LAW AND MACRO-FINANCE[*]

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Summary

In recent years, new studies have shown that above a certain level, there is a negative relationship between financial development and economic growth. Above that level, finance becomes unsustainable in the sense that it undermines economic growth by increasing the likelihood of a financial crisis. Why do countries ever reach that level? In this article, I draw on a new strand of literature, Law and Macro-Finance, to suggest that countries which incentivize debt investments are more likely to experience financial crises and recessions. That is because debt is cyclical and the failure to mitigate its cyclical impacts is more likely to exacerbate both the boom and busts phase of the cycle. The goal of this article is to assess the case for the promotion of an integrated field of Law and Macro-Finance as an area of research looking at the role of debt and its regulation in the economic cycle.

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1. Introduction

In the past four decades, economists have amassed substantial evidence indicating that financial development significantly contributes to economic growth. (Levine 2005) This correlation is exemplified by the expansion of credit markets, which enhance financing opportunities and consequently lead to increased GDP. Creditors are more keen to provide financing in countries, which protect their rights better, which in the influential "Law and Finance" literature are associated with common law countries (La Porta, et al. 1998). However, in recent years, new studies showed that above a certain level, the relationship between credit and economic growth turns negative (Arcand, Berkes, and Panizza 2015; Cecchetti and Kharroubi 2012). That is mainly because outsized credit markets increase the probability of a financial crisis, which in turn, can affect economic growth. Which countries more effectively align the size of their credit markets with the needs of their economies?

In this article, I draw on a new strand of literature, Law and Macro-Finance, to suggest that countries which incentivize debt investments are more likely to experience financial crises. That is because debt is cyclical and the failure to mitigate its cyclical impacts is more likely to exacerbate both the boom and busts phase of the cycle (Laeven, Perez-Quiros, and Rivas 2020). The goal of this article is to assess the case for the promotion of an integrated field of Law and Macro-Finance as an area of research looking at the role of debt and its regulation in the economy cycle.

The term Law and Macro-Finance used to describe this line of research only slowly gaining popularity but it is helpful to distinguish it from Law and Finance as its more famous cousin. Under Law and Finance, the relationship between law and credit is unidirectional and positive. The availability of credit is a function of agency costs, which law can help reduce by strengthening investor protections (La Porta et al. 1997). Beyond that, law

should force accurate information disclosure and promote the monitoring of individual institutions to ensure rapid credit market development (Porta, Lopez-De-Silanes, and Shleifer 2006).

The findings of Law and Finance transformed scholarship in economics, finance, and law and have become influential in academic and policy circles. In academic circles, the research boosted comparative institutional analysis and studies of corporate governance, both of which were relevant to organizations, such as the World Bank (Kaplan and Zingales 2014). On the policy side, the findings of Law and Finance prompted the development of the World Bank's *Doing Business* reports that measure business regulations in 189 economies and selected cities. By any measure, Law and Finance was a triumph; a new branch of law and economics had been born.

The policy program of Law and Finance was largely aimed at developing countries instructing them how to adapt their laws and regulation to boost credit. Ironically, the influential papers in Law and Finance were published shortly after the outbreak of the Asian financial crisis in 1997, which hit many such countries causing tremendous economic hardship to millions of people. The Law and Finance literature did not have anything to say about the conditions under which credit growth could be problematic or how to prevent such crises from happening in the future.

Policymakers in developing countries which experienced financial crises had to learn on the go, which resulted in the adoption of a series of preventive measures, such as foreign exchange and capital controls aimed at the reduction of the volatility of debt-driven investment flows (Klein 2012). It became apparent that some form of regulation going beyond what the Law and Finance literature has traditionally advocated for might be necessary to make growth sustainable, at least in the economic sense of the word.

Excessive reliance on debt was not conducive of such growth but could not be easily identified without a systemic overview of developments in the financial system. Policymakers lacked such overview as their so-called micro-prudential approach to regulation focused on of individual institutions. In 1999, the International Monetary Fund (IMF) for the first time engaged in a policy program of *macroprudential* analysis for its Financial Sector Assessment Program focused on the financial system as a whole. That same year, the G7 agreed to set up the Financial Stability Forum (FSF), which was the first international venue in which macroprudential issues were discussed.

Nevertheless, the newfound macroprudential discourse did not get much traction in the more influential policy circles at the Basel Committee for Banking Supervision (BCBS) responsible for the setting of banking regulation standards (Thiemann 2024). Researchers at the Bank of International Settlements (BIS), the host institution of BCBS have done some work on the procyclicality of banking regulation effectively launching the

Law and Macro Finance agenda but their work was largely dismissed as an unpersuasive at the time due to insufficient evidence.

As a research program, Law and Macro Finance received more attention only in the wake of the 2007-08 financial crisis, when it became apparent that BCBS' standards display procyclical characteristic. Specifically, those standards allowed banks to adjust their leverage in a boom. BCBS sought to adapt its standards to mitigate the issue through the creation of the countercyclical capital buffer (CCyB). At this point in time, macroprudential regulation became also part of the policy toolkit in developed countries not just developing countries.

Despite the general acceptance of the importance of macroprudential regulation, there exist quite some variety in terms of the tools that are used. Research shows that such policies are used more frequently in developing economies, with foreign exchange related policies especially used more intensively in these economies (Cerutti, Claessens, and Laeven 2017). Borrower-based policies (such as caps on loan to value and debt to income ratios) are used relatively more in developed countries, especially recently. And almost all countries use some policies to reduce systemic risks arising from intra-financial system vulnerabilities, including from dominant banks and interconnections among banks.

In this paper, I argue that the future of Law and Macro-Finance research is in explaining these cross-country differences and the evaluating their impact on the financial system and economic growth. This research could assist development organizations, such as the World Bank or the IMF, which increasingly recognize the role of debt in causing financial crises but have only recently started promoting policies aimed at helping countries align the size of their credit markets with the needs of their economies (World Bank et al. 2020).

This paper is organized as follows. Section 2 describes the evolution of macroeconomic thinking on the role of credit in the economic or business cycle. Section 3 describes the most recent iteration of this line of thinking, sometimes referred to as macro-financial, including its normative component. The normative component suggest the possibility and need for the promotion of a unified field of Law and Macro-Finance. In Section 4, I describe the contours of the research program of Law and Macro-Finance and compare it to Law and Finance.

2. What drives the business cycle?

Why should macroeconomists care about the law? And why should lawyers care about macroeconomics? The simplest answer, put forward by Yair Listokin in this book *Law and Macroeconomics* (Listokin 2019) is that law sometimes works differently in different parts of the economic cycle, but

it can also be used to regulate the economic cycle. The focus of Listokin's work is on tax law in large part because his theoretical framework is based on Keynesian economics, which revolves around aggregate demand. Listokin proposes that a tax law, which reduces tax burdens in a recession creates more space for consumers to engage in directionally spending, which could help stimulate aggregate demand.

Keynesian economics is not the only strand of macroeconomics. The strand of macroeconomic literature recognizing the role of credit in economic cycles, and in particular the procyclicality of credit, is sometimes referred as macro-finance. This section describes the evolution of macroeconomic thinking on the role of credit in the economic or business cycle.[1] This line of thinking has been instrumental to the development of macro-financial research, which I describe in the subsequent section.

2.1. Fundamentals

Macroeconomics is fundamentally the study of the business cycle. The real business-cycle theory is the macroeconomic view that focuses on 'fundamentals.' It is associated with the work of Kydland and Prescott (Kydland and Prescott 1982). 'Fundamentals' are factors that are believed to affect the economy. Technology is an example of a fundamental factor that may affect the decisions of agents. If a new technology is introduced, for example artificial intelligence, the economy will be transformed. When changes in the fundamentals cause an increase in employment and product, this expansion is a credit boom. When changes in the fundamentals cause a decrease in employment and product, this contraction is a credit bust or a recession. The focus on 'fundamentals' is a direct implication of incorporation of rational expectations developed by Lucas (1972) into a general equilibrium model of the economy put forward by Arrow and Debreu (1954). If economic agents are rational utility maximizers, why would they be concerned about anything else but fundamentals?

2.2. Animal spirits

The 'animal spirits' explanation relaxes the assumption of rationality. The phrase animal spirits is typically attributed to Keynes who made the observation that levels of investment depend on long-term expectations of the investment community (Keynes 1936). Keynes distinguished between borrowers' beliefs about prospective yields from investment projects and the confidence that lenders had in financing borrowers. Lenders' confidence depended on their perceptions of how well borrowers' incentives were

[1] Gertler (1988) provides a comprehensive review of that evolution. The review of the economic literature on the topic of the role of credit in the business cycle until the late 1980s follows is largely based on his work.

aligned with their own and, relatedly, of how well secured were borrower liabilities. Keynes concluded that a collapse in the confidence of either borrowers or lenders was sufficient to induce a downturn, which could only be escaped if that confidence was restored.

The problem with the animal spirits explanation is it is difficult to test. This, perhaps, accounts for the reason why post-Keynesians have abandoned it, arguably, leaving Keynesian economics without an adequate view of the causes of economic cycles. In particular, many found incomplete the Keynesian view that the Great Depression was the result of an exogenously determined decline of investment opportunities or a prior unexplained decline in consumption activity.

2.3. Money

Friedman and Schwartz (1970) developed an influential account of the origins of the Great Depression in their monumental *Monetary History of the United States, 1867-1960*. Their account identified a third possible driver of economic cycles—money Friedman and Schwartz argued that the Great Depression could have been prevented through timely actions of the Federal Reserve timely reductions in the money supply during credit booms and increases during recessions. The problem was, in their view, the discretionary use of the power to control the money supply by the banks of Federal Reserve System of the United States.

This is why, in his later work, Friedman proposed a fixed monetary rule, called Friedman's k-percent rule, where the money supply would be automatically increased by a fixed percentage per year. Under this rule, there would be no leeway for the central bank, as money supply increases could be determined by a computer", and business could anticipate all money supply changes. With other monetarists he believed that the active manipulation of the money supply or its growth rate is more likely to destabilize than stabilize the economy.

With the introduction of money, it would be tempting to suggest that macroeconomics had financial markets in mind, but that was not the case. To the contrary. As Gertler notes, one important outcome of Friedman and Schwartz' work was an alternative explanation for the role of financial markets in the Great Depression; the story emphasized the central importance of money and, as a consequence, deemphasized the significance of all other aspects of the financial system (Gertler 1988, 6). Indeed, by doing so, they shifted the emphasis to money as the financial variable most relevant to aggregate economic behavior.

2.4. Banking

Because of the historical evolution of the monetary and banking system,

banks are the vehicles of transmission of monetary policy. Macroeconomic theory, which sought to incorporate banking into its models of the economy, generally assumed restrictive institutional conditions that prevented banks from creating money. Gurley and Shaw (1955) show that as the intermediary system evolves, and lending institutions with non-monetary liabilities arise, the exclusive focus on money becomes less justified. Once we allow for endogenous creation of such liabilities, the money stock becomes less reliable as an indicator of credit growth. Thus, more relevant to macroeconomic behavior than the money stock was the economy's overall 'financial capacity' understood as the measure of borrowers' ability to absorb debt, without having to reduce either current spending or future spending commitments (in order to avoid default or costly rescheduling). As Gertler (1988, 8) notes, in the Gurley and Shaw world, financial capacity was an important determinant of aggregate demand.

Why has the banking view not taken hold and why did the real business-cycle theory take off and become the paradigmatic view? As pointed out by Gertler (1988, 10), the main reason was developments in financial theory. Shortly after Gurley and Shaw emphasized the importance of the financial system, the famous Modigliani and Miller (1963) (MM) theorem proposed that real economic decisions were independent of financial structure.

While Gurley and Shaw had in mind a different economic environment than the Arrow-Debreu world underlying the MM theorem, they, and others at the time, did not have a formal counterpart to offer. They accordingly could not provide arguments at the same level of rigor as those suggesting the unimportance of financial structure. Apart from its formal elegance, the MM theorem was attractive because it provided researchers with a rigorous justification for abstracting from the complications induced by financial considerations.

But that was not the only reason why the real business-cycle theory prevailed. Another reason was, what Gertler calls, the methodological revolution in macroeconomics in the 1970's. I have alluded earlier to the work of Lucas who incorporated rational expectations into a general equilibrium model of the economy. For pursuing this methodological approach the stochastic competitive equilibrium growth model, developed by Brock and Mirman (1972) and others was essentially an Arrow-Debreu model, and thus had the property that financial structure was irrelevant. As Gertler (1988, 10) further notes, [t]he revolution helped shift attention away from financial factors, in a less direct but probably more substantial way.

2.5. Credit

Much against the prevailing fashions of the time, in the early 1970, Hyman Minsky studied the role of financial markets as drivers of economic

cycles. By focusing on the financial structure, Minsky (1982) builds on the contribution of Gurly and Shaw. While his work was not quantitative , he did make an important empirical observation, namely the fact that many agents of the economy, in particular banks, are highly levered. Minsky's basic insight was that a high leverage ratio is sustainable, as long as the income is expected to increase in the future and as long as financial market conditions are favorable credit is cheap.

As Minsky was developing his theory, a much more prominent economist of the time, Charles Kindleberger had been collecting historical data on financial crises. In his work, Kindleberger (1978) relied on Minsky's theory to explain the data he collected. In short, the theory states that when credit is readily available, investors will put it to work and for a while this will increase output. Over time, however, the capacity to produce will be exhausted even though prices of assets will continue rising. Prices increase, giving rise to new profit opportunities will attract still further firms and investors. Positive feedback develops, as new investment leads to increases in income that stimulate further investment and further income increases. At this stage the financial system reaches the state of 'euphoria.' If this process builds up, the result is often, though not inevitably, what Adam Smith and his contemporaries called over-trading.

The theory’s basic insight was that debt can disrupt real activity. Kindleberger's statue as prominent figure in economics notwithstanding, Minsky's theory did not catch on at that time in large part because economists simply could not show that financial markets caused downturns. Nevertheless, the seeds for the development of an approach to macroeconomics later referred to a macro- finance have been sown.

What macroeconomists were increasingly able to show in the 1980s was that leverage makes economic downturns worse. The new empirical literature comprises three major contributions. It began with a paper by Mishkin (1978), who analyzed data from the Great Depression to determine whether financial factors affected consumer spending. Mishkin studied the interaction between output, consumer balance sheets, and consumer spending and found that the behavior of household net financial positions in fact had a significant influence on consumer demand.

Further, the results provided evidence for a financial aspect to the business cycle propagation mechanism. Specifically, Mishkin found that the rise in consumer real indebtedness resulting from declining incomes and deflation induced consumers to lower spending on durables and housing, which in turn magnified the decline.

Another influential paper that analyzed the interplay of monetary and financial factors in the Great Depression was by Bernanke (1983) In the paper, Bernanke, who would lead the Federal Reserve during the Great

Recession, argued that the financial disruptions of the Great Depression reduced the efficiency of the credit allocation process; and that the resulting higher cost and reduced availability of credit acted to depress aggregate demand.

The third contribution was a series of publications by Benjamin Friedman who compared the performance of money versus debt in reduced form output equations and concluded that the ratio of debt to output was considerably more stable than the ratio of money to output (Friedman 1980, 1982). As Gertler (1988, 15) notes, "[o]f course, this evidence alone did not yield sharp conclusions about the roles of money versus credit. It was, however, at least consistent with a Gurley/Shaw interpretation; the existence of money substitutes could explain the instability in monetary velocity, while the importance of credit flows could underlie the stable connection between debt and output."

The statistical work of Mishkin, Bernanke and Friedman laid foundations for the emergence of macro-finance, which essentially represents a critique of macroeconomic theory for its failure to incorporate debt into its models of the economy. The macro-financial view got a further boost from developments in information economics. If financial markets, in particular debt markets, mattered, macroeconomists should understand how they work and in particular the types of problems creditors face.

The main problems are information asymmetries, which give rise to the agency problems of moral hazard and adverse selection. If creditors or shareholders cannot monitor managers adequately, the managers are likely to take advantage of the situation and extract rents from the firm in the form of various private benefits, as predicted in the seminal model of (Jensen and Meckling 91976) This is the problem of moral hazard.

The problem of adverse selection has to do with the fact that while creditors subject debtors to diligence prior to the making of loans, diligence is unlikely to provide the creditors with a complete picture of the goings of the debtor's business. This may lead to extending financing to debtors who are exposed to greater risks and are therefore more likely to default.

Stiglitz and Weiss (1981) incorporate moral hazard and adverse selection into an information economics model showing that a rise in the interest rate lowers the average borrower quality, as those with relatively safe projects are the first to drop out. Thus, after a point, further increases in the interest rate may lower lenders' expected return, making the loan supply curve bend backwards. Rationing arises where some borrowers are arbitrarily denied credit when the loan demand and supply curves do not intersect.

3. The emergence of macro-finance

3.1. Descriptive macro-finance

The 1990s saw a revival of the radical view of the role of credit in the economic cycle pioneered by Minsky and Kindleberger. Incidentally, the emergence of the more contemporary literature in the radical vein coincided with several instance of financial crises, which were largely being seen as debt driven, in particular the Mexican financial crisis of 1994 and Asian financial crisis of 1997. The explanation of those crises in the macro-financial literature focused on credit growth and in particular the availability of credit for speculative investment. Allen and Gale (1999) developed a model, in which crises are caused by asset bubbles preceded by periods of financial liberalization attributed primarily to expansionary monetary policy.

Like Minsky and Kindleberger, Allen and Gale set out to show that asset bubbles exist, and they are preceded by credit growth. One of the problems financial economists had with incorporating this insight was that it did not fit with asset pricing models. The price of an asset should equal to the revenue the investor expects to receive from it. Debt plays no role in this because financial theory assumes that investors buy assets from their own wealth.

In their paper, Allen and Gale (1999, 12) relaxed this assumption because they thought it obfuscated the risk shifting problem inherent to the agency relationship in lending. As they put it:

> By buying risky assets, the borrower can shift downside risk on to the lender, but retains the right to any upside returns. The more risky the asset, the more attractive it becomes. When a significant proportion of investors in the market have these incentives, the equilibrium asset price will be high relative to the 'fundamental' value of the asset, which is defined as the price that would obtain the standard asset pricing model, where everybody is investing their own wealth.

The greater the population of investors relying on debt and the greater the amount of money they can borrow, the higher the prices of assets they compete for. That impact is possible in equilibrium. Nevertheless, it would seem implausible to suggest that this alone would causes an asset bubble because there is a limit on how much agents can borrow against their income. That limit increases with the introduction of collateral. Kiyotaki and Moore (1997) showed that collateralized debt amplifies and even generates the economic cycle. When credit is secured by collateral, a credit boom is associated with not only a higher leverage ratio but also a higher value of the collateralized assets. As they note:

> borrowers' credit limits are affected by the prices of the collateralized assets. And at the same time, these prices are affected by the size of the credit limits. The dynamic interaction between credit limits and asset prices turns out to be a powerful transmission mechanism by which the effects of shocks persist, amplify, and spread out (Kiyotaki and Moore 1997, 212).

These contributions suggest that secured debt can increase leverage and

bid up asset prices, which, in turn, can increase leverage even further if these assets are used as collateral. There are feedback loops, which make the asset bubble bigger in equilibrium. Geanakoplos (2010) provides the most comprehensive account of the relationship between collateralized credit growth and asset prices—a theory of leverage cycles. In his account, the impact of leverage on asset prices follows from the recognition that prices reflect heterogenous expectations and risk preferences of a large pool of investors rather than some fundamental values. Investors who are more optimistic or less risk averse are going to pay more as long as they will have access to funding thereby driving asset prices up. The reverse occurs when they cannot access funding. It follows, as Geanokpolos notes, that in the absence of intervention, leverage becomes too high in boom times and too low in bad times.

Gorton and Ordoñez (2014) show there is nothing irrational if we consider credit booms and busts to be a function of information regimes. It is costly to produce information about the collateral all the time. That is why investors do not, particularly for short term debt. As such, information regimes exacerbate the leverage cycle. The cycle turns when there is a change in the information regime, which could be as a result of behavioral factors (e.g., panics) or regulation.

The literature discussed so far tells us that leverage increases asset prices but should leverage not decrease as asset prices increase? For example, if the price of a house goes up, surely the value of the homeowner's equity goes up as well thereby decreasing the debt to equity ratio. The answer to the puzzle is yes, leverage should decrease as asset prices go up as long as borrower do not adjust it. However, in many cases they do, and may be even encouraged to do so by lenders.

Mian and Sufi (2011) show this dynamic in the context of the mortgage credit boom by focusing on the irrational behavior of borrowers. The rising value of the equity in their homes allowed them to borrow against it and spend it. While their leverage should be decreasing, it was actually increasing because they were adjusting it.

Households are not the only units of the economy that adjust their leverage in a procyclical fashion. The same argument has been made with respect to banks. Adrian and Shin (2008) show that during booms, banks increase their liabilities by more than their assets have risen, thus raising their leverage. During troughs, they reduce their liabilities more sharply than their assets have declined, thus lowering their leverage. Although the term pro-cyclical leverage is not one that the banks themselves would use in describing their actions, it does capture the basic nature of their practice.

> Banks will adjust assets and liabilities to ensure that their total equity is proportional to the total value at risk of their assets. Thus, for a given amount of equity, a lower value at risk allows banks to expand their balance sheets: leverage is inversely

> related to value at risk. Since measured risk is countercyclical low during booms and high during busts the banks' efforts to control risk will lead to procyclical leverage (Adrian and Shin 2008, 3)

3.2. Normative macro-finance

The central tenet of macro-finance is that leverage has macroeconomic implications. Leverage is too high during periods of credit booms thereby making the economy vulnerable to adverse shocks, but it is too low during periods of credit busts thereby making it difficult for the economy to recover from such shocks. When an economy enters into a recession with high levels of indebtedness that too could hinder economic recovery. Indeed, this is what happened in Japan in the early 1990s. A corporate debt overhang made the economy's recovery much slower that it would have been if Japan entered the recession with a lower level of corporate indebtedness, as discussed by Koo (2003).

The Japanese experience demonstrated that a bankruptcy law framework allowing for identification of viable companies that should be rescued is a key element of economic recovery. As such, bankruptcy law is an important macro-financial policy lever, alongside the more traditional ones of monetary policy and banking regulation. Below I discuss the role of all of three in the normative framework of macro-finance.

3.2.1. Monetary policy

How can central banks restrain leverage in booms? The standard macroeconomic answer is to increase interest rates to reduce liquidity. However, there are concerns that a small increase would not be effective and a large increase could do more harm than good in a leveraged financial system. Already Minsky (1982, 67) made the observation that "[t]he Federal Reserve must pay more attention to credit market conditions whenever the importance of speculative financing increases, for the continued viability of units that engage in speculative finance depends upon interest rates remaining within rather narrow bounds."

Interestingly, Adrian and Shin (2008, 4) made the point that even a small increase in interest rates could have a big effect on leverage.

> The claim that an asset price bubble will not respond to a small change in interest rates has mostly been argued in the context of the stock market, where the proposition is indeed plausible. However, the stock market is not the best context in which to discuss the financial stability role of monetary policy, as stocks are held mostly by unlevered investors. Much more central is the credit market, especially when backed by residential or commercial real estate . . . a difference of a quarter or half percentage in the funding cost may make all the difference between a profitable venture and a loss- making one for leveraged financial intermediaries (p. 4).

Even more interestingly, they further argue for a rehabilitation of some role for balance sheet quantities for the conduct of monetary policy associate

with the work of Friedman.

> Ironically, our call comes even as monetary aggregates have fallen from favor in the conduct of monetary policy. The instability of money demand functions that makes the practical use of monetary aggregates challenging is closely related to the emergence of the market-based financial system. As a result of those structural changes, not all balance sheet quantities will be equally useful. The money stock is a measure of the liabilities of deposit-taking banks, and so may have been useful before the advent of the market-based financial system. However, the money stock will be of less use in a financial system such as that in the US. More useful may be measures of collateralized borrowing, such as the weekly series on repos of primary dealers (Adrian and Shin 2008, 28).

Indeed, an increase role of repos in the financial system in the decade that followed the Great Financial Crisis prompted some to call for greater reliance by central banks on an alternative rater to the federal fund rate—the repo rate—and a stricter regulation of repos as a form of short-term money market lending prone to runs. Ricks (2016) proposed that only regulated banks should be able to issue repos.

3.2.2. Banking regulation

In addition to their work on the role of monetary policy, Adrian and Shin have also considered the role of banking regulation in addressing procyclical leverage. Specifically, they showed that procyclical leverage at banks was guided by the banks' models of risk and economic capital dictate active management of their overall value at risk the risk of loss on banks' asset portfolios through adjustments of their balance sheets. Banks' reliance on their internal risk models dates to the 1980s, when national regulators began imposing regulatory capital requirements. By 1988, most large multinational banks were held to the Basel I standard, the first internationally harmonized capital standard developed by the BCBS at the BIS sometimes called the central bank of central banks. Basel I imposed on banks an obligation to maintain a specified level of capital or own funds against certain categories of assets they hold. The capital requirement was risk-weighted in the sense that banks had to hold more capital against riskier assets. Basel I allowed a certain amount of discretion for banks in determining how to evaluate the riskiness of assets. Basel II, published in 2004, allowed for even greater discretion through reliance on increasingly sophisticated internal risk models the banks adopted.

Interestingly, some economists at BIS expressed considerable skepticism towards those models suggesting such models would allow banks to lower capital requirements in moments when the probability of crisis increases. As Borio, Furfine, and Lowe (2001, 1) noted, market participants tend to react inappropriately to changes in risk over time.

> These inappropriate responses are caused mainly by difficulties in measuring the time dimension of risk, but they also derive from market participants having incentives to react to risk, even if correctly measured, in ways that are socially

suboptimal.

The measurement difficulties often lead to risk being underestimated in booms and overestimated in recessions. In a boom, this contributes to excessively rapid credit growth, inflated collateral values, artificially low lending spreads, and financial institutions holding relatively low capital and provisions. In recessions, when risk and loan defaults are assessed to be high, the reverse tends to be the case.

To capture these dynamics, policymakers required a system-wide view of financial developments, which is why, in the wake of the GFC, they have embraced macroprudential regulation concerned with the stability of the financial system as a whole. The term is used to refer to policies aimed at limiting the incidence of disruptions in the provision of key financial services that can have serious consequences for the real economy, by either 1) dampening the build-up of financial imbalances and building defenses that contain the speed and sharpness of subsequent downswings and their effects on the economy, or 2) identifying and addressing common exposures, risk concentrations, linkages and interdependencies that are sources of contagion and spillover risks that may jeopardize the functioning of the system as a whole.[2]

The CCyB, which was included in Basel III is a good example of a countercyclical regulatory rule for banks. The CCyB aims to ensure that banking sector capital requirements take account of the macro-financial environment in which banks operate (Basel Committee on Banking Supervision 2015). As the Basel Committee note,

> "Its primary objective is to use a buffer of capital to achieve the broader macroprudential goal of protecting the banking sector from periods of excess aggregate credit growth that have often been associated with the build-up of system-wide risk. Due to its countercyclical nature, the countercyclical capital buffer regime may also help to lean against the build-up phase of the credit cycle in the first place. In downturns, the regime should help to reduce the risk that the supply of credit will be constrained by regulatory capital requirements that could undermine the performance of the real economy and result in additional credit losses in the banking system."

3.2.3. Bankruptcy law

A rather interesting feature of the policy debate focused on the identification of the macro-financial policy levers that could be used to reduce leverage during periods of credit booms and help increase it during periods of credit busts, is the focus on bankruptcy law. Geanakoplos (2019, 19) notes, "the policy implications of the leverage cycle are that central banks should smooth the cycle, restraining leverage in booms, and in the acute stage

[2] FSB, IMF, BIS, Macroprudential policy tools and frameworks: Update to G20 Finance Ministers and Central Bank Governors (14 February 2012) at 2.

of the crisis, propping up leverage. If, in the aftermath, depressed asset prices are too low relative to debts, debt must be partially forgiven." Mian and Sufi (2014) also emphasize the role of bankruptcy law as a mechanism, which can mitigate the economic impact of a recession. In the context of corporate debt, Jordà et al. (2020) show that the economic cost of booms fueled by corporate credit in countries, which have efficient bankruptcy systems.

4. Law and Macro-Finance

Macro-financial research increasingly considers the role of debt and its regulation in the economic cycle. While the majority of the normative accounts focus on monetary policy, an increasing number of contributions examines its interplay with macroprudential regulation, the growing role of macroprudential regulation itself and even the role of bankruptcy law. At this point, it might be worthwhile to assess the case for the promotion of an integrated field of "Law and Macro-Finance", which would make the role of debt and its regulation in the economic cycle the central focus of its inquiry.

I refer to it as such to distinguish it from the Law and Finance research, which set out to measure how law impacts financial development. In a series of influential articles published in the late 1990s, (La Porta et al. 1997; La Porta, et al. 1998) found that strong investor protections, associated with the common law origins, are a determinant of greater financial development, which, in turn, allowed other Law and Finance scholars to demonstrate a causal relationship between financial and economic development (Levine 1999).

The need to reassess the role of law as the instrumental variable explaining that relations comes from the studies that cast doubt on whether that relationship is always positive. Cecchetti and Kharroubi (2012) show that financial sector size has an inverted U-shaped effect on productivity growth. Arcand, Berkes, and Panizza (2015) show the marginal effect of financial depth on output growth becomes negative when credit to the private sector reaches 80–100 % of GDP. A 2020 World Bank report similarly shows that rapid debt buildup, whether public or private, increased the likelihood of a financial crisis, as did a higher share of short-term debt or larger external debt (World Bank et al. 2020).

Law and Macro-Finance helps illuminate the mechanisms of this negative relationship. In particular, it suggests that countries which incentivize debt investments are more likely to experience financial crises and recessions. That is because debt is cyclical and the failure to mitigate its cyclical impacts is more likely to exacerbate both the boom and busts phase of the cycle. The procyclicality of creditor rights is an example of such a mechanism. In the pursuit of financial development, countries strengthen creditor rights. But strong creditor rights have different effects in different parts of the cycle

(Borowicz 2023). In a boom, as leverage decreases, they incentivize creditors to adjust it to a higher level. In a bust, as leverage increase, they incentivize creditors to enforce, which could trigger a financial crisis and a recession. The bigger the financial sector, the bigger of such rights.

Law and Finance neglected this mechanism because it considered the economic effects of creditor rights within a theoretical framework focused on agency costs. Specifically, that framework was the property rights framework of Grossman and Hart (1988). The property rights literature's principal contribution was to suggest that decision rights matter as much as if not more than cash flow rights. Decision rights, such as the right to enforce a claim upon default can help address agency costs associated with the problems of moral hazard and adverse selection making debt cheaper. Hence, the inference of Law and Finance, that, financial development is greater in jurisdictions where decision rights are protected more effectively.

The property rights literature did not consider the possibility that the price of debt should be a function of leverage not just agency costs (Geanakoplos 2010, 2019). Creditors are willing to tolerate leverage insofar as it is backed by collateral but as leverage increases, they will increase the price of debt. The paradox is that, in booms, leverage often decreases, as prices of assets used as collateral increase thereby reducing the debt to asset ratio. These fluctuations affect the incentives of creditors to extend credit or enforce their rights. The stronger the rights, the stronger the effects of these fluctuations on the incentives of creditors are likely to be because creditors will neglect the borrower and focus on the value of more on collateral or assets securing an obligation to pay.

For example, the rights of a broad range of creditors, including, but not limited to repo creditor, allow them to claim collateral without ever having go through the bankruptcy process. While Law and Finance noted the existence of those rights it neglected their relative importance as they tend to benefit creditors in money markets rather than capital markets. The focus of Law and Finance was on capital markets, not money markets, which followed from the standard assumption in financial economics that investors use their wealth. The financial crisis challenged that assumption showcasing the growing importance of money market funding of capital market lending in the contemporary financial system (Gorton and Metrick 2010; Mehrling et al. 2013). The economic effects of money market lending are different from those of capital market lending in large part because the former relies on collateral consisting of assets that tend to fluctuate in value in a cyclical fashion, such as financial assets.

These cyclical fluctuations of prices were also missing from Law and Finance because of its strong commitment to market efficiency, which it derived from the asset pricing strand of the finance literature. The efficient

market hypothesis (ECMH) has been used to show that in efficient markets, it should impossible to earn a profit as all information is already incorporated in the price of securities (Fama 1970). While this characterization of the operation of capital markets was highly stylized, it led to a shift towards information costs in the focus of regulators and academics.

For example, the sentiment that market inefficiency caused the crisis was shared by Ronald Gilson and Rainier Kraakman, two leading figures in Law and Finance, who thirty years earlier famously identified the mechanisms of market efficiency in their influential article (Gilson and Kraakman 1984). In their account, relative market efficiency was a function of the interactions between various types of traders, whose information endowments differ.

In revisiting their account of the mechanisms of markets efficiency against the backdrop of the glaring inefficiencies of debt markets showcased by the GFC, Gilson and Kraakman (2014) continued to stress the role of information costs and argued that in the various markets associated with mortgage backed securities (MBS), "frictions introduced by the market structure itself often made the mechanism by which information comes to be incorporated into price much more salient than it is in the public equities markets" (Gilson and Kraakman 2014, 344).

They did not believe the crisis undermined the ECMH. They noted that claim that market prices are informationally efficient requires astute traders to seek profit by trading on new information. The assumption of active trading underlies all of the efficiency mechanisms that aggregate information into price. A primary market without an after-market simply lacks the structure to converge on efficient prices. Thus, they saw the GFC as consistent with ECMH. They deemed the markets in MBS to have been inefficient. ECMH, properly understood, can help to locate and reduce market frictions even if it cannot prevent market bubbles.

In this remark, Gilson and Kraakman thus appear blame monetary policy. The irony of putting the blame for asset on monetary policy, is that monetary policy has largely been exempted from the responsibility for policing asset bubbles. Brunnermeier and Schnabel (2016) argue that historically the view was that central banks should steer away from asset prices for several reasons: first, it is challenging to identify asset bubbles; second, monetary policy instruments may not be well suited for that purpose and third, bubbles are a problem only when markets are inefficient.

Indeed, in the years leading up to the GFC the Federal Reserve kept interest rates too low. From 2000 to 2003, the federal funds rate had been decreased from 6.5% to 1.0%. Macroeconomic theory provided the justification for that move since inflation was low at that time, the Federal Reserve did not think that a decrease of the rate could be problematic.

Reflecting on that decision before the Financial Crisis Inquiry

Commission, Alan Greenspan, the President of the Federal Reserve between 1987-2006 noted that decisions on purchasing a home depends on long-term interest rates on mortgages not the short-term rates controlled by the Fed, but between 1971 and 2002, the fed funds rate and the mortgage rate moved in lock- step." However, when the Fed started raising the rates, its actions did not seem to have an impact on the growth of mortgage lending. How to explain that?

In a speech at the Bundesbank, Bernanke (2007) suggested that the reason for the asset bubble was international liquidity, which the central bank had no control over. This remark aligns with the findings of the Law and Macro-Finance research, which has shown that gains to international capital flows have proved elusive whether in calibrated models or in the data. (Rey 2015) Large gross flows disrupt asset markets and financial intermediation, so the costs may be very large. As Rey shows, to deal with the global financial cycle and the dilemma, we have the following policy options: (a) targeted capital controls; (b) acting on one of the sources of the financial cycle itself, the monetary policy of the Fed and other main central banks; (c) acting on the transmission channel cyclically by limiting credit growth and leverage during the upturn of the cycle, using national macroprudential policies; (d) acting on the transmission channel structurally by imposing stricter limits on leverage for all financial intermediaries.

This is a markedly different perspectives from Law and Finance, which focused on market efficiency. While there can be no doubt that market efficiency matters, Law and Macro-Finance has provided a justification for a set of regulatory prescriptions focused on the regulation of leverage and debt capital flows more generally. Bezemer et al. (2018) discuss the potential relevance of various credit guidance methods, such as credit quotas, credit controls and ceilings, the directing of credit via publicly owned investment banks, restrictions on (foreign) bank entry and interest rate restrictions or subsidies for particular industrial sectors. They have been used in the past to limit or direct credit flows, with considerable success but have been neglected in policymaking in the last decades. Mian and Sufi (2014) call for the promotion of greater use of equity rather than debt. Mooij (2012) shows that the preference for debt is in large part driven by the debt-bias in tax law, which allows firm to deduct interest payments form their taxable income.

5. Conclusion

Promoting the emerging field of Law and Macro-Finance is essential for advancing our understanding of the complex interplay between legal frameworks and macro-financial dynamics. While Law and Macroeconomics has significantly contributed to our grasp of the macroeconomic impacts of legal structures, its reliance on the Keynesian framework leaves critical gaps,

particularly in explaining the origins of recessions and adequately integrating the financial system's role. As noted by the IMF in the wake of the 2007-2008 financial crisis, there is a clear need to incorporate the financial sector more thoroughly into macroeconomic models (Jahan, Mahmud, and Papageorgiou 2014). Law and Macro-Finance stands at the forefront of this endeavor, emphasizing the importance of macro-financial considerations such as leverage and debt regulation over traditional agency costs and efficiency concerns. By addressing pivotal questions related to the interaction of monetary and macroprudential policies, the impact of these policies on economic stability and growth, the balance of investor protections, and the role of tax law in shaping investment behaviors, Law and Macro-Finance offers a robust framework for navigating contemporary economic challenges. Embracing this new research field not only fills existing theoretical voids but also equips policymakers with more comprehensive tools to foster economic stability and growth in both developed and developing countries.

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