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“Ideal” Financial Development and Financial Overaccumulation

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Abstract

In this paper, we examine whether there is an “ideal” level of financial development, somewhere between financial capital overaccumulation and financial capital underaccumulation. We construct a model that incorporates shadow banking or speculative financial development, financial deepening, and production. As financial deepening grows, speculation may grow in step. Where the speculative spread is larger than what the level of deepening and production can bear, financial instability may occur. Hence financial deepening may promote or constrain economic development.²

Introduction

The literature on the relationship between finance and growth has asked several important questions over the decades: first and foremost, it has asked whether financial development is important for growth. Second, it has asked whether the type of financial structure matters for economic growth and development. Third, it has asked whether the magnitude of financial investment is important to growth. Fourth, it has asked how the order of financial development affects economic growth.

For the most part, there has been a consensus that financial development at the macroeconomic level is important for growth, and, at the other end, many economists, particularly those who study financial crises, believe that financial *liberalization* at an early level of economic development can arrest growth³. However, an important question remains: what is the *optimal* level of financial development for economic growth, in both developed and developing countries? The study of speculative bubbles has shown that finance can arrest growth, creating a crisis when the bubble bursts, but it has not been shown outside of the literature on speculative finance and that on capital overaccumulation that financial development can become “too” large for the level of economic growth. In this paper, we test the hypothesis that there is an “ideal” level of financial development for the level of economic development that is best for stable economic growth.

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³ Klein and Olivei (1999) find, in an empirical test, that financial liberalization between 1986 and 1995 resulted in financial deepening for developed countries, but did not result in increased financial deepening for developing countries.

The paper is structured as follows: Section One examines existing literature on the relationship between finance and growth. Section Two critically reviews a variety of theoretical precursors: Marx's overaccumulation of capital theory, the Harrod-Domar model, the "golden age" growth model of Phelps and others, and the overlapping generations model. Section Three puts forward a model showing that shadow banking and financial deepening are connected through the relationship between deepening and productive capacity of the economy. Section Four discusses the speculative spread and findings from the model. Section Five puts forth policy recommendations and concludes.

Section One. Literature on finance, development, and overaccumulation

Before the most recent crisis, conventional economic theory posed as the main issue with financialization the need to align managers' interests with those of financial market participants (Palley 2007). Financial markets have been viewed as enhancing economic efficiency. Generally, the issue of potential over-financialization, or speculation, has not received much attention outside the field of behavioral economics. Yet after a certain point, the financial activity that is based on rehypothecation and other financial innovations, rather than on real production, must seem excessive.

Through the eighties, nineties and 2000s, the increasing dominance of finance, more popular due to a falling rate of profit, was offset by repression of wages (Dumenil and Levy 1993). Real production declined as financial "production" increased. It is as if the revelations on financial deepening provided in the fifties and sixties by brilliant economists such as Gunnar Myrdal and Ronald McKinnon were bastardized and implemented to an extreme. Indeed, excessive financial liberalization was justified in the eighties and nineties as a means of financial deepening.

It is generally agreed that financial expansion (a.k.a., deepening) is necessary in poor countries. Yet an increase in financialization is not necessarily justifiable in countries such as the United States that experienced crisis due to such over-financialization. So, we explore an "ideal" level of financial deepening, between underfinancialization and overfinancialization. We first examine the concept of financial deepening in the literature.

Finance and development

Financial deepening has mainly been defined in the literature in terms of development of the private banking sector. Goldsmith (1969), McKinnon (1973), and Shaw (1973) initiated the literature on financial deepening and its role in economic development. Goldsmith, studying 35 countries, found that on average periods of economic growth over time were accompanied by financial development. McKinnon viewed finance as easing constraints to production, as a bridge between entrepreneurship or productivity and growth. Finance would increase the efficiency of capital and reduce fragmentation, in which profit rates varied greatly throughout the economy.

The financial deepening literature has evolved over time. The literature inspired by McKinnon and Shaw is labeled "supply-leading" financial deepening theory, in which financial deepening produces economic development, while that illustrated by Ireland (1994) is called "demand-leading," in which economic development creates financial deepening. The argument in demand-leading theory was that as an

economy grows and expands technologically, productive processes require additional financial resources. Financial development follows productivity. McKinnon, however, argued that in developing countries, traditional technology businesses often coexist with more modern businesses, making an allocation of financial subsidies to an industry as a whole inappropriate for efficient allocation of capital, since the traditional or the modern business may in fact be more productive. In his mind, economic development did not necessarily drive financial development at lower levels of production. And in fact, most scholars take the supply-leading view (Fritz 1984). Importantly, Gurley and Shaw (1960) state "...net output capacity depends only partly on the level of investment. It depends also on the efficient allocation of investment among alternative capital projects."

Levine (1997) provides an extensive literature review on the empirical relationship between finance and growth, and asserts a positive and first-order relationship between the two. Levine writes that the level of financial development likely influences not only the present level of economic growth, but also future economic growth and capital accumulation. Financial markets reduce market frictions such as information and transactions costs, and mobilize and allocate financial resources in an economy. Economic growth also affects financial development by expanding the introduction and advancement of financial institutions, but most literature has examined the effect of financial development on growth.

King and Levine (1993a, 1993b, 1993c), examining 80 countries between 1960 and 1989, finding that there is a strong positive relationship between financial development and growth. Financial development indicators include the size of financial intermediaries, the degree to which the central bank versus commercial banks allocate credit, the percentage of credit allocated that is private, and the ratio of credit to private enterprises to GDP. Growth indicators include real per capita GDP growth, capital accumulation, and productivity growth. Financial depth in 1960, the authors find, is significantly correlated to each of the averaged growth indicators. King and Levine (1993c) also show that financial systems that allow for risk diversification accelerate technological change and economic growth.

Bencivenga and Smith (1992) write of the "optimal" level of financial repression in the context of an economy that must monetize its deficit, modeling the optimal level of repression through high reserve requirements or deposit interest rate ceilings using an overlapping generations model. The paper formalizes McKinnon's (1982) discussion regarding the importance of the order of financial liberalization, emphasizing the necessity of changing fiscal policy before financial liberalization takes place. Roubini and Sala-i-Martin (1992) also model financial repression and long term growth, showing that governments that repress the financial sector in order to deliver inflationary revenues from an increased demand for money affect growth negatively.

Financial stability, as a general concept, has also been regarded as an important precursor to economic growth. Bernanke and Gertler (1990) construct a model in which financial instability creates high agency costs, resulting in low and inefficient investment. Bernanke and Gertler define financial instability at the micro level, occurring when a borrower can contribute less of his own funding to an investment project while holding more information about the project than the lender. The interests of borrower and lender diverge, creating agency costs. This leads to poor investment performance and hence to poor economic performance.

Unlike most of the financial deepening literature, Arestis and Demetriades (1997) include indicators of stock market development. By contrast to King and Levine (1993a, 1993b, 1993c), Arestis and Demetriades (1997) use time-series regression analysis to find that the relationship between financial development and economic growth is quite variable by country; the relationship cannot be generalized. The authors believe their results are better substantiated than cross-country regressions since time-series analysis captures more robustly the relationship between contemporaneous or lagged indicators and the dependent variable. Arestis and Demetriades find that the relationship between contemporaneous financial development and economic growth is much stronger than that between lagged financial development and economic growth, contradicting King and Levine's finding, in their cross country regression, that financial development leads economic growth⁴.

But it could very well be that Arestis and Demetriades' (1997) results are different because they include indicators of stock market development, which behaves quite differently than but in conjunction with bank development. In this paper, we assume that financial deepening aids the development of non-bank financial development as it relates to production, which we refer to as the 'speculative wedge.' We argue that a divergence of non-bank financial development from financial deepening results in overaccumulation of financial capital.

Overaccumulation of capital

The concept of capital overaccumulation, or divergence from a stable growth path, was first put forth by Marx, who described overaccumulation as a situation in which capitalists incorporate so much capital into the production process that the workers cannot purchase the goods produced. Later, Keynes also noted that the economy did not necessarily tend toward equilibrium in which neither overaccumulation nor underaccumulation of capital occurs. Refuting Say's Law, in which supply creates its own demand, Keynes found that crises of effective demand were real phenomena.

Overaccumulation of capital was considered in models that followed Keynes. Stability in economic growth was much more limited in these models, which assumed the economy could move away from "steady state" growth. This group of models includes the Harrod-Domar model and the "golden age" growth model of Phelps and others, including Robinson. The overlapping generations model, although neoclassical rather than Keynesian in methodology, also assumes the possibility of overaccumulation.

In the Harrod-Domar model, a particular level of investment was required for long-run capital outlay, and it was possible for the actual long run growth rate to diverge from stability. Besomi (2001) stresses that Harrod's original model was nonlinear, and based on changes in the business cycle, which also translated into long-run growth. But no matter; the fact was that the actual growth rate might diverge from the warranted growth rate, and the economy could become trapped in a cycle that required continuing further investment.

⁴ The debate continued with Levine, Loyaza, and Beck (2000) and Beck, Levine, and Loyaza (2000), who take into account the issue of simultaneity of regressors. Christopoulos and Tsionas (2004) attempt to resolve technical issues by accounting for both issues of simultaneity of regressors and issues of integration and cointegration of the data, finding that indeed, financial deepening does impact economic growth in the long run.

The “golden age” growth model was drawn up separately by several economists, here represented by Edmund Phelps. Phelps (1961) writes:

If there exists a golden-age growth path on which the social net rate of return to investment equals the rate of growth (hence, in one class of models, the fraction of output saved equals the capital elasticity of output)-or, in market terms, a golden-age path on which the competitive interest rate equals the growth rate and hence gross investment equals the gross competitive earnings of capital-then this golden age produces a path of consumption which is uniformly higher than the consumption path associated with any other golden age.

The “golden age growth path” is the most efficient growth path the economy may take (Phelps 1965). Phelps (1962) writes that the elasticity of the maximum path of growth to the investment ratio depends only on the capital elasticity of output.

Another type of ideal capital accumulation model is the neoclassical overlapping generations model, which is based on household and firm decisions which determine the size of the capital stock. The models were developed by Ramsey (1928), Cass (1965), and Koopmans (1965), who assumed that individuals live two periods, and by Diamond (1965), who assumed that new households could continually enter the economy (Romer 2001). Overlapping generations models also make use of the “golden rule” of capital accumulation, such that the amount of capital in the next period is some function of the current level of capital.

Later neoclassical growth models did not allow for instability based on an ideal level of capital accumulation. In both exogenous and endogenous models, overaccumulation of capital resulted simply in the return to equilibrium. For example, in the Solow model, both capital and output in their steady state were determined endogenously at the equilibrium level. Exogenous neoclassical models have been critiqued by Garegnani (1984) and Harris (1970) for attributing inefficiencies to market inefficiencies, since the marginal product of capital equals the profit rate, both of which face decreasing returns. Hence persistent problems of unemployment, due to Keynesian shortage of effective demand, or problems of obtaining surplus value in the Marxist vein, have been increasingly neglected since the advent of the Solow model in 1956. Kaldor (1977) also sharply criticized the exogenous neoclassical model for implying that increasing the capital to labor ratio would increase the capital to output ratio, when he mainly attributed economic growth to increasing returns found in larger economies.

Endogenous growth models, introduced by Lucas (1988) and Romer (1986), among others, set out to address some of these issues⁵. Endogenous growth models, which allow the marginal product of capital to increase over time, face their own shortcomings; these models continue to preserve some of the basic assumptions of neoclassical economics that were criticized for their lack of realism in the exogenous models that preceded them. Long run growth is independent of the structural characteristics of the economy (Aghion and Howitt 1998), and capital overaccumulation is not possible.

⁵ Additional growth models, such as that by Grossman and Helpman (1991), included invention in the growth process.

McKinnon (1973), a founder of financial deepening theory, was not persuaded by the golden rule of growth, noting that in this type of model, “the life of monetary authorities is indeed idyllic (and perhaps a bit dull) with only a little more effort required on the fiscal side to keep the rate of aggregate investment properly adjusted. The banking-monetary system has no particular role to play in the process of capital accumulation, even though bankers and their public relations officers may have persuaded people otherwise.” The neoclassical model overall, he writes, leaves out proper consideration of the monetary system, and leads one to conclude that monetary policy is independent of the private savings rate and that money demand cannot be determined.

Although the work on capital overaccumulation inspired our current thesis, prior growth models focused on physical capital overaccumulation, while we focus on financial capital overaccumulation. This is because it has generally been accepted that financial overaccumulation is not possible, though the most recent crisis indicates otherwise to some economists. Some work on financial capital overaccumulation has been done, but not much. Bello (2006) writes about financial overaccumulation in the sense that profitability of the financial sector rises far above the real (not stock inflated) profitability of the manufacturing and industrial sector. Investment may be incorporated into physical capital or goods, but if it is not used, where there is a lack of demand, profitability fails to result. Therefore, finance has created what Bello calls “superficial boom[s]” in the developed world. Haldane (2010) examines the idea of excessive banking returns by looking at return on equity for the financial sector as compared to the rest of the economy. Excessive returns were present because of riskiness of financial sector activities.

Financial capital overaccumulation is possible when production cannot absorb finance in a sustainable fashion. This is demonstrated by speculative bubbles and capital inefficiencies. One way to state this is that if the profit rate of finance is larger than the profit rate of industry, instability will arise since finance is overleveraged. To some degree, this type of thinking is also illustrated in the work of Hyman Minsky, who wrote that finance can move from a hedge state, to a speculative state, to Ponzi financing. Although in reality hedge financing can coexist alongside speculative or Ponzi financing, thus making it unclear when one state dominates, Minsky provides a vein of thinking similar to that which we emphasize. Finance is tied to the business cycle, with credit expansion being procyclical (Minsky 1991). As production increases, finance moves from hedge to speculative, and a sharp decline in production is associated with Ponzi financing.

We write in a similar vein. While logically, an excess creation of machines (physical capital) is possible, since the labor supply that can use the machines or purchase their output is limited, an excess of financial capital has not been discussed in the literature. In fact, most economists, both orthodox and heterodox, would ask whether it is at all possible to have “too much” financial capital. We believe financial capital can be excessive, and when excessive, pernicious. But unlike Bello (2006), we do not think that the relationship between financial capital (here shadow banking) and the real sector is direct. Rather, the real sector as it relates to non-bank financial capital is supported by bank financial capital.

Some models have pursued speculative finance, which is one pathway toward overaccumulation. For example, Caballero, Farhi and Hammour (1994) create a model in which speculative finance, a case in

which interest rates exceed the growth rate of the economy, can continue to create booming investment, but when a speculative growth path crashes, the bubble may also crash.

The idea of capital overaccumulation was never very popular but the idea that finance can be “excessive” was put back on the radar after the Great Recession began. Excessive finance has been associated with the growth of the shadow banking sector, the part of the financial industry that is relatively unregulated, outside of the banking system. As a haven for speculative activity, shadow banking has only in more recent years become recognized as an area that can cause great instability. Turner (2012) discusses shadow banking as the cause for financial instability, questioning the benefits of financial innovation. He writes:

Whatever the assessment of securitisation in itself, however, its subsequent mutation into shadow banking clearly played a major role in the origins of the financial crisis of 2008, which has imposed huge economic costs on both the US and European economies. Any macro-level counterfactual analysis of the impact of the whole package of innovations which contributed to shadow banking would, I think, clearly illustrate that if we had to choose between having the whole package and none of it, we would have been better off with none of it—no SIVs, no CDOs, no credit derivatives. Even if it could be proven (which is still unclear) that in some way this package did deliver the market completion and allocative efficiency benefits ascribed to it ahead of the crisis, there seems no possibility that the scale of that benefit—measured at the macro level as an increase in the obtainable level of income across the economy—could be more than a small fraction of the harm produced by the induced financial instability effect.

The shadow banking system can be defined as non-bank financial intermediaries that conduct maturity, credit and liquidity transformation. These institutions are not deposit-taking banks, and therefore lack access to central bank liquidity (lender of last resort) or public sector guarantees (Pozsar, Adrian, Ashcraft, and Boesky 2010). The shadow banking system is vast particularly in the United States, and encompasses structured investment vehicles, hedge funds, money market mutual funds, and government sponsored enterprises, among others. The shadow banking system has played an increasing role in the global financial sector and, we believe, greatly enlarged the speculative spread, to which we now turn.

Section Three. Model

Based on the literature reviewed above that generally finds that financial deepening is a precursor for growth, we posit that for any level of economic development, production is determined by some multiple of financial deepening. That is, production has a direct relationship to the financial depth of the economy. In addition, deepening should be less than or equal to some multiple of financialization. Or rather, financialization, measured by shadow banking, should not get too far away from the financial depth of the economy. We can start with a general hypothesis as follows.

For any level of economic development,

Domestic production (**P**) is some multiple of financial deepening (**D**), or

$$(1) \quad P = n * D,$$

where financial deepening represents the broad extent of liquidity in the economy (M3), without commercial paper and repurchase agreements, which are included in the category of F .

n is a variable that is obtained from (1). We call it the “need for deepening” indicator. An economy with a low level of financial deepening, such as a command economy or developing economy with an infant banking industry will have a relatively high n . An economy with a very high level of financial deepening will have a relatively low n . A lower level of n is preferable to a higher value.

The shadow banking sector (F) should be proportionate to financial deepening in a manner similar to the extent that deepening is proportionate to production. We can think of n as containing information about the productivity of the low-risk portion of the financial sector.

The stable equilibrium condition in the economy is:

$$(2) \quad n * F - D \leq 0.$$

This sets up a relationship between the higher-risk portion of the financial and the low-risk portion of the financial sector. The higher-risk portion should clearly be lower than the low-risk portion. How much lower is a matter of debate. We assert that the two can be related through the same variable n that determines the relationship between production and low-risk finance. It can be thought of as how reliant the higher risk portion of the financial sector is on the low-risk portion of the financial sector, and indicator of low-risk to high-risk leverage that is dependent on how much financial depth the economy actually has. We assume somewhat loosely that the non-bank financial sector should not be greater than the deepening as it relates to production.

We refer to $n * F - D$ as the “speculative spread.”

An unstable equilibrium exists at:

$$(3) \quad n * F - D > 0.$$

In the case of (3), the shadow banking sector is larger than a multiple of financial deepening. In this case, F must decrease.

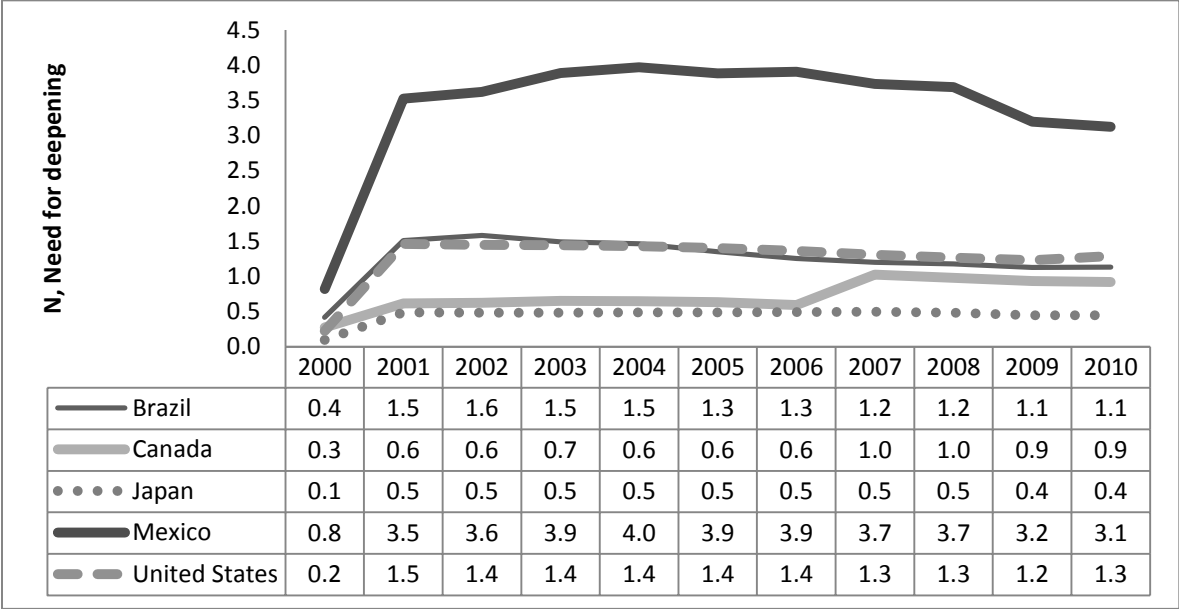
P is measured as the sum of manufacturing value added, services value added and agriculture value added, in constant US dollars. We use World Bank data.

D is measured by liquid liabilities (M3) in constant 2000 US dollars. We use World Bank and IMF data.

F is the measure of non-bank financial firms’ assets. We use IMF data and measure assets by adding liabilities and equity (deposits plus shares), since assets equal liabilities plus equity.

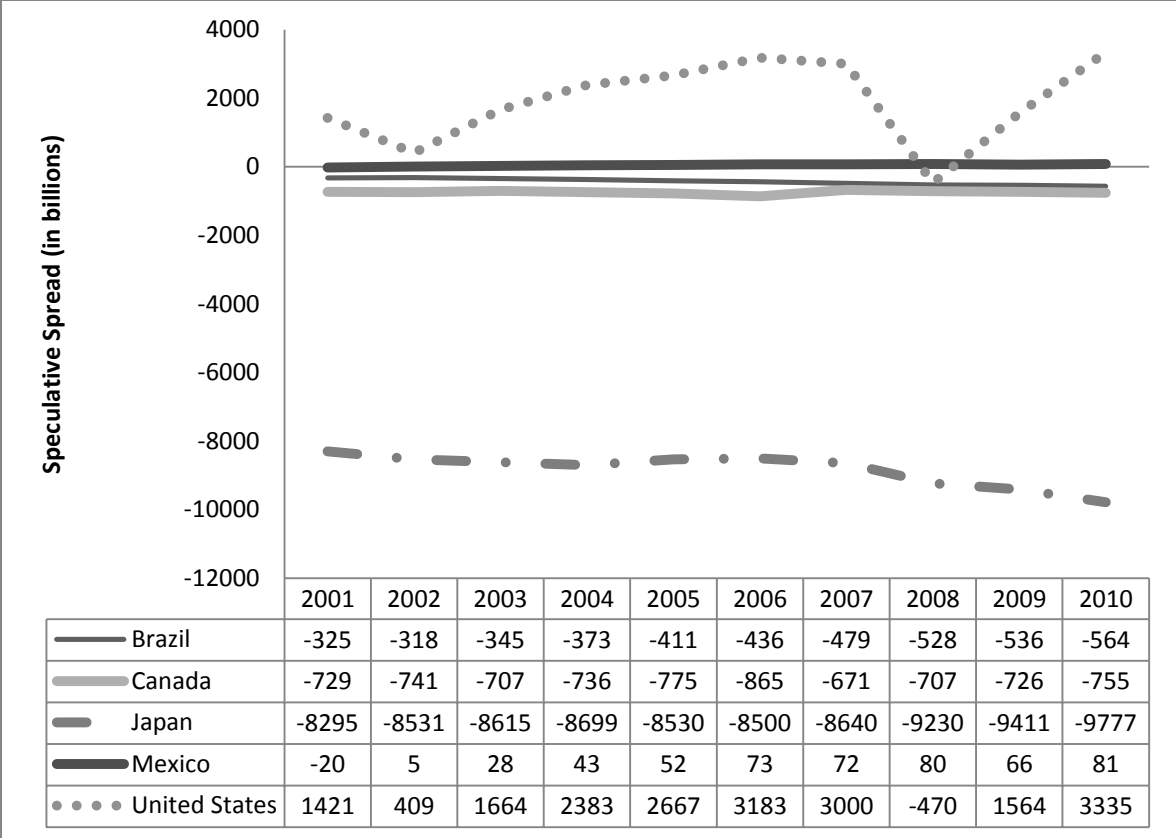
Data is not available for all countries. We look at the cases of Brazil, Canada, Japan, Mexico, and the United States for the period 2001 to 2010, which is the only period which contains all data.

Figure. N, Need for Financial Deepening



Source: IMF IFS Database, World Bank Data, and Authors' Calculations

Figure. The "Speculative Spread"



Source: IMF IFS Database, World Bank Data, and Authors’ Calculations

As one can see from the preceding figure, the US is in a region of excess speculation, entering a “safe” region only during the crisis, in 2008. Mexico is also in a region of excess speculation, although not to the same extent as the US. Japan is able to expand its financial activity since it is deep into the “safe” region, while Brazil and Canada are both performing well, with enough financial activity to grow yet remain in the “safe” region.

Section 4. The “Speculative Spread”: A Discussion

We ask, is this type of analysis useful? Simply avoiding crisis should be the weakest goal of economic policy; maintaining a strong, vibrant and stable economy should be the strongest. In the latter case, in our judgment the excess speculation index can serve as a guide in determining whether to curb speculative activity or to increase the level of financial deepening in order to maintain speculative activity. For when speculative activity crashes, it is the non-speculative sectors that are forced to stabilize economic activity. Therefore financial deepening can be thought of as a base from which economic activity and speculative (riskier) financial activity can be built.

Since the Great Recession occurred, additional regulations have begun to be put in place to prevent this from occurring again. In the US, the Dodd-Frank Act of 2010 was enacted to end “too big to fail”

bailouts, create an advance warning system for the financial industry, close loopholes for loopholes for risky and abusive finance, provide new rules for transparency and accountability for credit rating agencies, and limit executive pay (US Senate 2012). But it has not been viewed as particularly impactful with respect to the US financial industry, and it certainly did not move toward resolving the worst speculative activity.

Speculation must be controlled. The trouble with investment as a generator of extranormal profits is that, not only does it increase inequality between wealthy and financial interests and the working population, but that it also creates financial risks that are not associated with real value. Creating extranormal profits is often referred to as speculation—speculation takes on risky investments in the hopes of creating higher than normal profits, at an expense of potentially losing very large amounts. In the case of the Great Recession, very large amounts of money were indeed lost, not only by investors but also by the real economy, which suffered from the economic shock originating from the subprime financial sector⁶.

As evidenced both by the Great Recession and by the Great Depression, speculation can have damaging effects on the very fabric of the economy. Because of this, speculation is arguably economically inefficient, in part because it locks in increasing financial risk. As in the case of using large market share to maintain and grow large market share (i.e., trusts), the financial entity becomes cancerous when it grows too large to be based on real profits. This is because speculation can lead to herding behavior on incorrect information (Keynes 1936; Froot, Scharfstein and Stein 1992), as well as to overleveraging. In the Great Recession, rating companies “herded” on the propagation of incorrect information, and investors herded on the purchase of excessively risky assets. Leverage was sky high. Speculation had permeated the financial system and, once the bets were lost, a large amount of financial value was wiped out.

In the US, non-bank financial activity (potentially subject to speculation) as it compares to productive activity has increased, while bank financial activity has not. This is a result of the rise of the shadow banking system. While lately some economists have advocated or defended the rise of the share of non-bank financial institutions in providing financial services, it was activity outside of banks (or off balance sheets) that set the stage for the current crisis and non-bank financial institutions remain far less regulated than banks. Certainly, some aspects of the shadow banking system are more pernicious than others. This is something that is currently of interest to regulators, and is being explored under the Financial Stability Board. Money market mutual funds, despite “breaking the buck” in 2008, are much more highly regulated than assets like CDOs. Securitization, although important in allowing financial institutions to originate loans and sell off the loans to expand the lending market, can itself succumb to adverse selection as less profitable firms use off balance sheet securitization. There is also a lack of a “securities lender of last resort,” which came up in 2005 when chronic repo failures occurred (Gorton and Metrick 2010).

⁶ GDP contracted not only in the US but also throughout the world as a result.

More than anything, however, is the issue that the shadow banking system is prone to speculation, as the recent crisis has demonstrated. Assets sold by shadow banks became so fashionable in the 2000s that they were coveted by many individual and institutional investors, leading to speculation. Extreme lack of transparency, questionable use of computer modeling, lack of regulation, and perverse incentives in the form of sky-high bonuses fueled the tendency of the shadow banking sector to engage in profit seeking above and beyond the real sector. To make matters worse, speculation is procyclical. Speculation mainly occurs during periods of excess returns, which have been shown to be positively related to consumption growth (Avouyi-Dovi and Matheron 2005). As income and consumption increase, purchases of assets increase correspondingly, amplifying the business cycle and setting the stage for a potentially very sharp decline. This is what happened in the recent crisis. Some positive real gains were greatly amplified as Keynes' "irrational exuberance" set in, setting off large scale purchases of assets in the shadow banking sector.

Finally, the shadow banking system is tightly integrated with the formal banking system. Losses in banks' subprime mortgage sector were limited at first to that sector, tied to something real, but were unfortunately used as the basis for highly leveraged assets in the shadow banking sector. Structurally, the shadow banking system is not entirely separate from the formal banking system. Commercial banks continue to be allowed to engage in investment banking activity, as Glass-Steagall has not been reinstated.

Section 5. Policy Recommendations and Conclusion

After the crisis, we were left with regulatory chaos and insufficient solutions. The shadow banking system remains generally nontransparent and difficult to control. The banking system itself has moved on after the crisis, with help and encouragement from both the Treasury and the Federal Reserve. Loans are being made but banking activity largely remains low. Structurally, little has changed—even the fear of repeal of Gramm-Leach-Bliley was never realized (although attempts to pass this type of legislation were made).

Based on our "speculative spread" model, we recommend more of an economic policy emphasis of building up the real sector and on reducing the shadow banking sector. At the very minimum, appropriate regulation of the shadow banking sector must occur, and this is in the process of being examined by policy makers. Job creation and lending to business would increase financial deepening, and this can be brought more in line with speculation by restricting the types and extents of assets that can be bought and sold. Transparency within the shadow banking sector is necessary but not sufficient—too many assets not directly stemming from real production may themselves endanger the economy due to a propensity to overleverage off of real production. Some measure of how much shadow banking activity is "acceptable" within the bounds of the real economy must be used to guide policy making in this sector.

The Great Recession was an enormous surprise to mainstream economists, while not as much to non-mainstream economists, due to differences in views of the financial economy and its interaction with the real economy. While policy makers continue to follow mainstream economic theory, with the

implication that regulation and transparency can fix any market glitches, many remain skeptical of the ability of regulation to prevent this type of crisis in the future. Deeper restructuring of the economy, with curbs on the worst practices of speculation, are necessary to provide long-term stability. We have explored one way in which to measure speculation versus production, in what we call a “speculative spread,” and suggest that this may be an important means to understanding to what degree the economy is overfinancialized.

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