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Domesticating Finance for Pursuing Post-Crisis Growth

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Abstract

There has been a total (public and private) debt bubble that has been growing since the 80s, accompanying an implicit promise of higher standards of living through large market deregulation experiments (capital markets deregulation and capital mobility being chief among them). The path chosen by conventional economics for delivering this implicit promise was debt accumulation. This debt-based road to growth raises the weight, power, risk-taking and returns in finance—the larger its weight/centrality, the likelier the losses would be socialised—while benefits remain private. Moreover, the concomitant attractiveness of finance siphons away talent from the scientific/technological endeavours that could propel growth and ultimately justify higher indebtedness (i.e. the way the digital revolution has been building on science dating back to the 60s, justified former post credit expansion since the 80s). In sum, the meteoric rise of finance may be sawing off the proverbial branch on which it sits.

1. Introduction

In the current and ongoing debt crisis in Europe, there are different levels of analysis and policy response; broadly speaking there is a global level, a European one, and a national one. Though, unfortunately, often the emphasis stays at the national level, the other two are far from negligible. The global level would include the origins of the crisis in the infra-regulated practices of financial entities worldwide, and at the European Union (EU) level, i.e. architectural weaknesses of the European Monetary Union (the EMU or the euro, for short).

At the global level, there has been a total (public + private) debt bubble that has been growing since the 80s, accompanying an implicit promise of higher standards of living through large market deregulation experiments (capital markets deregulation and capital mobility being chief among them). Delivering on this implicit promise called for an increasing accumulation of debt. This was based on the hope that the growth of the real economy would ultimately justify and catch up with the hare of debt growth (unfortunately not only did debt prove to be a very rapid hare, the growth of finance ended up pushing grey matter away from science and technology, the ultimate productivity-growth booster). Debt growth could be reflected more on the side of private debt (Spain, UK, US, Ireland, etc.) or public debt (Greece, Italy, Portugal), or both, but that distinction is secondary. The key point when it comes to the global level of analysis is that incomes and consumption growth ended up being achieved through practically continuous debt (public and/or private) growth—*Deutsche Welle* reported (April, 23, 2014, quoting Daniel Stelter, Veit Etzold, Ralf Berger und Dirk Schilder: *Die Billionen-Schuldenbombe*. Wiley VCH Verlag, Weinheim, 2013) that in western countries debt grew from 160% of GDP in the early 1980s to 320% thirty years later.

Re-regulating the financial sector has been on the policy agenda since the crisis erupted. Private benefits-public costs, TBTF, moral hazard, incentives, bank governance, flaws in supervision, macro-and micro-prudential issues etc. have been addressed by an avalanche of initiatives and promises of initiatives.

It is however very doubtful whether this avalanche has gone to the heart of the matter, or even whether the sense of 'avalanche' may give a false sense of acquiescence. It is also quite doubtful that this avalanche of initiatives would even address successfully those stability aspects on which it largely focuses (setting aside issues of growth, equality, etc.), and how exactly measures/initiatives will be transposed/implemented across member states. Following up on such assessment/implementation/transposition is a separate lengthy and available exercise for anyone wishing to join the multitudes of analysts focusing on such aspects. Similarly, although banks clearly serve many financial intermediary roles regarding payment services, liquidity provision, consumption smoothing, risk allocation and management, their most highlighted key function for the economy and society as a whole has purportedly been to serve as a conduit between savings and investment; ergo this is used as short-hand for their role. We are acutely aware of other financial intermediation functions, such as those mentioned above, and of their attractiveness for financial institutions—indeed this is part of the narrative, as will be seen below, which includes considerations of inequality of income and wealth. This inequality produces differential access to information, undermines democratic processes of control, lawmaking, etc.

In what follows, and although we recognise the aforementioned avalanche as part of the most recent history of finance-related issues, and its potential importance for the specific aspects they are tailored to address, we focus on growth and equality aspects (which inadvertently also reflect political power accumulation issues), stressing that the traditional trade-off view between growth and equality is breaking down in this context.

2. Financial recessions/depressions are particularly hard to overcome

Why the emphasis on finance and domesticating it? For a number of reasons; to begin with, the character of the ongoing crisis that has triggered a revisiting of growth issues and groups such as this one, throughout the world. Financial crises have often led to depressions or great recessions, whose impacts have cast a long shadow, out of which countries have often taken a long, arduous time to escape. This is due to the painful deleveraging process that follows such crises, the asymmetric way in which the burden and pains of this transition are distributed/shouldered, and the undermining of confidence to pivotal financial institutions, whose credit function depends on precisely that: credibility.

Second, because of the centrality of finance: the parallel is often drawn between the cardio-circulatory system of blood in the body, and finance in the economy. The analogy should go a step further: just how blood flowing too fast or too little blood flowing too slow can cause damage to the system, liquidity can have the same effect on an economy. Healthy organisms effectively control such behavior; healthy economies should do likewise. Indirectly, a first message emerges for revisiting not just the size of finance but also its mobility (as Nobel Prize winner Tobin famously put it, we need to throw some sand in the wheels of our international money markets). Note that, regarding the EU specifically, this does not reverse freedom of capital movement, it simply introduces costs to its realization, to bring it somewhat closer to the very real costs one faces when exercising his/her right to labour mobility (and art. 347, allowing suspension of articles when a state perceives serious dangers, of the Lisbon treaty can always be invoked, if the need arises—as it has, recently). Listening to our heart (and our circulatory system) in this case, may help avoid future heart attacks.

"Although economies initially benefit as finance expands and addresses pent-up demand, there is a point beyond which continued financial development has no positive impact."

Third, because of the size of the beast, both as a sector, as well as in terms of stocks and flows it generates. Vis-à-vis the global financial economy has become an increasingly huge tail wagging a confused dog.

The size of the sector, in and of itself, has grown tremendously since the eighties. Even in a country with a large variegated economy such as the US, it went from ~11% to ~21%, while in the years before the crisis, finance accounted for more than 40% of all US corporate profits. In terms of the stocks and flows it generates:

- Household, corporate and government debt as a percentage of GDP is at unprecedented levels throughout the world. Across OECD countries median debt doubled from 160% in 1980 to 322% GDP in 2010. And this excludes bank balance sheets, which in turn exclude gross exposures to derivatives, and the shadow banking sector.
- The sheer size of the financial economy relative to the real economy implies increased vulnerability and risk of instability. Europe stands out compared to the rest of the world, with major European economies having a ratio of banking assets to GDP that is more than twice as large as the corresponding ratio in Japan, or Brazil, and more than three times as large as the corresponding ratio in the US.
- This has been a long and gradual process. The financial crisis has not really broken the long-run trend of bank liabilities/assets growing to 200%, 300% or even 400% of GDP in major European economies since the fifties.

Indeed the growing literature and empirical work (Berkes, Panizza and Arcand, 2012) suggest that, although economies initially benefit as finance expands and addresses pent-up demand, there is a point beyond which continued financial development has no positive impact—that point may be reached when credit to the private sector reaches 100-110% of GDP. This is an interesting line of further research on the size of finance that can complement the one mentioned earlier about slowing down the wheels of finance.

- High indebtedness affects the linkages between the financial sector and the real economy.
- Short- and medium-term economic fluctuations are increasingly driven by financial flows and balance sheet developments. Very high indebtedness of firms, households and governments in combination with rigid and lengthy bankruptcy procedures has economic costs in terms of reducing flexibility in the economy and increasing risks of financial crisis.
- Lack of risk-sharing in financing, a stronger protection of creditor's rights than in other regions, and inadequate bankruptcy procedures make the EU more vulnerable to adverse effects of the age of credit than other regions. Households with negative net wealth have become a social problem in many countries. Their low propensity to consume is also an issue for short- to medium-term growth.
- As debt levels increase, borrowers' ability to repay and refinance becomes more sensitive to drops in revenues (be it income/sales/tax growth), and increases in interest rates.
- This can lead to endogenous adverse loops and multiple equilibria. For any given shock, the higher the debt, the higher is the probability of defaulting. Even for a mild shock, highly indebted borrowers may suddenly no longer be regarded as creditworthy. It is not surprising that when lenders stop lending, consumption and investment fall. If the downturn is bad enough, defaults, deficient demand and high unemployment might result; the higher the level of debt, the bigger the drop for a given size of shock to the economy. And the bigger the drop in aggregate activity, the higher the probability that borrowers will not be able to make payments on their non-state-contingent debt. In other words, higher nominal debt raises real volatility, increases financial fragility and reduces average growth.
- As a result, policy making is increasingly driven by market forces sometimes undermining the scope for democratic choices. The need to rescue institutions that are "too big to fail" may transfer massive amounts from taxpayers to (financial) institutions. Concentrated holders of government debt might have a strong influence on government policies.
- Have we reached the point in which the importance of feedback effects and expectations has become so strong to prevent stabilization without active policy intervention?
- The macro-financial linkages have not been captured in mainstream economic modeling used by policy makers. Comprehensively modeling endogenous credit cycles and macro-financial linkages continues to raise major analytical challenges though.
- The large balance sheets also have major effects on the distribution of wealth and income.
- In the long run, moving towards a system with more explicit ex-ante risk sharing and more financing by equity-type instruments, or more balanced and efficient bankruptcy procedures may enhance growth and social welfare. Changing creditor rights will reduce

excessive build-up of debt and balance sheets. Some steps are made in this direction by required bail-in clauses in sovereign and banking bonds.

- Where the debt bias is driven by policy incentives (taxation, regulation), these should be addressed and possibly financial incentives for more equity-type or flexible funding could be enhanced to counter market failures. An analysis into the key drivers of debt financing versus other forms of financing and investigation of the scope for more risk-sharing and equity-type financing in the future could be a useful contribution to policy making.
- Transition to a new steady state with lower debt can be very distortive with large transition costs, and strong wealth distribution effects. This implies strong resistance to changes.

Empirical evidence is not able to show a positive and linear relationship between the development of the financial sector and growth. For example, Arcand, Berkes and Panizza (2012) show that the relationship even turns negative at very high levels of financial development. What are the reasons for this insignificant or even negative relationship between finance and growth across high-income countries? Two explanations deserve particular reflection: a) Who gets the credit? There has been an increasing trend across high-income countries towards banks providing more credit to households rather than enterprises, driven partly by alternative financing sources for enterprises through financial markets, partly the higher cost efficiency with which banks have been able to provide consumer credit in recent times. Theory makes ambiguous predictions about the effects on the relationship between household credit and growth and this may partly explain that the finance-growth relationship turns insignificant at high levels of economic development. b) A new literature is focusing on the idea that the financial system is growing too large relative to the real economy attracting too much talent towards the financial industry. Empirical evidence has shown that industries relying on human capital suffer more as the financial system expands. There is a trade-off between the intermediation function that the financial sector provides to the real economy and the drain on talent. It is therefore important to distinguish between the intermediation role (facilitating role) of the financial sector and the focus on financial services as a growth sector in itself. Beck, Degryse and Kneer (2014) suggest that in high-income countries, intermediation activities increase Long Term (LT) growth and reduce LT volatility, while the expansion of the financial sector stimulates growth on Short Term (ST) at the cost of higher volatility.

Recent decades have been characterized by increasing financial innovation. Welfare may substantially improve due to financial innovation (i.e. small and medium enterprises may have easier access to funding opportunities, households may manage their money more efficiently, etc.). Yet, financial innovation may also serve the purpose of avoiding financial regulation, imply higher information opacity, and worsen agency problems. Clearly, regulation needs to take into account the recent and incoming changes in the financial system ('new' financial instruments, 'new' financial intermediaries like shadow banking, etc.), especially as standard models have failed to explain well-documented 'anomalies' in financial markets.

To anticipate a point to which we will return later, one would need to address incentives and disincentives towards redirecting finance to its purportedly central *raison d'être*: matching savings with investments. The much discussed 'bail-in' clauses affecting the creditors of a bank and its shareholders will not do the trick: the actual remuneration (both short- and long-term) of those managers making the decisions must be affected. Otherwise, as long as someone else down the line foots the bill, the incentives will persist in favor of taking risks, hoping to hit it big and get out before the chickens come home to roost—more on this in the closing section below.

Related to this is the need to explore ways to rebalance credit expansion away from households and towards firms; not because firms are less vulnerable to near-predatory-lending practices employed with households in the pre-crisis years, but because of the differential impacts on growth, and the apparent stagnation observed in the savings-consumption liquidity pump emerging in recent years—more on this below, with reference to the observation that compared to the vast credit expansion in recent years growth has not been all that impressive.

3. Reining finance in will not be painless

Indeed finance has become so large and powerful that reining it in will not be an easy, painless undertaking. Note that all measures to make high risk taking by banks and mistaken decisions costlier for those making these decisions will inevitably make credit less readily available to all applicants, especially the borderline accepted/rejected applicants. Nevertheless, the cost seems acceptable if we are to rein in the financial goliath.

In essence beyond a certain point the avalanche of finance becomes too self-important, and its purported role as the liquidity-pumping heart of the economy becomes secondary; the heart becomes one more muscle to beef up and flex to impress and get others to do things for you.

This brings us to the fourth reason for focusing on domesticating finance: it has become so muscular through the riches earned in recent decades, so increasingly concentrated, and its strength so ubiquitous, that soon it will be impossible to fathom reining it in, due to the influence exercised directly or indirectly over policy decisions, the media, academic work through foundations, and even the courts, through key appointments in some countries, and ultimately through the cornerstone argument: if I fall you will all go down with me. The preponderance of finance—issues predicted and discussed early in the 20th century by analysts such as Hobson and especially Hilferding—has gone hand in hand with a deregulation, and self-regulation (some quip about disregulation) emphasis, and a defanging of regulatory bodies since the 80s, and especially in the 2000s. It has also been fed by the very nature of the credibility game underpinning finance, making it hard to challenge big-name incumbents, and for clients to shop around for better deals.

The case of derivatives and the attempts to regulate their trading in the US, since 2008, is edifying. The key banks got on the boards of clearinghouses that the new regulation envisaged, merged them into creating a dominant one, wrote the rules of membership so that other banks cannot enter, undermined those daring clearinghouses that worked with small banks, and had the same representatives on the boards of different clearinghouses, as well as on committees of the powerful International Swaps and Derivatives Association.

Most importantly, they ensured that all relevant market data for derivatives will go through a small gatekeeper firm called Markit, which holds the rights to certain derivatives indices and is under their umbrella. This way they have preserved opacity regarding pricing of tailor-made over the counter derivatives—precisely the type the law aimed at to regulate—generating profits in the billions for them.

More broadly, the ways in which bank rescuing operations of 2008 were organized are known; and so is the role of the revolving door between policymaking and banking, with an array of former Wall Street CEOs holding high government office in the US, but increasingly also in Europe in recent years.

The lesson, and avenue for policy analysis here, would be that it is not easily effective to entrust new private sector entities with the role of whipping large financial houses into releasing their hold on important areas of finance. Exploring the role of public control of such new entities may be useful. In any case the key gatekeepers—such as Markit in the example above—must be identified; to use a term from chemistry, they are the rate-limiting factors.

4. The expansion of deregulated finance into new areas intensifies the need to reregulate it

As deregulated finance has been conquering (or at least spilling over into) non-traditional areas, the need to reregulate it is becoming stronger. More generally, although finance plays crucial roles in midwifing investments, and in reallocating resources quickly, it should not be allowed to be the tail wagging the dog. In any case, as mentioned above, much of the growth of finance has been away from its traditional savings-meet-investment role, and towards operations that repackaged risk in ways that made it seem palatable in the eyes of many potential and unsuspecting clients.

Stiglitz suggested the basis of securitization is the premise that there is a sucker born every minute (Phillips, 2009, preface, p. xxviii)—you just need to find them and have the right gimmick to sell your wares to them, and the gimmick often was securing triple A ratings on the argument that real estate prices cannot fall simultaneously in all 50 US states. Note that even in those cases in which genuinely different appetites/profiles for risk were matched, and a risk-lover bought a risky product that those risk-averse did not want to hold on to, this did not affect the actual underlying risk that things could go wrong with the underlying asset, nor the crucial counterparty risk: that if many of them went wrong at the same time, the counterparty to the transaction (the risk-lover) would be unable to hold his part of the deal.

Specific areas the further regulation of which bears policy-relevant research include the aforementioned derivatives, short-selling practices, increasing margin requirements, and financial transaction taxes slowing down the speed of finance, and making it pay a toll for using those capital movement highways.

In this context, also, measures to throw sand into this revolving door and collusive practices would be worth pursuing. The issue goes beyond strong prosecution to catch the few bad apples. As long as such huge rewards can be reaped, and secured as take-home pay, the temptation would be too strong to bend the rules (or simply reinterpret them with the help of friendly policymakers). This is why remuneration is the key to this—again, more will follow in the last section. Regarding overconcentration of financial power in the hands of a few firms, it may be worth exploring a 21st century version of what worked well in the past: a revamped Glass-Steagall-act type regulation, measures treating finance as one would treat utilities, and ultimately applying lessons learned in the breakup of Standard Oil or the Bell company in the 20th century.

"The longer we postpone the reining in of finance, the harder and costlier it becomes for future generations."

Note here, that to be realistic, many of the policy initiatives that can be explored/analyzed meet the immediate reaction that they would never be implemented. This applies to very technical matters like tax authorities cracking down on triangular accounting-book-only transactions shifting losses and gains among subsidiaries in different EU countries to reduce taxation revenue, and it also applies to large monetary policy issues, where, for instance the US Fed approach is not followed by the ECB because of atavistic inflation fears, even when inflation has not reared its ugly head in the US, even when unions are in no position to demand wage rises, as they were in the seventies, and even when global competition and technology have undercut producers' ability to raise product prices as they did in the seventies. Often the argument against new initiatives is that they go against the received wisdom of the last thirty years (the Washington consensus or the neoclassical mantra, call it as you will). However, it has been the application of this mantra that has led to this debacle, and as the Keynesian mantra had its go for 30+ years and gave way after the 70s' stagflation crises, so it is perhaps time for the mantras of the 80s, after a 30+ year run of arrogant preponderance, to give way, in light of the ongoing debacle.

5. Socializing huge losses undermines the claim of 'just rewards' and breeds inequality

A sixth reason for focusing on finance is because the way one deals with financial crises can have profound impacts for this and for coming generations. Indeed we suggest that the longer we postpone the reining in of finance, the harder and costlier it becomes for future generations. Since the painful experience of the thirties, with banking defaults producing domino effects and exacerbating the depression (and following similarly painful experiences in the 1890s and 1870s, as well as before that), the decision was taken, and has since been reaffirmed, to protect the financial system from collapse, whenever it is threatened, in order to prevent a repetition of the 1930s traumas.

This has led to a rather powerful contradiction at the heart of western economies. In principle the market system is based on allowing economic agents' decisions to lead to rewards or penalties which they themselves reap; yet the financial sector is a huge exception (in terms of size and importance) right at the heart of the system. Gains are privately reaped by financial actors; their losses are socialized just when they become huge, threatening financial stability.

This 'heads I win, tails you lose' take is not only a huge source of tension, undermining the credibility of the economic system as a whole, and adhesion to it by citizens, it also generates a monumental case of 'moral hazard' right at the heart of the system, encouraging financial actors to take large risks. And, of course, it highlights the many ways in which finance relates to widening inequalities/tensions. This may be a bit paradoxical since the proponents of financial expansion and fast credit growth since the 80s have argued exactly the opposite, i.e. that credit expansion would reduce inequalities, by allowing cheap access to credit to practically everyone, to purchase a home, launch a firm, pursue their dreams. Allowing finance to capture winnings privately, socializing huge losses, undermines the 'reaping just rewards' claim of our economic system and promotes inequality.

What went wrong is that although pent-up demand for credit will be satisfied during the first waves of financial expansion, soon the financial behemoth becomes an avalanche that feeds on itself, second-tiering its presumably central role of facilitating/intermediating the translation of savings into investment, and emphasizing the growth of finance per se. This led to a large multi-bubble, or a series of bubbles, depending on one's vantage point, conveniently alimented by central bank policies since the 80s, especially in the case of the US Federal Reserve, which crucially also stepped in to sweep the damaged goods under the rug, when each bubble burst, beginning with the crash of 1987, and generate strong monetary winds for the next bubble to quickly replace the previous one. The easy money policy was reinforced by global liquidity gluts, due to energy producers and large emerging economies (such as China, India, Russia, Gulf countries, etc.) looking for ways to invest their exports earnings in alleged safe havens in the west.

The easy money, ample liquidity ambience that was cultivated gradually drew into it both private sector borrowers, e.g. vast numbers of households, a source of growing business for banks, and also local, regional and national governments. As US Senator Lloyd Bentsen put it in a vice-presidential electoral debate in October 1988: "if you let me write US$200 billion worth of hot checks every year, I could give you an illusion of prosperity" (Commission on Presidential Debates, 1988).

What Lloyd Bentsen aptly called the illusion of prosperity was based on credit: in some countries the conduit for the prosperity-mongering flows was the state budget itself, with banks then buying state bonds in cavalier fashion to finance state budgets, while in some other countries, the banks themselves directly supplied easy credit to households and firms. Both avenues led to illusion-shattering outcomes when the ever-bigger bubble burst; and the policies put in place either to salvage state budgets, or to salvage banks placed the burden on the tax payer, and predictably more so on those with less mobile assets, usually those who had benefitted less during the bonanza years.

Hence, the lean cow years of dealing with the impact of the financial crisis are exacerbating inequalities/tensions, within each generation, (between those with less mobile assets, mainly their labour and/or their home, and those with large amounts of mobile capital) as well as in intergenerational terms—because the bill for former profligacies and cavalier lending is paid by the next generation(s). Moreover, this comes on top of the impact of the fat-cow years, when returns were higher for those with mobile capital, as liberalization of capital mobility allowed staggering returns to fast-moving capital, in comparison with real hourly wages, which had seen little growth in key countries since the eighties. This latter development was masked by the fact that two-income households became much more prevalent in the last forty years, and those who could find jobs worked much longer hours, raising the total home pay. Still, concentration of income in ever fewer hands has accelerated—and the finance sector itself is where many of the lucky few are increasingly to be found.

6. Rising inequality and diminishing growth prospects disprove the equality-growth tradeoff

Now, this latter source of inequality (returns to mobile capital vs. less mobile labour) brings us back, in a roundabout way, to the purportedly main role of finance: funnel savings towards growth-generating investment. A central aspect that very recent analysis is identifying, including powerful statements by former US treasury secretary Larry Summers (Krugman, 2013), is that for all the hype, the actual growth achieved in the credit bubble years was not all that exuberant, with respect to the credit needed to finance it! We are seeing similar phenomena in China today (i.e. that the amount of new credit needed to generate a unit of output is going up—the so-called credit-intensity of GDP growth is rising).

To put it in a nutshell, the prospect (and/or evidence) of rising inequality undermining growth prospects disproves the traditional view of equality and growth as sitting on two horns of a perennial dilemma.

It is becoming clear that the difficulty in rekindling robust sustained growth, through traditional mechanisms of credit flows (the savings-investment-consumption pump), is linked to high and increasing income inequality. There is need for a better understanding of the savings-investment-consumption pump, income distribution and the role of technology and skill-bias in this. Since the wealthy have much higher savings than those at the lower and middle levels of the economic ladder, who have little left to save after they consume, the pump has usually worked as follows: the financial sector has used the savings of the well-off to lend to the less affluent, allowing them to raise their consumption and investment levels. The less affluent were able to repay their debts, as long as the economy grew at a sufficiently high rate AND as long as they received an important part of the extra income generated through this growth.

However, the increased skewedness of income distribution in recent years has undermined the capacity of borrowers to pay back loans, and is undermining the functioning of the entire system, with less extra output generated by each unit of extra credit. The numbers are particularly stark in the US, where the top 10% earned more than 50% of national income in 2012, their incomes being two-thirds higher than those of their counterparts 20 years ago, leaving a smaller share of income for the less affluent, who are the consumption drivers and, given the role of consumption in aggregate demand, the demand drivers in the economy (Bradford DeLong, 2013).

This gives an extra impetus, beyond the obvious distributional one, to the pursuit of policies that promote growth AND equality—instead of either/or approaches: at last the twain shall meet…

In other words, it is not only for the sake of distributional justice, and for the sake of preventing system-threatening tensions that we should worry about equality. It is also for the sake of efficiency itself and for making the proverbial overall pie bigger. Understandably, economists have been trying to understand better the links between rising inequality and the fragility of economic growth.

Recent narratives include how inequality intensified the leverage and financial cycle, sowing the seeds of crisis, or how political-economy factors—especially the influence of the rich—allowed financial excess to balloon ahead of the crisis (Stiglitz, *The price of Inequality*, Norton, 2012). More recently, Ostry et al. (2014) found that income equality is protective of growth and not inimical to it, and that redistributive transfers have little, if any, direct adverse impact on growth. It would be helpful to explore both redistributive policies, as well as policies emphasising mechanisms other than the credit pump, such as technological innovation, pushing the production possibility frontier.

7. The missing link: finance siphoning away human capital from growth-enhancing pursuits

This brings us to the last, but certainly not least, aspect of the centrality of finance and its role: the power of finance and the attractiveness of careers in finance undercuts not just the branch finance sits on, but even undercuts the trunk of the tree (the economy) itself, by diverting talent away from technical progress, i.e. from the ultimate driver of per capita income growth, and the only possible justifier of continual credit expansion.

In other words, a key link between inequality and growth prospects is precisely the role of science and technology and human capital in promoting growth, and the role of finance in siphoning away human capital from that pursuit towards high-paying finance jobs (often cleverly construed 'pass the buck' activities).

The basic argument runs as follows:

There are very well-known arguments for saving banks, especially large ones, whose downfall might jeopardize the entire financial system, i.e. for providing implicit or explicit assurance that the state will intervene to save them. There are also very clear incentives for such banks to take on huge risks ('moral hazard' problems as they are called in economics), a problem identified already in the XIX century by Walter Bagehot as particularly thorny in dealing with banks. The solution has in general been tight regulation of what banks can and cannot do, thus limiting their risk-taking, their potential upside, but also their downside, and hence the eventual exposure of the state coffers should they need to step in. In other words, banks can make money but since they enjoy the extraordinary ultimate protection of the state they cannot make too much.

We think that this solution has been severely undermined since the seventies; that liberalization in financial markets has brought gains in efficiency in operational terms but at the expense of launching a long thirty-year credit bubble, which coincided with and was helped by 'ideology' bubbles, purveying maximalist views on the benefits from deregulation, from tax-cuts, from capital mobility, from reducing the role of the state, and from subdued inflation, first due to tight monetary policies, then due to trade and union-retrenchment, and eventually due to competition from cheap producers in large newly industrialising countries. This maximalism was also helped by the existence of technologies that would bring transportation/communication costs down, and by an academic and policy malaise in the seventies with perceived government slow-footedness or even wrong-footedness, and with the reigning Keynesian model, already facing academic revisionist challenges, better at fanciful messages, easy soundbites, PhD-churning math, and support from wealthy foundations.

The credit bubble and the policy changes instituted since then, together with the legacy of technological work which had been already underway, and historic events such as the end of the Cold War have nurtured these maximalist born-again-fundamentalist beliefs in the ability of the new Prometheus-unbound free market to deliver growth in the real economy, pushing the production possibility frontier out, in unprecedented ways.

The problem is that it is hard to disentangle the impact of the credit bubble, as such unsustainable on its own, from the underlying changes in our ability to combine factors of production ever more efficiently and innovatively.

In effect, the larger credit bubble was reflected in a series of smaller bubbles inscribed within the larger trend. Each time a crisis would seem to end, the bubble that has just burst would be replaced soon by a new one, thus allowing the larger credit bubble, and the laissez-faire euphoria on which it thrived to continue unchecked. Many of these 'near-misses' were associated with Alan Greenspan and his tenure at the Fed. He made sure the 1987 crash hardly put a dent on the markets' optimism, with easy-money monetary policies, which were helped by the fall of the Wall in 1989, the collapse of the Soviet Union in 1991, the rise of emerging markets, with their newly liberalized capital markets, the Internet bubble that took over when the 1997-8 crisis left emerging markets out of steam, and the real estate bubble that took over, when the Internet bubble burst.

However, if (de)regulational innovation has helped unleash dormant potential in the seventies, and world events have expanded the capital, labour and land that came into the market system since the late seventies (China, Eastern Europe, etc.), one must recognize that these are still one-off gains. In order for the continual financial growth to find justification in growth of the real economy, the production possibility frontier has to shift and ultimately the determinant of that is technical progress.

We have therefore here not just the standard Bagehot problem of moral hazard in finance; we have the more vicious variety, moral hazard on steroids, wherein the finance juggernaut of the last thirty years is undermining the possibility of real growth that would justify the huge credit expansion, in the first place. The success and promise of finance can only be sustained if it has a strong counterpart in terms of sustained real economic growth, which in turn feeds on technical progress. However, the very attractiveness of the finance sector in recent decades has been increasingly diverting human capital away from S&T and towards financial careers. As always in economic decisions, opportunity costs must be taken into account. The question is not whether financial innovation will be enabled, but what the economy foregoes to devote human capital resources towards one sort of innovation/activity, as opposed to others.

> *"Smart people who betrayed/sacrificed their scientific vocations and aspirations at the altar of financial success make for even more avid seekers of the quick huge deal, of the rewards that would justify this sacrifice, their having given up on their intellectual pursuits/dreams, their having recast their lives under new flags."*

Note here that this ties in surprisingly with one of the key points made by Piketty, Gordon and others recently regarding technological innovation: the economy's growth rate falls as the low-hanging fruit of industrialization is picked. The solution, one would counter, is to go through a new industrial revolution that will create more low-hanging fruits (DeLong, 2014).

The indications however are not encouraging (and they will not easily improve while finance attracts talent away from science and technology). This (mis)allocation of talent has repercussions: between 1980 and 2006 the share of NIH grants won by young scientists in their early thirties fell by a whopping 90%. In 2007 there were more grants to 70-year-old researchers than to researchers under 30. The National Science Foundation reports that only 26% of scientists hold a tenure-track academic position within six years of receiving their PhD. Between 1980 and 2006 the age distribution of grant-successful scientists had sharply shifted and the young scientists have been missing in action—and it is traditionally young scientists who have been responsible for pushing the envelope of knowledge further, in drastic, growth-accelerating ways. (Lehrer, 2010).

Scientific and technological innovation drives productivity, and productivity drives real incomes. Between 1996 and 2009 productivity grew by a robust 2.7% a year as technologies that had been developed in previous decades, from personal computers to fibre optics, found their way into the mainstream. Dale Jorgenson of Harvard University says technology is advancing more slowly than in the decade before the crisis, and productivity will slow down too, as much as by half (The Economist, 2010).

The reasons for this attraction to finance are evident: after fifteen years, successful employees would be making more money in finance than in any other profession. And they would not have to go through long prerequisite graduate programs, tough exams, years of underpaid laboratory or clinical work. Indeed as Allen Wheat, ex-CEO of Credit Suisse First

Boston, disarmingly put it to journalist Helen Dunne: “OK. If I am being honest with you, let’s whisper it, but the truth of the matter is that all of us are overpaid. There is nothing magical about what we do. Anybody can do it.” (Dunne, 1998).

“In order to domesticate finance, it may be necessary to make it boring and less financially attractive.”

Even regarding starting salaries, graduates received pay packages in finance that were triple what they would earn in other sectors. Junior associates’ average compensation was around $US240,000 (bottoming out at around $US150000) in 2000—when it was around $US70,000 for good business schools graduates in other sectors (Augar, 2005, pp. 59-60).

In sum, extraterrestrial compensation and the ability to make very large amounts of money at a young age, without having to go through tough low-paying years of academic/laboratory/clinical work have been diverting grey matter to finance and away from science & technology (S&T). Finance depends, ironically, on S&T for turning into reality the promise of sustained high real growth, a wish on which the credit binge, the various ‘soft-landing’ theories and the new economy fads were ultimately based.

Moreover, as people’s preferences reflect/pick-up on this state of affairs the trend is reinforced through social considerations/interactions, e.g. young spouses or potential mates/spouses (and in-laws) have increasingly seen bankers as the proverbial ‘great catch’ (replacing for instance doctors in this regard), making such career choices even more attractive for those young adults contemplating them.

The counterpoint to this that we suggest is that smart people who betrayed/sacrificed their scientific vocations and aspirations at the altar of financial success make for even more avid seekers of the quick huge deal, of the rewards that would justify this sacrifice, their having given up on their intellectual pursuits/dreams, their having recast their lives under new flags. In this light it makes sense that fears of a possible end to their belle époque would drive them to close deals which would prove untenable only a few years later; that they would insist on bonuses even during crises.

Putting it bluntly, we suggest that in order to domesticate finance, it may be necessary to make it boring and less financially attractive. In order to reduce the probability of recurrence of this crisis, we must take into account the opportunity cost of keeping finance as the extremely attractive, powerful and ‘royal’ profession that it has been in recent years. This royal attractiveness undercuts not just the branch finance sits on, by promoting pass the buck to a greater fool schemes that are ever more complex (and harder to oversee); it even undercuts the trunk of the tree (the economy) it springs from, by diverting talent away from technical progress, i.e. from the ultimate driver of per capita income growth, and the only possible justifier of continual credit expansion. The finance juggernaut of the last thirty years is undermining the possibility of sustained real growth that could justify financial expansion.

The evidence here begins with the armies of graduate students or post-docs who have been leaving science and engineering for finance, since the eighties. Michael Lewis, author of the book 'Liar's poker' exposing his experience in Wall Street firms and their shenanigans, related his astonishment that many of his young readers contacting him, were simply seeking information on how to get a job in such firms (Lewis, 2010, prologue, p. xv). Whereas back in 1970 5% of Harvard's graduating class went into finance, the figure reached 20% by 2007 (Ferguson, 2008, p.5). Our own preliminary empirical research indicates that those graduating from Princeton in the mid-nineties were 20-30% more likely to be in finance ten years later than those graduating in the mid-eighties. Princeton's seniors in this post-crisis period still lean to finance careers at rates close to 30%. As Stiglitz put it (2010, p.276): "I saw too many of our best students going into finance. They couldn't resist the megabucks".

To reiterate, in order to fix finance, it may be necessary to make it boring and financially much less attractive—e.g. through combinations of rigorous claw back schemes, taxation and regulation. This would certainly help crisis-strained public finances, which in surreal fashion are under attack for profligacy by the very financial sector the governments bailed out. Moreover, such compensation disincentives should be rigorous enough to redirect key human capital away from finance, and back towards science.

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Bibliography

1. Augar, P. (2005), The Greed Merchants, Penguin, UK
2. Beck, T., Degryse, H., and Kneer, C. (2014), Is more finance better? Disentangling intermediation and size effects of financial systems, Journal of Financial Stability, vol. 10, Feb. 2014, pp. 50-64, Elsevier
3. Berkes, E., Panizza, U., and Arcand, J.L. (2012) IMF Working paper 12/161 (https://www.imf.org/external/pubs/ft/wp/2012/wp12161.pdf, 2012)
4. Commission on Presidential Debates (1988) Debate transcripts, 1988 presidential and vice-presidential debates, http://www.debates.org/index.php?page=october-5-1988-debate-transcripts
5. DeLong, B. (2013), The Strange Case of American Inequality, https://www.project-syndicate.org/commentary/j--bradford-delong-asks-why-americans-are-not-clamoring-for-polices-that-would-leave-90--of-them-better-off
6. DeLong, B. (2014), The Right's Piketty Problem, http://www.project-syndicate.org/commentary/j--bradford-delong-is-surprised-by-the-poverty-of-conservative-criticism-of-capital-in-the-twenty-first-century?barrier=true#eIy0hUMGg-V1uQalK.99
7. Deutsche Bundesbank, Macroeconomic time series, Time series Databases http://www.bundesbank.de/Navigation/EN/Statistics/Time_series_databases/Macro_economic_time_series/its_list_node.html?listId=www_s100_mb2425_1_02
8. Deutsche Welle April, 23, 2014, quoting Daniel Stelter, Veit Etzold, Ralf Berger und Dirk Schilder: Die Billionen-Schuldenbombe. Wiley VCH Verlag, Weinheim, 2013
9. Dunne, H. (1998), "Wheat's Promise of a Rich Harvest", Daily Telegraph, 6 June 1998
10. European Commission's Joint Research Centre (JRC) Growth Group (2014) minutes, unpublished
11. Ferguson, N. (2008), The Ascent of Money, Penguin, USA
12. Hilferding, R. (2006, German orig. publ. 1910), Finance capital, Routledge, UK
13. Hobson, J. A. (2013, orig. publ. 1909), The Industrial System, Routledge, UK
14. Lehrer, J. (2010), Fleeting Youth, Fading Creativity, Wall Street Journal, February 19, 2010, http://www.wsj.com/articles/SB10001424052748703444804575071573334216604
15. Lewis, M. (2010), The Big Short, Norton, USA

16. Krugman, P. (2013), Secular stagnation, coalmines, bubbles, and Larry Summers, NY Times blog, Nov. 16, 2013, http://krugman.blogs.nytimes.com/2013/11/16/secular-stagnation-coalmines-bubbles-and-larry-summers/?_r=0
17. Ostry, J.D., Berg, A., and Tsangarides, C. G. (2014), Redistribution, Inequality,and Growth, IMF Staff Discussion Note SDN/14/02
18. Phillips, K. (2009), Bad Money, Penguin, USA
19. Stiglitz, J. (2010), Freefall, Norton, USA
20. Stiglitz, J. (2012), The Price of Inequality, Norton, USA
21. The Economist (2010), Trying harder: Can higher productivity fill the gap?, March 31, 2010, The Economist Newspaper Limited, UK. http://www.economist.com/node/15793142