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PRUDENTIAL REGULATION AND SUPERVISION INSTRUMENTS AND AIMS: A GENERAL FRAMEWORK

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The aim of the present note is to outline a general, but at the same time comprehensive, framework of the array of instruments that regulators can use in their activity of prudential regulation and supervision. Such a framework should be applicable to a variety of geographical and historical contexts and should aid cross-country and temporal comparisons concerning regulation activity. It is an extension and a reorganization of White's (2009) categorization, which in turn is built on Mishkin's (2001) work. The novelty of the resulting framework is a clear distinction between the tools, the aims and the institutional setting of prudential regulation.
JEL: G18, G28, G38

1 A first classification of regulatory and supervisory instruments: Mishkin and White

Both Mishkin (2001) and White (2009) argue that banks play a key role in financial markets, in that, by reducing both moral hazard and adverse selection problems via their information-collection ability, they are able to channel funds towards highly productive investments, thus in turn stimulating economic growth. Banks' presence in markets, however, creates a new type of asymmetric information due to the fact that depositors are not able to adequately monitor bank managers' actions. Bank regulation is therefore justified, since it mitigates the depositors' informational problem.

Mishkin (2001: 8) lists nine basic forms of prudential supervision of banks:

(a) restrictions on asset holdings and activities;
(b) separation of the banking and other financial service industries;
(c) restrictions on competition;
(d) capital requirements;
(e) risk-based deposit insurance premia;
(f) disclosure requirements;
(g) bank chartering;
(h) bank examination;
(i) a supervisory versus regulatory approach.

In particular,

(a) Restrictions on asset holdings and activities deter banks from incurring in excessive risk-taking by limiting the type of assets the banks can hold and by restraining banks from engaging in risky non-core business activities.

(b) The separation of industries is designed to prevent the Government's safety net to be extended to other activities as well as banking.

(c) Restrictions on competition are useful in that, by sustaining the profitability of banks which may be heavily reduced in a competitive market, risk-taking to maintain former profit levels

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is discouraged. Such restrictions include the previously mentioned separation of industries, restrictions on entry of foreign banks, restrictions on branching, and ceilings on rates charged on loans or on deposits.

(d) Capital requirements increase the amount of capital held by banks, thus creating a larger loss in case of bank failure, in turn deterring banks from excessive risk-taking.

(e) Deposit insurance can increase the moral hazard problem, since banks are guaranteed a safety net and may thus be tempted to take on excessive risk. By appropriately pricing the premia to reflect the risks undertaken, the moral hazard problem may be reduced.

(f) Disclosure requirements make depositors and the marketplace more aware of the banks' conduct, thus enhancing market discipline, by setting accounting rules and requiring disclosure of specific information.

(g) Bank chartering implies an ex ante screening of the agents planning to run banks.

(h) Bank examination conducted by regulators allows the latter to verify the compliance of banks to the existing regulation and to take enforcement actions in the case of non compliance.

(i) As opposed to the "regulatory approach" of regulators, who simply ascertain the respect of regulatory rules, Mishkin defines the "supervisory approach" as a shift of the regulators' action to the monitoring of the soundness of bank managements' practices with regard to controlling risk.

White (2009: 2) too identifies nine basic forms of policy interventions to deal with asymmetric information problems. These are:

(a) controls on entry;
(b) capital requirements;
(c) limits on economies of scale;
(d) limits on economies of scope and diversification;
(e) limits on pricing;
(f) liability insurance;
(g) disclosure requirements;
(h) bank examination;
(i) bank supervision and enforcement.

The first two points are, respectively, point (g) and point (d) of Mishkin's list. Limits on economies of scale include restrictions on branching and on horizontal mergers, which Mishkin had included in the more general policy of "restrictions on competition" (point (c)). Limits on economies of scope and diversification constrain banks' portfolio choices or the types of activities they undertake, and thus reflect Mishkin's points (a) and (b). Limits on pricing take the form of usury laws and other interest rates restrictions, introduced to increase consumer protection. Mishkin had again included this type of intervention under "restrictions on competition". Liability insurance corresponds to Mishkin's point (e), whilst disclosure requirements retraces his point (f). Bank examinations provide regulatory auditing and contribute to the previously mentioned "regulatory approach", whilst bank supervision and enforcement support the "supervisory approach" in that they imply an assessment of management's exposure to risk.

The following Table recaps and compares Mishkin and White's classifications.

Table 1. Nine forms of prudential supervision

Mishkin	White
(a) Restrictions on asset holdings and activities	(d) Limits on economies of scope and diversification
(b) Separation of banking and other financial service industries	(d) Limits on economies of scope and diversification
(c) Restrictions on competition	(c) Limits on economies of scale/ (e) Limits on pricing
(d) Capital requirements	(b) Capital requirements
(e) Risk-based deposit insurance premium	(f) Liability insurance
(f) Disclosure requirements	(g) Disclosure requirements
(g) Bank chartering	(a) Controls on entry
(h) Bank examination	(h) Bank examination
(i) Supervisory approach	(i) Bank supervision and enforcement

Sources: Mishkin (2001) and White (2009).

2 A more general framework of regulatory and supervisory instruments

The idea here is to suggest a further categorization, in which we wish to clearly separate regulatory instruments from the objectives they were designed to achieve and from the effects they actually produced. The resulting framework can then be used to analyze the evolution over time of regulation in different countries.

Before classifying the regulatory instruments, a first and extremely important consideration must be made, especially when analyzing regulation in a historical and cross-country context. This concerns the institutional setting in which the regulation is embedded. Both the perimeter of regulation and the nature of the regulators, in fact, must be defined. This implies identifying the objects of regulation (banks, banking groups, financial intermediaries, etc.), which from here onwards we more simply call "regulated entities". It would also be appropriate to break up each general class of entities even further, in that regulation can differ according to the specific type of financial firm encountered. For example, the general category "banks" includes a wide variety of institutions, such as commercial banks, investment banks, mutual savings banks, cooperative banks, etc. The second specification suggested is the indication of who actually detains prudential regulation and supervision responsibility. The regulator may be the Central Bank or Government agencies or even a combination of several institutions.

After having taken into account this brief preamble, the analysis of the temporal evolution of regulation can be approached considering twelve possible regulatory instruments, which are here illustrated.

1. **Restrictions on entry and on dimensions.** These include controls on bank chartering, controls on entry of foreign banks, restrictions on branching, restrictions on mergers, etc.[2]

[2] The effects of these instruments are restrictions on competition and limits on economies of scale, which may imply serious disadvantages to consumers. However, these effects must be kept separate from the actual policy instruments and do not enter the classification at this stage.

2. Regulation on ownership and control. It is crucial to define who can actually own the various regulated entities. These may be completely State-owned, which implies that regulation loses some of its scope. In this case, in fact, the financial firms are directly run by the Government, which thus enjoys extensive control over the choice of projects to be financed and the risks to be undertaken.[3] The opposite extreme is attained when the regulated entities are entirely privately-owned. Possible owners are insurance companies, other banks, foundations, institutional investors, corporations, non financial firms etc. When ownership is mixed, an interesting indicator to take into account is the share of State property. There may also be limits on the number (or percentage) of shares owned by certain classes of shareholders, in order to refrain them from obtaining control of financial firms. Finally, regulation on ownership by foreign governments may also exist.

3. Restrictions and directions on activities and asset holdings. Regulation may explicitly allow or forbid regulated entities to undertake certain activities not directly included in their core business, or to hold specific assets in their portfolio. It is therefore interesting to verify if there are restrictions on permissible activities and if there is a required separation between banking and other financial services activities (e.g. securities underwriting and dealing, insurance or real estate).[4] The second issue concerns the types of assets that financial firms are allowed to possess. The maturity of these assets could also be a discriminating feature. Furthermore, risk diversification may be promoted by regulation, in that the amount of loans in particular categories or to individual borrowers could be limited. Finally, there may be restrictions on off-balance-sheet activities and on the risks that can be undertaken.

4. Price regulation. This includes the introduction of ceilings or floors on the rates charged on loans or on deposits.[5]

5. Capital and liability requirements. Capital requirements can take different forms, such as leverage ratios, capital ratios, risk-adjusted ratios, etc. Further provisions which address specific classes of risk (e.g credit risk) may also be required. Other two factors to consider are the percentage of obligatory reserves prescribed and the existence, or lack of, limits on dividend payments to shareholders. All these instruments, in fact, force regulated entities to create a capital buffer, which becomes available in times of financial hardship. They therefore allow financial firms to absorb losses, without having to resort to credit rationing. There may also be specific requirements concerning subordinated debt, that is to say bank debt which is junior to insured deposits and which is not insured by the government. Bankers who take on excessive risks will have difficulty in placing subordinated debt, since debt holders, in contrast to equity holders, do not share in the upside gains from risk-taking and thus are more conservative and vigilant.[6]

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[3] See La Porta et al (2002) for an in-depth study on government ownership of banks.

[4] The effect of these policy interventions may be, in White's terminology, limits on economies of scope and on diversification.

[5] An effect of this regulation is again a restriction on competition.

[6] The strong incentives that subordinated debt holders have to closely monitor bank managers, since their debt is paid off only after more senior claims have been paid, are one of the forms of market discipline, stressed, among others, by Calomiris (1999) and Calomiris and Powell (2001).

6. Deposit insurance. A deposit insurance may or may not be obligatory. It could be Government- or private-funded or managed. If the insurance is mandatory, the percentage of deposits it covers may vary, i.e. the insurance scheme can encompass different coverage limits. It may or may not include foreign currency or interbank deposits. Coinsurance may be established. Another crucial point is the way the premia are calculated, that is to say if they are fixed for all regulated entities of a certain type, or if they vary according to the amount of risks undertaken.[7]

7. Regulation on compensation and insurance schemes for managers and directors. Regulation can also impact on the remuneration of the regulated entities' managerial class, by offering guidelines or by specifying mandatory rules concerning the design and implementation of compensation plans. Managers and directors could receive fixed payments. Conversely, their salaries could be variable, in that they are linked to the performance of the institution they belong to or to particular financial instruments (e.g. stock options). How bonuses are computed, if they exist and are regulated, is also a crucial issue. However designed, compensation packages must be balanced and not create incentives towards excessive risk-taking, at the expense of the long-run health of the institution. Finally, managers may be allowed to be covered by insurance in case of damage claims, class actions etc, or such an insurance scheme may be forbidden in order to intensify their responsibility and accountability.

8. Accounting standards. Different accounting standards (historical cost, mark-to market, mark-to model, etc) can be prescribed to evaluate assets. A periodic reassessment of the value of assets may also be required.[8]

9. Disclosure to authorities and on-site examinations. Disclosure requirements define what information must be revealed to the regulatory authorities, in which form, and with what frequency. Disclosure may be general and refer to all risks undertaken (credit risk, market risk, market and funding liquidity risks, etc) or may be targeted and refer to specific exposures. On-site examinations may also be required and it is important to ascertain who conducts them and in what way. For instance, there may be announced or surprise inspections.

10. Disclosure to the public. Certain information may also be obligatorily included in reports offered to the public. Regulation can again dictate the form and frequency of these information flows, as well as their content. A different type of information disclosure is the obligatory publicity concerning interest rates, payment fees, and, more in general, the terms of contracts, offered to potential and actual clients of the regulated entities. Finally, supervisory entities can also require financial firms to obtain certified audits and/or ratings from internationally renowned rating agencies. It is therefore crucial to consider

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[7] Countries that credibly impose a “no deposit insurance” policy may stimulate market discipline.

[8] Both Mishkin and White include the definition of accounting standards within the category of disclosure requirements. We keep them separate because the setting of accounting rules is an instrument which is used at an even earlier stage with respect to information release. Disclosure is useful only if the information given is accurate and truthful. Accounting standards are, in fact, a key measuring instrument for profits (or losses), cash flows, the amount of value generated (or destroyed) by financial firms. They are the basis for exercising market discipline.

the role credit rating agencies are assigned in financial markets, the activities they may undertake, the type of information they are allowed to disclose, the frequency with which they must update their ratings, the way they are paid and by whom.[9]

11. Regulation on organization, risk management and corporate governance. Regulators often intervene with respect to the corporate structure of financial firms due to the "uniqueness" of their activity. Ex ante, managers and directors may be compelled to possess specific professional or other types of requirements. They could also be forbidden to detain other positions or appointments, considered to be incompatible with their role of managing financial firms. "Fit and proper" tests of key figures in financial institutions may thus be implemented. Ex post, the quality and soundness of the management's practices, especially with regard to risk-taking, may be periodically assessed. There could also be regulations on internal controls and on the use of external auditors.

12. Enforcement of the regulation. Regulators do not only assess the soundness of regulated entities, but must also promptly implement enforcement and disciplinary actions or sanctions when needed. The weapons regulators can use in case of lack of compliance are numerous and include: cease-and-desist orders; suspension of dividends; bonuses and fees; forced changes of the regulated entities' organizational structure; suspension/removal of directors and officials; revocation of charters; declaration of insolvency; etc.

3 An additional framework to consider: the purposes of regulation

As previously mentioned, the framework here outlined only refers to the instruments regulators possess and use in their activities of prudential regulation and supervision. It may be useful to attempt to classify the twelve categories of instruments listed according to the objectives they aim to attain.[10] It is immediately clear that policies which are grouped under the same heading may be employed for different purposes. It is, therefore, useful to superimpose a second framework, which identifies the aims of regulation, on the first. It is also noteworthy that some aims are actually in contrast with others.

Mishkin and White underline the need for regulation in order to reduce the asymmetric information problems which affect financial markets. We here adopt a broader view and roughly classify the macroeconomic and microeconomic goals regulation has had over time into six broad categories.

1. Crisis prevention/financial system stability. The singularity and importance of banking and financial intermediaries' activities, which include channelling funds from lenders to borrowers, warrant the need to avoid situations of financial distress. Crises must be prevented and financial stability guaranteed. In fact, disruptions in credit supply and in the smooth functioning of the payments

[9] The first and last policies, together with subordinated debt requirements, enhance market discipline. Publicity requirements, on the other hand, are an explicit way of increasing consumer protection.

[10] See Kroszner and Strahan (2001), among others, for a concise description of alternative approaches to justifying regulation.

system may have large and disastrous spillover effects to other sectors of the economy, thus originating more widespread downturns. Information disclosure requirements, instructions on financial firms' corporate governance, regulation enforcement, capital requirements are all instruments designed for this purpose.[11]

2. **Efficiency.** Regulation may be introduced to correct market failures, to ease market imperfections, such as asymmetric information problems and transaction costs, by coordinating the activities of many agents, and to manage public-good-type externalities in order to allow the efficient functioning of financial markets.[12] Mishkin and White consider all the regulatory instruments by them cited as having this function, among other purposes.

3. **Competition.** Regulation may be introduced to guarantee and/or heighten or restrain competitive conditions in financial markets.[13] Examples could be introducing/removing controls on entry, branching liberalizations/restrictions or deciding (not) to introduce price regulation. Even restrictions on activities, by limiting the creation of large financial conglomerates, affect competition.[14]

4. **Consumer/investor protection.** Some regulatory instruments are introduced primarily in order to defend the weakest part of the financial contract, that is to say the counterpart of the regulated entities. Information disclosure requirements to the public are an example, as are ceilings on loan rates.

5. **Financial firms' protection.** Regulatory rules can be introduced as a result of lobbying pressures, in order to favour certain types of financial firms, increasing their profits by, for instance, setting barriers on entry. Also, small banks may be supported, when considered the most suitable entities to offer credit to small firms. Another example is the introduction of a ceiling on deposit rates, which favours all incumbent banks.[15]

6. **Credit allocation.** A government can abet banks via regulation, often coupled by moral suasion, to lend to politically or socially attractive projects, sectors or firms, and to attain a desired credit allocation. An example of instruments used for this objective is directions on asset holdings.

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[11] In the case of a financial crisis actually occurring, emergency measures, such as recapitalizations and liquidity injections, and, more in general, lender of last resort facilities may be implemented. These instruments however concern crisis management procedures and are not part of prudential regulation.

[12] This purpose of regulation is at the basis of the "public interest theory" of regulation, according to which regulatory intervention occurs primarily to maximize social welfare.

[13] Some argue that effective screening of potential new bankers promote the soundness of the banking sector by minimizing the entry of low quality banks; others hold that monopolistic rents in banking are beneficial in that, by increasing the banks' franchise value, they reduce incentives to assume excessive risks. In contrast, limits on entry may protect inefficient banks and safeguard the interests of few against the forces of competition. Hence, greater competition may be good for efficiency, but bad for financial stability. However, the extent to which there is a negative trade-off between competition and financial stability may be questioned and the theoretical and empirical literature does not seem to be conclusive on the point. The stability effects of changes in competition policy and market structure are, in fact, extremely case and model-dependant, as shown in Carletti and Hartmann (2003) and in Allen and Gale (2004).

[14] Competition is also guaranteed by competition authorities, with which prudential regulators may interact. A further interesting issue to develop is the analysis of the relative roles of competition and regulatory authorities in different periods and in different countries, which here is not however discussed.

[15] This aim refers to the "private interest (or economic) theory" of regulation, according to which "compact, well-organized groups are able to use the coercive power of the state to capture rents for those groups at the expense of more dispersed groups" (Kroszner and Strahan 2001: 236).

4 Conclusions

The present note, building on Mishkin's and White's previous contributions, has attempted to create a general framework in which all types of instruments of prudential regulation and supervision, tied to specific institutional settings, can be placed and categorized. Furthermore, the aims of regulation have also been listed and classified. This second framework can be juxtaposed to the previous one. By applying the resulting “grid” to the history of regulation policies introduced in different countries, significant comparisons may be drawn concerning the choice of instruments adopted and the purposes with which they were used. The effects produced can also be an interesting object of comparison.

However, a further consideration, which here has not received any attention, is to be made. There may be a significant divergence between rules and actual practice of regulated entities, especially in the case of weak enforcement. Therefore, a comparison of rules only may not be as meaningful as anticipated. With this *caveat* in mind, we hope the general framework outlined here is a useful starting point for historical cross-country analyses of prudential regulation and supervision.

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