

# The Banking Regulatory Bubble and How to Get out of It

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*We claim that we currently live in a banking regulatory bubble. We review how: i) banking intermediation theory hinges on dealing with borrower-lender asymmetry of information; ii) instead, the presence of complete information is the keystone of the finance theory. Next, we document how finance theory prevailed over banking intermediation theory in shaping banking regulation: This appalling contradiction is the true culprit behind lower credit standards, mounting systemic risk in banking, and macroeconomic debt overhang. Consequently, we discuss actions that, by restoring the consistency of banking regulation with the theory of banking intermediation, would make banking sounder.*

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## 1. - Introduction

Banking was the character in the global financial crisis. We know by now that the subprime mortgages – from which the crisis originated in the US – were only a minor component of a much bigger obnoxious drift in banking. The bigger drift took the shape of excessive global credit supply and low lending standards, particularly in the industrialized world.

Much of that was the result of the transformation of the bank business model. The common feature of that transformation was that too many financial institutions, and certainly the large ones, moved from a model anchored to traditional intermediation – raising (retail) deposit liabilities to make loans that would stay with the bank till maturity – to a business model geared to financial market activities – e.g., through the securitization of loans and reliance on (wholesale) market funding. That transformation of the business model reshaped banking on a global scale and it is immaterial whether the transformation took on the form of separate shadow banks, as it did in the US, or, as it happened elsewhere, the change occurred inside the regulated bank entities. So, from a retail and relationship oriented way of doing business many banks moved to a different way emphasizing wholesale operations, as well as transactional and financial markets oriented banking.

The implication of the change in the bank business model is that now credit is not only excessive but it is also less informed. That is because, differently from the traditional one, the new bank business model severely weakened the incentives for the banks to engage in screening and monitoring (ECB, 2008). Accordingly, the current problem in the rich countries is not only the general need for deleveraging but, even more so, the tragedy that regulators fail to recognize the difference between informed and uninformed credit. In other words, while a loan generated under the new bank business model should be a “commodity”, a loan produced along the traditional bank business model is certainly not a commodity since attached to it are personalized screening and monitoring. Thus, imposing rules that do not contemplate the difference between informed and uninformed credit is a mistake. The immanent consequence is that the logic behind regulation seems unfit to sound banking.

With the benefit of hindsight, we can now identify that a “regulatory bubble” was created in recent decades whereby banking was subjugated to logics belonging to the theory of finance and disregarding the appropriate theory of banking intermediation. Understanding this is essential to bring banking back to safety,





something that requires getting out of that regulatory bubble. Taking this step is absolutely necessary to bestow banks the right incentives to perform appropriately their true mission.

In the rest of the paper, Section 2 offers a selected review of the literature to pinpoint how dealing with borrower-lender asymmetry of information is the true basis of the theory of banking intermediation. On the contrary, we stress that the presence of complete information is the keystone of the theory of finance (Section 3). Next, in Section 4, we document how the theory of finance prevailed over the theory of banking intermediation in shaping banking regulation and contend that the appalling contradiction is the true culprit behind lower credit standards, mounting systemic risk in banking, and macroeconomic debt overhang. Consequently, in Section 5 we discuss actions that, by restoring the consistency of banking regulation with the theory of banking intermediation, would make banking sounder. Finally, Section 6 recaps the main thrust of the paper and outlines the possible difficulties obstructing such course of action that, however, is needed to restore financial stability and, possibly, avoid further perturbation to the socio-economy throughout the world.

## **2. - Asymmetric Information and the Theory of Banking Intermediation**

In the seminal paper “What’s different about banks?” Fama (1985) explains the comparative advantage of banks *vis-à-vis* capital markets by the superior capability of banks to provide debt with private information. According to the theory of financial intermediation, banks specialize in information production and loan contract design to prevent credit rationing of borrowers, where asymmetric information prevails (Stiglitz, Weiss, 1981; Diamond, 1984; Ramakrishnan, Thakor, 1984; Holmström, Tirole, 1993). The existence of banks is explained by their role of delegated contracting and monitoring on behalf of individual investors (Diamond, 1984): If there is no intermediary and no monitoring, the best available contract between a borrower and lenders would be a debt contract which involves expected liquidation costs that are necessary to provide incentives for repayment. However, liquidation is potentially inefficient. A costly liquidation may be prevented if the lender can monitor the borrower’s business, but monitoring is costly, especially if duplicated. By delegating monitoring to an intermediary, duplicated monitoring can be prevented, but the intermediary’s information obtained from monitoring is private, i.e. not publicly observable. This private information causes





delegation costs, as the intermediary must be provided with incentives for delegated monitoring. If the delegated monitor issues unmonitored debt, which bears liquidation costs, the delegated monitor is a bank, which borrows from small investors, using unmonitored debt (deposits) to lend to borrowers (whose loans it monitors). While diversification is the technology that makes monitoring of deposit contracts unnecessary, monitoring of loan contracts is necessary (Diamond, 1984; 1996). To carry out its task properly, a bank must hold the loans it originates until maturity (“buy-and-hold”). If it instead anticipates selling these loans, its incentives to screen loan applicants, to design the loan contract properly and to monitor borrowers during the life of the loan will diminish (Pennacchi, 1988; Gorton, Pennacchi, 1995). If it sells the loans and transfers the monitoring and enforcement to a third party, the monitoring costs would be duplicated, costs of transferring ownership would arise and the bank’s private information would create adverse selection of which loan the bank chooses to sell (Diamond, 1984, page 410). Also, banks must diversify risks from monitored lending and avoid risks from unmonitored lending. «Unless a risk is intimately related to their monitoring task, banks should avoid risks that are not diversifiable unless the bank can remove the risk from its balance sheet through another (swap or futures) transaction» (Diamond, 1996, page 64). This theory predicts well-diversified banks holding illiquid loans and with a low probability of default, despite their high leverage via deposit financing. Yet, indivisibilities in the information production technology build benefits of specialization, limiting the scope for diversification.

A bank’s ability to reduce credit risk by monitoring is magnified if the bank uses a relationship-based lending technology, gathering soft information through direct and repeated contact with the same borrower. The benefits of relationship banking arise from lowering agency problems by long-term contracts and information reusability over time (Boot, 2000). Contrary to typically sales-related spot contracts, relationship lending creates relational long-term contracts, where the institutional arrangements for unforeseen events and conflicts during the life time of the contract are more important than the definitions and rules provided in the beginning when the contract is concluded (Bolton, Dewatripont, 2005, pages 3, 489; Nogler, Reifner, 2014, page 3). A loan made in traditional relationship-based bank business models is not a commodity, since attached to it are personalized screening and monitoring and the private information accumulated in this way represents specific knowledge. Thus, such informed credits are not standardized transactions in the spirit of Williamson (1985). During the bank–borrower relationship, many events may occur altering the bank’s cost of providing the





credit as well as the borrower's ability to pay back. Once the contract is signed, the borrower and the bank are trapped in a situation of bilateral monopoly. The value generated by the continuation of the relationship represents a quasi-rent which needs to be divided between both parties *ex post*. Relationship lending thus constitutes an implicit contract, from which the borrower and lender benefit. On one hand, the borrower may benefit from a reduction of the loan rate over time, if loan rates are conditioned on prior performance (Boot, Thakor, 1994). On the other hand, because of the private information gained by the relationship lender, the borrower is locked in the relationship, which may be used by the lender to hold-up the borrower and increase the loan rate over time (Rajan, 1992).<sup>1</sup> However, the relationship bank may subsidize the borrower at the beginning of the relationship and use the lock-in situation later only to recoup the losses from this subsidy (Sharpe, 1990; Von Thadden, 2004). Such long-term social contracts have a long tradition in law. Roman law was reluctant to apply the existing sales law model to long-term lending relationships, «where the factual provision of goods and services and the “relation” during the life time of the contract are the core elements of the relation instead of the initial will of the parties» (Nogler, Reifner, 2014, page 3).<sup>2</sup>

As shown by many empirical studies, relationship lending helps to reduce financing constraints especially for opaque small and medium-sized enterprises by increasing credit availability, reducing loan rates or lowering collateral requirements.<sup>3</sup> Bharath *et al.* (2011) find that the observed reduction in the cost of borrowing due to relationship lending increases with the information opacity of the borrower, but that there are significant benefits of relationship lending even for publicly traded firms.

<sup>1</sup> Here, the difference between profit seeking banks *vs.* cooperative or savings banks could matter. For example, ANGELINI P. *et AL.* (1998) find no evidence of hold-up – *i.e.* loan rates increasing for borrowers engaged in longer-term relationships with their main bank – for member customers of the cooperative banks they study.

<sup>2</sup> The true element of Roman law was the *locatio conductio*, a rent contract although nearly never applied to money was at least applied to money-like fungible things (REIFNER U., 2014). For legal definitions, features and the historical development of credit contracts, respectively long-term relational contracts see REIFNER U. (2014), respectively NOGLER L., REIFNER U. (2014).

<sup>3</sup> See e.g. PETERSEN M.A., RAJAN R.G. (1994); BERGER A.N., UDELL G.F. (1995); ELSAS R., KRAHNEN J.P. (1998); HARHOFF D., KÖRTING T. (1998); DEGRYSE H., VAN CAYSEELE P. (2000); LEHMANN E., NEUBERGER D. (2001); BRICK I.E., PALIA D. (2007). For a literature review see DEGRYSE H. *et AL.* (2009).



Small, regional banks have a comparative advantage in relationship lending as they are closer to local market customers to gather and verify soft information (Agarwal, Hauswald, 2009). Soft information is difficult to quantify and transmit through the communication channels of large organizations (Berger, Udell, 2002; 2003), which in turn may reap economies of scale in the processing of hard information and specialize in transaction lending.<sup>4</sup> Thus, consolidation of the banking market may reduce lending to SMEs.<sup>5</sup>

Commercial banks that specialize in monitored long-term loans and fund them by deposits or short-term debt benefit the economy by allocating savings to productive uses and providing liquidity to depositors. However, this maturity transformation involves the risk of illiquidity, if deposits are withdrawn or short-term funding is not renewed, and if the long-term loans cannot easily be liquidated. The risk of a bank run, where many depositors demand their money at the same time because they fear that the bank will become insolvent, is a kind of market failure arising from asymmetric information. The resulting real economic damage can be prevented by government provision of deposit insurance (Diamond, Dybvig, 1983), as created in the US in 1935 following the Great Depression and in many other countries afterwards. However, this protective regulation involves moral hazard, providing the incentives for bank managers to increase portfolio risk. Thus, it should be complemented with prudential regulations such as bulk risk limits and minimum equity capital requirements. Limiting banks' exposures to individual counterparties helps to improve diversification, but does not suffice, because it does not prevent a bank from making many small loans that are likely to default at the same time because they are correlated. This is especially the case if bank diversification is limited by geographic restrictions to foster relationship lending to local borrowers (Admati, Hellwig, 2013, page 88). Higher equity capital reduces banks' insolvency risk both by its loss-absorbing function and by deterring excessive risk-taking of bankers at the expense of creditors or taxpayers. Since this also lowers systemic risk by contagion via asset sales,

<sup>4</sup> There might be no disadvantage for large banks providing credit to opaque SMEs if they use transaction lending technologies well-suited to these enterprises, such as SME credit scoring, asset-based lending, factoring, fixed-asset lending, and leasing (BERGER A.N., UDELL G.F., 2006). But, BARTOLI F. *et AL.* (2013) find that relationship banking (RL) technologies cannot be entirely substituted by transactional lending (TL) technologies in SME lending. In fact, RL technologies produce more soft information which, in turn, lowers the probability of credit rationing.

<sup>5</sup> For empirical evidence see e.g. BERGER A.N. *et AL.* (1998); BONACCORSI DI PATTI E., GOBBI G. (2001) and AVERY R.B., SAMOLYK K.A. (2004).



minimum capital requirements are the most effective prudential regulation (Admati, Hellwig, 2013, page 94).

### 3. - Complete Information and the Theory of Finance

In contrast with the just outlined theory of banking intermediation, the theory of finance hinges on the assumption of market efficiency and postulates the availability and the exclusive use of public information. Well before the broader rational expectations revolution made its way into macroeconomics (Fischer, 1980), the center of the theory of finance had been occupied by the concept that prices are formed rationally reflecting all publicly available information. Once again Eugene Fama may be credited as one of the most important contributors. Writing his Ph.D. thesis at the University of Chicago Booth School of Business in the early 1960s, he developed the central concept of the Efficient Market Hypothesis (EMH; Fama, 1965; 1970).

Besides the usual utility maximization, the EMH postulates that agents have rational expectations. That is, on average they are correct (even if no one person is) and whenever new relevant information appears, the agents update their expectations appropriately. To be fair, the EMH doesn't prescribe that all agents be rational. All that the EMH requires is that investors' reactions be random and follow a normal distribution pattern so that the net effect on market prices doesn't allow abnormal profits to be made. Thus, any individual agent might be wrong about the market but the market as a whole is always right. As well known, the EMH is usually stated along three common different forms: weak-form efficiency, semi-strong-form efficiency and strong-form efficiency. In the weak form, the information set used by the agents consists only of information contained in past prices and returns. In the semi-strong form, the information set incorporates all publicly available information (which also includes past prices and returns). In the strong form, prices reflect all information that can possibly be known, including «inside information», (e.g., such as an impending announcement of a takeover or merger). The strong form is best expressed by Jensen (1978): «A market is efficient with respect to an information set  $\Omega_t$  if it is impossible to make economic profits by trading on the basis of  $\Omega_t$ . By economic profits we mean the risk adjusted rate of return, net of all costs».

An implication of the above is that under the EMH the investment analyst cannot “pick winners” by using publicly available information and therefore “ac-



“active” investment managers are wasteful. We can go even further, the individual investor should simply buy a “passive” index fund (e.g. mutual fund or unit trusts) which tracks a particular market index such as the S&P500 and has low transactions costs (e.g. less than 1% p.a.). Thus, according to the prevailing theory it is not clear why in reality we see so many practitioners such as investment managers whose skills should largely be redundant, given a competitive efficient market. Paradoxically, we could note with Grossman, Stiglitz (1980) that active managers do help ensure that information is rapidly assimilated in prices, so even though they may not earn excess returns (corrected for risk) they do help make the market efficient by their trading activities.

As synthesized by Cuthbertson, Nitzsche (2004), testing the validity of the EMH has typically taken three different routes:

1. Tests of whether excess (abnormal) returns  $\eta_{it+1}^p = R_{it+1} - E_t^p R_{it+1}$  are independent of information  $\Omega_t$  available at time  $t$  or earlier. So, the stock price and its return should be random walk variables, whose future value is impossible to predict *ex ante* different from zero. These are tests of informational efficiency and require an explicit representation of the equilibrium asset pricing model used by agents. This model has generally been identified with the Capital Asset Pricing Model (CAPM; Sharpe, 1964; Lintner, 1965; Black, 1972).
2. Tests of whether actual “trading rules” (e.g. “active” strategies such as buy low cap stocks, short-sell high cap stocks) can earn abnormal profits after taking account of transaction costs and the (systematic) risk of the “active” strategy. Abnormal profits are usually measured relative to a benchmark passive strategy (e.g. holding the S&P500): These tests mimic possible investor behavior and include explicit trading rules (e.g. stock-pickers), active strategies based on regression and so called ‘anomalies’.
3. Tests of whether market prices always equal fundamental value. These tests use past data and calculate fundamental value (or the variance of fundamental value of stocks) using some form of dividend discount model (e.g. the Rational Valuation Formula). One then tests whether the variation in actual prices is consistent with that compiled by the variability in fundamentals.

As it is well known, the equilibrium pricing model enshrined along the EMH, the CAPM, prescribes that each risky asset be priced according to its contribution to the diversification of risk in the market portfolio. That is, the expected return on risky asset  $i$  should be such that:





$$(1) \quad (ER_i - r)_t = \beta_i (ER^m - r)_t$$

where  $ER_i$  is the expected return on risky asset  $i$ ;  $r$  is the risk free rate of interest;  $\beta_i = cov(R_{it}, R^m_t) / var(R^m_t)$  measures the contribution to diversification given by risky asset  $i$ ;  $ER^m$  is the expected return on the diversified market portfolio;  $t$  is any time period. In other words, risky asset  $i$  should receive an excess return with respect to the risk free interest rate in proportion of the excess return gained by the diversified market portfolio where the proportionality coefficient is given by  $\beta_i$ .

Violations of type 1 tests generally embody a joint problem for the EMH together with the rational expectations hypothesis (REH) and it is not always possible to tell which of the two hypotheses is violated in reality. There is some evidence problematic for the EMH here like mean reversion in stock prices or that new information is not always immediately incorporated into stock prices. On the first point, some studies have pointed out how stock returns display mean reversion: Stocks with low returns today tend to have high returns in the future, and *vice versa* (Poterba, Summers, 1988; Fama, French K.R., 1988; Lo, MacKinlay, 1988). Hence stocks that have done poorly in the past are more likely to do well in the future, because mean reversion indicates that there will be a predictable positive change in the future price, suggesting that stock prices are not a random walk. On the second objection, although it is generally found that stock prices adjust rapidly to new information, as suggested by the EMH, evidence suggests that, inconsistent with the efficient market hypothesis, stock prices do not instantaneously adjust to profit announcements. Instead, on average, stock prices continue to rise for some time after the announcement of unexpectedly high profits, and they continue to fall after surprisingly low profit announcements (Chan *et al.*, 1996; Fama, 1998). It should be stressed that all these anomalies pose problems not only for the EMH but also for the CAPM, and it is not easy to tell which of the two theories doesn't pass the test.

Violations of type 2 tests are typically associated with the evidence of market anomalies like the small firm effect (Reinganum, 1983), the run of the year effect (Ritter, 1988) or the Value Line Survey anomaly, where one of the most prominent investment advice newsletters has produced stock recommendations that seem to have yielded abnormally high returns on average (Black, 1973; Huberman, Kandel, 1990). However, the quantitative impact of these anomalies seems to be rather limited in size (Alexander, 1961; 1964; Allen, Karjalainen, 1999).





Violations of type 3 tests have been found, e.g., by Shiller (1981; 1989) and French (1986). Specifically, Shiller found that fluctuations in the S&P500 stock index could not be justified by the subsequent fluctuations in the dividends of the stocks making up this index. Though these findings were subjected to various critiques as being inconclusive (e.g., Cochrane, 1991; Schwert 1991), they were rather influential on the following debate.

The most severe blow to the EMH perhaps comes from behavioral finance whose main objective is to explain why market participants make systematic errors contrary to the assumption of rational market participants. If those errors are pervasive and persistent, they will eventually affect prices and returns, creating market inefficiencies. The types of inefficiencies that are usually studied by behavioral finance involve under-reactions and over-reactions to information as causes of market trends as well as of bubbles. Such reactions have been attributed to limited investor attention, overconfidence, over-optimism, mimicry (herding instinct) and noise trading. Furthermore behavioral finance studies also the asymmetry between decisions to acquire or keep resources, and loss aversion like when investors hesitate to sell stocks when this would cause materializing nominal losses (see e.g. Shiller, 2003).

Purportedly, there are two main roots of behavioral finance theory: the application of psychology to finance – also by recurring to the experimental methodology – and the empirical econometric literature identifying major contradictions to the prescriptions of the EMH. Regarding the first root, the progress started with Kahneman, Tversky (1979) and Tversky, Kahneman (1990) who brought from psychology to asset pricing studies the prospect theory, implying a violation of the expected utility theory and, thus, of the traditional principles of rational economic behavior. For instance, Benartzi, Thaler (1995), applying a version of the prospect theory, claim to have solved the equity premium puzzle, something conventional finance models find it difficult to do. Experimental finance applies the experimental method, e.g., creating an artificial market by some kind of simulation software to study people's decision-making process and behavior in financial markets. Regarding the second root of behavioral finance, the most vocal contributor has been Robert Shiller and his group of scholars whose contributions have been already referred to above a propos of the market anomalies difficult to explain for the EMH (Shiller, 2003).<sup>6</sup>

<sup>6</sup> Incidentally, we cannot but notice that, given the intellectual antagonism between the two, it was somewhat mind-boggling to split the Nobel Prize in economics 2013 between Eugene Fama and Robert Shiller (together with the econometrician Lars Peter Hansen).





It is hard to predict whether the mainstream theory of finance – building on the EMH and coupled with the CAPM – will be able to withstand the criticisms that have only become louder with the global financial crisis started in 2007-2009 (Krugman, 2009). In spite of the answer to that question, what we can say for certain is that up to now the dominance has been granitic. Therefore, without loss of generality we can stick to the EMH as wholly representative of the prevailing theory of finance.

At this point, we should underline once more that, according to the prevailing theory, financial markets don't need private (soft) information as they work on the basis of public information only. Private information can, at times, count also for financial markets but only in the moment of price discovery (e.g., Maloney, Mulherin, 2003). Thereafter, that private information becomes public and risks become commodities. Accordingly, everything boils down to the benefits of risk diversification, as evidenced by the equilibrium pricing prescribed by the CAPM, something for which private info should not help. In fact, private information is already fully incorporated in the prices the market has determined as equilibrium prices.

#### **4. - How Finance Theory Prevailed over Bank Intermediation Theory in Shaping Regulation**

Neoliberal policies based on the view of complete financial markets led to a wave of deregulation in the 1970s and 1980s, when many of the rules that had been introduced after the Great Depression were dismantled. An anti-regulation ideology was coupled with an increasing political influence of banks which convinced politicians and regulators that markets worked well enough so that tight regulations were not needed or that banking regulation would impose costs on the real economy. This prevented for example an initiative in 1998-2000 to increase transparency in derivatives markets, something that would have been entirely justified by the collapse in 1998 of Long Term Capital Management, the largest hedge fund up to then (Lowenstein, 2001). The Commodity Futures Modernization Act, passed in 2000, exempted most over-the-counter derivatives from regulation (Admati, Hellwig, 2013, pages 96, 204, 325). The existing national regulations were an obstacle to the aim of global banking markets. To create a level playing field for internationally active banks regulators from major countries began to coordinate banking regulation internationally when they first





met in Basel in the late 1980s. Basel I, the Basel Accord of 1988, established the first international prudential regulation with minimum capital requirements, which began to be the main instrument of banking regulation. This was also the beginning of a banking regulatory bubble. While the Basel I agreement was only 30 pages long (Basel Committee on Banking Supervision, 1988), Basel II, its revision agreed in 2004 comprises 347 pages (Basel Committee on Banking Supervision, 2004) and Basel III, the second revision agreed in 2010, comprises 616 pages, almost double Basel II (Basel Committee on Banking Supervision, 2010; Haldane, 2012, page 9).<sup>7</sup>

This bubble in size does not necessarily reflect more regulation<sup>8</sup>, but for certain growing complexity and fine-tuning or even self-regulation by banks. Basel I defined five different risk weights from zero to 100% for credit risks of broad asset classes rather than individual exposures, so that regulatory capital requirements could be easily calculated using pad and pen. The regulatory rules only served as a backstop to banks' own risk assessments, which should be supported, but not replaced, because they could not capture "every raindrop" (Haldane, 2012, page 8). Thus, Basel I is still consistent with the theory of banks as delegated monitors that specialize on credit risk assessment of the loans they provide and hold.

The bluntness of the Basel I risk weights was increasingly questioned and arbitrated, when banks created new credit and market risk models in the 1990s. In 1996, the Market Risk Amendment (Basel Committee on Banking Supervision, 1996) introduced the concept of the trading book and allowed banks for the first time to calculate regulatory capital against market risk using internal models. In 2004, internal credit risk models were allowed to calibrate credit risk, both with the agreement of Basel II for international banks and a ruling of the SEC for US investment banks.<sup>9</sup> This created the incentives for banks to upgrade

<sup>7</sup> This refers to Basel II + Basel II.5 + Basel III and covers liquidity, leverage and risk-based capital requirements (HALDANE A., 2012, page 9).

<sup>8</sup> Long laws cannot be equated with more regulation. In the case of bank law in Continental Europe most of the law text concerns exemptions. US bank legislation does not even accept any general principle and instead of regulating exemptions it regulates all instances where the law would apply. Lobbyism is thus hidden behind the text unlike our exemptive law. Roman law was the highest regulation of money matters you can imagine but would have had place on one page. We are grateful to Udo Reifner for this comment.

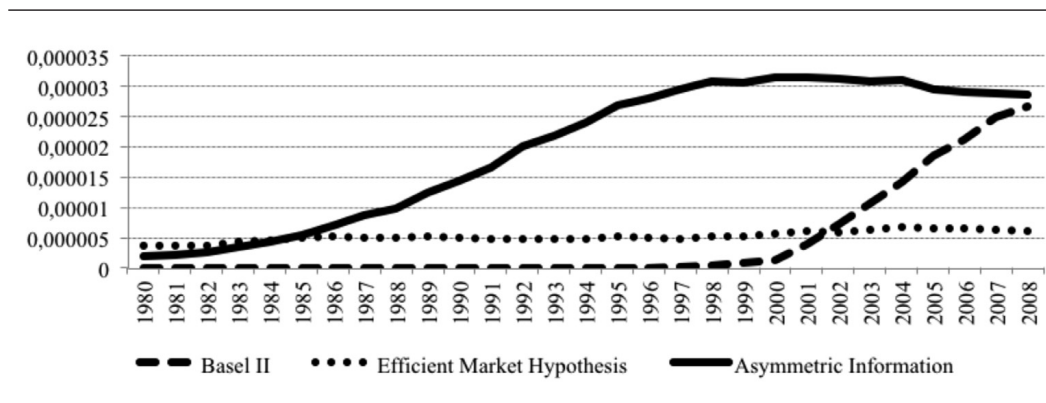
<sup>9</sup> This enabled investment banks such as Lehman Brothers to become highly indebted and vulnerable (ADMATI A., HELLOWIG M., 2013, page 204). Basel II came into force not before 2008. However, it has never been implemented in the US for banks insured by the FDIC, because the chair of the FDIC recognized the leeway the regulation provided to banks to economize on equity (ADMATI A., HELLOWIG M., 2013, page 274).



their risk management and design internal models to reduce their capital charges. «With hindsight, a regulatory rubicon had been crossed. This was not so much the use of risk models as the blurring of the distinction between commercial and regulatory risk judgments. The acceptance of banks’ own models meant the baton had been passed. The regulatory backstop had been lifted, replaced by a complex, commercial judgment. The Basel regime became, if not self-regulating, then self-calibrating» (Haldane, 2012, page 8).

GRAPH 1

PERCENTAGE INCIDENCE OF THE OCCURRENCES OF “ASYMMETRIC INFORMATION”, “EFFICIENT MARKET HYPOTHESIS”, “BASEL II”



Source: [www.books.google.com/ngrams](http://www.books.google.com/ngrams).

Searching the huge library set up by Google using the package Google Ngram Viewer over the period 1980-2008, we find that the percentage occurrences of the expression “asymmetric information” were initially smaller than those of “efficient market hypothesis” (Graph 1). However, the modern theory of banking intermediation was being published at that time. The occurrences of the two were even by 1985. Thereafter, while “efficient market hypothesis” was stable, the percentage occurrences of “asymmetric information” kept increasing until 1998, since when they stabilized at about six times the occurrences of “efficient market hypothesis”. Of course, there was no occurrence of “Basel II” until 1998, when the discussion on reforming the Basel Accord initiated. However, it is astonishing to notice how the “Basel II” occurrences had skyrocketed to almost the same level as those of “asymmetric information” by 2008 in spite of the fact that “efficient market hypothesis” occurrences kept stable at a substantive distance. This evidence seems to suggest that the fame of Basel II grew up out of causes different

from its theoretical underpinnings. The question then arises: Why did regulation depart so evidently from (good) theory?

The financial crisis made evident that the Basel regime contained gaping holes. To close these gaps, large upwards revisions to the calibration of the Basel framework were agreed in 2010 with Basel III. Because of the movement to internal models and the replacement of broad asset classes by individual loan exposures the number of risk weights and calculations ballooned. This increased not only the regulatory burden for banks<sup>10</sup> (large banks having to estimate several thousand default probability and loss-given-default parameters across their banking books), but even more for supervisors, for whom the number of parameters to calculate regulatory capital requirements increased by another order of magnitude. As a consequence, there are serious concerns about the opacity of the Basel risk weights and their consistency across firms (Haldane, 2012, page 10; Le Leslé, Avramova, 2012). Rising opacity and regulatory complexity also with respect to the definition of regulatory capital jeopardizes the robustness of the regulatory framework and inhibits the task for investors to price banks' financial instruments (Haldane, 2012, page 10). Empirical evidence shows that the quality of the credit portfolio performance of European banks does not depend on the level and quality of bank capital (Reifner *et al.*, 2011).

Fine-tuning of capital regulation is based on an illusion, not only because it can be influenced and manipulated by banks, but also because banks themselves lack the information to measure them properly, as the risks are changing all the time. The approach poses too much confidence in our ability to assess probabilities and the occurrence of potentially large losses in the case of so-called tail events (Admati, Hellwig, 2013, pages 186, 314). The use of quantitative risk models in capital regulation as well as in derivative markets provides a sense of control for risk management that may make people less careful, similar to the introduction of seat belts that caused people to drive less carefully (Admati, Hellwig, 2013, page 73).

By increasing opacity, the regulatory bubble increased regulatory arbitrage by banks. The introduction of risk-based capital requirements by Basel II contributed greatly to the 2007-2009 crisis by incentivizing banks to concentrate in assets for which manipulation of risk assessments was relatively easy, such as mortgage-re-

<sup>10</sup> FERRI G., PESCE G. (2012) document the exponential growth of the regulatory compliance burden for mutual cooperative banks in Italy between 2000 and 2010. They also argue that, since these costs have a fixed component, the ballooning compliance costs may be introducing hidden regulatory-induced economies of scale.



lated securities held in the trading book, as opposed to small-business loans in the banking book. It also created an artificial demand for AAA-rated securities and the incentives to create such securities, which «contributed to the complete breakdown of market discipline in mortgage lending and securitization and, later, to the complete breakdown of many markets» (Admati, Hellwig, 2013, page 185). Moreover, regulators and supervisors in the US and Europe allowed banks to circumvent capital requirements by creating off-balance sheet entities and they failed to limit the exposures to such shadow banks. The failure of regulators and supervisors to set and enforce proper rules is also due to regulatory capture (Admati, Hellwig, 2013, page 204) that grew along with the regulatory bubble.

All of this pushed banking into, *de facto*, lower credit standards and accumulated systemic risk. The great amounts of systemic risk that had been built emerged blatantly in the occasion of the first phase of the global financial crisis. In the years before the crisis, banks increasingly used market-based funding at the expense of deposits and replaced the buy-and-hold model by the originate-to-distribute model in their corporate lending business, whereby they originate a loan and sell or securitize a portion of it at the time of origination or later (Bord, Santos, 2012; ECB, 2008). With the rapid growth of the market for structured finance products in the US and Europe since 2004, the complexity of these products increased substantially, and the distinction between market and credit risk was more and more blurred. Benign macroeconomic conditions had caused a search for yield and the development of new capital market products, which offered the opportunity of increased revenues for banks and other market participants. The existing regulation did not mitigate the incentives for increased complexity «by significantly differentiating the prudential treatment of complex instruments from that of more standardised products» (ECB, 2008, page 19) and did not take into account that an adequate flow of information and a proper alignment of incentives between the various participants in the originate-to-distribute model are crucial for the efficient performance of the structured finance markets. The crisis made it evident that the use of this model involved conflicts of interest and misaligned incentives, over-reliance on rating agencies and a lack of transparency with regard to collateral and deal structures (ECB, 2011). The two principal-agent relationships (bank-borrower, depositor-bank) in the traditional bank business model, whose costs are minimized by delegated monitoring (Diamond, 1984) and relationship lending, were substituted by many bilateral principal-agent relationships between originators (banks, mortgage brokers), intermediaries (arrangers, collateral managers), investors and third parties (credit rating agencies, servicers, underwriters, trustees),



with possible conflicts of interest and agency costs due to asymmetric information. The fundamental agency conflict between originators (as agents) and intermediaries and/or investors (as principals) is a reduced effort of originators in screening and monitoring borrowers and in selecting the originated assets that are sold to intermediaries, implying a lower asset quality and performance. In the relationship between intermediaries and investors, conflicts of interest arise, if revenue maximization by intermediaries leads to securitization pools or structured finance transactions that are riskier than those desired by investors. The investors as principals are further harmed, if they rely on credit rating agencies, which have the incentives to expand rating coverage to complex and highly innovative structured products, to be too compliant with arrangers because being paid by the issuer, or to withhold relevant information to increase their revenues. Finally, servicers may make inefficient decisions if they are not adequately remunerated for e.g. modifying loan terms or liquidating assets. Both asymmetric information between the various actors and investors' over-reliance on credit rating agencies constrain the disciplining role of investors. "While in some cases this over-reliance could be attributed to loose diligence from the investors, the challenge of ongoing screening and monitoring of risks should not be underestimated, especially due to the insufficient information on the underlying assets through the life of the transaction" (ECB, 2008; p. 19). However, not only the investors as ultimate principals, but also the borrowers are harmed by the originate-to-distribute model, because the benefits of relationship lending and the possibility to renegotiate their loans are lost (Bord, Santos, 2012, page 23).

The valuation of some structured finance products relied heavily on market prices under the assumption of smooth and liquid markets, while substantial ratings downgrades showed failures of the originate-to-distribute model. As a consequence, the price discovery process broke down. Banks were forced to increasingly use models based on unobservable inputs and more and more assets moved from Level 2 to Level 3 of the marking to market taxonomy that had been introduced by the Financial Accounting Standards Board.<sup>11</sup>

But up to now there doesn't seem to be a full understanding of the implications of the deep responsibilities of regulation in fostering the build up of such fragilities. On the contrary, even though requiring banks to hold additional cap-

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<sup>11</sup> Level 1 indicates assets with observable market prices, Level 2 indicates less frequently traded assets that can be priced by reference to similar assets, and Level 3 indicates assets with unobservable inputs and model-based values (ECB, 2008, page 20).





ital, Basel III and the CRD IV package<sup>12</sup> have continued with the same logic of the past in terms of quantifying credit risk. Risk weights are set according to credit ratings, with the exception of government debt which is still treated as perfectly safe in the Eurozone and therefore has a zero risk weight. This shows that changes in credit risk are not adequately taken into account. Also the periodic stress tests that are conducted by regulators and supervisors in the US and Europe to determine whether banks have sufficient equity rely on quantitative models (Admati, Hellwig, 2013, page 186). Thus, risk measurement based on hard, historical information and diversification benefits – derived from the theory of finance – are still at the center of the regulatory approach while the benefits of specialization in banking – in gathering and using soft information to prop up screening to tame *ex ante* adverse selection via screening and *ex post* moral hazard via monitoring – are neglected.

The Basel II and III regulations neglect the soft information and implicit contracts of long-term lending relationships, as shown by two examples:

1. In its second pillar (Supervisory Review Process), Basel II sets rules for “better risk management techniques”, requiring among others that internal credit ratings should be an important tool in monitoring credit risk and that they should be used to identify and measure risk from all credit exposures (Basel Committee on Banking Supervision, 2004, page 734). This means that the creditworthiness assessment of an individual borrower has to be based on a scoring system with the use of hard data about the borrower. In Germany, the implementations of Basel II and III in the Minimum Requirements for Risk Management (MaRisk) even prescribe that loan prices have to be related to the credit score. This prevents an intertemporal smoothing of loan rates in long-term lending relationships. Since internal as well as external credit scoring systems from credit bureaus assess the creditworthiness only on the basis of past experience with the borrower, they favor credit history over credit future. This may lead to higher loan prices for whole borrower groups, such as younger entrepreneurs (Neuberger, Rätthke-Döppner, 2014) or to rationing of good borrowers whose quality cannot be observed by the use of hard data alone.

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<sup>12</sup> The CRD IV package comprises the new EU capital rules for banks and investment firms set out in the fourth Capital Requirements Directive 2013/36/EU (CRD IV) and the Capital Requirements Regulation (Regulation (EU) no. 575/2013) (CRR), which came into effect on 31 December 2013 and 1 January 2014, respectively.



2. Following the principle-agent-theory of complete (explicit) contracts under asymmetric information, regulatory reforms of the originate-to-distribute model aim to improve the alignment of incentives and risk sharing among the various participants of the securitization chain by redesigning remuneration schemes and requiring retention of ownership. For example, the retention rule introduced in the EU by the Capital Requirements Regulation and in the US by the Dodd-Frank Wall Street Reform and Consumer Protection Act requires originators to hold a minimum of 5% of a securitized asset pool<sup>13</sup> to increase their efforts in screening and monitoring borrowers. It is doubtful whether this threshold will provide the right incentives (ECB, 2011, page 27). After the crisis, the demand for securitized products has been bolstered by massive government-related support (ECB, 2011).<sup>14</sup>

The increased reliance on the market mechanism and the Basel approach of risk-based capital requirements also contributed to the vast reach of the 2007-2009 financial crisis. Banking crises that happened before that date were mostly limited in scope and did not cross national boundaries. The financial institutions all over the world that had bought the mortgage-related securities were linked to each other by the market prices of these assets. Short-term funding from money market funds is more susceptible to contagion and runs than funding by deposits, because money market funds and their investors are not covered by deposit insurance (Admati, Hellwig, 2013, pages 65-66). The Basel approach of risk-based capital requirements increased the interconnectedness in the financial system by incentivising banks to use e.g. credit default swaps, which made them ignore credit risk and the credit insurer's ability to pay (Admati, Hellwig, 2013, page 185).

Another factor responsible for the size of the crisis is the "fair value" approach of mark-to-market valuation of securities according to the Anglosaxon accounting rules (US Generally Accepted Accounting Principles GAAP and International Financial Reporting Standards IFRS, adopted by the EU in 2003). The use of mark-to-market accounting fuelled the financial market bubble when market prices were above fundamentals as high valuation allowed investors to borrow more and increase leverage. When the bubble burst and asset prices fell below fundamentals, mark-to-market accounting forced excessive write-downs and margin calls leading

<sup>13</sup> In the US only for of ABSs and CDOs, but not RMBSs (ECB, 2011, page 27).

<sup>14</sup> For example, securitized products used as collateral by the Eurosystem credit operations, GSE-supported issuance of RMBSs in the US or the guarantee program for certain securities in Spain.



to further fire sales of illiquid assets. Combined with the risk-based capital requirements of Basel II, mark-to market accounting led to pro-cyclical bank capital requirements (Roubini, 2008, page 6). By treating asset-backed securities as market risks, rather than credit risks, financial institutions were allowed to determine capital requirements on the basis of their own internal models. As these risks have to be accounted by the principle of mark-to-market, declines in market values in recessions (or, in the case of a market break-down, estimates of the market prices if the market did function) immediately enter the banks' financial statements and increase capital requirements, while rising market values in periods of booms or bubbles reduce them. In contrast, banks that followed the traditional buy-and-hold model of lending and used the traditional accounting for assets in the credit books could disregard fluctuations in market values and determine write-downs according to their doubts about future debt service rather than market prices (Hellwig, 2008, page 18).

Thus, the accounting and banking regulations based on finance theory were counterproductive, having impaired rather than improved cross-sectional, geographical and intertemporal risk diversification with the result of higher systemic risk. Instead of going back to the traditional bank-based rules, new macroprudential regulatory measures were agreed with Basel III that again follow the illusion of calculability of risks and fine-tuning. Counter-cyclical capital requirements shall mitigate the procyclicality of the risk-based capital requirements by forcing banks to build up capital in good times and reduce it in more difficult times. However, for an efficient counter-cyclical capital requirement to work, the regulator must be able to accurately predict the business cycle and to prevent regulatory imposed business cycles to occur (Hanson *et al.*, 2011; Reifner *et al.*, 2011, page 27). Experience of counter-cyclical capital requirements shows that a restraining effect may be relatively small, and the ability of banks to by-pass such requirements should not be underestimated (Reifner *et al.*, 2011, page 28). New global liquidity standards (Liquidity Coverage Ratio LCR and Net Stable Funding Ratio NSFR) shall reduce the potential for a future liquidity crisis by requiring banks to maintain higher and better-quality liquid assets. However, the combination of mark-to-market accounting and liquidity regulations has the potential to induce asset market downturns and simultaneous shortfalls resulting from interconnectedness of various institutions. Liquidity rules may also increase asset concentrations and correlation across certain types of assets by inducing banks to take similar actions (Reifner *et al.*, 2011, page 37; IMF, 2011). Systemic risks are even more difficult to quantify than the insolvency risk of individual banks,



which increases the potential of regulatory failure. The one-size-fits-all approach of the Basel framework to achieve a level playing field in international capital markets cannot accommodate the complexity of the financial system and the diversity of bank business models and is therefore not a robust framework for financial stability (Neuberger, Rissi, 2014).

## 5. - Towards a Sounder Approach to Banking Regulation

A sounder approach to bank regulation seems to require a total change of logic. Only a limited part of the banking assets – such as securities holdings – can usefully be treated as commodity risks. On the contrary, the bulk of bank assets – especially loans – are idiosyncratic risks whose quantification demands attaching to them not only the objective properties derived from hard information and statistical risk distributions but also the ability of screening and monitoring behind those loans. This seems to bring in the need to evaluate the relationship on the basis of which each loan has been made and is followed up.

A promising approach might require factoring into regulation the bank business model, since different bank business models will deliver different abilities to screen the loan applicants and monitor the granted loans.<sup>15</sup> For instance, Akhigbe, McNulty (2011) document that more intense monitoring makes banks more profit efficient. Bank business models do not change overnight and they could provide a reasonable gauge as to that ability. Of course, alongside with that a stronger and more interventionist empowering of supervision would also be needed. If loans are not commodities and we need to restore discretionary choice

<sup>15</sup> See also the discussion by LLEWELLYN D. (2013) on how the transformation of the bank business model contributed to the Great Crisis. MICHIE J., OUGHTON C. (2013) argue for the benefits of diversity in banking and propose new approaches to measure such diversity. Building on CUEVAS C.E., FISHER K.P. (2006); COCO G., FERRI G. (2010) argue that stakeholder banks – not focusing just on profit maximization – provide a more sustainable lending mode. MASERA R. (2011) has been particularly clear on the danger of relying exclusively on minimum capital requirements along an automatic – hands off – type of regulation. Later on, MASERA R. (2012), he has been even more explicit regarding the importance of the banks' business model: «The very nature of the business model of the banks should provide a fundamental reference for evaluating risk. The intrinsic stability of a well managed traditional type bank is not recognized ... the banking model that better than others can lead to financial stability, growth and employment creation the economies characterized by the dominating role of SMEs might be the memorable casualty of the Basel system» (page 35). Similar considerations may be found in DE LAROSIÈRE J. (2010; 2011).

to the banker, to secure bankers' accountability supervisors should not lay back continuing to rely on purely mechanic quantifications of risk but ought to become more invasive (Ayadi *et al.*, 2012).

Even in the case we are not in the position to move to this alternative approach to bank regulation, following Haldane (2012) we should at least recognize that abandoning the risk weighted asset approach would make a promising first step.<sup>16</sup> Here the alternative is clear. One could move on relying more on the leverage *ratio*. At least two benefits could be envisaged. First, the leverage *ratio* approach would seem to be neutral in terms of the bank business model. Second, it would likely reduce drastically the costs of regulatory compliance whose ballooning is dramatically burdening banks with insufficient visible benefits.

We could even subscribe a more radical view, according to which a total change of logic is also necessary with respect to (1) the goal of regulation and (2) information versus regulation. Regarding (1), The Basel framework as well as the current financial services regulations in the EU aim to protect investors or depositors, being based on finance theory and the economic analysis of law developed by the Chicago School, according to which the only aim of law is to render investments profitable. The current EU Directives (Consumer Credit Directive, Mortgage Directive, different insurance directives, payment services directive, distant marketing of Financial Services Directive, MIFID I and II, IMD I and II) focus on the sale of financial services providing in particular extensive pre-contractual hard information and a technical harmonization of products and supervision, but neglect duties concerning the life time of the debtors who use these services, such as access, exploitation, cancellation, usury, debt enforcement, adaptation and continuity (Nogler, Reifner, 2014, page 41). Like the Basel framework, these EU directives are based on a false model of credit contracts. Both focus on the sales model and omit that according to the traditional theory of financial intermediation and relationship lending, the main task of banks is to channel savings to productive uses, which requires not only to make the investment sane and solid, but also to protect debtors as the users of capital from irresponsible lending in long-term credit contracts. From an investor's point of view it makes sense to help render the relation productive since it finally secures the total investment in

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<sup>16</sup> BLUNDELL-WIGNALL A. *et al.* (2013) state that a regulation based on the leverage ratio would improve on Basel II and III. In particular, they argue that Basel risk weighting and the use of internal bank models for determining them leads to systematic regulatory arbitrage that undermines its effectiveness.

society. From the debtors' point of view, there is no need for investments to become safe if investment as such does not have a societal justification. This justification can be seen in the ability of the debtor to "use" the labor of others ("capital") in a productive way. If this is so he can share his profit with the investor (interest) so that the investor gets an additional incentive to provide loans and save. If the interest has to be paid back from those elements of the debtor's fortune which have nothing to do with the process in which credit was taken out the whole credit relation is a failure from a macro-economic perspective. So all regulation should look at the debtor and his or her ability to make a productive (profitable) use of the borrowed capital.

Regarding (2), information and regulation are alternatives. Either you control markets through public information or you stir them by regulating products and prices. If you stir them with information you will put informational duties (provision of hard information at the time of contract conclusion) into a legal form. Such laws can be very lengthy (see Consumer Credit Directive 2008/48/EC), but in fact they do not "regulate". Therefore, they create a textual bubble, but a regulatory erosion.<sup>17</sup> What we argue for credit relations to protect consumers concerns the regulatory model. The informational market model provides information to people who have no need for it because it would either not help them (the poor) or they cannot apply it (because they lack financial literacy or the information is illusory). Without the need for information, information is useless and paternalistic. The assumption that the core elements of long-term contracts for consumers is the information provided at the time when the contract is signed is empirically unfounded and neglects especially vulnerable consumers, justice and security (Nogler, Reifner, 2014, page 41).

To replace the sales law model of the Consumer Rights Directive of 2011 and the Consumer Credit Directive of 2008 by a model based on long-term contracts, aiming to «provide social justice related to human needs and life time, to which economic efficiency in the sense of profitability can only be a means» (Nogler, Reifner, 2014, page xxxii), an international group of academics has laid down principles of social long-term contracts in consumer credit (as well as labour and tenancy) law in the European Social Contract Declaration (EUSOCO, 2014).

<sup>17</sup> Thus, the so-called consumer law in the EU is basically a market law, which reflects the informational model of consumer protection, but omits the market compensatory law in the model of social consumer protection (NOGLER L., REIFNER U., 2014, page 41; CARRILLO E.P., OLMEDO F.G., 2014; REIFNER U., 2014).

They require among others ensuring an on-going co-operation of the contract partners, restricting early termination, protecting the weaker party of the contract, ensuring the productive use of the rendered services, ensuring access, non-discriminatory prices, adaptation of the contract to changes in the social and economic circumstances, information during the life time of the contract and reducing social risks such as over-indebtedness (Nogler, Reifner, 2014, page xxi; EUSOCO, 2014). For credit contracts, a similar initiative on a more general socio-economic basis has been made by the European Coalition for Responsible Credit with its seven principles of responsible credit (ECRC, 2014).

## 6. - Conclusions

The view of banks and markets as purely and only substitutes rather than complements (as instead suggested by Allen, Gale, 2000) coupled with the belief that financial markets are more evolved institutions than banks<sup>18</sup> brought the complete markets approach typical of the theory of finance to shape banking and financial services regulation as well. Examples of that are: The application of the marking to market principle, the reliance on hard rather than soft information, and the protection of investors rather than borrowers in various ways (e.g., International Accounting Standards; rating-inspired regulation to determine risk weighted assets and capital requirements like in Basel II and III, EU Consumer Credit Directive of 2008). Its subjugation to the rules of finance pushed banking to operate in ways that relied more and more on hard information and less and less on soft information. Relationship banking was judged as devious and inefficient. Loans were treated as commodities whose intrinsic risk profile was believed unchanging even as those loans moved out of the bank's balance sheet being sold and bundled in securitized pools. Building on the banking intermediation literature, we have argued that "informed credit" – where a loan is created along a borrower-bank relationship in which the latter screens and monitors the former – is intrinsically different from "commodity credit" – where the loans are originated to be sold. We claimed that the passage from informed credit to commodity credit was one of the causes behind excessive credit creation coupled with lower lending stan-

<sup>18</sup> See, e.g., GOLDSMITH R.W. (1966; 1969) and many followers thereafter. Among them it's worth recalling BRYAN L.L. (1988), a former McKinsey partner who laid out a kind of ideological to transform banking from the old and inefficient originate-to-distribute business model to the new and efficient originate-to-distribute model.

dards that led to the Great Crisis of 2007-2009 mostly at the expense of vulnerable borrowers.

Then the key question is: Have regulators learned the lesson of the crisis and reacted in appropriate ways to bring back sound banking? Our answer is a qualified no. Indeed, some of the measures introduced along with Basel III may foster bank stability. For one, asking banks to hold more and better quality capital should make them more resilient. However, the stability of banks depends primarily on the fact that they do their business properly. In that respect, not much has changed with Basel III with respect to the situation under Basel II. We have argued that, subjugating banking to the diktats of the theory of finance, the risk weighted asset approach is bound to generally divert banks from the business conduct most appropriate for them. In view of that, along the famous Zen inspiration of the finger pointing the moon, Basel III regulators appear to have focused on the finger – there was not enough capital in banks – rather than on the moon – the true culprit: (most) banks, also because of wrong regulation, were not doing their business properly.

In our view, regulators have largely missed the great opportunity of the aftermath of the crisis for revising the regulatory framework. Contrary to the experience of the early 1930s, this time there was no Pecora Commission to bring about the rapid stiffening of banking regulation (Krugman, 2010*a*; 2010*b*). The Dodd-Frank Act took long time to pass and seems to have been retarded and watered down in its enforcement. Also the process of coming up with Basel III and CRD IV was lengthy. In both cases it seems that the spirit of Pecora – *i.e.* bringing back commercial banks to do their business properly and limiting their exposure to financial market risks (at that time via the Glass-Steagall Act) – has been missing. The current Basel framework and EU financial services directives are counterproductive, because they focus on harmonizing regulations around the world or at the EU level, neglecting the diversity of bank business models and the role of banks to provide long-term relational contracts to the benefits of borrowers. While regulating any business will always have to come to terms with vested interests and powerful lobbying, our opinion is that progress towards sounder banking would accelerate if only regulators will adopt the “right” theory. Reviewing the theory of financial intermediation – as we have done here – would lead regulators to question their approaches of the past and quickly move on to take a much different attitude.





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