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Actions for a less Procyclical Financial System

- Even though economic cycles are partly caused by what economists call "deep" parameters of economic behavior, financial sector behavior can exacerbate the amplitude of fluctuations in economic activity and subsequently those larger fluctuations can feed back to a more extreme behavior of the financial sector, creating a phenomenon of mutual procyclicality.
- Economic policies intended to counteract procyclicality cannot be purely financial or economic, but mixed and their importance became apparent in the aftermath of the 2007-2008 global financial and economic crisis.
- Twenty different factors contributing to procyclicality are analyzed, after being categorized into four groups: Economic, financial, policy-related and institutional. The instruments to confront those factors are correspondingly many: capital requirements, provisioning, collateral and margin requirements, leverage and liquidity ratios, accounting methods, micro-structure issues and other.
- Countercyclical regulatory policies are related to a number of problematic aspects of the global financial system: the "too big to fail or save" financial institution problem, the "short-termism" in the behavior of managers, market microstructure, contagion between apparently unrelated financial markets, or measurement of market risk.
- The G-20 have agreed on a stricter definition of capital and higher capital requirements, with buffers which have countercyclical features. They also agreed to impose restrictions on financial institutions' liquidity and leverage.
- Provisioning has also occupied the public debate without any concrete proposals up to now, collateral and margin requirements are rather ignored, while accounting methods are not being discussed to the degree needed.
- Yet, for effective regulation, it is prudent to utilize all available instruments, and not rely almost exclusively on a few prominent ones. The multiplicity of policy targets – regulatory, monetary, fiscal and other - necessitates a multiplicity of policy instruments, each of which ought to take into consideration the impact of the others as well as their mutual complementarity.
- Issues of instrument comprehensiveness, timing and cost are also very important in the design of an effective regulatory system that would safeguard stability and promote financial intermediation.

Written by:

Professor Gikas A. Hardouvelis*

Chief Economist and Director of Research

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1. Introduction

When studying an economy, it is often helpful to separate the real from the financial sector and explore in greater detail their separate behaviors. Yet, the two sectors are intimately related with bidirectional feedback from one to the other. This feedback is clearly displayed in their common procyclicality. As the Bank for International Settlements puts it in its 2009 annual report, "A procyclical financial system refers to the notion that its dynamics and the dynamics of the real economy reinforce each other, increasing the amplitude of booms and busts and undermining stability of both the financial sector and the real economy." More precisely, in good times, there is excessive risk taking and excessive financial activity, whereas in bad times there is insufficient risk taking and very little financial activity. This behavior can create a vicious cycle, expanding the cyclical fluctuations of the real economy, which can then feed back negatively to the financial sector itself, and so forth.

For decades, many economists – perhaps the majority - have argued that rational agents do forecast the long term, hence, they see through the cycle: Rational agents cannot be easily confused by the ups and downs of the business cycle. Yet, in the last ten years some economists have managed to create equilibrium models in which a strong macroeconomic cycle and a majority of short-sighted agents may force behavioral conformity even on other agents who see through the cycle, i.e. even on the ones who have different expectations from the prevailing majority. For example, it pays to ride a bubble for a while rather than take a position against it (Abreu & Brunnermeier (2003)). Or, regarding the behavior of bankers, Chuck Prince, the former chairman and chief executive of Citigroup, one month before the recent financial crisis erupted, on July 10, 2007, was quoted in the Financial Times, saying: "When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you've got to get up and dance. We're still dancing,…" This conformity in behavior can exacerbate procyclicality and was apparently a predominant behavior prior to the international crisis of 2007-2009.

Following the international financial crisis of 2007-2009, procyclicality has come to the attention of policy makers. The crisis has left the global financial system vulnerable to future adverse shocks as many economies levered up through drastic fiscal expansions aimed at avoiding the worst consequences of the recession and as monetary policies have correspondingly brought nominal interest rates close to zero and flushed the system with abundant liquidity. In a fragile financial environment with private and public sector leverage and abundant central bank liquidity, procyclicality becomes an even more important issue, as it can exacerbate economic fluctuations and lead to suboptimal behavior.

Since procyclicality characterizes both the real and financial sectors of the economy and their bidirectional interaction, economic policies intended to counteract it, cannot be purely financial or economic, but mixed. Those policies are analyzed in detail in the article. Naturally, there is no clear unanimity among economists on the types of policies needed. Some have warned not to rush too quickly with extra regulations in order to reduce procyclicality or, at least, try to frame the regulations in a manner which is not too costly for financial intermediation (Kashyap, Rajan and Stein (2008)). Others provide arguments for strong restrictions, which in their view reduce risk substantially and have a minimum cost on financial intermediation (Admati, DeMarzo, Hellwig, and Pfleiderer (2010)). Overall, there is a growing consensus among economists and policy makers today that new regulations are needed even if they turn out to be costly.

The article begins in Section 2 with a brief description of the procyclicality of the financial sector. Subsequently, in Section 3 it discusses issues of policy design and analyzes twenty factors that exacerbate procyclicality, suggesting ways to mitigate them. Section 4 discusses the state of current regulatory efforts over the issue of procyclicality. Section 5 concludes.

2. Procyclicality: A feature of modern economies

This section describes the main features of procyclicality. In order to clarify the relationship between the ups and downs of the real and the financial sector of an economy, it begins by examining boom periods.

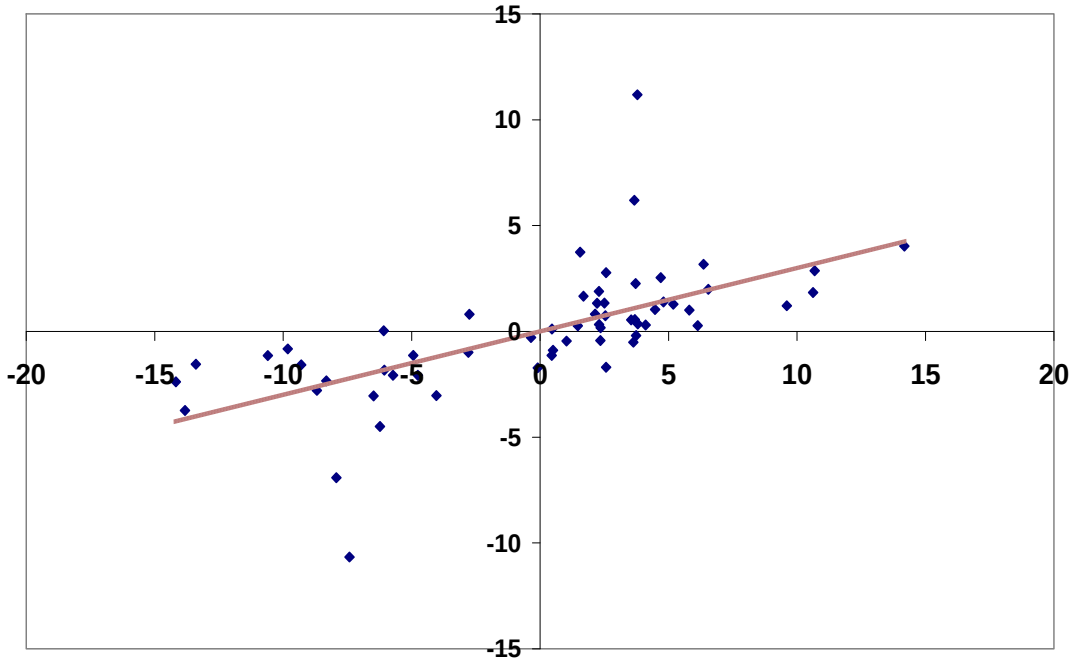
2.A Boom periods

During output booms, risk premia decline and the quantity of risk taking increases. Specifically, firms and households become optimistic and take large investment and employment risks (Borio, Furfine and Lowe (2001), Borio and Lowe (2002)).

At the international macro level, an output boom in a major developed region like the US, Europe, or Japan, is typically followed by increased exports of emerging countries to the booming developed region as well as increased flows of financial and physical capital to emerging countries, both of which exacerbate the cycle. Emerging economies grow faster and a common global upturn materializes. Then financial behavior in the emerging countries becomes itself procyclical as well. Households in emerging countries expand their borrowing and, moreover, they typically increase their share of foreign currency borrowing, since foreign interest rates in developed markets are usually lower; hence foreign exchange risk in emerging countries rises as well (Kindleberger (2005), McKinnon and Pill (1999)).

Figure 1 presents some recent evidence consistent with the above procyclicality story in emerging economies. It reveals a positive correlation between FDI inflows and economic growth in emerging European countries. The figure presents a scatter-plot diagram for 19 SEE, CIS and Baltic countries plus Turkey in the years 2007, 2008 and 2009. The vertical axis presents the FDI as a percent of domestic GDP and the horizontal axis the country's GDP growth. Observe that years of a high FDI inflow are also years of high GDP growth.

Figure 1.
The ebbs & flows of net FDI in emerging European economies



Note: *GDP Growth in horizontal axis, deviation from country mean. Net FDI (%GDP) in vertical axis, deviation from country mean. Sample: 19 SEE, CIS, CEE & Baltic countries plus Turkey in years 2007, 2008, 2009. Regression slope = 0.30, $R^2 = 0.41$*

Source: **Eurobank EFG**

Turning to the behavior of domestic financial intermediaries, during an economic expansion commercial banks accelerate their credit extension, bank competition for customers becomes acute and bank interest rate margins (the differences between lending and deposit rates) decline, leading to a loosening of credit standards: Down payments or other types of required collateral diminish, loan-to-value ratios increase and profit margins get squeezed (Gorton (2008)). The upward cycle also improves asset prices, hence collateral values increase, leading to even more lending activity.

On their part, investment banks also exacerbate the cycle. They seek more deals as margins-per-deal decline, trading on their own-account rises, leverage increases, financial innovation becomes routine and perhaps creates hidden and under-priced risk (Borio (2006, 2010)).

Other financial intermediaries also behave in a procyclical fashion. As asset prices rise, hedge fund managers become more aggressive in trying to find new investment opportunities and increase their leverage (Chan et. al. (2007)). At the same time, herd behavior reinforces the asset price boom across different classes of assets and different countries; hence the correlation among returns becomes more positive not just due to the increased correlation of fundamentals but also due to the fact that diversification gets destroyed (Lo (2009)).

In this euphoric environment, regulators become less strict as they easily confuse the boom for a new virtuous steady state. Capital regulation formulas do not react to the heightened risks, since

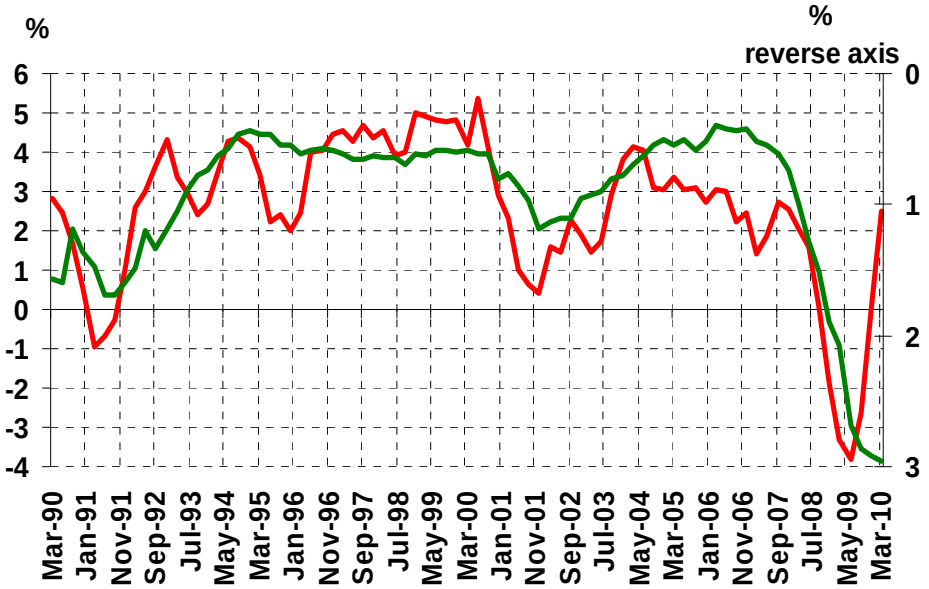
they are procyclical rather than countercyclical by construction (Amato and Furfine (2003)), an item we analyze later. All this accelerates the economic boom and feeds the process in the same upward direction, hence tail risks increase.

With heightened tail risks, the process can stop abruptly, perhaps due to defaults in one area that quickly spread throughout the financial system, which has become vulnerable due to the earlier excessive leverage & insufficient liquidity. It is then possible to observe the opposite cycle, namely a bust in financial markets which would lead to a bust in real activity, as it happened in the 2007-2009 crisis.

2.B Bust periods

During bad times, there is insufficient risk taking & low financial activity. Specifically, during output busts, risk premia increase and the quantity of risk taking declines. Non-performing loans rise, provisions increase, and commercial bank credit extension declines both from demand and supply factors, as banks apply stricter credit standards: Required down payments or other type of collateral rise and loan-to-value ratios decline. Bank profitability declines, thus retained earnings decline, leading to lower capital reserves relative to assets and to a contraction in the growth of the balance sheet. Asset prices decline due to fundamentals and sometimes further due to forced selling, thus collateral values decline, leading to a further contraction in lending.

Figure 2.
The countercyclical nature of bank losses



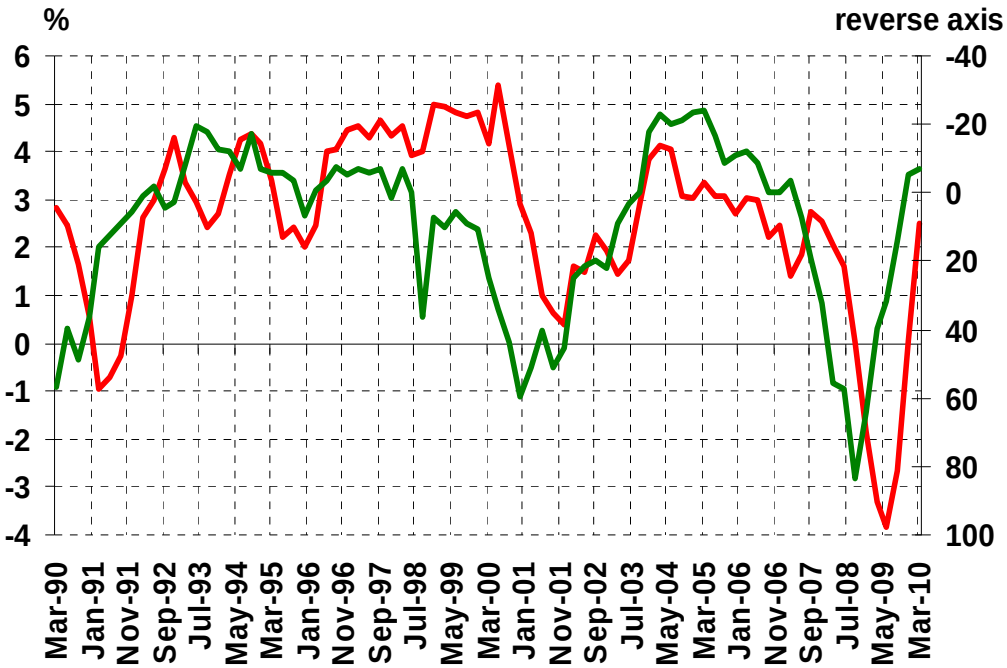
Note: *Real GDP growth on the left axis; Charge-offs as a percent of total loans on the right axis, in reverse.*

Source: **Federal Reserve**

The bank losses in a downturn are evident in the size of charge-offs banks have to absorb. Figure 2 shows the countercyclical nature of charge-offs as a percentage of total bank loans. The figure shows that charge-offs decline in booms and increase in busts.

Next, Figure 3 shows the procyclicality of the supply response of banks. It is not only demand for loans which is procyclical, but supply as well, stemming from the way banks apply their credit standards. The figure presents the growth rate of US real GDP from 1990:Q1 to 2010:Q1 together with the results of a quarterly banking survey, conducted by the Federal Reserve. The survey asks banks whether they tightened or loosened their credit standards during the last 3 months. Figure 3 reports the difference between the percentage of banks that claim they restricted their lending standards and those which loosed credit standards. Observe that the ups and downs in the tightening of credit standards moves opposite from the ups and downs of economic growth.

Figure 3.
Bank degree of tightening of credit standards across the cycle in USA

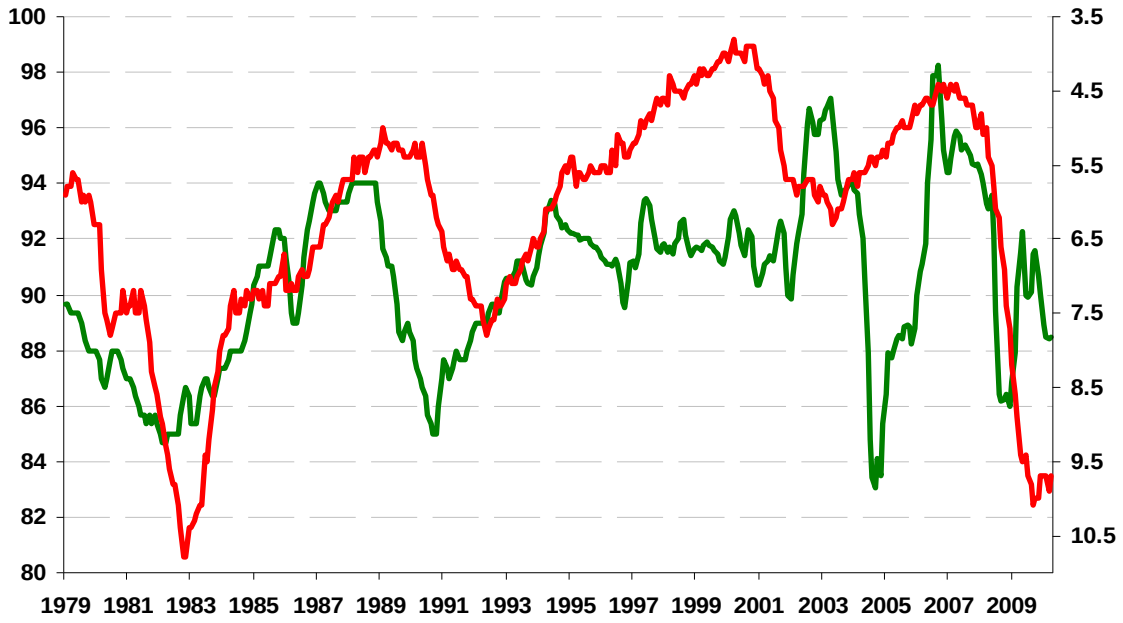


Note: *Real GDP growth (yoy) depicted on the left axis in red color. On the right axis and in reverse order is the net percentage of banks reporting a tightening of credit standards in consumer & industrial loans tp large and medium sized firms.*

Source: **Federal Reserve, "The senior loan officer opinion survey on bank lending practices," April 2010**

Figure 4 presents a similar procyclicality story about the behavior of finance companies, when they finance the purchase of a car. The figure presents the monthly loan-to-value ratio for new car loans and the US unemployment rate (in reverse axis). The loan-to-value ratio rises and falls together with the rate of unemployment. Finance companies become strict when unemployment rises and loosen up during good times, when unemployment falls.

Figure 4.
Loan-to-Value ratio for new car loans in the US



Note: *Loan to value ratio for new car loans on the left axis. Unemployment rate in reverse order on the right axis. The data are monthly.*

Source: **Federal Reserve, Bureau of Labor Statistics**

Turning now to the international macro level, which we discussed in the earlier subsection, capital flows to emerging countries shrink or stop abruptly, straining investment activity and growth in emerging economies and leading to a common downward global business cycle. Households in emerging countries face problems with their previous foreign exchange loans as local currencies depreciate and their disposable incomes shrink.

As the bust mushrooms, the downward spiral accelerates and contagion may take place across markets and countries, with the correlation among asset returns approaching unity, hence diversification getting destroyed. Regulators become strict and watchful.

3. Can procyclicality be averted?

This section describes factors which exacerbate the real and financial cycle and discusses ways to mitigate them. For ease of exposition, a lengthy list of twenty different factors is grouped into four major categories: the economic environment, the financial environment, the policy making environment, and the institutional features of the financial system. The section concludes with a detailed analysis of policy design issues.

3.A Factors related to the economic environment

I describe four factors related to the economic environment: Globalization, technological improvements, "short-termism," and inertia in household and business sentiment.

(I). A major factor reinforcing procyclicality is the advent of globalization, as the interconnectedness of countries allows shocks to move quickly from one to another and synchronizes the business cycles across the globe. Artis and Okuhbo (2008) show that the similarity in cyclical movements has increased since the early 1960s, an era coined as "the second wave of globalization."[1]

This cross-country feedback among business cycles is hard to counteract and does appear beneficial to do so either. Yet, emerging countries often impose restrictions on speculative capital inflows and/or on the FX exposure of domestic firms and households. These types of restrictions, if not pushed to extreme, can often help avoid some of the worst excesses of the global financial markets (Kose et al. (2006)).

(II). A second factor reinforcing procyclicality are the technological improvements in information dissemination across the globe, which imply similar inputs to decision making. Yet, one cannot and should not restrict the dissemination of information.

(III). A third factor is "short-termism" in the behavior of firm managers, who cannot see beyond the current cycle and seek short-term profits. This behavior is often blamed on their salary/bonus structure, which is usually based on a short-term performance evaluation and, very frequently, on the stock price of the company they work for. Since stock prices are procyclical, bonuses become procyclical as well, leading to myopic behavior (Stiglitz (2008), De Larosiire (2009)). Myopic decisions, in turn, exacerbate the cycle.

The De Larosiire *(2009)* report suggests bonuses should be set in a multi-year framework, thus spreading them over the cycle. Bonuses should also reflect actual performance and not be guaranteed in advance. More recently, a study by Wei and Yermack (2010) attempts to differentiate the bonus mechanism in the financial sector from the rest of the corporate sectors, taking into account not only equity but debt.

(IV). A fourth factor is the inertia in household and business sentiment, as individuals tend to think that the future will be similar to the present, and thus take decisions that prolong a cycle (Goodhart and Lim (2010)). Lack of full rationality among private agents is a contestable topic in Economics for a long time. In any case, it would be difficult to alter human behavior in democracies, apart from providing education.

3.B Factors related to the financial environment

In this subsection, I group four factors, which are more specific to the practice of banking and finance.

(I). One obvious such factor is the similarity of techniques and input data used to assess banking risk. For example, the Value at Risk methodology, largely unknown in the early and mid 90s, has practically dominated the field of risk management during the last ten years. Since everyone uses the same technique and the same data, most risk managers are bound to reach

[1] The amplitude of fluctuations is reduced in the last 30 years (Zarnowitz (1998), Dalsgaard, Elmeskov, Park (2002), Cotis and Coppel (2005)) but for reasons other than the co-movement created by globalization.

similar conclusions and, hence, behave in a similar fashion. This similarity in behavior exacerbates fluctuations.

The VaR methodology is also criticized for a number of shortcomings of its own. One such shortcoming is the use of current market prices to assess riskiness. Another is the overwhelming utilization of only recent historical experience as a guide to replicate the set of all possible eventualities. These shortcomings add to the short-slightness of the methodology and the aggravation of cyclical fluctuations.

It is difficult to impose variety on the techniques and data used by private financial institutions in order to assess risk. Private enterprises will do what fits them best. Perhaps regulators ought to be extra careful about techniques that utilize current market measures of price of risk. And they ought to be extra careful when interpreting results from VAR models.[2]

(II). A second factor which reinforces continuity in past behavior and prolongs the cycle originates from the distribution of power among managers of financial institutions. Risk management is not truly independent from the money making business units and the CEO. The risk management units are often pushed over and are obliged to "sail with the wind," namely, to water down their risk assessments in order not to spoil the party of money making units. The recent famous example of how the risk manager of Merrill Lynch got fired a year before the crisis because he was doing his job to warn about the risk exposure of the company is only a drop in the bucket. This issue is particularly important in smaller economies with few specialized job opportunities, forcing the risk managers to follow the demands of money-seeking units, as losing their job implies lack of alternative opportunities.

Basel II insists that the risk management unit is independent and reports to the Board of Directors. In practice, this regulation gets bypassed, especially by smaller financial institutions.

(III). A third factor is the similarity of behavior of fund managers, who herd because they are often evaluated against each other;[3] hence they worry about relative performance in addition to absolute performance and the time horizon of returns. This behavior leads to a prolongation of the cycle. Of course, herding by fund managers cannot be ruled out by regulators, neither can the exchange of views among them be considered illegal.

(IV). A fourth factor is the behavior of rating agencies. These agencies tend to be more lenient on the upside of the cycle and stricter on the downside (Feri, Liu and Stiglitz (1999), Lowe (2002), Amato and Furfine (2003)). This bias prolongs the cycle. Firms that wish to get a good rating also shop around for the best rater, thus implicitly pressuring the rating agencies for leniency if

[2] The procyclical feature of VaR methods have been mentioned as a source of procyclicality and research already started in order to improve the VaR framework. For example, Adrian and Brunnermeier (2009) propose CoVaR as an alternative measure to "traditional" VaR. This measure captures the contribution of a financial institution to the systemic risk of the whole financial sector. It is calculated as the difference of the VaR of the financial sector conditional on the VaR of an individual financial institution minus the (unconditional) VaR of the financial sector.

[3] Gompers and Metrick (2001), Shias (2004), Nirei, Sushko and Stamatiou (2010) show such a behavior for institutional investors. This is similar with the beauty contest behavior described by Keynes (1936).

they were to get the business (see Jerome Fons' testimony to Congress, 2008). This pressure is cyclical. During the upside, more firms queue to be rated, hence more of the positive bias gets manifested in markets.

Rating agencies' revenues almost tripled between 2002 and 2007. This huge increase is due to ratings of securitized products. Recall that securitized products are partly responsible for the crisis we witnessed (Goodhart (2008), Lo (2009), De Larosiire (2009)). The issue of rating firms' behavior and their de facto oligopoly is, hence, very serious and has to be addressed.[4]

Currently in Europe, there is strong suspicion of the motives of the "American-based" rating firms. Some European politicians have proposed establishing a European rating agency.[5] Also, given the recent troubles faced by Greece in the sovereign debt market, when it comes to the collateral evaluation of EMU members' sovereign debt, the European Central Bank is slowly moving away from placing too much emphasis on the ratings produced by the rating agencies.

3.C Factors related to economic policy making

In this subsection, I describe three factors related to the economic policy making.

(I). The reality of economic policy making is partly responsible for the procyclicality of the financial system. During an economic boom, in particular, the political pressures on regulators to behave in a way similar to the market and the powerful financiers, and not to "take the punch away exactly when the party is rolling" is very strong. In the Geneva Report (2009), it is correctly mentioned that one way to avoid this behavior is to minimize the pressure on regulators by establishing rules to complement discretion.

(II). A second factor contributing to procyclicality is the presence of "Greenspan/ Bernanke-type puts" (Miller, Weller and Zhang (2002), New York Times (2007)) in the behavior of policy makers. Fiscal and monetary authorities typically rush to save the economy from "too big to fail" financial institutions at the expense of the tax payer, yet they "forget" to control the markets when business is booming. This behavior reinforces moral hazard and the continuation of the cycle (Stiglitz (2008)).

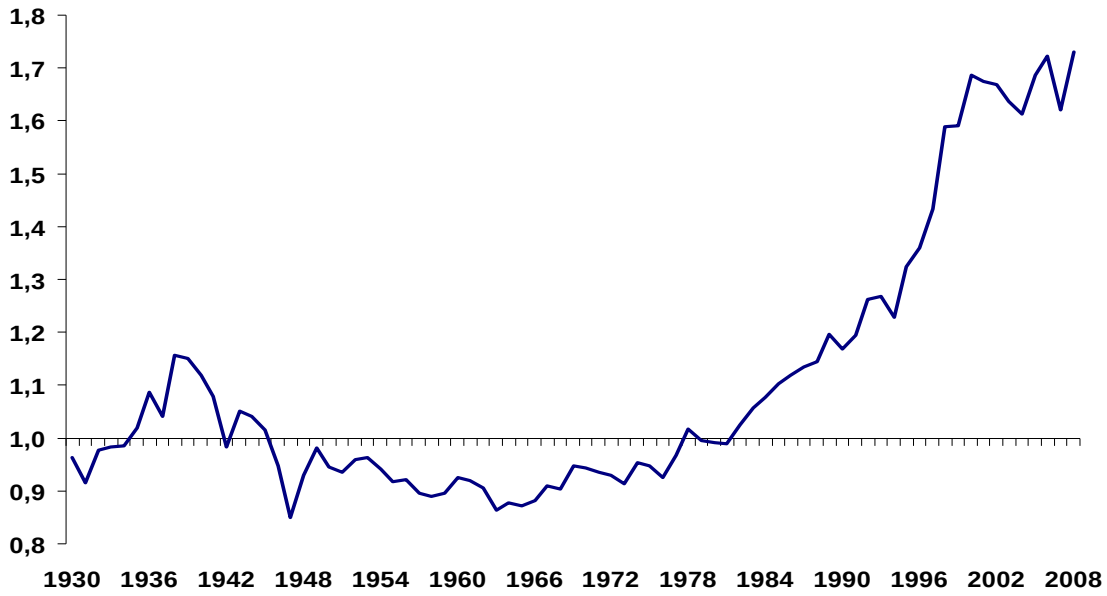
One way to respond to the moral hazard problem is to provide disincentives on size of financial institutions, say, via capital requirements that increase with size. This may not be a complete solution, however, to a "Greenspan-type put," since contagion and similarity in the response of

[4] The SEC, after a thorough investigation of the credit ratings firms in the 2007 – 2008 crisis, announced a series of measures aiming to confront the "problematic" areas of the rating agencies operations. The full list of these measures is available in the following web site: http://www.sec.gov/news/press/2008/2008-110.htm In addition, the Financial Stability Forum (2009) proposed a list of reforms in the credit rating agencies' operations.

[5] Several EU leaders, among them the German Cancellor Angela Merkel (see http://www.france24.com/en/20100503-european-rating-agency-could-be-useful-merkel), the Prime Minister of Luxemburg Jean-Claude Juncker (see http://www.businessweek.com/news/2010-06-01/eu-s-juncker-calls-for-european-ratings-agency-overseen-by-ecb.html) and the Presinded of the ECB (see http://www.ecb.int/press/key/date/2010/html/sp100713.en.html) announced plans for a European rating agency. Towards this, the ECOFIN council in its July 8th, 2010 asked the European Commission for specific proposals on implementing a European mechanism for registering credit rating agencies (ECOFIN (2010)).

financial institutions can behaviorally transform a set of small financial institutions into a single large one. Later, in Section 4, we discuss how the new September 2010 G-20 agreed proposals attempt to tackle the moral hazard problem.

Figure 5
Relative Labor Productivity of the US Financial Sector



Note: *Financial Sector Value Added per employee divided by total economy value added per employee*
Source: **Bureau of Economic Analysis**

(III). A third factor is the apparent bias of policy makers in favor of the wealthy financial sector. This bias has evolved over time and is probably due to the dominance of the financial sector over the other sectors of the real economy. In the US, since the 1980s, the financial sector has been able to attract talent and cumulate wealth and contribute proportionately more to domestic value added relative to the other sectors (Figure 5). Most of the recent finance ministers in the US, for example, come from Wall Street. It is natural, therefore, for the financial sector to gain the ability to shift politics in its own desired direction, neutralizing any criticism from regulators or the public. As a consequence, a financial cycle gets prolonged.

3.D Factors related to the institutional features of the financial system

Let us now turn to features of the financial system which can either cause procyclicality or can be influenced to mitigate it. I discuss nine such features: (I) capital requirements, (II) provisioning, (III) mark-to-market accounting, (IV) leverage, (V) liquidity, (VI) collateral values and margins, (VII) size of financial institutions, (VII) home versus host country regulation, (IX) and financial market structure & organization.

(I) The first procyclicality item, which has received universal attention, is the Basel II-type rules on capital adequacy. These rules, as designed in Basel II, are pro-cyclical.[6] This is because

[6] The Capital Adequacy (CAD) ratio is total consolidated regulatory capital over total risk weighted assets.

the risk weighted assets in the denominator of the CAD ratio of Basel II is often based on market prices & short-horizon VARs. Economists have argued that regulators ought not only to neutralize this pro-cyclicality, but move beyond that point and impose countercyclical capital requirements. So far countries have abstained from state-dependent rules, preferring to simply raise the minimum level of capital requirements across all states of the economy.

There is an on going debate about the exact method of instituting countercyclical capital requirements and, specifically, the variables which describe the state of the economy that would be assigned the burden of triggering a change in the minimum capital ratio. Goodhart & Persaud (2008) prefer the rate of real credit growth. Borio & Drehmann (2009) claim that a combination of the ratio of credit – to - GDP and real estate prices is a better alternative. Some others have argued for including market based variables in the decision mechanism, like credit related spreads. I would personally shy away from variables like credit spreads that depend on a market assessment, as the variables themselves may not have a stable relationship with the economic cycle. In any case, later in Section 4 we discuss the latest agreed proposals by the G-20. According to those proposals, the Capital Adequacy ratio contains countercyclical features.

(II) A second item and tool against the procyclicality of the financial system can be the degree & type of bank provisioning for non performing loans. Currently, bank provisions (general and specific) are set by accounting rules, which examine the size of the banks' loan portfolios as well as the historical loan losses of banks plus their non-performing loans. Yet, provisioning can be made a function not just of the cumulative history of revealed losses, but of the expected future losses the moment a loan is dispersed as well. Moreover, these expected losses can be designed in a countercyclical manner. Those complementary provisions could be held in non-distributable reserves. Unexpected loan losses would then be taken care by capital requirements (UN Commission (2009)). Naturally, today such type of arrangement would easily get into trouble with accountants in many countries, who do not necessarily accept the concept of expected future losses. Thus more cooperation with the accounting profession is required.

The type of provisioning rule described above was first applied by Spain. In July 2000, the central bank of Spain introduced dynamic forward looking provisions, which were intended to complement the traditional specific and general provisions already in place. The new extra provisioning contained two components: A component related to future average credit risk over the business cycle plus a counter-cyclical component, which grew in size depending on the departure of the loan portfolio growth from the historical average. Obviously, linking provisions to credit growth discourages excessive lending during booms and strengthens banks in bad times;[7] and making the percentage of provisions state-dependent further enhances this characteristic.

Economists have pointed to a number of limitations of the Spanish model. The Geneva Report (2009) argues that provisioning alone cannot moderate the credit cycle. Also, the Spanish dynamic provisioning only applies to the banking book of a bank, not the trading book, which is the most risky component of a large global bank's portfolio. The subprime bubble, for example, would not been caught by Spanish type of provisions. Despite the criticisms, the Geneva Report

[7] With the 2004 adoption by the European Union of the IASB standards, the Spanish central bank regulators changed the provisioning rule a bit, but did not change the countercyclical philosophy.

admits that at the time the international crisis erupted, the Spanish scheme was the only macro-prudential instrument in place, which was both rules-based and state-varying.

(III) Mark-to-market accounting is a feature of the global financial system, better suited to reveal the evolution of the true value of assets and liabilities over time. According to the International Accounting Standards that apply in the European Union, for example, mark-to-market accounting applies to the trading portfolio and the available-for-sale portfolio of a bank, not its investment portfolio. Mark-to-market accounting is a focal issue because market valuations are procyclical, hence mark-to-market accounting makes the value a bank's balance sheet and its capital base pro-cyclical. This is a third feature of the financial system for which there is active discussion on how to adjust it. Most commentators would like to see the countercyclical properties of mark-to-market or fair-value accounting diminished. Others argue on their behalf, claiming that fair-value accounting did not necessarily contribute to the financial crisis (Laux & Leuz (2010)).

During the recent crisis, banks tried to minimize the size of their trading and available-for-sale portfolios, so they would not have to mark to market at depressed asset prices and show reduced profitability and/or a reduced capital base. Banks took advantage of the regulatory framework in many countries, which gives the option to switch assets from the trading portfolio into the investment portfolio, but only once. In the US, regulators used discretion and allowed this to happen anyway. The question then becomes whether the experience of 2007-2009, which shows discretionary alteration of the marking-to-market rules in an unusually depressed market, should somehow turn into a rule. It is an item the finance and the accounting professions would have to take up.

(IV). Leverage is another feature of the financial system, correctly blamed for spreading and deepening the crisis of 2007-2009. Restrictions on the leverage of investment banks were lifted by the Securities and Exchange Commission in the late 1990s, whereas restrictions on the leverage of banks in the US were often bypassed through the establishment of subsidiaries. Hence, today there is widespread agreement that leverage should be reduced and, if possible, be made to vary counter-cyclically.

It should be understood that the existence of capital adequacy rules automatically implies a risk-weighted leverage ratio. Yet the risk weighting scheme gave too many degrees of freedom in its interpretation and was apparently bypassed in practice. When regulators today insist on leverage restrictions, they think of a leverage ratio, which is simple and transparent to everyone, cannot be manipulated, is the same across different types of financial institutions and across different countries, and cannot be circumvented.

The regulatory framework concerning leverage was in flux for a long time. The G-20, in their last meeting in Toronto, Canada, in July 2010, reiterated their support for a new leverage ratio scheme in the upcoming Basell III capital framework agreement. They also called for studying the issue in more detail before their next summit in Seoul in November 2010. In September 2010, there was an agreement on a specific proposal, which is described later in Section 4.

The US government passed a bill - the Dodd-Frank Wall Street Reform and Consumer Protection Act – which, among other things, prohibits depository banks from leveraging and investing on own-account. The first version of the respective measure, known as "Volcker's rule" from its author, the former Federal Reserve Chairman Paul Volcker, was very restrictive as it banned banks altogether from running private-equity and hedge funds for their own account.[8] Nevertheless, the final bill that was passed by the US government by mid 2010 softened up the initial declaration of a total ban in hedge funds ownership, etc., by banks. It permits depository banks to participate in private equity and hedge funds up to 3% of their Tier 1 capital. They could only, however, have up to 3% ownership of any private equity or hedge fund.

(V) Liquidity is another feature of the financial system, whose sudden disappearance exacerbated the crisis. When thinking about liquidity, it is important to differentiate between two types: Market liquidity and funding liquidity (Brunnermeier and Pedersen (2007)). Starting from the former, market liquidity is defined as the "ease" with which one can trade a security in a market (O'Hara (1997)). This "ease" can, in turn, is translated as a low bid ask spread, a small price impact, a high resilience or even an easy search in over the counter (OTC) markets (Pedersen, 2008).

Funding liquidity is a problem in financial institutions, whose intermediary role implies a mismatch between assets – that are long term - and liabilities, which are shorter term. Thus funding liquidity refers to the ability of a financial institution to generate the funding that will replace its maturing liabilities, which are necessary for supporting the assets it holds. Absence of funding liquidity would force an institution to liquidate its assets quickly and at a time of distress, exacerbating the on going crisis.[9]

Funding liquidity is highly pro-cyclical and disappears in a downturn, especially if liabilities have a very short-term maturity. Funding liquidity became problematic during the crisis. The crisis woke up economists to the need of not only a minimum liquidity buffer but also to the need of countercyclical liquidity requirements. The Geneva Report (2009) and the Warrick Report (2009) suggest that capital requirements ought to increase by a multiplier, which is a function of the maturity mismatches of a financial institution (and credit growth). Yet, reality may be a lot more complicated than the above studies assume. Maturity transformation is, after all, what banks do for a living.

Policy makers are planning to impose minimum liquidity requirements. In fact, the Basel Committee on Bank Supervision announced in September 2010 an agreement on two types of liquidity ratios, which are described later in Section 4.

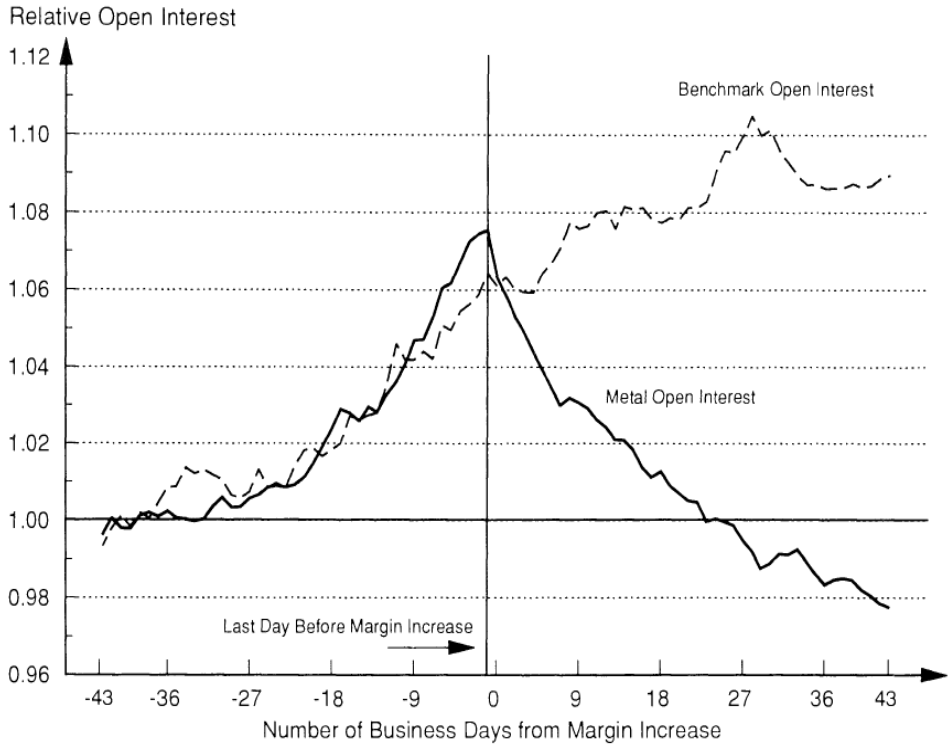
[8] One of the basic facts of the 2007-2008 turmoil seems to be that many banks knew the dire situation of the market but, nevertheless, encouraged their customers to enter the market so as their own funds to gain from the customers' participation. This is similar to the well known Goldman Sachs – SEC case.

[9] Both types of liquidity events, once they occur, cause a positive feedback to one another. Borio (2010) and Gorton (2009, 2010) describe the situation in the repo market in the summer of 2007. A contagion was caused from the mortgage sector through the liquidity of the repo market to the rest of the financial sector.

(VI) Collateral requirements and margin requirements are important features of the financial system. Earlier in Figure 4, we saw how the loan-to-value ratios for car financing vary with the cycle, rising during economic expansions (periods of declining unemployment) and falling during economic contractions (periods of rising unemployment). The same empirical regularity is present in all collateral requirements. Regulators could intervene and impose floors on Loan-to-Value ratios (L/V) during economic busts and ceilings during booms, that is, impose a band on L/V. It is not clear that this is in the agenda of international regulators at the moment.

Margin requirements are countercyclical. Margins are insurance deposits with a lender. The size of these insurance deposits usually declines in a boom as lenders become more confident about counterparty risk, but rise in a bust. In certain markets, like futures markets, even the official minimum margin requirements are countercyclical. This is because the margins are set in nominal dollar terms per contract, independently from the price of the underlying contract. Thus in a boom when prices rise, the percentage minimum required margin declines.

Figure 6.
The restrictive effect of higher margin requirements in metal futures contracts



Note: *Day 0 is the day of a margin increase. Each margin increase is a separate event. Relative open interest is the ratio of business day t open interest to open interest two months before the margin increase. The sample contains the total of 280 events of a margin increase that took place from 1977 to 1993 in metal futures in the US. The graphs are constructed as cross sectional averages per business day t across the 280 events. The graph of benchmark open interest is constructed from a control group of metal futures which did not undergo a margin change in the 4 month window around the event.*

Source: **Hardouvelis & Kim (1995)**

The cyclical nature of margin requirements exacerbates the cycle. Margins became a hot issue after the stock market crash of 1987, when a debate started on how margins may affect market volatility and what economists call, "excess volatility," that is, volatility not related to fundamentals. My own research shows that higher margins decrease both volatility and excess volatility (Hardouvelis (1990)) and, moreover, the relation is asymmetric (Hardouvelis & Theodossiou (2002)): A rise in margins during stock market booms decreases volatility, whereas a decline in margins during times of market stress tends to calm the market.

In the past, I strongly argued for using margins in a countercyclical fashion, as they may help in containing bubbles (Hardouvelis (2003)). The regulatory decision is simple and straight forward: After a sudden and large fall in asset prices, regulators ought to reduce margin requirements but then increase them back to their long-term steady state in normal periods when markets calm. The rule avoids the criticism of many economists that it is hard to differentiate a bubble from a reduction in risk premia while the bubble unfolds. According to the rule, the regulator is not forced to distinguish the presence or absence of a bubble.

One counter argument to the use of margin requirements as a tool to calm the market and avoid its cyclical fluctuations is that they are innocuous, namely they do not bite.[10] Yet, Figure 6, which is taken from Hardouvelis and Kim (1995), shows this is not the case for margins in futures markets. When margins increase the open interest moves away from the contracts that face higher margin requirements to other contracts, which did not undergo an increase in margins.

(VII) Turning to the issue of the size of financial institutions, size is cyclical, rising in booms and declining in busts. It is often argued that large financial institutions contribute more than proportionally to systemic risk, transmitting shocks across the globe while also being too big to fail and to save (Warwick Report (2009)). The critical element in this argument is not necessarily the size of the financial institutions per se, but the interconnectedness they create due to their size with the rest of the financial sector and hence the systemic risk they might generate (Lo (2009)). The issue is the impact of each institution on systemic risk. Many small but interconnected financial institutions can create systemic risk as well.

To confront the size – interconnectedness issue, various measures have been proposed and some are related to our earlier discussion. For example, the introduction of a leverage ratio for all financial institutions could limit their size and, hopefully, their contribution to systemic risk. Capital requirements can also be made a function of asset size (Warwick Report (2009), Squam Lake Report (2009)), providing a disincentive for large sizes. Adrian and Brunermeier (2009) propose a measure of contribution to systemic risk, the "CoVaR."

Beyond these authors, there is little research on measures of systemically important institutions or measures of interconnectedness of (perhaps smaller) financial institutions. A more extreme and perhaps unrealistic proposal is that of Rubini (2009), who urges the separation of commercial banking from investment banking, i.e. a partial return to the Glass-Steagall environment. Another

[10] Alan Greenspan has made this argument orally many times. Note that critics who claim margin requirements do not bite and simultaneously argue against the imposition of margin rules, contradict themselves. They should not mind the existence of rules if margins were not to bite!

proposal is the imposition of a Tobin tax on financial transactions, which would limit the size of deals and churning, hence reduce interconnectedness. This proposal is criticized by the Warwick Report (2009) and Pedersen (2008), who claim it would create more problems than solve. Later, in Section 4, I discuss measures to be taken against the size-interconnectedness issue, which were agreed by the Basel Committee on Bank Supervision as of September 2010.

Last, I turn to two additional factors, which themselves may not necessarily follow a cyclical pattern, yet the existence of the business cycle affects their effects on the economy and the financial sector: The home versus host country regulation and the existence of over-the-counter markets.

(VIII) The recent global crisis caused a common global recession and as a result brought to the forefront issues related to home versus host country regulation, as it pitted countries against each other. In Europe, subsidiary banks in a host country are supervised by the host country, yet bank branches in a host country continue to be regulated primarily by the home country. This structure seems to be an equilibrium that balances the needs of bank efficiency and bank supervision.

During the recent financial crisis, some foreign banks that operated internationally chose to exit from various host countries, causing a worse than expected domestic host country recession.[11] In other cases, the host country's taxpayer paid for the expenses that the international bank's subsidiary created in the local market (Goodhart (2010)). The Warrick Report (2009) adopts as its main theme the sweeping proposal of ending home country supervision altogether. Yet, the study does not perform a detailed and well documented cost – benefit analysis, raising the eyebrows of the federalist camp in Europe. The issue was not raised high enough to be included in the agenda of European political leaders, yet it may stay dormant as long as the financial sector remains fragile, only partially supervised and on a defensive mode.

(IX) Market structure and organization are important in the process of mitigating procyclicality. They influence the flow of information, the level of transparency and, hence, the level of counterparty risk. Thus they influence market and funding liquidity (Borio (2010)). Currently, there are discussions on the possible centralization of the CDS market and the imposition of transparency rules on smaller OTC markets.[12]

[11] This was not a universal tendency, however. For example, 16 large European banking groups operating in Eastern Europe, with the intermediary help of the European Bank for Reconstruction and Development and the IMF, formed the so-called "Vienna Initiative" in January 2009. They made specific rollover and recapitalization commitments in Bosnia, Hungary, Latvia, Romania and Serbia at a time when the financial crisis hit those countries very hard.

[12] Note that centralization and similar market structure improvements provide a solution only for market liquidity, not funding liquidity. Thus, one can imagine situations in which the existence of both "tight" funding liquidity conditions and an improved market mechanism might "drain" liquidity from the market even faster. It follows that improvements in the market structure alone are not sufficient to solve the procyclicality problem.

3.E The design of regulatory instruments

This subsection takes up issues of design, which are important in counteracting the procyclicality of the financial system.

The first issue that needs closer attention is the set of instruments the financial system needs in order to fight procyclicality. This set ought to include more than one instrument for otherwise financial institutions might be able to arbitrage any free-standing single instrument by creating new financial products that circumvent it. We have already discussed a number of instruments like capital adequacy ratios, leverage ratios, liquidity ratios, loan-to-value ratios, margin requirements, dynamic provisioning rules, etc. Most recent reports (United Nations (2009), Geneva Report (2009), Warrick Report (2009), etc) adopt capital rules and provisioning as the basic tools of countercyclical regulatory policy. They disregard the rest of the instruments, which are complementary and may turn out to be very useful.

Any proposed regulatory policy cannot be enforced in isolation, but ought to take into consideration the economic/financial environment as well as other monetary, fiscal or regulatory policies already in place. This is a second issue we have to keep in mind. In our context, the aim is the stability of the financial system and the counteraction of its cyclical nature. Yet, our instruments may influence other objectives set by the monetary or fiscal authorities. Hence, the instruments for counteracting procyclicality should take into account the presence of monetary policy instruments like the overnight interest rate set by a central bank or the parameters of automatic fiscal rules set by the various governments.

Conversely, the previous countercyclical instruments should also be set keeping in mind that the particular monetary or fiscal policy rule in place may have already altered the cyclical properties of risk or the stability of the financial system. Little attention has been given so far to this topic. For example, over the last fifteen years, many central banks adopted inflation targeting and used interest rates as a tool to counteract inflation. However, the accomplishment of the inflation target may itself create conditions for excessive risk taking, boosting procyclicality. Borio (2008, 2010) discusses this problem in greater detail and suggests that a target of high interest rates (i.e. tight monetary policy) should be pursued from time to time in order to address the building up of excessive risk taking.

A third important issue is the comprehensiveness of regulation. Regulations should encompass all financial players, including banking and non-banking financial institutions as well as rating agencies. In particular, there should be no overregulation of one market segment (for example the banking sector) and light or no regulation at another (for example investment banking and hedge funds). A regulatory asymmetry would create regulatory arbitrage and avoidance of regulation, as private funds would move towards the less regulated part of the market (Griffith-Jones (2009)). Examples abound: Security issuance in capital markets is equivalent to bank lending; or collateral requirements in banking correspond to margin requirements in broker-dealer lending in cash and derivative instruments. Also, it is important that all financial institutions, which handle other people's money, be commonly regulated.

A fourth issue relates to the domain of the various countercyclical trigger mechanisms. Trigger mechanisms should themselves be comprehensive, namely they ought to take into account both domestic and international economic developments, as well as both micro and macro considerations. Failure to do so might have a number of unwanted consequences.

A fifth issue is the choice of regulator to enforce financial market stability. This may not appear as important as the previous four issues, yet lately issues of information & liquidity provision suggest aggregating those functions under the central bank. The regulator problem is more intense in the United States, where many regulators fight for overlapping turfs and thus may not operate efficiently.

A sixth issue is the timing of introducing policy rules, which is also important. It seems reasonable that the implementation of the previously described measures does not take place in the middle of a crisis but rather at a time that markets are calm. Yet, as we will see later in Section 4, the new proposed capital, liquidity and leverage rules may allow for too long of a transition period.

Finally, a seventh issue is the cost of regulation, which should be seriously thought over and analyzed. Kashyap, Rajan and Stein (2008) argue that in a crisis no amount of capital is enough to withstand a downward spiral in balance sheets. Instead of costly extra capital rules, which would probably be circumvented, the authors suggest the use of less costly ways to insure against catastrophic crashes: Either: (a) buy direct insurance, or (b) issue bonds that would automatically be converted into stocks in a crisis. Others take the opposite view. Admati et.al. (2010) claim that most arguments on the cost of high capital requirements or other similar regulatory restrictions are false, as they do not distinguish between private banking cost and social cost. They argue that bank equity is not expensive from a social point of view. Hence, they recommend higher equity requirements in banking, which they claim to be superior to arrangements like a "bailout-fund," and, in cases of financial stress, they recommend restrictions on equity payouts or a removal of the discretion of equity issuance from bank managers. They even take a position against the contingent capital view of Kashyap, Rajan and Stein, mentioned above, claiming that no compelling case can be made that contingent capital is superior to equity.

While economists will continue arguing the case for additional restrictions on a theoretical basis, a recent lengthy and detailed study by the BIS (2010b) seeks to quantify the effects of regulatory restrictions on real GDP. The study reports the results from approximately 89 cases of models and countries. They were performed by different organizations and economists through the BIS coordination in the first months of 2010. The study follows a two-step procedure, first estimating the impact of regulatory restrictions on the spread between lending and borrowing rates and subsequently estimating the effect of those spreads on real GDP, usually through investment, consumption, etc. or through the use of other models. The study reports a very small median effect on real GDP plus no great benefits from a long transition period in imposing regulatory restrictions, although the variance among the different model estimates is very large. The study also presents the experience of the two large Swiss banks, on which the Swiss government imposed very strict CAD and leverage ratios in late 2008 and yet the banks did not restrict their balance sheet or credit substantially in 2009. The overall conclusion of the BIS quantitative study seems to support the case for strong and rapid regulatory intervention in the financial sector.

4. Recent regulatory efforts

This section provides a brief description of efforts to re-regulate the global financial system. More than three years have gone by since the outbreak of the international financial crisis in August 2007 and regulators are slowly closing in an agreed new regulatory framework. Those efforts are coordinated by the G-20 group of countries, the Financial Stability Board that reports to the G-20 and the Basel Committee on Bank Supervision (BCBS), which also provides advice to the G-20 leaders.

The first subsection sketches the basic features of the agreed framework. Subsequently, the second subsection, analyzes the countercyclical elements of the proposed regulatory rules. Finally, the third subsection, discusses in more detail the countercyclical tools already in place in the various countries.

4. A G-20 and the Basel Committee

The G-20 group of countries aim at creating a more disciplined and less procyclical financial system, which would support a more balanced and sustainable economic growth. This system would not allow leverage to increase to the extent that it did in the past. Nor would it allow enormous risks to be taken with profits accruing to individual actors but ultimate losses being borne by governments and the public.

The BCBS is expected to formulate a comprehensive set of proposals (so called "Basel III") in order for the G20 leaders to approve them, hopefully by the end of 2010. In fact, by September 2010, the BCBS had already agreed on a leverage ratio, on a rudimentary description of two liquidity ratios and on some more precise minimum capital standards, which are summarized in Table 1 (BCBS, (2010a), appendix).

Table 1.
New CAD ratios: Phase-in arrangements
(shading indicates transition periods, all dates are as of January1st)

	2011	2012	2013	2014	2015	2016	2017	2018	As of 1 January 2019
Leverage Ratio	Supervisory monitoring		Parallel run 1 Jan 2013 – 1 Jan 2017 Disclosure starts 1 Jan 2015					Migration to Pillar 1	
Minimum Common Equity Capital Ratio			3.5%	4.0%	4.5%	4.5%	4.5%	4.5%	4.5%
Capital Conservation Buffer						0.625%	1.25%	1.875%	2.50%
Minimum common equity plus capital conservation buffer			3.5%	4.0%	4.5%	5.125%	5.75%	6.375%	7.0%
Phase-in of deductions from CET1 (including amounts exceeding the limit for DTAs, MSRs and financials)				20%	40%	60%	80%	100%	100%
Minimum Tier 1 Capital			4.5%	5.5%	6.0%	6.0%	6.0%	6.0%	6.0%
Minimum Total Capital			8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Minimum Total Capital plus conservation buffer			8.0%	8.0%	8.0%	8.625%	9.25%	9.875%	10.5%
Capital instruments that no longer qualify as non-core Tier 1 capital or Tier 2 capital			Phased out over 10 year horizon beginning 2013						
Liquidity coverage ratio	Observation period begins				Introduce minimum standard				
Net stable funding ratio		Observation period begins						Introduce minimum standard	

Source: BCBS (2010a), Annex 2.

Briefly, the BCBS agreed to impose an increase in the CAD ratio from 8% to 10.5%, to restrict the definition of equity capital and raise its required minimum amount from 2% to 7% of weighted assets, to give countries the option to raise the CAD ratio to an even higher minimum level, up to 13%, as a function of cyclical fluctuations, and to impose penalties on stock and other hybrid instruments in case of a governmental rescue in order to minimize the moral hazard problem. The BCBS also agreed to allow a long transition period for the new capital requirements on the argument that it will help ensure that the banking sector can meet the higher capital standards through reasonable earnings retention and capital increases, while still supporting lending to the economy.

Criticism on the announced agreed measures was immediately expressed in the financial press. Critics argued the new capital ratios are too small (Wolf (2010)) and the transition period too long (Scharfstein and Stein (2010)). According to the critics, previous research, especially that of Admati et. al. (2010) and the BIS (2010b), shows that the long-term impact of additional regulatory restrictions on loans is too small to have a big impact on economic growth. They also argue that market pressures would anyway force banks to meet the criteria way ahead of the particularly long deadlines.

Below, I describe seven key elements of the new GGHS proposals in more detail:

I. Higher and of better quality capital requirements. The minimum common equity requirement, i.e. the highest form of loss absorbing capital, will be raised from the current 2% level of total weighted assets before the application of regulatory adjustments, to 4.5% after the application of stricter adjustments. This will be phased in by January 1, 2015. The Tier I capital requirement, which includes common equity and other qualifying financial instruments based on stricter criteria, will also increase from 4% to 6% over the same period. Minimum Total Capital will remain at 8%. On top of these requirements, a capital conservation buffer and a countercyclical buffer were added, which will be analyzed in the following subsection.

II. A more restrictive definition of capital (common equity and retained earnings). The definition of capital is strengthened in order to raise the quality, consistency and transparency of the capital base. The focus is now on the core elements of capital (common equity and retained earnings) instead of debt-like substitutes of questionable quality. Special attention is given to the treatment of minority interest, investments in other financial institutions and various deductions. In particular, all deductions from capital will now occur at the level of common equity, instead of Tier 1 capital, as has been the case until now.[13]

[13] The regulatory adjustments (i.e. deductions and prudential filters), including amounts above the aggregate 15% limit for investments in financial institutions, mortgage servicing rights, and deferred tax assets from timing differences, would be fully deducted from common equity by January 1, 2018. In particular, the regulatory adjustments will begin at 20% of the required deductions from common equity on January 1, 2014, 40% on January 1, 2015, 60% on January 1, 2016, 80% on January 1, 2017, and reach 100% on January 1, 2018. During this transition period, the remainder not deducted from common equity will continue to be subject to existing national treatments.

III. Strengthening the risk coverage of the capital framework, particularly with respect to counterparty credit exposures, in order to ensure that all risks are captured. Whereas the previous two measures tackle the numerator of the CAD ratio, this is an effort to address the denominator. The crisis uncovered weaknesses in the current system, particularly in the coverage of structured, complex and illiquid credit products, which were held in banks' books without an increase in capital to support the associated risks. The rules that govern capital requirements for trading book exposures, including securitizations and off-balance sheet vehicles are now strengthened and banks are required to hold much more capital to offset those risks.

IV. Systemic risk, interconnectedness and too-big-to-fail. Several additional measures are taken to address the associated risks and boost the denominator of the CAD ratio, which include: (a) Capital incentives for banks to use central counterparties for over-the-counter derivatives; (b) Higher capital for trading and derivative activities, as well as complex securitizations, which are associated with systemic risk and interconnectedness; (c) Higher capital for inter-financial sector exposures as these are more correlated; (d) Cross-border bank resolution recommendations as a practical way to begin addressing the systemic risk issue at global banks; (e) Possibly, systemic capital surcharge on banks perceived as "too-big-too fail."

V. Addressing more effectively the loss absorbency of regulatory capital in order to reduce the moral hazard created by bank rescues, particularly for "too big to fail" institutions. The BCBS (2010b)) proposed ways to share the losses by all types of regulatory capital in the case of a bank rescue. During a crisis, in many cases a public sector injection of capital that was needed to avoid the failure of a bank, ended up protecting investors in hybrid and common equity regulatory capital instruments from absorbing the loss that they would have incurred had the public sector not chosen to rescue the bank. These types of interventions may subsequently get incorporated into market expectations, creating moral hazard, whose presence results in significant under pricing or risk. By imposing a penalty on those instruments when a bank rescue occurs, the moral hazard issue declines. One form of proposed penalty is the mandatory conversion of the hybrid instruments into common equity prior to the rescue. Another form is the mandatory issue of new capital, and hence ownership dilution, prior to the injection of funds by the government.

VI. Controlling leverage, through the introduction of a simple, transparent, non-risk based measure that is calibrated to act as a credible supplementary measure to the risk based requirements. The enormous leverage ratios of some banks helped spread the last financial crisis across markets and enhanced the impact to the real economy. Earlier, banks had managed to uphold perfect Tier 1 risk-based capital ratios, while building up massive levels of on- and off-balance-sheet leverage. The Group of Governors and Heads of Supervision (GGHS) agreed on the design of a leverage ratio and an indicative calibration of a minimum Tier 1 leverage ratio of 3%.[14] The new

[14] The Committee will use the transition period to assess whether the proposed design and calibration is appropriate over a full credit cycle and for different types of business models. This assessment will include consideration of whether a wider definition of exposures and an offsetting adjustment in

leverage ratio includes both on-balance sheet liability positions and off-balance sheet items and derivatives. The proposed minimum of 3% will serve as the basis for testing during a parallel run period that will begin in January 2013.[15]

VII. Introduction of a new global liquidity framework. Supervisors agreed to employ a common international standard for liquidity. The measures proposed intend to promote both the short-term resilience of banks to potential liquidity disruptions and longer-term structural liquidity mismatches. The proposed Liquidity Coverage Ratio (LCR) requires banks to have sufficient high-quality liquid assets to withstand a stressed funding scenario that is specified by supervisors. The Net Stable Funding Ratio (NSFR), which is a long-term structural complement ratio, is designed to address liquidity mismatches. It covers the entire balance sheet and provides incentives for banks to use stable sources of funding. After an observation period beginning in 2011, a minimum standard for the LCR will be introduced on January 1, 2015. The minimum standard for the NSFR will be introduced by January 1, 2018, after an observation period that will begin in 2012. [16]

It is important to stress that the above agreed interventions do not exhaust the possible set of proposed regulatory instruments. More is in line until the end of year 2010. For example, according to the GGHS September 2010 press release, systemically important banks should have loss absorbing capacity beyond the standards announced and work will continue on this issue.

4.B The counter cyclical features of the proposed measures

The existing procyclicality of the financial system was always worrisome to regulators. For example, from the early days of the international effort to re-regulate the international financial system, the BIS (2009) had already sketched four key objectives for any future regulation: (a) Dampen any excess cyclicality of the minimum capital requirement; (b) Promote more forward looking provisions; (c) Conserve capital to build buffers at individual banks and the banking sector that can be used in stress; and (d) Achieve the broader macro-prudential goal of protecting the banking sector from periods of excess credit growth.

The September 2010 GGHS agreed proposals include countercyclical measures on the new CAD ratio, which partly address these objectives. First, banks are required to hold a capital conservation buffer of 2.5%, above the regulatory minimum requirement, after the application of deductions, bringing the total common equity requirements to 7% (see Table 1). The purpose of the conservation buffer is to ensure that banks maintain a buffer of capital that can be used to absorb losses during periods of financial and economic stress. While banks are allowed to draw on the buffer during such periods of stress, the closer their regulatory capital ratios approach the

the calibration would better achieve the objectives of the ratio. It will also track the impact of using total capital and tangible common equity.

15 The parallel run period will commence on January 1, 2013 and run until January 1, 2017. Disclosure of the leverage ratio and its components will start on January 1, 2015. Based on the results of the parallel run period, any final adjustments will be carried out in the first half of 2017 with a view to migrating to a Pillar 1 treatment on January 1, 2018 based on an appropriate review and calibration.

16 The BCBS will put in place rigorous reporting processes to monitor the ratios during the transition period and will continue to review the implications of these standards for financial markets, credit extension and economic growth, addressing unintended consequences as necessary.

minimum requirement, the greater the constraints on earnings distributions. These include dividend payments, share buy-backs and bonuses.

At the macro level, economic stress occurs in an economic downturn. Hence, the conservation buffer has countercyclical characteristics. It allows for capital to be built up in good times and be drawn down in bad times. Moreover, it allows for boosting up capital in bad times in ways that may not have been chosen by individual banks were the regulation not being present. The regulation addresses the collective action problem that has prevented some banks from curtailing distributions such as discretionary bonuses and high dividends, even in the face of deteriorating capital positions.[17] The capital conservation buffer will be phased in, between January 1, 2016 and year-end 2018, becoming fully effective on January 1, 2019. National authorities have the discretion to impose shorter transition periods.

A second countercyclical element in the new CAD ratio is its so-called "counter cyclical buffer." The countercyclical buffer is introduced as an extension of the conservation buffer. It varies within a range of 0% - 2.5% of common equity or other fully loss absorbing capital and will be implemented according to national circumstances. If fully imposed, it can end up raising the minimum CAD ratio to 14%. Obviously, this countercyclical tool gives local authorities considerable discretion. A country's business cycle is not necessarily synchronized with a common global cycle or the country's circumstances may differ, requiring local intervention.

According to the BCBS, the purpose of the countercyclical buffer is to achieve the broader macro-prudential goal of protecting the banking sector from periods of excess aggregate credit growth, when this growth is judged to be associated with a build-up of system-wide risk. The buffer would be lowered when, in the judgement of the authorities, the released capital would help absorb losses in the banking system that pose a risk to financial stability. More details on the triggering mechanism have not been announced yet. If this buffer were left with no specific and simple rules on its triggering mechanism, I suspect that then many countries would be reluctant to create a big buffer, as this would entail a competitive disadvantage of their home banks compared to other banks, supervised by countries with a minimum countercyclical buffer.

Overall, it is clear that protecting the banking sector is not restricted simply to ensuring that individual banks remain solvent through a period of stress. The minimum capital requirement, the capital conservation buffer and the countercyclical buffer together are designed to ensure that the aggregate banking sector has the capital on hand to help maintain the flow of credit in the economy without its solvency being questioned, even when the broader financial system experiences stress after a period of excess credit growth.

[17] During the crisis, some banks under stress – in an attempt to signal their financial strength – continued to pay out dividends instead of retaining their profits, which could have replenished their capital. This behaviour was partly driven by a collective action problem: A reduction in dividends, it was feared, would be viewed as a sign of financial weakness.

4.C Regulatory developments across different countries

The procyclicality of the financial system is an international concern. Prior to any G-20 decisions, a number of countries had already used or had announced that they were planning to use various tools to mitigate procyclicality. In China, for example, the Banking Regulatory Commission (CBRC) plans to issue draft supervisory guidelines on a leverage ratio and countercyclical capital buffer for public consultation in the near future. In Spain, as mentioned earlier in Section 3, statistical or dynamic provisioning has been applied since 2000. Banks are required to set aside provisions during phases of rapid credit expansion according to a formula. The measure anticipates the impairments that will arise when the economy turns down and credit retrenchment appears. The instrument is seen as having successfully protected banks from the risk of under-provisioning during the boom phase. It was less effective, however, in moderating the financial cycle.

The BIS Annual Report (2010) presents a summary of countercyclical prudential instruments in use or proposed. Instruments in use include: (a) Caps on Loan-to-Value ratios for property lending in Hong Kong, South Korea, Malaysia and Singapore; (b) Caps on ratios of debt service to income for household lending in Hong Kong and South Korea; (c) Adjustments to risk weights in India and Turkey; (d) Statistical provisioning in Spain; (e) Caps on loan-to-deposit ratio, core funding ratios, reserve and other liquidity requirements in Argentina, China, Hong Kong, South Korea and New Zealand.

Also, the Committee on the Global Financial System has recommended consideration of margin requirements based on through-the-cycle valuations of collateral assets, which would reduce the procyclical sensitivity of margins to financial and economic conditions. Yet, not much more has been said about margin requirements or loan-to-value ratios. This is unfortunate as those instruments can easily complement capital requirements or provisioning rules.

In the EU, the speedy conclusion of the financial services reform process is recognized as a key pillar of future growth and an essential complement to fiscal consolidation and structural changes. Implementation will be carefully calibrated in order to avoid restricting economic growth and to avoid pro-cyclical effects. The reforms are based on the De Larosiıre Report (2009), which recognizes that the excessive pro-cyclicality in the Basel framework must be reduced and proposes several methods. The Report, which was mentioned earlier in Section 3 as well, recommends the adoption of Through the Cycle Approach in banking books, introduction of dynamic provisioning as in Spain and/or countercyclical capital requirements. Also, concerning Deposit Guarantee Schemes (DGS), according to the Report, preference should be given to schemes which are pre-funded by the financial sector. Such schemes are better to foster confidence and help avoiding pro-cyclical effects resulting from banks having to pay into the schemes at a time where they are already in difficulty. The Report also suggests the ECB could become responsible for regulation related to issues such as procyclicality.

In the US, the Dodd-Frank Wall Street Reform and Consumer Protection Act, which was passed in July 2010, was mentioned in earlier Section 3 vis-ŭ-vis its inclusion of various restrictions on leverage. The Act also includes countercyclical capital requirements. The bill grants the Fed authority to adopt capital rules for all bank holding companies (BHC) and savings and loan holding companies (SLHC). It also requires that the Fed seek to make all capital requirements

countercyclical, so that the amount of capital required increases in times of economic expansion and decreases in times of economic contraction.

5. Conclusion

The importance of counteracting procyclicality in the financial system became apparent in the aftermath of the 2007-2008 crisis (Griffith-Jones et al (2009)). Even though economic cycles are a periodic phenomenon partly caused by what economists call "deep" parameters of economic behavior, the actions of individuals such as managers of financial institutions or policy makers plus institutional features of the economy and the structure or regulation, influence significantly the magnitude of those fluctuations. As a result, regulators, policy makers and academics have recently turned their attention on ways and methods to reduce procyclicality in the financial system.

The paper went through an exhaustive list of factors that contribute to procyclicality and instruments that could be used to mitigate it. The factors were grouped into four categories, economic, financial, policy-related and institutional. The instruments to confront procyclicality were correspondingly many: Capital requirements, provisioning, collateral and margin requirements, leverage and liquidity ratios, or accounting methods.

Current regulatory proposals place an emphasis on increasing the capital requirements and making them less procyclical, and installing upper bounds on liquidity ratios and leverage ratios. Provisioning has also occupied the public discussion without any concrete proposals yet. Collateral and margin requirements are rather ignored. Accounting methods are not being discussed to the degree needed, either because they require the involvement of experts outside the economics profession or perhaps because they span a very treacherous domain that is not well understood. Yet, for effective regulation, it is prudent to utilize all available instruments, and not rely almost exclusively on a few prominent ones. The multiplicity of policy targets – regulatory, monetary, fiscal and other - necessitates a multiplicity of policy instruments, each of which ought to take into consideration the impact of the others as well as their mutual complementarity. Issues of instrument comprehensiveness, timing and cost are also very important in the design of an effective regulatory system that would safeguard stability and promote financial intermediation.

The international financial crisis of 2007-2009 brought to the forefront a number of problematic aspects in the working of today's global financial system. Regulatory discussions on procyclicality are conducted within this framework. Hence, the "too big to fail or save" financial institution problem is a topic that dominates the public debate. Similarly, the "short-termism" in the behavior of financial institutions' managers is another hot topic. Contagion between what appears to be unrelated financial markets at the opposite sides of the world is yet another topic. The correct measurement of market risk, especially its systematic component is another slippery area. Market microstructure relating to centralized versus over the counter organization of markets keeps reappearing in the financial press. All the above topics are intimately related to policies that aim at stabilizing and making less procyclical the financial system. Indeed, we saw that instruments do exist which can alleviate some of those problems.

Finally, it should be emphasized that it is financial institutions themselves which will have to bear the costs of the fight against procyclicality, while it is the society at large which will reap the benefits of new regulation (Squam Lake Report (2009)). The financial sector is economically powerful, especially after the mid 1980s. Current regulatory proposals that drive the cost of financial intermediation up are bound to face considerable political resistance.

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