Università Commerciale Luigi Bocconi

BAFFI CAREFIN
Centre for Applied Research on International Markets, Banking, Finance and Regulation

Working Paper

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MORE THAN THE HUMAN APPENDIX: FED CAPITAL AND CENTRAL BANK FINANCIAL INDEPENDENCE

BAFFI CAREFIN Centre Research Paper Series
No. 2016- 35

MORE THAN THE HUMAN APPENDIX:
FED CAPITAL AND CENTRAL BANK FINANCIAL INDEPENDENCE

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September 2016

In 2002 in reviewing the role of the Federal Reserve System (FED) the United States General Accounting Office declared that" We found no widely accepted, analytically based criteria to show whether a central bank needs capital as a cushion against losses or how the level of such an account should be determined"; the FED capital has become somewhat like the human appendix, an organ whose function is no longer understood (Stella 2009). Is it still true? These short notes address the issue, using a Q&A exposition and taking the occasion the fact that the U.S. Government Accountability Office (GAO), has been asked by members of the Congress to study the implications of a recent dividend rate change for Federal Reserve Bank stock and the implications of modifying or eliminating the existing requirement that all member banks purchase stock issued by their respective Federal Reserve Bank.

JEL Classification Numbers: E42, E58, E61

Keywords: Federal Reserve System, Central Bank Independence, Central Bank Capital, Global Crisis

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1. Introduction

The U.S. Government Accountability Office (GAO), an independent agency in the legislative branch, has been asked by members of the Congress to study the implications of a recent dividend rate change for Federal Reserve Bank stock and the implications of modifying or eliminating the existing requirement that all member banks purchase stock issued by their respective Reserve Bank.

In 2002 in reviewing the role of the Federal Reserve System (FED) the United States General Accounting Office declared that" We found no widely accepted, analytically based criteria to show whether a central bank needs capital as a cushion against losses or how the level of such an account should be determined"; the FED capital has become somewhat like the human appendix, an organ whose function is no longer understood (Stella 2009). Is it still true? These short notes address the issue, using a Q&A exposition.

The notes are organized as follows. Section Two briefly presents the central bank independence (CBI) arguments as well as its institutional definition, zooming then on the relevance of the rules regarding the central bank balance sheet, as well as its capital (CBI financial independence). In Section Three the CBI framework is applied in evaluating the FED degree of independence, including the financial one. Section Four highlights the possible effects in reforming the actual rules on the FED bank stock purchases. Section Five concludes.

2. The Central Bank Financial Independence

1) What is the primary purpose of central bank independence (CBI) ?

ANSWER: To avoid the monetary policy politicization (MPP) - i.e. that the money supply management can be inefficiently used by the incumbent government, which is structurally affected by short term biases. This aim can be considered valid before and after the Great Crisis that started in 2007-2008 and it can be used to evaluate all the relationships between the central bank, the policymakers and the banks, including the financial ones.

MOTIVATION: Alternative approaches and different disciplines can be used in evaluating the CBI (Conti Brown 2015a). Here to answer the above question it has been used the dominant monetary policy theory of the last three decades, that can be summarized as follows (Eijffinger and Masciandaro 2014).

Monetary policy and central banking are two sides of the same coin: the central banker is essentially a monetary policy agent, primarily focused on macroeconomic stabilization, which can be pursued by targeting as main goal the monetary stability and steering short-term interest rates.

Such as mainstream can be briefly described using the principal-agent terminology. The citizens, who represent the principal, realized that on average politicians in charge tend to use monetary policy tools to obtain short term macroeconomic goals, that can be time to time specific and/or intertwined: to exploit a short-term inflation-growth and employment trade-off; to fix public finance problems; to bail out banks.

The underlying assumption is that politicians are shortsighted, maximizing the probability to remain in office. Therefore, politicians tend to use monetization to address urgent short term macroeconomic problems. But the more the markets are forward-looking, rational and efficient, the more it is likely that monetization policies produce net permanent negative outcomes, both in terms of macroeconomic performances – such as price inflation and volatility, uncertainty, fiscal and banking indiscipline – and incentives distortions – moral hazard in the behavior of the political actors and/or banking actors.

The association between political incentives in governing monetary policy and negative macroeconomic performances can be defined the monetary policy politicization (MPP) phenomenon.

As citizens realize the existence of the MPP, the politicians in charge are no longer able to exploit the short-term trade-offs and moreover suffer from a lack of credibility. Any monetary policy announcement is likely to be time inconsistent.

To cope with the credibility and time inconsistency problems, the efficient solution is to change the rules of the game: monetary policy is delegated to independent central banks, where unelected public officials with long terms of office conduct monetary policy with a view to safeguarding the primary goal of monetary stability. Since they are held accountable only with respect to the achievement of this goal, which the public understands, their monetary policy is credible in the eyes of the public and does not suffer from the time inconsistency problem. The

establishment of an independent central bank eliminates the MPP risks. CBI and monetary policy credibility tend to go hand in hand (Bordo and Siklos 2015).

The more evident macroeconomic gain in having an independent central bank is considered the achievement of a stable and low inflation.

The central bank becomes the money supply manager, with a medium term orientation toward monetary stability. Consequently, for monetary policy effectiveness, it is crucial that the mandate of the central bank is well defined and established using three criteria. First, the primary goal of the central bank has to be monetary stability in order to avoid the short-term "inflationary bias". Second, the central bank must not finance public deficits and debt in order to avoid the "fiscal bias". Third, central bank involvement in financial regulation and supervision has to be designed in a way which avoids a "bank bail-out bias". Eliminating the three biases the MPP risks are addressed and fixed.

It is worth noting that all the three different risks of political bias can be registered over the FED history (Boettke and Smith 2013).

Following the same line of reasoning the central bank has to be protected from risks of political capture, by being granted functional, personal, operational and financial independence from government (Gerdesmeier et al. 2007). The financial independence perspective is closely linked with the central bank capitalization issue and therefore deserves a special attention (see below).

The independence requirements find their mirror and are in fact enhanced and rendered sustainable by ensuring that the central bank is strictly accountable on its actions in the pursuit of its mandate vis-à-vis the legislative and the public at large, which is also ensured through a number of provisions ensuring transparency and regular and formalized reporting procedures.

All in all the rationale of the CBI is to avoid the MPP. Does the analysis change after the Crisis?

After the Great Crisis central bankers are taking on a range of new responsibilities alongside their core role of monetary policy. In many cases the central banks have mandates to pursue financial stability, gaining new powers and tools.

The enlargement of the central bank perimeter however has not been homogeneous. The expansion of goals and tools varied across countries. At least two reasons can explain this ununiformed trend. On the one side no theoretical consensus has been reached as to the optimal approach. On the other side the enlargement of central bank responsibilities has happened mainly as a needed and immediate response to the Great Crisis. In such as cases

the political urgency to implement some policy decisions can likely override the opportunity to find out the best central bank architecture.

Without a theoretical benchmark and with the necessity to face conventional and unconventional trade- offs between monetary and financial stability, the heterogeneous expansion of the central bank powers reflects the difficulties in designing new interactions with different players – politicians, other regulatory agencies – that can conflict with the core monetary policy function (in the modern view the lending of last resort function joints the monetary role exclusively in temporary and extraordinary times).

How to approach to evaluation of the central bank role in new policy areas or the needs to face new problems with the existing rules? Drawing on the abovementioned framework, the crucial question is wondering if and how the location of a new policy inside the central bank or the emerging of new issues can change the effectiveness in pursuing its main function, i.e. to avoid the MPP.

On this respect the financial CBI deserves particular attention. Which are the fiscal consequences of conventional and unconventional monetary policies? How to measure the degree of fiscal resilience of a central bank balance sheet? The unprecedented expansion in central bank balance sheets during the Crisis is rising attention on possible medium-term fiscal spillovers triggered by monetary policy drivers (Buiter 2008). Indeed, if on one side many governments enjoyed, in the short-run, an increase in the remittances from their central banks, on the other side, the same institutions might experience losses in the near future.

The financial relationships between the central banks, the governments and the other stakeholders – including the banks – are likely to become an even more relevant issue in the overall debate on the CBI. The issue will be discussed in a systematic way addressing Questions 2, 3 and 4 below.

3. The FED Financial Independence

2) Compared to other central banks, how independent is the Federal Reserve System currently?

a. When studying the independence of the Federal Reserve System, are you focused on the independence from the legislative branch, executive branch, and/or private banking interests?

ANSWER: All the relationships between on the one side the central bank and on the other side the other relevant players - both the political and the financial ones – are crucial in defining the CBI country by country, before and after the Crisis. The measurement of the CBI have to include also the financial relationships that characterize the central bank perimeter, in order to evaluate to so called financial CBI

MOTIVATION: How to measure the CBI in a specific country? For our purposes, the huge literature on the CBI measurement can be described as follows. (Masciandaro and Romelli 2015).

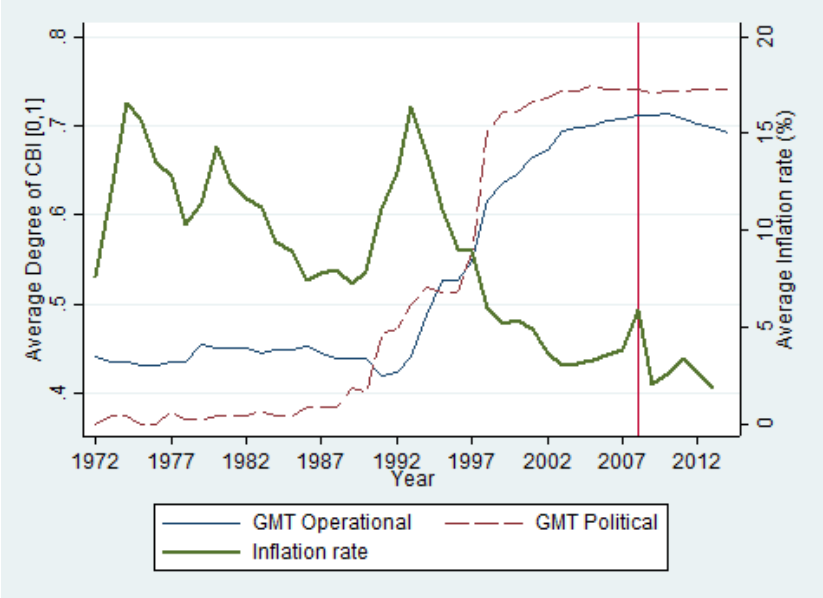
The literature on CBI generally uses two different strategies to capture the degree of independence of a central bank: a) indices based on central bank legislation (de jure), or b) on the turnover rate of the central bank governor (de facto).

De jure indices are more likely to capture the degree of CBI for several reasons. First, turnover rates relate the independence of central banks to the autonomy of their governors. While extensively used, this approach has been shown to be less robust in empirical estimations as compared to the GMT index of legal independence (Maslowska, 2011). Second, the legal measures of CBI are more likely to reflect the true relationships between the central bank, the policymakers and the bankers especially in countries where the rule of law is more strongly embedded in the political culture, as in many developed economies (De Haan et al. 2008). Thirdly, being nowadays relevant to capture the change, if any, in the level of CBI post 2008, and given that many post-crisis reforms have been related to the involvement of the central bank in supervision, it is more efficient to restrict our attention to de jure indices that can capture such changes (Masciandaro and Romelli 2015).

Two are the main dimensions along which the de jure CBI is usually measured: political and economic CBI. Political CBI refers to the autonomy given to the central bank in the design and implementation of policies consistent with the monetary stability goal. Economic CBI is related to the freedom of the central bank in choosing the set of tools consistent with its monetary policy strategy. Therefore, more central bank involvement in supervision can weak the priority of monetary stability and, as a result, lowers the degree of independence of the central bank.

Despite the wealth of research on CBI indices, the only measure of de jure CBI that differentiates between political and economic CBI, as well as provides information on the involvement of the central bank in banking supervision is the Grilli et al. (1991) index (GMT). Moreover, the inclusion in the GMT index of non-statutory factors that influence the degree of de facto independence, has been shown to strengthen the explanatory power of this index as compared to other indices of de jure CBI (see Maslowska, 2011).

Thus the GMT index can be fruitfully used to evaluate the evolution of CBI over the past decades. The evolution of the GMT index in a sample of 45 countries over the period 1972 and 2014 is presented in Figure 1:



Source: Masciandaro and Romelli 2015

Figure 1 highlights several important trends, that can be interpreted using a political economy assumption: the CBI dynamics depend on the political cost and benefit analysis in having in charge an independent central bank, i.e. a monetary veto player. Other things being equal, the more is costly/beneficial for the incumbent policymakers to face a money supply

manager against the money politicization, the more likely are reforms that reduce/increase the CBI.

Prior to the 2008 Crisis a clear trend towards an increase in the level of both the political and economic CBI is evident. The most striking feature is present in the early 1990s where, together with a spike in the average inflation rate, we see a significant rise in the level of CBI. This coincides with the break-up of the USSR, which resulted in the inclusion in the sample of several economies experiencing high inflation and which implemented significant reforms in their monetary policy institutions throughout this period. The period also coincides with the European Union integration process and the creation of the ECB that required members to implement legislative reforms aimed at assigning their central banks a level of independence similar to the one of the Bundesbank, the highest at the time. Further, in this period the establishment of an independent central bank became an external prerequisite to maintain or gain access in the financial markets.

From this point on, a transition to a period of more stable and low inflation followed. This, as clearly depicted in Figure 1, corresponded to a levelling in the degree of CBI.

Furthermore, a clear reversal in the level of CBI is noticeable following the 2008 Crisis. This trend is captured by the degree of economic CBI (GMT Operational in Figure 1), since this index is the one capturing the evolution of central bank involvement in banking supervision. Thus, in line with the theoretical assumptions, the post-crises period, which corresponds to a very low inflation aversion and, at the same time, a high probability of experiencing macroeconomic shocks, is associated with a trend towards decreasing the level of independence of central banks.

Put it in another way, it is possible to argue - Blancheton (2015) - that since the Crisis, a “tacit low-independence” regime might be in place, which is reflected by the operational CBI since governments might be willing to trade off central bank independence to cope with rising public debt levels and/or increasing risks of banking instability.

At the same time all the dimensions of the CBI went under stress, including the financial independence. As we already stressed above, the implementations of conventional and unconventional monetary policies shed light on the likely effects in terms of central bank balance sheet (Reis 2016a and 2016b).

Hall and Reis (2015) and Carpenter et al. (2013) have investigated the likely path of the central bank's balance sheet during a possible return to historically normal levels of interest rates. While Del Negro and Sims (2015) constructed a deterministic general equilibrium model to study the impact of different interest rates scenario on the central bank’s balance sheet.

Hall and Reis (2015) suggest that every period the central bank should calculate its net income, marking assets to market, and rebate it in full to the Treasury if it is positive, or receive a transfer from the Treasury if it is negative. Reis (2015) discusses the fact that the main central banks follow this rule when profits are positive, but the extent to which the fiscal authorities are committed to transfers that cover losses is less clear. Also Benigno (2016) discusses the relationships between monetary policy, central bank balance sheet and the role of fiscal support.

Therefore we can conclude that the fiscal support of these policy institutions is incomplete, and their solvency is, at least theoretically, potentially at risk, also distinguishing between the concept of equitable solvency – capacity to pay obligations – and balance solvency – capacity to match the value of assets and liabilities – where for the central banks only the first one is relevant (Buiter 2008).

But the solvency of the central bank can potentially influence the relationships between the central bankers and the policymakers and consequently can modify through a non-standard channel the risks of MPP. Therefore the rules regarding the so called central bank finance - which is a special case of agency finance (Greve and De Muth 2016) can be relevant to evaluate the financial CBI.

How to measure the financial CBI? Here the Extended Central Bank Independence (ECBI) (Romelli 2015, Masciandaro and Romelli 2016) Index comes in. The ECBI extends the original GMT Index, with information on 42 criteria of central bank design, including 12 measurements of the financial CBI.

The rationale is that the degree of financial CBI can influence the risk of MPP, increasing the government possibilities to influence the central banker choices. In each country the legislation addresses the elements directly or indirectly related to the financial position of the central bank, such as i) the conditions for capitalization and recapitalization, ii) the determination of the central bank budget and iii) the arrangements for profit distribution and loss coverage.

Therefore the financial CBI will depend on the provisions relating to the payment and level of the initial authorized capital, the obligation of the policymakers to re-capitalize the central bank, as well as the relative role of the executive and legislative powers. The financial CBI will depend also on the rules regarding the central bank budget, including the role of the government in its approval and auditing. Finally the legal arrangements regarding the

distribution of central bank's profits and losses and consequently the recapitalization rules play a relevant role in determining the financial CBI.

b. What primary structural elements make the Federal Reserve more/less independent than other central banks?

ANSWER: In the sample of the advanced economies, the FED is a relatively independent central bank; the weaker aspects can be considered the appointment procedures - which reduce the so called political independence - and the deep involvement in banking supervision - which negatively hits the so called economic independence. Regarding the financial CBI, the FED situation is above the bar, and specifically zooming on the capitalization rules, the weakest feature seems to be the absence of automatic recapitalization

MOTIVATION: Using the GMT Index (see above) it is possible to identify the CBI in the case of the Federal Reserve System (FED), disentangling between political CBI and economic CBI (Grilli et al. 1991, Romelli 2015, Masciandaro and Romelli 2016). The two dimensions of the FED independence can be described as follows.

The political CBI index is based on a binary code is assigned to eight different features that sum up the capacity of the central bank to define the monetary policy strategy (goals) consistent with the monetary stability without political interferences. The index captures three characteristics of the central bank governing bodies: a) the appointing procedures ; b) the relationships with the government; c) the formal responsibilities.

The economic CBI index is based on a binary code is assigned to seven different features that sum up the capacity of the central bank to define the monetary policy tactic (tools) consistent with the monetary stability without political interferences. The index captures three main aspects concerning the central bank tool kit: a) the possibility to avoid public finance monetization; a) the autonomy in the interest rate setting; the central bank specialization as monetary policy actor, i.e. without banking policy responsibilities.

The GMT Indexes has been calculated from the period 1972-2010 (Masciandaro and Romelli 2016), i.e. the post Bretton Woods years. Here we focus

our attention on a sample of ten advanced economies. Starting from the political CBI (Table 1), it is worth noting that the political independence of the FED is relatively low, given the existing appointing procedures. The appointment procedures can be considered the ultimate source of a series of episodes of political accommodation (Boettke and Smith 2013).

Table 1.1: GMT Political Independence (1972-2010)

Countries	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	Pol. Indep.
1972									
Australia		*					*		2
Canada	*	*					*		3
France		*			*				2
Germany		*		*	*	*	*	*	6
Italy	*	*	*		*				4
Japan							*		1
New Zealand									0
Switzerland		*			*	*	*	*	5
United Kingdom					*				1
United States				*	*	*	*	*	5
2010									
Australia		*					*		2
Canada	*	*					*		3
France	*	*	*	*	*	*	*	*	8
Germany	*	*	*	*	*	*	*	*	8
Italy	*	*	*	*	*	*	*	*	8
Japan							*		1
New Zealand					*		*		2
Switzerland		*		*	*	*	*	*	6
United Kingdom					*		*	*	3
United States				*	*	*	*	*	5

Note: (1) governor appointed without government involvement; (2) governor appointed for more than five years; (3) CB board (CBB) appointed without government involvement; (4) CBB appointed for more than five years; (5) no mandatory participation of government representatives in the CBB; (6) no government approval is required for formulation of monetary policy; (7) CB legally obliged to pursue monetary stability as one of its primary objectives; and (8) legal protections that strengthen the CB's position in the event of a conflict with government.
Source: National legislation.

Regarding the economic independence (Table 2) the FED obtains a high score, which is not however the maximum one, taking into account its sensible involvement in banking supervision.

Source: Romelli 2015

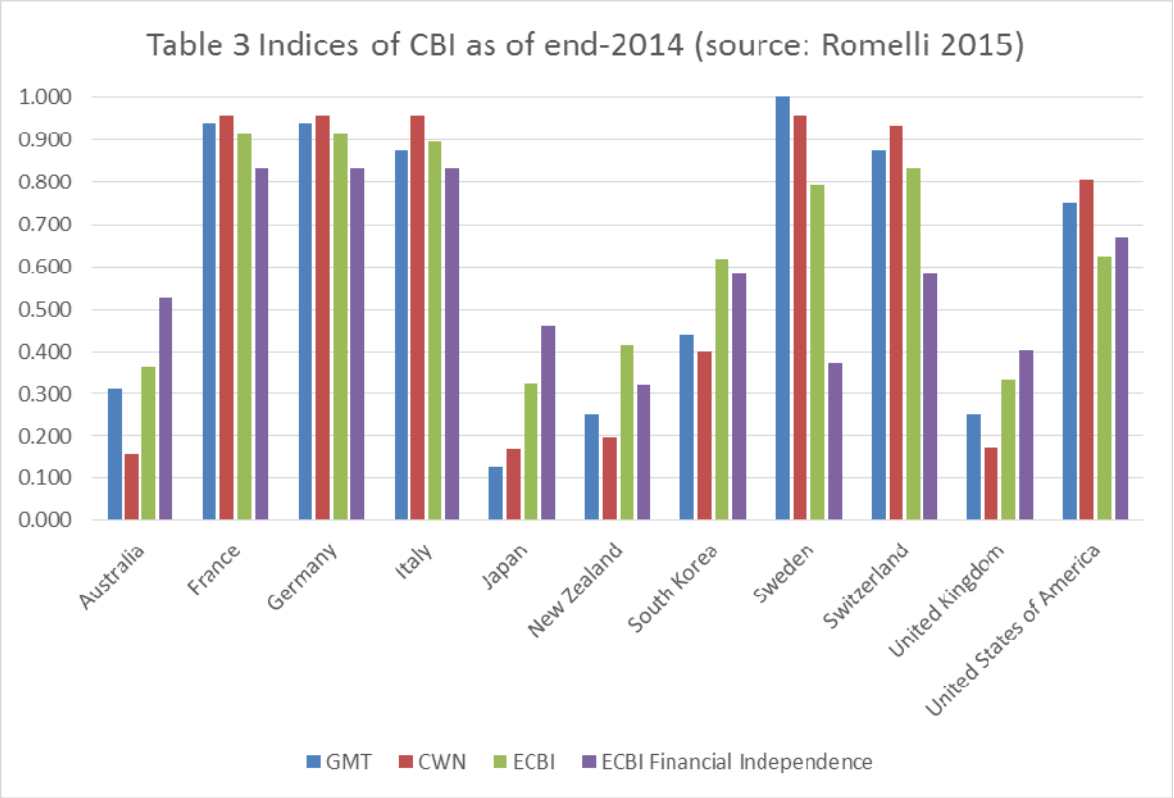
Table 1.2: GMT Economic Independence (1972-2010)

Countries	(1)	(2)	(3)	(4)	(5)	(6)	(7)	Econ. Indep.
				1972				
Australia	*	*	*	*		*		5
Canada	*	*	*	*		*	**	7
France				*	*	*	*	4
Germany	*	*	*	*	*	*	*	7
Italy				*				1
Japan	*		*			*	*	4
New Zealand			*	*		*		3
Switzerland		*	*	*	*	*	**	7
United Kingdom	*	*	*	*		*		5
United States	*	*	*	*	*	*	*	7
				2010				
Australia	*	*	*	*		*	**	7
Canada	*	*	*	*		*	**	7
France	*	*	*	*	*		*	6
Germany	*	*	*	*	*		*	6
Italy	*	*	*	*	*			5
Japan	*		*			*	**	5
New Zealand		*	*	*	*	*		5
Switzerland	*	*	*	*	*	*	**	8
United Kingdom	*	*	*	*	*	*	**	8
United States	*	*	*	*	*	*	*	7

Note: (1) no automatic procedure for government to obtain direct credit from CB; (2) when available, credit is extended to government at market interest rates; (3) credit is temporary; (4) and for limited amount; (5) CB does not participate in primary market for public debt; (6) CB responsible for setting policy rate; and (7) CB has no responsibility to oversee banking sector (two points) or shares responsibility with other institutions (one point).
Source: National legislation.

Source: Romelli 2015

The evaluation of the FED independence is confirmed updating different indexes of CBI using 2014 data Table 3:



Finally, the independence of a central bank will depend also on its autonomy in governing the budget. The intuition is simple: the financial strength is a necessary condition to avoid that the risks of MPP are channelled through the financial and accounting rules concerning the central bank budget. The evaluation of the FED financial CBI will can be implemented using the ECBI Index (Romelli 2015, Masciandaro and Romelli 2016).

The ECBI Index evaluates three sets of rules - i) the conditions for capitalization and recapitalization (provisions *a, b* below), ii) the determination of the central bank budget (provisions c,e,f,g,h) and iii) the arrangements for profit distribution and loss coverage (provisions d,i,j,k,l) – evaluating twelve different procedures. The level of financial CBI will increase if (in branches the rationale, as well as the US situation):

a) The central bank statute describes precisely the provisions relating to the payment of the initial capital (less political discretion means less MPP risks; US case=YES)

b) The central bank statute quantify precisely the authorized capital of the central bank (less political discretion means less MPP risks; US case=NO)

c) The central bank financial autonomy is explicitly mentioned in the legislation (less political discretion means less MPP risks; US case=NO)

d) The recapitalization is automatic, i.e. capital contribution is allowed upon the central bank request (less political discretion means less MPP risks; US case=NO)

e) Any transfer of money from the Treasury to the central bank needs an explicit legislative act (less political discretion means less MPP risks; US case=YES)

f) The central bank has the exclusive right to determine and approve its annual budget (less political discretion means less MPP risks; US case=YES)

g) The adoption of the central bank annual balance sheet belongs exclusively to the central bank governing bodies (less political discretion means less MPP risks; US case=YES)

h) The accounts of the central bank are subject to the control of a state agency of auditing (more accountability means less MPP risks; US case=NO)

i) The law/central bank statute disciplines the allocation of the net profits of the central bank (less political discretion means less MPP risks; US case=YES)

j) The central bank has the exclusive right to determine the allocation of profits to the general reserves (less political discretion means less MPP risks; US case=YES)

k) It is banned the possibility that the shareholders can receive partial payments before the end of the fiscal year (less political discretion means less MPP risks; US case=YES)

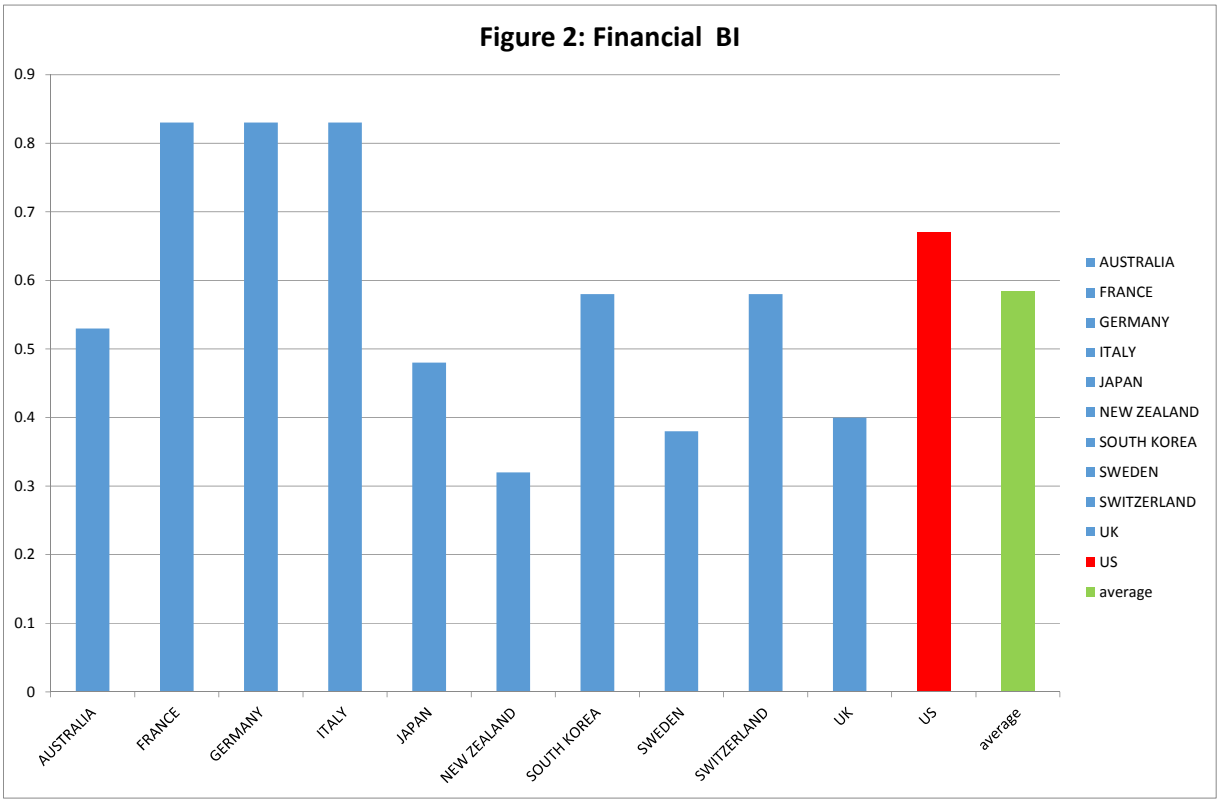
l) It is banned the possibility that unrealized profits can be included in the calculation of distributable profits (less political discretion means less MPP risks; US case=YES)

Given the twelve indicators, the level of the FED financial CBI in 2014 is equal to 0.67 (eight provisions on twelve increase the financial CBI). Regarding the capitalization rules, the weakest feature seems to be the absence of automatic recapitalization: if the

function of the central bank capital is to be the ultimate loss absorber, automatic procedures of recapitalization are the best shield against the risks of MPP.

In general, if the legal procedures just specify that the government may provide – but it is not obliged – guarantees with regard to the loss coverage, the financial CBI is lower.

In the sample of advanced countries already used the distribution of the financial CBI is as follows (Figure 2):



All in all the FED financial CBI is above the bar (average: 0.58). Finally It is worth remembering that the Fact Act, which was enacted on December 4th , 2015 required that the FED capital surplus not exceed $ 10 billion. Such as provision, other things being equal, reduces the FED financial CBI.

c. Does the United States' banking system demand different structural elements to maintain central bank independence? If so, please describe those elements.

ANSWER: In the CBI literature in general the central bank involvement in banking supervision increases the risks of MPP, reducing the level of independence. This is even more true in the case of the US, where the private banks are the central bank owners and the degree of financial CBI isn't the maximum one. However the separation between FED governance and owners minimizes the risks of MMP

MOTIVATION: The CBI theory suggests that the cons in housing the micro supervision responsibility inside the central bank are greater than the pros. The arguments can be summarized as follows (Masciandaro and Quintyn 2015).

Historically, the functions of monetary policy and lending of last resort have been assigned to the central bank. Banking supervision – to the extent that there was such a function – was either housed in the central bank or in a separate institution, with countries having a hybrid situation.

The separation of these policy fields led very quickly to the critical question as to whether their combination in one institution could lead to conflicts of interest. Theoretically, the central bank involvement is pursuing banking goals can be evaluated under two different aspects: macro-supervision and micro-supervision.

Nowadays the central bank is generally considered the sole monetary authority, i.e. the agent designated by society to manage liquidity in order to pursue monetary policy goals. By being suppliers of liquidity and lenders of last resort, central banks are naturally involved in preventing and managing systemic banking crises (macro-supervision) – in either advanced, emerging or developing economies – eventually in close coordination with other public agencies entrusted with responsibility for financial stability.

But should central banks also be in charge of pursuing banking stability through prudential oversight of individual banks, i.e. micro-supervision? The question is a long standing one. It was where the actual discussion started, long before the formal distinction between macro- and micro-supervision was introduced.

On one side, micro-supervision is a task that historically was not always assigned to central bankers. Furthermore the last two decades were characterized by a decrease in the

central bank involvement in supervision. On the other side, in previous decades several central banks had been actively and deeply involved in pursuing tight structural control, considered part and parcel of the overall responsibility of the central bank for the management of liquidity.

Going beyond historical cyclical, patterns and focusing on the economics of the relationship between monetary and supervision policies, it is possible to disentangle the pros (*integration view*) and cons (*separation view*) of having monetary and supervisory functions under one roof and drawn the consequences in terms of CBI.

The justification for the central bank's involvement in supervision (*integration view*) is usually supported by arguments pertaining to the informational advantages and economies of scale that derive from bringing all functions under the umbrella of the authority in charge of managing liquidity. One additional argument is that the human capital employed by central banks is presumably better equipped to manage supervisory issues. Having access to all information would help central banks, which possess higher skills, to act as more effective supervisors. In other words, setting up a supervisory authority different from the central bank is not considered efficient, i.e. the central bank involvement in supervision brings potential gains to monetary control.

At the same time, however the economic literature acknowledges that central bankers involved in supervision can produce greater policy failure costs (*separation view*), i.e. limited central bank involvement is better if the aim is to reduce the risks of monetary politicization. It is important to highlight that the risk of policy failure is endogenous with respect to the distribution of power: it exists only if the supervisor is the central bank, acting as liquidity manager. The risk of policy failure can be variously motivated, shedding light on the various sources of the risk of policy failure.

First of all, if the supervisor can discretionally manage liquidity, the risk of moral hazard (and therefore forbearance) in supervised banks can increase: regulated firms know that their supervisor can bail them out (*moral hazard risk*). If the supervisor were different from the liquidity manager, this source of moral hazard would not exist. More moral hazard is likely to increase the likelihood of banking bail-outs, that consequently augments the probability of political pressures for monetization.

Secondly, discretionary action by the central bank can increase uncertainty in supervised markets, as the on-again/off-again rescues of financial firms in the US during the Great Crisis have demonstrated (*uncertainty risk*). If the supervisor is also the liquidity manager greater moral hazard and greater uncertainty are likely to emerge. One more source of monetization risk can arise.

Thirdly, it has been said that monetary policy responsibilities can negatively affect the central bank's behaviour as supervisor, given the existence of reputational risk, as well as conflict of interest between monetary policy and supervision management (*distorted incentives risk*). Distortions in incentives can trigger the chain from bailout to monetization.

Fourthly, the central banker can use his/her powers in liquidity management to please its banking constituency, rather than pursue social welfare. In this respect, the central bank can be the most dangerous case of a supervisor being captured by those being supervised, i.e. banks, given that the banking industry may be more inclined to capture supervisors which are powerful, because a captured authority with additional powers yields more possibilities that benefit the banking constituency (*capture risk*).

Finally, conjoining banking supervision and monetary policy in the hands of the central bank can create an overly powerful bureaucracy, with related risk of misconduct, thus raising fears of "democratic deficit" (*bureaucratic overpower risk*). Both the capture risk and the too powerful bureaucracy are likely to be associated with the monetary politicization risk.

Again, it is worth mentioning that also in the specific history of the FED can be registered potential cases of capture and bureaucratic overpower risk (Boettke and Smith 2013).

All in all the standard CBI theory associates the central bank involvement in supervision with higher risks of MPP. In the US the assumption is potentially even more true, given that formally the private banks are the central bank owners and the degree of financial CBI isn't the maximum one. It is a matter of fact that the President of the regional banks have ties to the member banks they regulate (Conti Brown 2015b).

Focusing on the capitalization rules, the absence of automatic provisions weakest the FED position, increasing the possibility of pressures that the policymaker can exert. The more is likely that the politicians can be captured by the banks the more will be true that the central bank position in the relationships with its owner will be weaker. However the separation between FED governance and owners minimizes the risks of MMP.

d. How, if at all, does the Federal Reserve's role as banking supervisor affect its independence?

ANSWER: SEE ABOVE ANSWER QUESTION 2.C

MOTIVATION: SEE ABOVE MOTIVATION QUESTION 2.C. Further from an overall evaluation of the 2010 Dodd Frank Act it can be claimed that such as bill increases the powers of the FED along the dimensions relating to the supervision (Shull 2012, Conti – Brown and Johnson 2013, Mueller 2014), confirming the deep FED involvement in supervision, which, other things being equal, reduce the economic CBI.

4. Reforming the FED capital stock purchases

3) Please describe how the independence of the Federal Reserve might be affected if:

a. Federal Reserve stock purchases were voluntary for all commercial banks (that is, Federal Reserve membership would be secured through means other than stock purchase, such as submitting an application and paying a fee; however, Reserve Bank stock would remain available for purchase).

ANSWER: Using as rule of thumb the general aim of CBI – i.e. avoid MPP risks - and other things being equal, the change of the stock purchase mechanism from compulsory to voluntary is likely to reduce the role of the FED capital as buffer again losses and consequently to decrease the financial independence of the FED

MOTIVATION

The central bank ownership *per se* has deserved rare attention in the economic literature before the Crisis (Stella and Lonnberg 2008, Bunea et al. 2016). It has been claimed (Frisell et al. 2008) that public ownership is more consistent with the role of the central bank as public agency, without a profit maximization goal.

The rationale is straightforward: the efficiency gains in having private ownership stems from linking incentives to residual claims on profits; but without a profit maximization aim the opportunity of private shareholders disappears. It is a matter of fact that the most common type of central bank ownership is the complete

control by the national government (Figure 3) (Frisell et al. 2008, Budea et al 2016).

The pie chart illustrates to what extent the shares of central banks are owned by the government, by the private sector, by a combination of these or if some other ownership form applies. [Source: Frisell Roszbach Spagnolo, N=47]

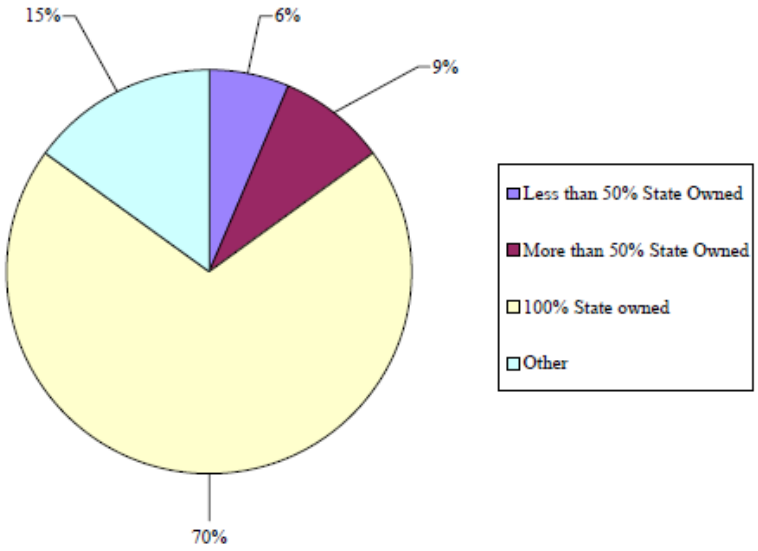


Figure 3: The Ownership of Central Banks (source: Frisell et al. 2008)

Notable exceptions to the rule of complete public ownership - i.e. situation of private shareholding in central banks - are considered the cases of the Bank of Italy and the FED – where financial institutions own the respective central banks – as well as the case of the National Bank of Belgium, the Reserve Bank of South Africa, the Swiss National Bank, the Bank of Japan and the Bank of Greece – where share of non- government entities are traded in public stock exchanges. Finally also the Turkish central bank has non – government shareholders.

The eight privately owned (PRO) central banks can be considered entities with an institutional public-private nature (Mueller 2014) and from a strictly economic point of view can be classified taking into account two features: a) if the government is a shareholders; if the shares are traded in public stock exchanges (Table 4):

Table 4: Central Bank Ownership: Government Shareholding and Share Public Trading

	Central Bank Share Publicly Traded = YES	Central Bank Share Publicly Traded = NO
Government shareholding = YES	Belgium (50%) (Euronext Bruxelles), Japan (55%) (OTC)	Turkey
Government shareholding= NO	Greece, South Africa (OTC), Switzerland	Italy, US

Source: Author's elaboration

The eight PRO central banks show relevant differences respect of: a) government shareholding, b) persons and entities eligible for shareholding and c) in the dividends paid by central banks (Rossouw and Breytenbach 2011, Downie 2016).

Before the Crisis the few descriptions of the central bank ownership in advanced economies were in general not associated with the CBI issues. The neglect of such issue may be attributed to several factors (Stella and Lonnberg 2008). However the more general explanation is relatively simple: in normal times – i.e. during the Great Moderation – the central bank activities produced always profits and consequently the rules regarding the central bank balance sheet as well as its capital – central bank finance - were considered completely irrelevant respect to the definition of the monetary policy decisions, as well as the possibility of MPP risks.

But then after the Crisis a natural question arose: does exist any link between CBI and CB finance? The answer was positive; the financial CBI was borne.

To highlight the emerging importance of the financial CBI - and zooming at the same time on the US case - a natural approach is to briefly discuss the evolution of the relationships between the FED balance sheet (Stella 2009) and its financial CBI.

A useful starting point can be the 1951, when the US Treasury – FED Accord was reached, ending the FED commitment to peg the interest rates on US debt. The Accord increased the level of economic CBI (Moe 2014). At the same time the exemption of the prohibition for the FED to directly purchase short term Treasury securities expired in 1981 (Garbade 2014, Humpage 2014). The provision further increased the economic CBI.

It is worth briefly remembering the FED ownership. The FED is composed of twelve regional banks and the FED Board. Each regional bank is a separate legal entity whose stocks are fully owned by the member private banks in its region. Each regional bank pays a 6% annual dividend to its owners on their paid- in capital stock. It is interesting to compare the dividends rules among the eight privately owned central banks (Table 5). The comparative analysis shows that: 1) each PRO central has its own peculiar dividend policy; 2) in four cases on eight the statutes give the possibility to pay more than one basic dividend; 3) the FED seems to be among the more conservative PRO central banks.

Table 5: Central Banks and Dividends

	Belgium	Greece	Italy	Japan	South Africa	Switzerland	Turkey	US
Dividend Payment FD= 1st Dividend SD = 2nd Dividend 3D = 3rd Dividend	Dividend Policy= stable annual dividend > inflation rate FD=6% of share nominal value. SD= calculated as 0.5 of the net profit from the assets portfolio	Dividend Policy= total dividends should never exceed 12% of profit FD= 12% of share nominal value. SD= can be discretionally determined by the Bank Board, provided that reserves equal capital	Dividend Policy =after allocation to reserves of up to 20% of profits FD= 6% of share nominal value.	FD=5% of paid-up capital	FD=10% of share issue value	FD=6% of the share capital	FD=6% of share nominal value. SD= max 6% is annually determined by the Bank General Meeting	Dividend Policy =after allocation to reserves of 20% of profits FD=6% on stock holding SD=can be determined by the Bank Board, up to 6% on stock holding

Sources: Author's Elaboration on Rossouw and Breytenbach 2011, Downie 2016, Budea et al. 2016.

Further each regional bank is required to maintain a so called surplus account equivalent to paid in capital. The profits in excess of what is required to pay dividends and maintain the surplus account have to be transferred in full to the US Treasury on a weekly basis (accounting rubric: "interest on FED (bank)notes") (Stella 2009).

The evolution of the regional bank capital depends on a well-defined FED capital policy: private member banks are required to purchase stock in an amount proportional to their capital and surplus. More precisely, the member banks are required to subscribe FED stock in a amount equal to 3% of their own capital and surplus and cannot sell or trade their stock or use the stock as collateral for borrowing (Bonea et al. 2016). In other word the growth of the FED capital is associated with the capital growth of the member banks.

Up to the Crisis the FED activities produced profits year by year, since 1916 and including the Great Depression (Stella 2009); an index could be its return on capital (Figure 4). Consequently and not surprising also the rules regarding specifically the FED capital didn't deserve relevant attention in the economic literature. It has been claimed that " FED capital has become somewhat like the human appendix, an organ whose function is no longer understood" (Stella 2009).

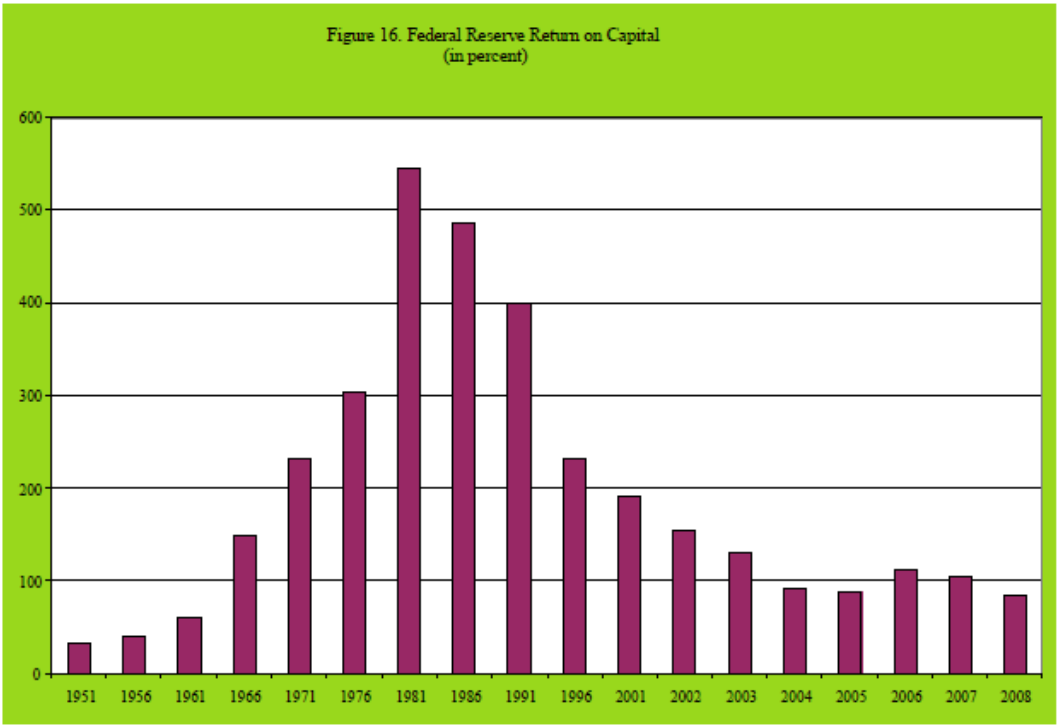


Figure 4: FED return on capital (source: Stella 2009)

But then the Crisis came. In order to support the functioning of financial markets and stimulate the growth of the real and nominal variable the started a massive expansionary monetary policy, which impacted massively on both the dimension and the nature of its assets and consequently on their risk profile. The FED expanded both its list of eligible collateral and eligible counterparties, providing monetary financing against illiquid collateral; the composition of the FED balance sheet has radically changed. The quality of the FED balance sheet sharply decreases in terms of credit quality and liquidity.

At least theoretically it is possible to claim that the probability of having the FED as a loss making central bank became different from zero. In fact in normal times the FED make automatically profits any year, given the systematic spread between its main conventional liability – banknotes – and its main conventional asset – risk free Treasury liabilities and therefore its loss probability is zero. The less the times are normal, the more the losses become possible.

At the same time it is worth remembering that the FED economic CBI increased, taking into account the fact that in 2008 the legislative passage of the Troubled Asset Relief Program (TARP) the FED was allowed to pay interest on banking reserves.

The changes in level and composition of the FED balance sheet can potentially impact the central bank financial strength; possible losses can occur and the FED have to address and fix such as problems. The regional FED banks can absorb losses from earning, reserves and capital. Within each year time, given the earning flow and the existing stock of reserves, the FED capital becomes the ultimate buffer against losses.

Therefore it is easy to highlight which could be the consequences in reforming the FED rules in terms of capital injection rules. With voluntary stock purchases for member banks the shortcomings in having discretion rather than an automatic rule is evident: the FED would be less financially independent, therefore the risks of capture would be higher and consequently the risks of MMP.

Needless to say that other kinds of rules could strengthen the FED financial independence. For example the level of the present compulsory stock purchases for member banks could be function of the effective/potential risk profile of the FED balance sheets, i.e. in line with the effective/potential central bank losses. In such as institutional setting the FED financial independence would be higher, given that the buffer would be not only compulsory but also inversely associated with the financial weakness of the central bank, and at the same time independent from the fluctuations in the capital of the member banks.

Finally, it is worth remembering that it has been argued that the opportunity to reconsider the FED decentralization model toward a unified public entity can justified

using more general arguments, taking into account the evolution of the activities of the Reserve Banks from the 20th century to the 21st century (Conti Brown 2016, Kocherlakota 2016).

b. Federal Reserve stock was permanently retired.

ANSWER: Applying the same reasoning of the previous question and being the FED capital the ultimate buffer against losses, other things being equal, the capital retirement *per se* would reduce the FED financial independence

MOTIVATION: SEE ABOVE MOTIVATION QUESTION 3.a

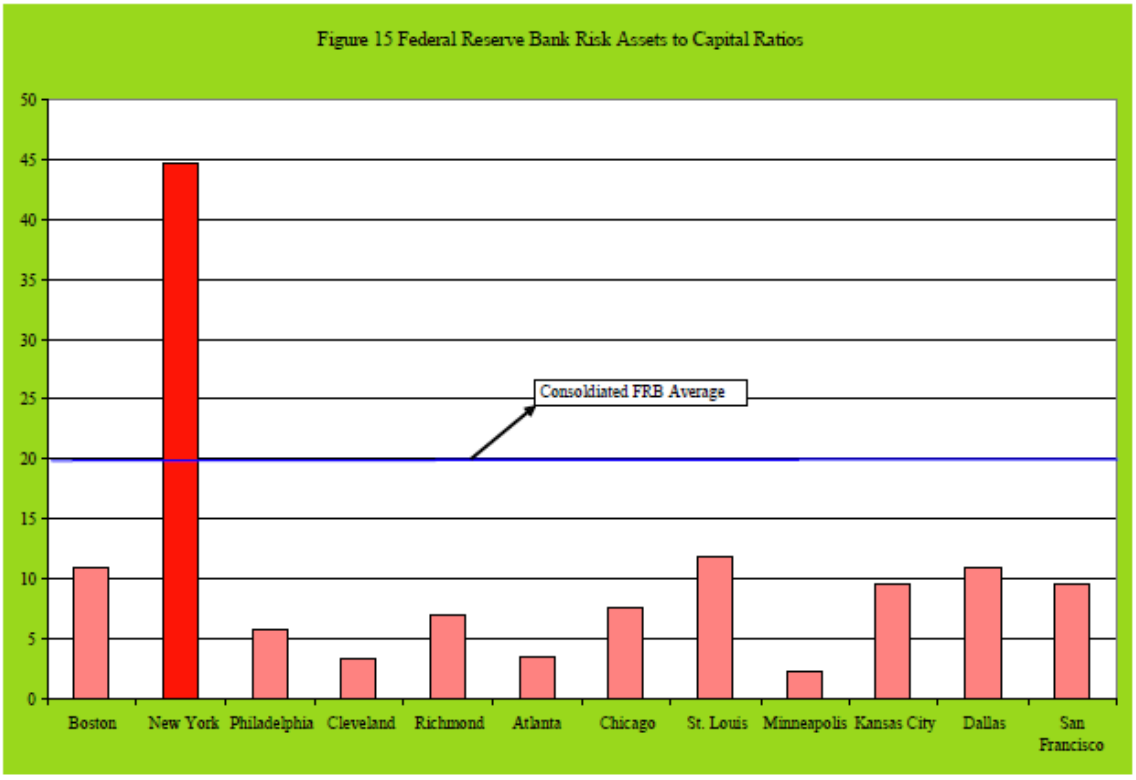
c. Federal Reserve Banks became field offices for the Board and therefore were not separate corporate entities.

ANSWER: If we assume that in case of losses the regional banks would act collectively and systematically in a mutually supportive way, having separate corporate entities doesn't matter in terms of FED financial independence

The above assumption could be strengthened introducing an explicit legal provision

MOTIVATION: Given the role of central bank capital as ultimate loss absorber and the fact that the various regional banks can show relevant differences in terms of risk exposures and available capital – see for example Figure 5 – it is necessary to assume that in case of need the regional banks will always act collectively in a mutually supportive way to claim that having separate corporate entities doesn't matter in influence the FED financial independence.

Figure 5: Regional Banks, Risky Assets and Capital (Source: Stella 2009)



Source: FRB release H.4.1 Table 10 (April 29, 2009) and author's calculations.

Perhaps it should be the case to strengthen the above assumption introducing an explicit legal provision.

In any case it is worth remembering that for the FED it is true what it is true for every central bank: the government and therefore the taxpayers are the ultimate and exclusively guarantor of the central bank solvency.

4) Please provide a few examples of independent central banks that do not issue stock.

a. In these central banks, what are the mechanisms used in place of central bank stock to maintain independence?

ANSWER: To maintain independence without using stock issuing, a "one size fits all" model doesn't exit.

The crucial rules are the procedures on profit distribution and reserve allocation. Other things being equal, the financial CBI will be higher the higher will be the autonomy of the central in determining the profit distribution and the reserve allocation. When value or percentage are defined in the legal setting, the financial CBI will be higher the lower is the value/percentage of the current net profit that have to be distributed and the higher the value/percentage of such as net profit that have to be allocated to reserves.

MOTIVATION: Given the provisions relating to the payment of the initial capital, the profit distribution rules lead to the creation of reserves in order to absorb prima facie potential losses. Profit distribution (earnings) and reserves represent the first loss absorbers, being the capital the ultimate one.

Therefore in each institutional setting the relevance of the stock issuing procedures will be inversely associated with the effectiveness of the two first loss buffers. Weaker profit distribution and reserve rules will increase the likelihood of capital depletion. On this respect, for example, provisions as the abovementioned Fast Act in the US goes exactly in the opposite direction.

Other things being equal, the financial CBI will be higher the higher will be the autonomy of the central in determining the profit distribution and the reserve allocation. When value or percentage are defined in the legal setting, the financial CBI will be higher the lower is the value/percentage of the current net profit that have to be distributed and the higher the value/percentage of such as net profit that have to be allocated to reserves.

Finally the capital depletion can be mitigated or fixed before to implement a recapitalization offsetting carried losses against future profits. Using the future payments the central bank makes to its owners can be viewed as a mechanism through which the central bank shareholders can *de facto* inject capital into the central bank (Buiter 2008).

The three options to avoid explicit recapitalization - reallocation of present profit distribution, creation of reserve buffers, use of future profits – are not mutually exclusive and can be used in combination, as well as in sequence (Bunea et al. 2016). Therefore a “one size fits all” model doesn’t exit.

b. How are these central banking systems structured (e.g. centralized/decentralized, bifurcated, private/public)?

5) ANSWER: SEE ABOVE ANSWER QUESTION 4.A

6) MOTIVATION: SEE ABOVE MOTIVATION QUESTION 4.A

5.Conclusion

Is there any association between the FED capital and its degree of independence? These short notes addressed the issue, using a Q&A exposition and taking the occasion the fact that the U.S. Government Accountability Office (GAO), has been asked by members of the Congress to study the implications of a recent dividend rate change for Federal Reserve Bank stock and the implications of modifying or eliminating the existing requirement that all member banks purchase stock issued by their respective Federal Reserve Bank.

To First of all, it has been pointed out that the primary goal of CBI is to avoid the monetary policy politicization (MPP) - i.e. that the money supply management can be inefficiently used by the incumbent government, which is structurally affected by short term biases. This aim can be considered valid before and after the Great Crisis that started in 2007-2008 and it can be used to evaluate all the relationships between the central bank, the policymakers and the banks, including the financial ones.

Secondly and consequently the FED independence has been evaluated. In the sample of the advanced economies, the FED is a relatively independent central bank; the weaker aspects can be considered the appointment procedures - which reduce the so called political independence - and the deep involvement in banking supervision - which negatively hits the so called economic independence. Regarding the financial CBI, the FED situation is above the bar, and specifically zooming on the capitalization rules, the weakest feature seems to be the absence of automatic recapitalization.

Thirdly it has been highlighted that, using as rule of thumb the general aim of CBI – i.e. avoid MPP risks - and other things being equal, the change of the stock purchase mechanism from compulsory to voluntary is likely to reduce the role of the FED capital as buffer again losses and consequently to decrease the financial independence of the FED.

At the same time however it is has been stressed that it is possible to maintain independence without using stock issuing, taking into account the fact that an institutional “one size fits all” model doesn’t exit.

In fact the crucial rules are the procedures on profit distribution and reserve allocation. Other things being equal, the financial CBI will be higher the higher will be the autonomy of the central in determining the profit distribution and the reserve allocation. When value or

percentage are defined in the legal setting, the financial CBI will be higher the lower is the value/percentage of the current net profit that have to be distributed and the higher the value/percentage of such as net profit that have to be allocated to reserves.

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