. Indeed, given the fast pace, "in-the-present" world of entrepreneurial leadership, the sociological and psychological factors brought forward by Keynes, Galbraith, Tversky, Kahneman, Shiller and others tend to be exacerbated. Also, competition pushes competitors to follow those who perform best, and to ignore information that is too costly

to obtain or, even if costless, that could threaten a competitive position (Morgenson 2008; Schinasi 2006; Galbraith 1961).

A third economic factor that promotes instability is the shortening of the maturity of debts. According to Minsky, the proportion of short-term debts (short relative to the maturity of the operations they fund) tends to grow over a sustained economic expansion, because they are less expensive and because refinancing operations grow. Shorter maturity compounds the effect of higher interest rates on debt-service payments by increasing the speed of repayment. Shorter maturity also creates a need to refinance and so make an economic unit more vulnerable to disturbances in the financial sector.

A final economic factor that may promote instability is financial innovations. The latter are essential to maintain the profitability of financial institutions because, like for any other industry, the market for a given product always ends up saturating. Over a period of enduring expansion, innovations involve extending the use of existing financial products to more risky enterprises and the creation of financial products with higher embedded leverage. This is required by market mechanisms in order to maintain profitability at a satisfactory level and not to lose market shares, and this was illustrated nicely by the last mortgage boom (Tymoigne 2009b). In addition, new financial products are marketed as sophisticated products that are better able to measure and/or to protect against risks associated with leverage, which tends to let people believe that the use of debt is safer than in the past (Galbraith 1961; Tymoigne 2009b).

Ponzi Finance

The central concept that defines financial fragility is Ponzi finance, which is also called interest-capitalization finance; both income and capital servicing on outstanding debts are

expected to be met by position-making operations. A Ponzi process is an unsustainable financial process. Indeed, in order to persist it requires an exponential growth of financial participation, which is not possible because, ultimately, there is a limited number of economic agents that can participate either physically or financially. This unsustainability is all the more true that Ponzi finance creates a strong pressure to perform because creditors must be paid (to avoid legal, reputational, and financial costs), which gives the incentive to take more risk and to be involved in fraud.

Ponzi processes may not be masterminded by a single individual, or a small group of individuals, but, rather, may be sustained (and approved) by the whole society. In any case, those already in the Ponzi process have an incentive to picture a good view of the future to entice others to join the process. This is reinforced by the great returns that the Ponzi scheme may have provided in the past, which, combined with competitive pressures and social pressures, gives additional incentives to join.

Some forms of Ponzi finance are more dangerous than others, which depends on the way the economic units involved in it plan to get out of it. The most dangerous of all Ponzi finance processes are those for which liquidation and/or unlimited growth of refinancing are necessary for the process to continue, also called pyramid schemes; there is no way to terminate the process besides collapse or widespread restructuring of financial commitments. Examples of those processes are the mortgage practices of the 2000s, consumer finance practices of the past two decades, and the Madoff scheme. The least dangerous Ponzi finance practices involve the temporary use of growing refinancing before net cash flows from assets operation are expected to become large enough; this usually implies that the economic units involved in the Ponzi process have some market power. For example, the construction of investment goods takes time

and must be financed; however they do not generate any cash inflows (for producer and acquirer) until they are finished and installed in the production process. Thus, a producer's (and his creditors') profitability depends on the capacity to sell the finished product at high enough price.

From the point of view of systemic stability, both types of Ponzi finance (pyramid/structural or production/temporary) are a source of concerns because, as long as they exist, the economy is potentially subject to a debt-deflation process. It is thus important to forbid pyramid processes, and to discourage as much as possible a Ponzi financing of economic activities. In addition, production Ponzi processes, even though "respectable" (Minsky 1991: 16), become highly dangerous when they sustain a pyramid process. In this case, the buyers of new capital assets borrow extensively to acquire the latter, and, independently of their motive (speculation or operation), plan ultimately to meet debt services through growing refinancing and/or by selling the capital assets at a higher price. The housing boom of the past decade is a good illustration of a case for which the two types of Ponzi finance were interconnected (Wray 2007; Kregel 2008; Tymoigne 2010).

Ponzi finance is different from speculation and is not generated necessarily by greed or fraud. Speculation is defined as taking an asset position with the expectation of making a capital gain from selling the asset. In a speculative deal, liquidation is a means to make a monetary gain, whereas, in a Ponzi process, liquidation is a means to service financial commitments, without necessarily involving making a gain from liquidation. In fact, people involved in a Ponzi process may hope that they will never have to liquidate their position (at least in net terms) because this would lead to a collapse of the process.¹ Speculation with borrowed money is a form of Ponzi finance; however, the latter occurs in speculative and non-speculative activities. For example, the

¹ Gains for the individuals involve in the process come from holding the asset (e.g., a home), fees from managing the schemes, and other monetary compensations funded by attracting additional participants.

recent mortgage boom was sustained by a Ponzi process that involved individuals who truly wished to stay in their home (Tymoigne 2009b, 2010). In addition, Ponzi finance may not be entered by choice but may be forced on individuals by rising interest rate, rising costs of operation, unexpected large decline in after-tax revenues and other unexpected factors affecting cash inflows and cash outflows. Finally, Ponzi finance is also different from fraudulent behaviors because some individuals may enter Ponzi processes while playing by the rules of law, and while following the norms of behaviors established by society. Thus, everybody may behave “wisely” or “properly” but still may contribute a great deal to a rising financial fragility.

Ponzi Finance and the Financial Instability Hypothesis: Some Implications

Bubbles

There has been a tremendous amount of debate among economists about the role of the central bank in the management of bubbles. Some authors want the central bank to intervene directly to prick the bubble, whereas others state that the central bank cannot do that effectively and has no role to play in the valuation of assets (Tymoigne 2009a). If one follows the previous framework of analysis, this focus on bubbles is not appropriate for economic and policy reasons.

In terms of economics, what really matters for economic stability² is not how well asset prices are valued relative to a “fundamental” value, but the financial practices that sustain an existing price trend. Everybody may agree that assets are priced well, but this state of affairs may be sustained only by Ponzi financial practices, which are unsustainable even if financial markets are efficient. Thus, by focusing its effort on discovering bubbles, the central bank will miss the trends that generate instability and may see bubbles where there may be none. Finally, if

² Even though bubbles may not affect economic stability, they usually generate a misallocation of resources.

somehow the central bank thinks there is a bubble but the latter is does not depend on a Ponzi process, then, from the point of view of financial stability, it is not relevant because, when it burst, it will only generate minimum financial disruptions.

In terms of policy, a central bank that decides to intervene to prick the bubble puts itself in the odd spot of justifying its action. Even if this only temporarily deflates asset prices, central bankers will be condemned as “wealth killers” and will be subject to tremendous socio-political pressures to leave asset prices alone. The justification of its action is all the more difficult that the determination of a “fundamental” value is subject to a social valuation and that this valuation sustains massive financial interests. People already in the market must find ways to justify/rationalize why they took an asset position and, especially if there is a Ponzi process at play, must find ways to paint a rosy view of the future to attract more people in the process (Shiller 2000):

The mass escape into make-believe, so much a part of the true speculative orgy, started in earnest. It was still necessary to reassure those who required some tie, however tenuous, to reality. And, [...] the process of reassurance—of inventing the industrial equivalents of the Florida climate—eventually achieved the status of a profession. (Galbraith 1961: 16-17)

The point is not that no fair price can be determined, but, because this fair price rests on a vision of the future, it is subject to interpretation, and fundamentals are a social creation sustained by a convention (or “model of the model”). The latter provides a vision of the future and defines some norms of proper behaviors, which provides an anchor for current and past decisions. An example of a convention is the New Economy story of the 1990s that was used to justify (ex post) the seemingly unjustifiable rise in stock prices.³ Thus, financial-market participants may protest that the central bank is imposing a view of the future that is in direct contradiction with the views of

³ Greenspan and other central bankers were strong believers in the New Economy story (Tymoigne 2009a). In this case, we are back to the previous problem generated by wondering if there is a bubble or not; this is asking the wrong question because what matters are the financial practices that sustain economic growth and asset prices.

thousands of professionals who are deeply connected to the market. This confrontational approach is, therefore, extremely ineffective at promoting financial stability in a smooth way.

Financial Imbalances

Borio and Lowe (2002, 2003) and other authors have proposed to avoid the problems posed by the management of bubbles by focusing on the notion of financial imbalances. According to those authors, the latter can be checked by looking at the growth of credit, the growth of investment, and the growth of asset prices. To these different measures, it is possible to attribute thresholds that will define if there is an unsustainable boom in the economy.

While this is an improvement over the bubble argument because it focuses, at least in part, on the financial practices sustaining an economic trend, and while it might be the only thing that can be done practically for the moment given the limitation of data and modeling techniques, there are at least two drawbacks to this approach that both relate to the definition of the trend.

First, one needs to define the appropriate trend for the variable that measures financial imbalances. If based on historical data, critics will state that past data are irrelevant because the system has changed in such a way that a higher growth path of credit can now be sustained by the economy. This will be justified by the new financial products that allow to protect against financial risks more thoroughly and by the “long” period of economic stability (which will be brought forward as the ultimate illustration of the competitiveness and efficiency of the financial sector). In addition, even if everybody agrees that the trend used is the “normal” trend that should be followed, norms changes overtime and tends to be influenced by the optimism and pessimism of economic agents. Thus, if the normal trend is set right after a period of financial debacle, it may be too stringent and may constrain economic growth. On the contrary, over a

long period of economic stability, the normal trend may be loosened to accommodate the needs of economic growth, without accounting for the financial implications of this change.

Second, defining an arbitrary norm for the growth of asset prices is not dealing with the heart of the problem, i.e. the fact that financial positions are becoming more fragile over periods of enduring expansion. Thus, as long as the growth of credit will be below the normal growth trend, it will be assumed by regulators that there are no problems and that economic units are engaged in “safe” and “prudent” financial practices. However, as the financial instability hypothesis makes it clear, it is when everything seems “normal” that dangerous financial practices develop; therefore, central bankers and other supervisors should be especially careful in their analysis of financial institutions during normal times.

In the end, there is no *a priori* “right,” “proper,” or “optimal,” leverage ratio, credit growth ratio, and other ratios; this can only be determined by the financial practices that a certain trend generates:

Inasmuch as the nature of mortgage debt changed markedly between 1929 and 1962, the larger household debt-income ratio in 1962 may not indicate a greater sensitivity to a shock. (Minsky 1963 (1982): 10)

What matters is how matched cash inflows and cash outflows are matched (given maturity mismatch, leverage, etc.). A high cash-flow mismatch, in the sense that outflows far outweigh inflows for normal business operation, requires the use of position-making operations and this is what defines fragility. Ponzi finance requires a growing use of position-making operations and so is extremely fragile.

Financial Stability and Price Stability

The relationship between financial stability and price stability has been subject to numerous studies. Some authors (e.g., Anna Schwartz) argue that price stability guarantees

financial stability, while others (e.g., Borio and Lowe) argue that financial stability is a requirement for price stability (Tymoigne 2009a). If one follows the financial instability hypothesis, it can be argued that financial and price stability are interdependent but also that periods of stability contain the seeds of instability.

Price stability (i.e. low and stable inflation rate) provides entrepreneurs with an economic environment in which the management of their business is much easier to perform. This encourages entrepreneurs to project themselves longer in the future and so promotes investment. However, a period of price stability also promotes more adventurous funding mechanisms (in terms of both the quantity and quality of external funding), and a decline in margins of safety against expected and unexpected financial problems. This progressively leads to the growing voluntary and involuntary use of Ponzi finance. Ponzi finance involves either expectation of rising prices (output prices and asset prices) or growing refinancing, or both. If Ponzi practices embed an expected capacity to raise output price in order to meet financial commitments, and if entrepreneurs have some market power, upward price instability will be generated. When the Ponzi practices unfold, deflation will set in.

Financial stability implies hedge financing and the latter usually involves the generation of cash inflows by growing market shares. If this is case, financial stability will promote price stability. However, hedge financing may also depend on expected high inflation in order to generate the necessary cash inflows from operations; in this case, the maintenance of financial stability requires output-price instability.

Overall, therefore, the relationship between price stability and financial stability is not as straightforward as one may think. Price stability depends, in part, on financial stability, and financial stability depends, in part, on price stability; but there is no magic bullet. Focusing on

the financial aspects of economic affairs, which is where the central bank is the most effective, is the best way the central bank can promote both financial stability and price stability. It can do so by promoting healthy hedge financing and by discouraging Ponzi financing.

Banking Regulation and Supervision

Traditionally, the regulatory financial framework has been organized in order to detect frauds and “imprudent” risk management, and to make sure that economic incentives are set “properly” to promote smooth economic growth. The current financial crisis has shown one more time that this type of framework is not appropriate, and one can provide several critiques to the willingness to improve risk management (by, for example, having a flexible counter-cyclical capital adequacy ratio that better fine-tuned financial risks) instead of reforming financial regulation and supervision in a more profound way.

First, it is a fact that in a society in which people are free to choose, they hate being told what to do or being constrained in their decisions, especially financial decisions. This is all the more so when those regulatory constraints are on the way of lucrative activities, competitiveness, large egos, and immediate improvement in the standards of living. As a consequence, economic agents will adapt to the new regulatory framework and will innovate in their financial practices in order to bypass (government and private) regulatory constraints. Given that dramatic changes in regulation only occur during crises and are done mostly with the input of financial institutions (which then know all the regulatory holes in the new law), the innovative drive is sure to make the new regulatory framework very rapidly irrelevant. Again, Minsky was ahead of all of us on this issue:

To the extent that the examination procedure lags rather than anticipates financial innovation, higher insurance premiums [and capital requirements] on what examiners take to be riskier institutions may not be a deterrent to risk-taking. In an expanding economy, the increased cost of

doing business caused by higher deposit insurance premiums [and capital requirements] will be an incentive for banks to invent new, unregulated forms of financing. (Campbell and Minsky 1987: 258)

Thus, we need something different from a reactive and rigid regulation of risk practices:

Anticipatory vigilance upon the part of the regulators is required to prevent increased risk exposure. But such vigilance, combined with intelligence, could contain particular unit risk exposure without the imposition of risk-related premiums or capital requirements. (Campbell and Minsky 1987: 258)

Having a proactive and flexible regulatory framework that constantly accounts for changes in financial practices (new products, new financial institutions, new accounting methods, new ways of using of the previous things, etc.) and includes them immediately in regulations, would be much better than improving risk-management.

A second problem with the view that improving risk-management will improve financial stability, is that it is a highly permissive policy. Financial institutions are allowed to do whatever they want as long as they meet the regulatory requirements. It does not matter what financial practices they have and how excessive the risk they take is, as long as capital is “high enough” and that they have a “prudent” maturity matching and amount of reserves. Unfortunately, matched maturities, low leverage ratio and high liquidity ratio do not necessarily reflect a prudent and well-managed business, and a company may be able to sustain those ratios only by participating in a Ponzi process (either as a direct manager, or, more seriously, as part of the growth process of the overall economy). To take an analogy, it is does not matter how many times a day a kid brushes his teeth, eating candies continuously will result in cavities and a diabetic condition.

Third, setting the appropriate weight on maturity mismatch and other proxies of systemic risks is heavily influenced by our current experience (Brunnermeier et al. 2009: 42). Overtime, financial institutions may claim that this weight is too stringent and does not reflect the fact that

the institutional framework has changed and is now better able to account for systemic risk. They will put forward as ultimate proof the “long” period of stability and their record profitability and competitiveness. As a consequence, there may be pressures to lower the weight attached to systemic risk, or pressures to overlook facts that may call for rising CAR. This is so even if CARs are set in function of a rule and this may take the form of a legalization of new “creative” accounting practices. In addition, setting too stringent weights will constrain economic growth and will draw further complaints.

All these problems lead to a fourth problem. Indeed, bad regulation is destabilizing and creates perverse incentives that compound the weaknesses of an existing regulatory framework. Thus, inappropriate regulation and supervision may contribute to the emergence and diffusion of a Ponzi process at the level of the overall economy.

Overall, therefore, we need something better than a new reactive regulatory and supervisory framework. We need a proactive framework built around the core concept of position-making operations coupled with the financial instability hypothesis. This regulatory framework would not be based on institution or function but on the financial practices of specific entities, a sector of the economy, and the whole economy. These practices would guide proposed changes in institutional structures and the regulations of financial products. As a consequence, the regulatory framework would be far reaching, would be quickly adaptable and would be applied to all financial institutions without exception.

Fraud Detection

In addition to focusing its effort on determining “prudent” management and making sure that financial institutions comply with those norms of prudence, regulation and supervision have

concentrated their effort on detecting and eliminating frauds. Unfortunately, this has been rather unsuccessful for both political and conceptual reasons. Black (2005), a criminologist and former FSLIC supervisor who was involved in the S&L crisis, explains why fraud detection has failed for both reasons. Regarding conceptual aspects, he notes that the current regulatory and supervisory framework promotes the emergence of frauds, and that economists do not have the proper framework to understand why the top managers of companies may be willing to use their own company to develop fraudulent schemes:

The conventional wisdom [among economists] is that moral hazard explains the debacle, that control fraud was trivial, and that insolvent S&Ls honestly made ultrarisky investments (and became high fliers) that often failed. All aspects of the conventional wisdom proved false upon examination. (Black 2005: 13)

Criminologists argue that one needs to think like a thief in order to understand fraud. In this case, it is optimal to maximize adverse selection, to pay a high price for insolvent companies, to hire incompetent yes-men, and to submit the entire company to the optimization of fraud. This so even if CEOs and other top managers have a large holding of stocks of the company they are looting. All those behaviors are irrational in the current economic framework because “few economists are prepared to see business people, particularly patrons, as criminals” (ibid.).

Ponzi finance is central in the propagation of fraud and its sustainability. Indeed, it allows a company to grow very fast and to record enormous profits, which makes it difficult for supervisors and regulators push for more supervision (Black 2005):

Fitch believes that much of the poor underwriting and fraud associated with the increases in affordability products was masked by the ability of the borrower to refinance or quickly re-sell the property prior to the loan defaulting, due to rapidly rising home prices. (Pendley et al. 2007: 1)

By focusing their efforts on the detection of Ponzi finance, supervisors and regulators will have a more effective way to detect frauds, and to push for more detailed and lengthy supervision of suspicious financial institutions. Indeed, in addition to the detection of illegal practices, the

source of profitability becomes a concern. It is well known by all financial-sector professionals that companies can generate zero cash flows (even more so if cash flows from business operations is concerned) even if they are highly profitable, and that accounting profit can be manipulated easily to meet expectations (Das 2006: 138ff.). In both cases, a high profit (in addition to other accounting tricks) may hide a growing need for position-making operations.

Ponzi Finance, Financial Instability Hypothesis and Central Banking

Regulators and supervisors need to focus their attention on the financial practices that sustained an economic activity. They should be especially worried when refinancing loans are growing rapidly relative to outstanding debts, and when the liquidation of encumbered assets is seen as a normal and convenient way to meet debt commitments. This was illustrated very well by the recent mortgage boom that was sustained by a Ponzi process that involved, in addition to frauds and risky borrowers, prime and honest borrowers who truly wished to stay in their home (Tymoigne 2009b, 2010). By focusing on financial practices and by taking the concept of Ponzi finance as criterion of instability, regulators will have a clear non-arbitrary point of reference to justify their action.

Checking for Ponzi Finance

In order to detect Ponzi financial processes, several things should be analyzed. Most important of all is the analysis of cash inflows and cash outflows induced by assets and liabilities (both on- and off-balance sheet), and the determination of the position-making needs and practices. Once this is done, supervisors should focus their attention on detecting the sensitivity of balance sheets to declines in asset prices and to the unavailability of expected refinancing

channels. Theoretically, this can be done for a single financial institution, a specific sector of the financial sector, the entire financial sector, or the whole economy. For the moment, this has been mainly restricted (in a limited way) to individual financial institutions in order to detect fraudulent activities and imprudent behaviors, but a macroeconomic perspective would be very helpful to catch legal and illegal Ponzi practices. At this point, we are missing macroeconomic accounting framework that focuses on cash flows (rather than income (NIPA) or balance sheet (Flow of Funds)).

In terms of balance sheet, a Ponzi process usually implies high maturity mismatch, high leverage and the use of exotic refinancing sources, but this state of affair can be hidden by complex “creative” accounting practices and by the fact that it is relatively recent. In addition, the central characteristic of Ponzi processes is that there is a cash-flow mismatch, i.e. the fact that net cash flows from normal business operation are expected to be too low to meet cash outflows on debt commitments. Even if maturities are matched, there may still need a need to refinance and to liquidate. For example, say that an economic entity has a perfect maturity matching with a 10-year fully amortized promissory note on its asset side and a 10-year unamortized debt on its liability side. Even though both maturities are matched, the cash-flow pattern of each side is extremely different, leading probably to a need to refinance in 10 years.

Measuring Creditworthiness

Promoting the notion of Ponzi finance also leads to a redefinition of creditworthiness based on cash flow rather than credit history; this is especially true for regulatory and supervisory purposes. Creditworthiness should be differentiated from probability of default, credit rating and FICO score. Indeed, rather than measuring the risk of emergence of a Ponzi

process (“how will you pay on time?”), these three concepts measure the risk of loss for the lender (“will you pay on time?”) independently of the repayment method. Of course, the probability of default is highly relevant for financial institutions because some borrowers may default even if they still can repay. As the current crisis shows, if home value declines steeply and generates large negative net worth, it may make economic sense for some individuals to default even though they could still easily service their mortgage (Elul 2006). Thus, probability of repayment is much more important for bankers than knowing how a borrower will repay. Similarly, credit “ratings are driven by the size of credit support, which is, in turn, driven by the expected losses from the pool, which are driven by the inherent risk of default in the pool” (Kothari 2006: 61). Thus, “ratings of mortgage-backed structured instruments relied heavily on CARs’ assumptions about future house price movements and broader economic conditions” (Financial Stability Forum 2008: 35). Indeed, house-price trends affect the default probability (by affecting the negative-equity trigger) and the recovery rate, which are both central to determine average expected losses. Finally, the FICO score also tries to answer the “will you pay on time?” question based on past delinquencies, past foreclosures, outstanding debt amounts, types of credit and other factors present in the credit report (Fair Isaac Corporation 2007: 10). It ignores totally cash flows.

As the reader may have noted, one of the main problem with the credit-history approach to creditworthiness is that a destabilizing feedback loop emerges. Indeed, some people will qualify for a loan not because it is expected that they can service payments but because it is expected that collateral prices will go up. Thus, the rating process may encourage a Ponzi process: for example, the faster the housing price growth, the higher the recovery rate and the lower the default rate, the lower the expected loss, the higher credit ratings and the more people

qualify, which sustains the growth of house price...until not enough people can be qualified to overcompensate for foreclosures. Thus, a Ponzi process may contribute to a decline in default probability and an increase in credit ratings, while creditworthiness would actually worsen if judged with the criterion “how will you pay on time?”

By taking a cash-flow approach to creditworthiness, the risk of occurrence of a Ponzi financial process will be limited and so the possibility of *large* negative equity will also decline (negative equity is not the only source of default and has to be quite large to generate default), which lowers the default probability and so contributes to the health of financial institutions. Further work should be devoted to this distinction between creditworthiness, willingness to repay on time, and expected loss. Financial institutions are more interested in the latter two because they affect directly their profitability greatly but a good credit history may have been sustained only on the basis of Ponzi finance (which indirectly, and through long and complex lags, negatively impacts profitability). We need a painstaking analysis of borrowers’ cash inflows and cash outflows based on sources.

The cash-flow approach to creditworthiness should be a central element to determine if a financial product is adequate for a specific customer. It aims at determining if borrowers can repay on their own, rather than if lenders can recover their stakes *by any means*. This measurement of creditworthiness should be based on expected operational net cash inflows relative to full cash outflows from liabilities (many people were qualified during the mortgage boom on the basis on introductory interest rates). In addition, the liquidation of encumbered assets should be considered as an abnormal source of cash inflow and so should not be included in the measurement of the capacity to repay. Doing otherwise will contribute to a Ponzi process.

None of this implies that lender should not include the possibility that the value of assets will decline before granting a advance of funds, but that is different from figuring out if a borrower *can* meet debt service payments on its own. Relevant questions would be “what is the decline in house price that will prevent to recover stakes in the event a borrower unexpectedly defaults?” “what is the decline in home price that would be necessary to generate a default?” Thus, home prices matter to determine the profitability of a mortgage, but they would be used as a means to determine the available buffer against unexpected incapacity to pay, rather than as a means to figure out capacity to pay; they would be used in a defensive strategy rather than an offensive strategy.

Managing Financial Inventions

Maintaining a competitive profitability requires that financial institutions constantly innovate by creating new financial products or by using existing financial products in new ways. Over enduring periods of relative calm (small short recessions), those innovations involve higher leverage, higher credit risk, and higher liquidity risk, and it is the duty of regulators to adapt regulation and supervision as quickly as possible before things get out of hands. Regulators must discourage Ponzi innovations, even if financial institutions claim that it is the only way they can maintain their profitability and stay competitive, because ultimately they lead to financial crises, destroy financial institutions, and threaten the viability of the entire economy. In addition, given that competition is the only mechanism used to select financial innovations, the “good” innovations are the ones that raise profitability irrespectively of the impact on systemic risk, which is at odd relative to the way society regulates inventions in other sectors. Thus, rather than pushing for all kinds of financial innovations that provide short-term monetary gains and lead to

long-term economic instability, a government should motivate financial firms to create financial products that make them reputable for a sound and reliable financial system. This is where a good understanding of systemic risk based on a cash-flow analysis becomes very important. Not all inventions are worth becoming innovations.

In addition to monitoring financial innovations, a patent system could be created to reward safe innovations. Too much competition prevents the emergence of well-crafted innovations, and promotes sloppy financial products that do not respond to the needs of customers and that are prone to generate Ponzi processes. Das provides a nice insider view of those tendencies:

We need 'innovation', we were told. We created increasingly odd products. These obscure structures allowed us to earn higher margins than the cutthroat vanilla business. The structure business also provided flow for our trading desks. [...] New structures that clients actually wanted were not that easy to create. Even if somebody came up with something, everybody learned about it almost instantaneously. [...] Margins, even on structured products, plummeted quickly. (Das 2006: 41)

A patent system would help financial companies to take the time to create innovations that respond to the needs of clients and that promote safe financial practices. Combined with government monitoring, it would encourage financial institutions not to innovate more (they already innovate a lot), but, to develop better financial innovations. This will be good for the competitiveness of financial institutions by raising the quality of financial innovations.

Conclusion

This paper shows some implications of putting the concept of Ponzi finance at the core of central banking policies. Ponzi finance provides a common denominator to grasp unsustainable financial tendencies, to promote financial and price stability, and to detect fraudulent behaviors. It also promotes a smoother economic growth that relies on stronger financial grounds. Finally, it

also provides a clear, non-arbitrary and unique criterion to manage financial stability because Ponzi finance is the essence of financial fragility. Ponzi financial processes are collapse-prone and pyramid-Ponzi process always collapse, no matter how sophisticated and well-informed individuals are, and no matter how efficient and transparent financial markets are.

The concepts of Ponzi finance and Financial Instability Hypothesis, when combined, have several consequences for central banking. In terms of the management of asset prices, they show that what matters is not the relationship between market value and fair value, i.e. bubbles, but the financial practices that sustain an asset-price trend. This will allow the central to intervene more forcefully and convincingly in the financial-market, through moral suasion or through direct management of financial practices (leverage ratio, asset positions, etc.) in order to promote financial stability.⁴ Raising interest rates, if the asset-price trend is sustained by a Ponzi process is not the way to go because the system is then extremely fragile. In terms of regulation and supervision of financial institutions, they show that what matters is not how “well” or “prudently” managed financial institutions are relative to arbitrary norms. We need a more proactive regulation that directly prevents companies to take excessive risk, the latter being defined in relationship to Ponzi finance. This implies managing the financial practices of financial institutions as well as the structure of the financial sector. Bubbles and financial imbalances are too loose concepts to give a strong legitimacy to regulators and supervisors, and they are inappropriate to deal with the detection of unsustainable financial practices. The same applies to CAR and other regulatory ratios because they are both too rigid and too permissive.

⁴ This direct management already exists (e.g., prompt corrective actions), but it is only applied in a reactive way (problems may develop and take dangerous proportions well before regulatory ratios are violated) and a rigid way (a given regulatory ratio may be too stringent).

This type of central banking activities would imply putting a lot more focus on financial stability relative to what has been done currently, with central bankers mainly concerned with output-price stability. In order for that to be the case, meetings similar to the FOMC meetings should be established that focus exclusively on financial issues and that involve financial regulators and members of Wall Street and Main Street. That would allow regulators to stay in touch with changes in financial practices and would allow them to detect Ponzi processes early. While all this could be done by relying solely on qualitative analysis and brainstorming sessions, a good tool to develop would be a macro-accounting framework that accounts for the financial interdependences between financial institutions. This framework would emphasize cash-flow interdependences and the needs for position-making operations, as well as the strength and sources of the channels allowing those operations to proceed.

There are many other implications of taking the financial instability hypothesis seriously in terms of market structure, of the creation of a regulatory institution that is able to deal with financial issues properly, of the type of financial institution that should be regulated and supervised, of financial education, and of off-balance sheet accounting (Tymoigne 2009a, 2010).

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