

## TWO ILLUSIONS: CONSOLIDATION AND CAPITAL (\*)

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“Is it possible for what is not to be? No. But, you see,  
it is something, despite its not being”.

*On Sophistical Refutations*

ARISTOTLE

(384 b.C.-322 b.C.)

The objective of this paper is to examine some current practices in the assessment of banks' solvency, under the lens of accounting theory. More specifically, the paper questions the totipotent vision of consolidation as a generalized tool in the assessment of the solvency of banking groups, and proposes a measure of bank solvency that complements accounting data with stock market prices, where available.

The paper argues that, despite their widespread use, solely relying on the consolidated statements to assess the financial position, solvency and liquidity of a bank provides a distorted view of the legal, financial, and economic reality of banks, thus adding limited value, generating illusion and inviting confusion. In addition, the measurement of banks' regulatory capital on the basis of consolidated accounting statements can result in a sound picture of solvency where other more conventional measures may show otherwise.

### 1 Introduction

Coping with the issue of banks' financial stability requires dealing with institutions of growing complexity, as well as with a constant update on the sophisticated financial transactions they undertake (including their balance sheet valuation). The general approach that bases regulatory capital requirements on consolidated figures can tackle one part of the problem. However, it can also stimulate the structuring of transactions outside the regulatory scope, and is burdened by limitations and inconsistencies that should not be overlooked. Describing the relevance of those limitations, and suggesting possible solutions, is the reason behind one part of this paper.

Moreover, the calculation of regulatory capital is highly vulnerable. First, it is based on the internal models designed by banks themselves; second, accounting figures are subject to risk weights and adjustments that make comparison among banks extremely difficult. Many market players claim for simple capital requirements that are less prone to manipulation. Limiting the distortions among banks by means of easy and transparent algorithms would improve the functioning of markets while avoiding the permanent need for specific training on regulatory capital calculations. The second reason for drafting this paper is to suggest an alternative way of estimating regulatory capital that enhances transparency and comparability helping market participants to assess the strength of bank balance sheets. This would in turn improve market discipline and would represent an additional tool for supervisors to require demonstrable strengthening of a bank's capital base.

The rest of the paper is organized as follows. Section two presents a general overview of the consolidation practice in financial statements of banks for capital regulatory purposes. Section three extends the practical approaches to the analysis of the accounting theories that support them. Section four goes through a detailed exposition of the limitations of consolidated accounting statements in general, while section five examines in detail the limitations in the measurement of regulatory capital and solvency ratios. Sections six and

seven contain new proposals on how to use accounting statements in capital regulation of banks. Finally the conclusions of the paper provide a summary of the main points raised.

## 2 Overview on the practice of consolidation of financial statements

The consolidated financial statements are today an accepted formula to present and disseminate financial information to capital markets. Investors worldwide use raw and elaborated data from consolidated accounting statements, with little questioning on the conventions used for their preparation. However, accounting consolidation has not always been a generally accepted criterion among accountants. Instead, its adoption, like almost any accounting practice, was the consequence of a specific economic period and a consensus that never provided “irrefutable answers” or “universal truths”. In continental Europe and Japan the introduction of accounting consolidation progressed slowly. In the US and UK, pioneers in this practice, its formal adoption, well into the 20th-century, was preceded by over forty years of extensive disputes among academics, professionals, and banking and capital market regulators.

The high development and relevance of capital markets in countries like the US and UK has fostered the development of a regulatory framework aimed at protecting investors against fraud and market manipulations. However, the attitudes around the consolidation of financial statements were different in each country. While in the US consolidated statements were initially published as a unique vehicle for providing financial information of parent (holding) companies of economic groups, in the UK they were conceived as a way of expanding the information contained in the individual financial statements of the parent company.

We can place the origin of consolidated financial statements in the mid-19th century with the emergence of the earliest forms of financial corporations or groups first in the UK, and later in the US.<sup>1</sup> Until then, the preparation of financial statements was dominated by historical cost. In the last decade of the century a new framework for the valuation of assets on the balance sheets began to be developed. The new framework assumed that assets should be divided into two groups: Fixed and Current assets. Fixed assets would be those with which the business is carried out and current assets would be those traded by the entity. The valuation rule for current assets was “the lower of cost or market”, while recognition of gains required the prior existence of a critical and documented event (*v.g.* sale). The registering of “unrealized gains” was then seen as an absolutely unacceptable practice. On the other hand, fixed assets continued being measured in the balance sheet at historical cost, less depreciation and impairments. Institutions widely adopted these rules of valuation. Investments of the parent company in the subsidiaries were registered at their historical costs, since they were considered a fixed asset. Consequently the only returns from these assets accounted for by the parent company were dividends received from the subsidiaries.

The usefulness and relevance of measuring investments in the capital of subsidiaries at historical cost began to be questioned before the First World War. While the use of holding companies was seen as a useful way of creating big economic groups, the limitations of historical cost made them less attractive; the economic gains of subsidiaries (besides dividends) could not be registered by parent companies and intragroup loans distorted the liquidity position of the conglomerate. Some large corporations began to prepare consolidated statements at the end of the 19th century, but it was not until 1902 when an entity’s annual accounts were accompanied by a consolidated balance sheet for the first time.<sup>2</sup>

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<sup>1</sup> Walter (1978).

<sup>2</sup> In 1901, the US Steel Corporation was created, representing the largest business combination to date. The first annual accounts were closed in November and in February 1902 the financial statements were presented including a consolidated balance sheet. Walter, *op. cit.*

The scarce usefulness of valuing equity investments in subsidiaries at historical cost, along with recognizing just income in the form of dividends, stimulated accounting solutions for the financial statements of the holding entities. In an era in which the recognition of “unrealized gains” was considered an unacceptable accounting practice, applying the equity method to the valuation of investments in subsidiaries was not considered a valid solution. On the contrary, the consolidated statements of a group controlled by a holding company were seen as the appropriate response to the limited usefulness of historical cost as the basis for the recognition and valuation of equity investments in subsidiaries: first in the US<sup>3</sup> (1933) and later in UK<sup>4</sup> (1939).

### 3 Consolidation Theories

Accounting deals with the quantitative valuation and recognition of economic and financial phenomena in order to provide relevant and useful information for investors, creditors and society in general. This function is performed at two levels; a mechanical level, basically consisting in the recording of transactions (*v.g.* bookkeeping), and a judgmental, more complex level, subject to professional discrepancies, about the valuation of assets and liabilities (*v.g.* accounting). The Accounting doctrine is in permanent evolution, subject to constants changes and attempts of improvement, in many cases based on experience. To meet its objectives, accounting must answer two questions:

- a) Who are financial statements prepared for?
- b) Which point of view should be adopted in the treatment of a transaction?

Over time, accounting theory and practice has provided rules and principles for answering these questions. These can be summarized in three main theories: the property Theory, the Entity Theory and the Control Theory, with some variations within each of them.<sup>5</sup> According to their underlying assumptions, each of these theories offer a consistent base to prepare consolidated financial statements.

Conventionally, the arguments to prepare consolidated statements are based on the idea that subsidiaries “essentially” are “branches” (*v.g.* divisions or departments of a single legal entity) rather than “subsidiaries” (separated legal entities). The consolidation technique involves adding the respective financial statements to subsequently eliminate “reciprocal balances” between entities belonging to the same group, that is, balances resulting from intercompany transactions. The objective when preparing consolidated statements is to show the profits and net equity as if all the assets and liabilities would have been under a single legal entity.

When the parent company controls the subsidiaries but there are also other *minority interests*, the consolidation process must address accounting problems related to the elimination of inter-company transactions, the calculation of *minority interests*, and the treatment of changes in the group’s control over the subsidiary. In the consolidated financial statements minority interests represent the equity holdings of stockholders external to the group. As shareholders, the *minority interests* do not receive fixed payments, neither can they claim repayment of principal. In other words, they cannot be considered debt holders, but third-party claimants over a part of the group’s *net assets*.

<sup>3</sup> Securities Act of 1933. Section 19 a).

<sup>4</sup> In 1939 the *Committee of The London Stock Exchange* started requiring new issuers to file consolidated statements. From 1948, the *Companies Act* made that requirement general for all economic groups.

<sup>5</sup> Like for instance the “Fund Theory”, “Commander Theory”, “Investor Theory”, or “Enterprise Theory”.

The expansion of economic groups often takes place through the acquisition of independent firms or firms controlled by other groups. Occasionally, the structuring of these transactions involves the acquiring entity paying in excess of the market value of the assets received net of liabilities assumed. In the consolidated statements, such excess is recognized as an “indeterminate” asset called *Goodwill*, the mechanical calculation of which offers few keys to its true economic value. Very often, the excess paid in return for acquiring other companies is based on “opinions” about the future, and is therefore an imaginary figure that can give scope for abuse and lax interpretations. In practice, there is no accurate way to assess whether the amounts recorded in consolidated balance sheets as *Goodwill* in fact represent some economic value, or rather a dumping ground for costs of all kinds, still outside of the income statement, that result from the purchase of a company.

Returning to the different answers to the two main questions referred to above, the following subsections provide an overview of the resulting accounting theories.

### 3.1 PARENT COMPANY THEORY OR PROPRIETARY THEORY

This Theory supports its position in the expression:

$$\sum A - \sum L = \text{Stockholders}$$

Under the Parent Theory, the owner shareholder is the stakeholder for whom financial statements are prepared.<sup>6</sup> All concepts, procedures, rules and formulations are geared to responding to the information needs of the owner. For the preparation of consolidated statements, this theory emphasizes the legal concept of “property” to control an entity, and therefore considers that the objective of consolidated statements must be to inform decisions by the parent’s stockholders. Consequently, this theory considers that consolidated statements are not relevant for minority stockholders, who are considered as quasi - creditors, or even in some of its variants (proportionate consolidation) are removed in order for the consolidated statements to show just the subsidiary’s assets and liabilities that (in percentage) correspond to the parent company.

Under the Parent Theory, the consolidated financial statements are thus considered an extension of the parent’s financial statements. As a result, in the accounting books of the parent company, the investment in the subsidiary is replaced by the subsidiary’s individual assets and liabilities.

### 3.2 ENTITY THEORY

The Entity Theory is based on the expression:

$$\text{Economic Resources} = \text{Financial Resources}$$

Or,

$$\sum A = \sum L + \text{Stockholders}$$

The Entity Theory is based on the idea that a company is a separate entity with its own identity, different from that of the shareholders owners. The theory goes beyond the pure convention which separates company and personal business. In this theory, the assets and liabilities belong to the company (legal entity) and not to its owners. The preparation of consolidated statements focuses on the existence of the group, on the idea of “economic unit”, rather than contemplating the group through the perspective of the parent company.

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<sup>6</sup> Vatter (1947).

The consolidated entity is seen as a self-standing economic entity with its own life, while the parent, minority stockholders, and creditors, are seen as mere contributors to its funding. The Entity Theory focuses on economic resources controlled by the firm as a legal entity, and therefore the nature of the investor (owners or creditors) is a secondary issue.

Consequently, the theory does not award special treatment to different types of owners (majority / minority), and transactions between them are seen as internal operations. The view is that there are two types of owners: majority (the dominant) and minority.

According to Entity Theory, the main difference between creditors and stockholders (whether majority or minority) is that the valuation of the rights of creditors can be estimated independently from other evaluations, when the company is solvent, while the rights of the stockholders are measured by the valuation of assets net of liabilities. The rights of stockholders are to receive dividends and share in the liquidation value of the firm; they are holders of rights as holders of shares, but not as owners of the assets of the entity or the group.

### 3.3 CONTROL THEORY

In the 90s of the past century, a new concept was developed to prepare consolidated financial statements: *control*, which, in fact, can be considered as a variant or an extension of the Entity Theory. The concept of *control* comes from the idea that the stockholders of the parent company need information not just about the group as a whole, but also about the distinction between the part that they own, and that owned by minority shareholders. Under this theory, minority stockholders are seen as part of the group, because they are part of the controlled entity. Conversely, when the property is considered to be more important than the control, the minorities are treated as external to the group and seen as a liability.

#### 3.3.1 Comparison between the three theories

The distinction between the three theories can be illustrated by this example:

*ABC Bank acquires 60% of company Z for 12,000 euro. The book value of Z's net assets is 8,000 euro while their fair value is 10,000 euro. The effects of this transaction on ABC's consolidated balance sheet would be the following, according to each of the three theories:*

	Theory (a)		
	Entity	Parent	Control
Net assets of Z in ABC Consolidated balance sheet	10,000	9,200	10,000
Goodwill	10,000	6,000	6,000
Majority	6,000	6,000	6,000
Minority	4,000	—	—
<b>Total of Z in Assets of ABC Consolidated balance sheet</b>	<b>20,000</b>	<b>15,200</b>	<b>16,000</b>
Minority interest	8,000	3,200	4,000
Cost of investment in Z	12,000	12,000	12,000

- a** Under the Entity Theory, the net worth of Z and goodwill are incorporated at their total of fair value (starting from the price paid by ABC). Total goodwill that reveals itself after the purchase of ABC is of  $[10,000 = (12,000 - 10,000 \times 60\%) / 60\%]$  of which 6,000  $(12,000 - 10,000 \times 60\%)$  belong to ABC. Moreover, minority interests are presented at fair value starting from the price paid by ABC in exchange for 60% of Z:  $[= 8,000 (12,000 / 60\%) \times 40\%]$ . Under the Parent Theory, assets and liabilities controlled are shown at their fair value and those of the minority interest, not being affected by the transaction, are measured at their carrying value on the entity Z:  $9,200 = 60\% \times 10,000 + 40\% \times 8,000$ . Only the goodwill of the parent is reflected in the consolidated balance sheet: 6,000. The minority will appear on the liabilities side at their value in Z:  $3,200 = 40\% \times 8,000$ . Under the Control Theory, the assets and liabilities of Z are recorded at their fair value: 10,000, and only goodwill paid by ABC is recognized: 6,000. The minority interests are recognized at their fair value:  $4,000 = 40\% \times 10,000$ .

Originally, dominant accounting principles were based on the Parent Theory. The Entity Theory was developed with the appearance of large financial conglomerates at the beginning of the 20th century. A strict interpretation of the Property Theory can lead to conflict with Entity Theory. Many heated accounting debates are often the consequence of confronting both theories. In general, the Property Theory is linked to “historical cost”, while Entity Theory assumes that entities must try to maximize the value of their assets, with stockholders and creditors normally distant from day to day management of the business, and thus being more inclined to *fair value* because knowing the current value of the assets is essential for them to adopt correct decisions. That is why, in general terms, the Parent Theory is best suited for small businesses, where ownership and management is usually the same, while the Entity Theory (and its variant Control Theory) is more appropriate for large corporations, where the life of the entity is independent from that of its stockholders.

#### 4 Limitations of consolidated statements

As currently conceived, the financial statements of the parent company alone cannot satisfy the information needs for investors or supervisors. The balance sheet of a parent company in which assets consist essentially of shares of subsidiaries can rarely be considered as an adequate indicator of the financial position of the parent if it is not complemented with information about what kind of assets and liabilities support each of the investments.

The same is true for the income statement. A parent company that only considers gains resulting from the dividends received from its subsidiaries will reflect income from a “legal” point of view but not from an economic standpoint. Even when dividends received are the only returns from subsidiaries shown as income in the parent’s income statements, the accompanying notes should give full results of each subsidiary.

Consolidated financial statements were invented in order to provide an overview of the financial situation and the performance of a group of entities, creating a single picture out of the individual statements of each group entity without forcing the reader to review and examine each and every one of those financial statements. For this purpose, the consolidated statements may have certain real utility. In this sense, they represent a success of the Entity Theory over the Property Theory, such direct application of economic substance over legal form. But consolidated statements are not the solution to financial information problems of economic groups, because they hide as much as they are supposed to show.

The observed increase of the preponderance of consolidated information in the financial statements of the parent companies of economic groups, along with its recognition by bank and insurance supervisors as an instrument of prudential capital regulation, indicates that consolidated statements have to be considered as fundamental financial statements. However, it is essential to identify their virtues and limitations.

Since their invention in the early 20th century, consolidated statements have reached a status of maximum excellence within the financial information of large global corporations. In fact, it is common to listen to or read expressions stating that, “consolidated, rather than individual, are the relevant financial statements”; or “consolidated statements reflect an economic group’s business”, and other similar assertions. As we will see later, these types of claims can be highly misleading.

No one has yet convincingly explained why conventional financial statements (v.g. the individual or legally required statements) are unimportant and should be replaced by



consolidated financial statements, or why they are better. It is usually held that “consolidated statements represent a group of entities as if they were a single entity”. This proposition, sufficiently vague and misty, was a stepping stone for consolidated statements. However, the use of the analogy (“as if”) to prepare consolidated statements is troublesome since it results in showing the financial statements of a “group of entities” when, in fact, each transaction is made with individual entities; the shares traded on capital markets are those of individual entities; and the results and dividends are from individual entities, and not from the group. Consolidated statements may be considered a certain form of presenting financial information of a set of related entities, but this does not mean they are useful to the different user groups to whom they are supposedly directed: stockholders, creditors, and supervisors.

It is true that the individual balance sheet of a parent company (v.g. a holding company) shows the equity investment in the subsidiaries, but it provides limited insight regarding the nature of the assets of these subsidiaries, and this regardless of the bases used to value those assets. From the information provided by the individual financial statements of the parent, readers cannot work out whether those investments are supported by financial assets, tangible or intangible assets, cash or a combination thereof. In this sense, it seems reasonable to provide stakeholders of the parent company with information about the legal assets (financial, property, etc.) of subsidiaries in which resources of the parent company are invested.

A solution could have been to annex the financial statements of the subsidiaries to those of the parent. Obviously, this could lead to serious and heavy information overload, especially for parent companies with many subsidiaries. And it also would impose a heavy burden on naive readers trying to guess, from the financial statements of subsidiaries, how the interests of parent stockholders are affected.

The preferred solution was the preparation of consolidated statements, in which intercompany transactions and results thereof are eliminated, giving rise, on almost all occasions, to “minority interests” and “goodwill”. However, this is a way of approaching the problem that confuses some issues and does not clarify others.

On the one hand, assets only make sense in relation to a legal entity entitled to acquire them and incur obligations to fund them. The combination of assets and liabilities of a parent company with the assets and liabilities of its subsidiaries does not represent that type of entity. Assuming this is making the financial information dependent on fiction, this seems an invitation to confusion.

On the other hand, the consolidated balance sheets and income statements are not balance sheets and income statements in the sense that ordinary people understand them. Using the same expressions (v.g. accounts or balance sheet formats, etc.) in two types of different information (one with a legal form and another without it) again represents an invitation to confusion. The use of the same words predisposes users to make the same type of economic and financial inferences from the consolidated statements, as if they were the financial statements of a legal independent entity; but such inferences are clearly incorrect.

Without simply denying the usefulness of consolidated statements, the most serious concern with the consolidated financial information is the risk of creating *an illusion* to unwary readers. Without intention to be exhaustive, some of the weaknesses of consolidated statements are highlighted below:

- i. *The consolidated balance sheet provides a false impression. Creditors of the parent only have rights over the assets of the parent, and creditors of the subsidiary only have rights over the assets of the subsidiary. Stockholders of the parent, have rights over the subsidiary only with respect to their investment*

The rights of creditors are not adequately shown in a consolidated balance sheet. Let us imagine that the parent pledged a subsidiary's stocks as collateral for funding received. Faced with this situation, the *net assets* of the subsidiary do not constitute the same potential source for the payment of debts of all creditors of the parent. This is because the consolidated balance sheet does not identify the assets of the subsidiary affected by the collateral granted by the parent, or the liabilities of the subsidiary that have priority over the liabilities of the parent who has taken the stocks of the subsidiary in return for financing granted to the parent. Reporting this in the notes to the financial statements is clearly not enough.

- ii. *Creditors of subsidiaries and minority shareholders may not find the consolidated statements of much use*

Minority stockholders and creditors of the subsidiaries get very little useful and valuable information from the consolidated statements, given that they do not give details assets, liabilities, expenses or income of the subsidiaries. Furthermore, the minority shareholders and those creditors will naturally be interested in information concerning the volume of transactions with the parent and other group entities, since the continuation or cessation of this business is under the control of the parent, and therefore decisions can be made from the standpoint of the parent and to the detriment of the subsidiary.

- iii. *Financial ratios (v.g. solvency) could mislead creditors of the parent*

In general terms, the creditors of an entity in particular are interested in the financial position and the performance of that entity. It is obvious that the creditors of a subsidiary are unable to obtain from consolidated statements the information they need about that subsidiary. It is perhaps less evident, but also true, that the creditors of the parent do not obtain adequate information from the consolidated statements. For example, information on the aggregate value of assets in the consolidated balance sheet does not reveal specific availability to meet the aggregate liabilities of all entities included in the consolidated balance sheet. For this reason, the financial ratios calculated from the consolidated financial statements may be meaningless. This conclusion applies also to the solvency ratios of banks calculated for regulatory purposes (v.g. BIS ratio): the assets of subsidiaries cannot be used to meet the liabilities of another entity of the group, unless a new liability is created.

- iv. *The consolidated statements can show a false sense of the group's liquidity position*

From the point of view of the "group", the liquidity position shown in the consolidated financial statements is the sum of liquidity positions of the various entities included in the consolidation scope. However, those positions cannot be presented or analyzed on a "net" basis because they are individual positions, and not those of the group.

In addition, the consolidated statements show no restrictions on the use of the liquidity of each of the entities. Nor do they show cash flows between the entities included in

the consolidation, or restrictions thereof. Accordingly the consolidation ends up obscuring the link between the liquidity of assets and the liabilities for which they are actually available.

The same can be said of deferred tax assets and liabilities shown in the consolidated balance sheet. They are from individual entities, and not from the group; any analysis trying to assess the group's net position against tax authorities would be reaching misleading conclusions.

v. *The consolidated statements introduce confusion regarding relevant financial indicators*

Creditors often trust the protection offered by specific clauses in loan contracts or assets taken as collateral. In order to grant the right to intervene from the initial stage, all loan contracts define breach of contract and the rights that assist the lender when that occurs. Usually, the prospectuses of securities, bonds, syndicated loan contracts, etc., include clauses (covenants) such as a maximum debt ratio, a minimum liquidity ratio, or limitations to dividend payments, together with the corresponding penalties when they are broken (among them early repayment of the bonds, interest rate step-ups, etc.). For the most part, these clauses are intended to alert bondholders and lenders about the financial deterioration of the issuer or borrower.

The consolidated balance sheet does not offer investors of individual entities information enabling them to determine if these requirements are being fulfilled, or whether some company is in danger of breaching them. Therefore, consolidated statements do not permit the functioning of surveillance and monitoring mechanisms on the financial position of an entity with long-term liabilities.

vi. *The recognition of income from subsidiaries within the consolidated income statement is not always right*

Consolidation is based on the assumption that each monetary unit earned by a subsidiary has the same value as a monetary unit earned by the parent. Aside from possible tax effects on the parent from profits obtained by the subsidiary, this monetary equivalence cannot be taken for granted. There are various reasons for this. For example, the subsidiary may be subject to a public supervisory regime with the capacity to intervene in its dividend policy; or it could operate in a country subject to capital controls; or there may be contractual restrictions (v.g. covenants) to the payment of dividends referred to in the subsidiary's bond issuances; or a stable minority stockholder of the subsidiary may reduce the ability of the parent to set the dividend policy.

vii. *Consolidated statements hide the financial effects of subordinated bonds and preferred shares issued by subsidiaries*

When there are subordinated bonds or preferred shares issues by the subsidiaries, investors are interested in the profits of these entities and the amounts needed to meet the return of these securities. At the same time, ordinary stockholders will be interested in knowing the profits that remain free to distribute (including the parent). Consolidated statements do not provide that information. Furthermore, the income of the subsidiary deliverable to the parent company depends on whether the remuneration of bonds and preferred shares of subsidiaries have been previously settled or not.

viii. *Consolidated information can conceal relevant financial information relative to some group companies*

A weak subsidiary can be a real source of danger; an economic group may be able to support it, but the strength of the group increases when each subsidiary is self-sustaining. Since the consolidated statements are the aggregation of financial statements of a set of entities, the weakness of an entity may today be compensated by the strength of another; that is why the consolidated balance sheet cannot be considered to provide an accurate image of the parent's financial position. These types of information are extremely important, not only from the point of view of the minority shareholders, but also from that of the parent. Imagine for instance that a subsidiary essential to the group's operations is running on losses and has issued preferred shares. Control over this subsidiary is through ownership of shares since the preferred shareholders do not have voting rights as long as their remuneration is being paid. But there is a risk that the subsidiary falls into the hands of the preferred shareholders, and therefore the integrated operations of the group are obviously at risk.

ix. *The effects of exchange rates on the consolidated statements may lead to misleading conclusions*

In the case of groups with subsidiaries in different countries with different currencies, when the subsidiaries represent a relevant proportion of the total consolidation, readers of the financial statements can reach misleading conclusions if the consolidated balance sheet includes liquidity positions subject to highly volatile exchange rates, monetary tightening or capital controls.

On the other hand, changes in the exchange rate between the currency of the parent and the currency of the subsidiary produce variations in the consolidated equity of the subsidiary, even if the subsidiary's net assets have not changed. An appreciation in the exchange rate of the subsidiary against the currency of the parent company strengthens consolidated equity, and depreciation reduces it. However, these modifications of consolidated equity are not motivated by a generation of cash flows by the subsidiary, neither can they be considered as distributable to the parent company.

## 5 Consolidation and regulatory capital of banks

### 5.1 CONSOLIDATION

This section addresses, with greater detail, the implications of consolidation for the prudential regulation of banks.

The Basel Committee on Banking Supervision (BCBS) accepted from the outset consolidation as the basis of measurement of a banking group's regulatory capital. The scope of application of Basel II states that:<sup>7</sup>

"This Framework will be applied on a consolidated basis to internationally active banks. This is the best means to preserve the integrity of capital in banks with subsidiaries by eliminating double gearing."

This interaction between the regulatory scheme of banks' capital and accounting consolidation is only apparent. The substantial problem with this decision of the BCBS is that the claim is highly questionable, given that, as we pointed out in previous sections,

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<sup>7</sup> Basel Committee on Banking Supervision (2006), Paragraph 20.

assets displayed on a consolidated balance sheet are not fully available to meet liabilities. In addition, when these assets are located in a variety of countries, they are subject to different legal jurisdictions, and therefore protection of liabilities can introduce incentives in favor of certain structures (v.g. subsidiaries vs. branches) creating false realities that can increase the vulnerability of some entities within the banking group.

In this sense, together with the general difficulties caused by the use of consolidated statements, there are inherent problems in the supervision scheme “on a consolidated basis” resulting in added difficulties. Ignoring the legal and regulatory differences between countries is not a trivial matter when, for example, against the minimum requirement of capital required by Basel (8%) there are countries with higher requirements (v.g. 10-12%). Furthermore, Basel III could introduce more differences as a consequence of so-called “counter-cyclical buffers” at the national level, the supplements of capital for systemically important institutions, as well as the “liquidity coefficients” and “leverage ratios”.<sup>8</sup>

But there are more difficulties and complications in the use of consolidated financial statements as the input for banking supervision. During the crisis, trying to tackle the problems of mistrust of banks, some countries carried out different exercises for the evaluation of capital, which often tend to be referred to as *stress test exercises*.<sup>9</sup> The idea was to try to assess how a bank’s capital would evolve in case of a severe recession. Banks perform the stress tests on a consolidated basis, using data and flows of capital and liquidity within the group ignoring the possibility that, either the country of the parent (host) or subsidiary (home) impose partial or total obstructions to financial flows between companies of the group. The potential impact of these measures is not trivial, and indeed during the crisis there has been evidence of the establishment of regulatory barriers to limit the transfer of resources among companies within the same group.<sup>10</sup>

An additional element of uncertainty is the divergence between the accounting consolidation (required by capital markets) and the regulatory consolidation (necessary for estimating regulatory capital). While the first is based on the idea of “control” of a parent entity (dominant) over other entities (dependent or subsidiaries), the scope of consolidation chosen by bank regulators is limited to only a few of them: banks and regulated (v.g. securities) or non-regulated financial activities. Therefore, all dependent commercial and industrial entities, as well as insurance companies fall outside the “regulatory consolidation, with a peculiar system of deduction from the amount of regulatory capital being applied”.<sup>11</sup> No one has clearly explained the economic and financial foundations for these exclusions and deductions when it comes to estimating the capital needs of banks.

There are more differences. The “regulatory consolidated assets” are not those obtained after exclusions and deductions stemming from non-banking subsidiaries, as the reader might interpret. With the idea that assets have different “levels of risk” (and that this risk is not captured by their book value) each asset is weighted by a risk-factor ranging from 0%

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8 Basel Committee on Banking Supervision (2011).

9 The first took place in US in April 2009 and was done on the 19 largest banking groups in that country.

10 The establishment of regulatory barriers to limit transfers of resources from a subsidiary bank to its parent bank (“ring fencing”) was not through the traditional way of capital controls but rather using macro prudential tools (v.g. limits on loan/deposits), more stringent liquidity requirements for certain subsidiaries, or even measures of moral suasion, obviously hard to prove.

11 All the subsidiary’s assets and liabilities are removed from the consolidated balance sheet. Equity investments in insurance subsidiaries are deducted from regulatory capital, while those in commercial and industrial subsidiaries are also deducted from capital, when they exceed certain levels. Basel II, paragraphs 30 to 35.

for “loans granted to sovereign states” to 150% for financial assets qualified as dubious (more than 90 days past due).<sup>12</sup> This process results in a *Risk Weighted Assets* figure which is shown by banks in their financial information, and used in the calculation of their capital requirements.

Finally, certain assets within the consolidated balance sheet are directly deducted from capital: Goodwill, Intangible assets and Tax assets. We acknowledge our sympathy with the deduction of goodwill given the few clues that companies usually provide with respect to its true economic value. Therefore, goodwill is not viewed as an asset (as accounting regulators do)<sup>13</sup> but rather as a “loss” which accrues over a future, long and infinite period. Consequently, it is presented as a capital deduction instead of a year loss. On the contrary, no sound arguments are provided on why intangible assets owned and controlled by the firm (v.g. licenses of use, editing permissions, computer programs, etc.), as well as deferred tax assets that will reduce tax-related future cash outflows, must both be wholly funded with equity (v.g. fully deducted).

By providing this different asset figure, readers of a bank’s “consolidated regulatory” information may erroneously believe such information to be more reliable than information in the financial statements. The truth is they are actually confronted with complex data and aggregation of assets owned by various banks within a group, with risk factors being applied presumably with the purpose of equalizing their different levels of “risk”.

## 5.2 THE REGULATORY CAPITAL

The Capital Accord states that capital is the main tool for protection of bank depositors. Thus, Basel II maintains that:<sup>14</sup>

“Further, as one of the principal objectives of supervision is the protection of depositors, it is essential to ensure that capital recognised in capital adequacy measures is readily available for those depositors”.

The first difficulty arises because, in accounting, the concept of “capital”,<sup>15</sup> or more generically “net worth”, refers to the amount by which the assets of an entity exceed its liabilities, at a certain point of time. Therefore, capital is a residual amount. In other words, assets are economic resources and liabilities are financial obligations, and therefore capital represents the excess of the former over the latter. There is capital only if there are assets and, therefore, in this sense, capital, as financial resource isolated from assets and liabilities, simply does not exist. This is frequently ignored, and the concept of capital is treated as if it were something tangible, available, and something that can be used if things go wrong, etc. Entities and individuals have capital only to the extent that they have assets.

Even if accounting net equity is defined as a residual amount of assets over liabilities, its presentation on the balance sheet can be disaggregated. For example, the balance sheet of a stock company (v.g. a corporation) the net equity can be broken down into resources contributed by owners (v.g. capital stock), the retained earnings (v.g. surplus, reserves),

12 This methodology is referred to as the “Standard method” in Basel II. Another possibility is for the bank itself to estimate the degree of risk of each asset (“Internal ratings-based approach”: IRB).

13 IASB: IFRS 3, paragraph 32; and FASB: ASC 805-30-30-1.

14 Basel II, paragraph 23.

15 We refer here to the financial not to the “legal” concept, and nor to a specific item of balance. In economics, the concept “capital” sometimes refers to “financial assets” used to produce “wealth”, but most often use capital with a content similar to the accounting: “Capital is the sum of the money equivalent of all assets minus the sum of the money equivalent of all liabilities as dedicated at a definite date to the conduct of the operations of a definite business unit” [Von Mises (1949)].

other profits from maintenance gains (v.g. value adjustments), etc. This classification is usually done because it is useful for the readers of financial information, especially when there are legal restrictions on the distribution of equity; or because there are different types of stock with different rights to distribution; and also because it is sometimes required by legislation (v.g. commercial, markets, etc.). In any case, the figure of “accounting net worth” depends exclusively on the assessment of assets and liabilities. Of course, it will be pure coincidence if this number equals the market value of listed shares, or the price that would be obtained from selling all of the company’s stock.

The outstanding feature of an entity’s net equity is not having the right to contractual pay out, nor an amortization schedule. In this way, in accordance with accounting regulation, when a financial liability can be settled at the option of the investor, or it has some kind of guaranteed yield, it is not capital but a liability of the issuer. From the point of view of stability and exposure to the risk of bankruptcy of a bank (or any company) the relevant feature of capital is it does not contain mandatory payment requirements and its loss does not necessarily threaten the ability of the entity to meet liabilities. For stockholders, the existence of liabilities is a risk of loss of their investment, which is balanced with the potential for high yields provided by financial leverage. Creditors and banking regulators prefer a capital base as wide as possible, as a “buffer” that protects the bank against losses that may arise from risky assets. The smaller the accounting capital base, the lower the buffer and, consequently the greater risk of bankruptcy.

And here appears the second difficulty regarding financial statements and bank regulation. While the accounting capital is a unique number (the excess of the value of assets over liabilities on a specific date) the regulatory capital concept is threefold:

- i. Tier 1 Capital:
  - a) Common Equity Tier 1.
  - b) Additional Tier 1.
- ii. Tier 2 Capital.
- iii. Total Capital: i + ii.

The idea of Common Equity Tier 1 resembles the accounting own funds. However, so called *Regulatory adjustments* distort this approximation. In addition to the deductions of assets already mentioned (v.g. goodwill, intangibles, tax assets) another tool, referred as *filters*, allows removal of the gains but not the losses (such as in cash flow hedges) or to deduct assets but not liabilities (defined-benefit pension plans). In the first case, this treatment is justified by the alleged artificial volatility introduced in capital; however, if the same transaction (usually a derivative) was not given hedge accounting treatment, the results would not be filtered. In addition to the asymmetry of some of these filters (which is not sufficiently backed) it would seem as if the Capital Accord ignored the requirements to recognize assets and liabilities on a bank’s balance sheet and instead of requiring rigorous valuations, opted for such mechanical additions or deductions that alter the meaning of those elements without bringing clarity to capital.

Finally, the elements that can be included as Additional Tier 1 Capital or Tier 2 Capital are perpetual debentures with option of cancellation for the issuer and discretion of the bank



for the payment of interest (Additional Tier 1) or with a minimum maturity (5 years) and required payment of interest (Tier 2). The former tend to be called preferred stock, a name that may create confusion as it relates to an instrument that combines the limitations of creditors with the risks of the stockholders. Subordinated bonds are titles with defined amortization schedule and interest payments and, in the event of insolvency, are the last creditors to be paid. According to general accounting rules, banks issuing such products must present them as liabilities on their balance sheet.

### 5.3 THE REGULATORY CAPITAL RATIO (BIS)

Financial ratios are an analytical tool that is relatively easy to understand. However, one must be careful to determine the elements involved in the calculation, because there is no unique interpretation. Readers of a bank's financial information should be aware that the popular name of a ratio may not accurately convey its meaning, nor the method for its calculation.

Basel III requires three capital ratios from banks, each of which having to reach a minimum:

Regulatory capital ratio		Minimum
Common Equity Tier 1	$\frac{\text{Accounting Net Equity - Regulatory Adjustments}}{\text{Risk Weighted Assets}}$	4.5%
Tier 1	$\frac{\text{Accounting Net Equity - Regulatory Adjustments} + \text{Preferred Shares}}{\text{Risk Weighted Assets}}$	6.0%
Total Capital	$\frac{\text{Accounting Net Equity - Regulatory Adjustments} + \text{Preferred Shares} + \text{Subordinated Debt}}{\text{Risk Weighted Assets}}$	8.0%

Regulatory Adjustments = Goodwill + Intangibles + Deferred Tax Assets + Defined Benefit Pension Plan Assets + Cash Flow Hedge Gains + -----

The Capital Accord leaves it for national authorities to adopt the standards in their respective jurisdictions. This includes both the scheme of the "risk weighted assets", and the deduction or filtering of items from the net worth, which generates inconsistencies in the regulatory capital figure of banks in different countries.

From this point *the illusion* is created that a bank that meets the highest levels of regulatory capital ratios is well capitalized. The reality is that a more conventional accounting measure of this ratio (*v.g.* accounting equity / total tangible assets) would provide a very different perception of the level of solvency of banks, even after deducting goodwill, intangibles and tax assets. In fact, quite a few big banks with a regulatory capital ratio well above the minimum of Basel (8%) show a more conventional capital ratio (accounting equity / total tangible assets) of 3 to 4%.<sup>16</sup> This means that the regulatory capital ratio can create confusion and illusion to readers of a bank's financial information, and make them rely on the relative strength of a bank, when in fact it does not have it.

The financial crisis of 2007 showed the seriousness of this illusion. Many entities that had been judged by supervisors as adequately capitalized, very soon after were intervened by

<sup>16</sup> <http://www.fdic.gov/about/learn/board/hoenig/capitalizationratios.pdf>. The "tangible accounting asset" concept used here is equal to total assets less goodwill, intangible assets and deferred tax assets.



the authorities; the examples are well known on both sides of the Atlantic. Few listened to market calls demanding more capital for the largest banks in the world, as was reflected in stock market capitalization values well below their book values (with no recovery to date, the average remains at about 0.8).

Since it is the shareholders, and certain creditors, which have their capital at risk at the bank, it does not seem appropriate to suggest complex solvency measures, perhaps more targeted to other needs. The evaluation of creditworthiness is of the utmost interest to creditors and shareholders of a bank; if the information extracted from a bank's balance sheet is not adequate, or even worse, is illusory, that information is clearly wrong.

The absence of a conceptual framework of banking regulation that defines concepts, needs, goals, etc., has generated a real industry around regulatory capital and the estimation of bank solvency, which creates barriers and confusion rather than helping users of a bank's financial information. The security which appears to be offered by sophisticated and complex terminology along with elegant mathematical formulae is not justified, and sometimes the resulting figures are certainly illusory, as the crisis in 2007 evidenced.

There is a risk associated with the blind confidence of supervisors, creditors and investors in those figures; a danger that theoretical abstraction and the so-called statistical behaviors downgrade and relax the thorough and detailed analysis of figures shown in the balance sheet of a bank, as well as the market's opinion of those figures. It would seem as if information obtained directly from the financial statements of a bank did not provide stockholders, creditors and supervisors with enough evidence to evaluate its solvency. If this were so, clearly those financial statements would be wrong. The fact that losses in banks are not distributed evenly over time, but instead tend to be concentrated in certain periods, the crises makes bank failure an exceptional risk and, therefore, similar to the risk of an epidemic in estimating the life insurance premium: exceptional and thus inestimable. Therefore, it is very doubtful that mathematics based on data from the past and "normal" statistical behaviors is of any use to shareholders and creditors of a bank.

## **6 An alternative to consolidation and regulatory capital requirements**

When analyzing the difficulties of using the consolidated statements we pointed out the confusion that a simplistic interpretation could induce in unwary readers. It is obvious that this use is more widespread than could be expected, including among important international organizations. If the objective of financial statements is to provide useful, relevant, consistent and reliable information, these same qualities must be required of consolidated statements. It seems obvious that stockholders, creditors and banking supervisors need financial information allowing them to calculate, in addition to indicators of solvency and performance, the capabilities of net assets of a banking group's parent to generate cash flow in the future, and that can in no way be obtained from consolidated statements.

As we have argued in this paper, accounting consolidation is a highly artificial practice, and its most undesired consequence is to produce a false sense with regard to the reality and the legality of what it purports to represent. Furthermore, the fact that numbers from different entities that use a wide range of valuation methodologies are added into a single number makes consolidation a pure arithmetical exercise with limited financial meaning. A portfolio of bonds may be measured at amortized cost by one entity and at fair value by another, without it being clear what economic meaning can be given to those figures when added in a consolidated balance sheet. The addition of these figures is wrong, but so is making adjustments in order to follow a common approach (because it is simply unreal).

Let us now look at an alternative proposal to consolidation.<sup>17</sup> For the sake of simplicity, it is assumed that the parent is a bank holding company whose only assets are investments in its subsidiaries, and that there is only one type of equity instruments: stocks. In summary, the consolidated balance sheet of that bank holding company, broken down by measurement base, could be the following:

Consolidated balance sheet	
Assets	Liabilities and capital
Assets from Subsidiaries (HC) (a)	Parent's Liabilities (HC)
Assets from Subsidiaries (FV)	Liabilities from the Subsidiaries (HC)
Goodwill (HC)	Minority Interest
	Parent Net Equity and Reserve

NOTE: HC = Historical cost, FV = Fair value.

a These asset's historical cost would be that corresponding to the date of the subsidiary's creation or either fair value upon acquisition by the parent.

Now, let us assume that instead of consolidating the banking group all assets and liabilities were measured at *fair value*.<sup>18</sup> The individual balance sheet of the parent and the subsidiaries would look as follows:

Parent balance sheet	
Assets	Liabilities and capital
Investments in Subsidiaries (FV)	Parent Liabilities (FV)
	Parent Net Equity

  

Subsidiary balance sheet	
Assets	Liabilities and capital
Subsidiary Assets (FV)	Subsidiary Liabilities (FV)
	Subsidiary Net Equity

Any assets of a subsidiary would be registered in the parent bank's statements at its fair value. The difference between the sum of the fair values of all investments of the parent bank, and the values of liabilities would be the best estimate of the equity of the stockholders of the parent bank. Only if this difference (the net worth valuation) is used in the calculations related to the balance sheet and performance of the bank, could the results of those calculations be considered significant regarding the parent bank's capacity to generate cash flows. As a result, the parent bank's balance sheet would present its equity investments in subsidiaries measured at an amount equal to the subsidiary's net equity, which would be precisely the same amount shown in the subsidiary's balance sheet resulting from the fair value measurement of its assets and liabilities.

<sup>17</sup> This proposal is a continuation of work done in 1968 by Professor Raymond J. Chambers based on the inappropriateness of consolidated statements and their replacement by a current prices measurement (*current cash equivalent*) ["Consolidated Statements are not really necessary", *The Australian Account*, February, 1968].

<sup>18</sup> Accounting regulations contain a generally accepted definition of "fair value". "It is the amount that could be paid in exchange for an asset or to cancel a liability, between independent interested parties, properly informed about the profitability and risk of the element object of exchange" IFRS 13. At every moment, fair value is a uniform and relevant representation of cash flow expectations for an asset in the market. Accounting measurement at fair value levels the market conditions applicable to all assets at the time of measurement. The financial significance of fair value in a balance sheet is in line with the purchasing power attributed to an asset. "A man does not value money for its own sake, but for its Purchasing Power, that is to say, for what it will buy. Therefore, his demand is not for units of money as such, but for units of purchasing power. Since, however, there is no means of holding general purchasing power except in the form of money, his demand for purchasing power translates itself into a demand for a "equivalent" quantity of money" [Keynes (1930)].

In addition, the solution of measuring the assets and liabilities of subsidiaries at fair value would avoid the need to eliminate the results of intra-group transactions. If assets were measured at fair value, any transactions at prices above or below the fair value as of the balance sheet date would be automatically corrected. In fact, transactions carried out at conditions outside the market, in order to enhance (or damage) the position of a subsidiary, would be automatically eliminated. And of course, goodwill would no longer represent a problem since payments above fair value would be adjusted as of the purchase date against the acquirer's net equity.

Using of market prices, when available, in the valuation of assets and liabilities generally constitutes a better practice in the assessment of solvency of banks. By providing a more realistic measure, fair value accounting proves useful to overcome many of the inconsistencies found in the consolidation of financial statements, thus resulting in increased confidence in the derived figures and ratios, and in reliable measures of buffers of "assets" which the depositors and creditors can count on.

In addition, it would be extremely useful for supervisors to use net worth at market value as a complement to the measurement at fair value of assets and liabilities. Since equity is equal to the value of assets net of the value of liabilities, the financial statements of the bank (fair value thereof) may provide a value of equity far away from the value calculated using the market price of the shares.

A method to overcome this, especially for some ratios considered specially relevant (v.g. BIS ratios) would be to update net equity replacing it by the stock's market value as at the date of measurement, or either at the average market price during a given time period. Since market values reflect expectations on the bank's ability to generate future cash flows, they could possibly be used to calculate a supplementary capital ratio. Banking supervisors may consider taking this market based capital ratio as a synthetic measure of "Market Discipline" on which to rely when claiming more capital (v.g. Pillar II). When net worth (book value of equity) is above market valuation, it should be interpreted as a sign of financial weakness of the bank, while the opposite should be deemed as a true "buffer" for depositors.

A relevant critique to the measurement of capital from stock market prices is that, occasionally, prices are very volatile, with strong fluctuations, and possibly far from fundamental values in periods of financial panic or high speculation. However, this criticism could always be countered with the superiority of the market's opinion as compared to data extracted from valuation models.

**7 What would fair value provide?**

Currently, information provided in bank financial statements is a mix of historical cost, amortized cost, fair value and in-house estimates. These valuation criteria generate differences arising from the different and particular conventions each of them is based upon. This creates difficulties in comparing the financial statements of two banks and in comparing the financial statements of a bank over time. From a perspective of its usefulness, relevance and consistency, the advantage of fair value over historical cost is indisputable. Historical cost is easier to verify than fair value, whose measurement is much more dependent on estimates. Historical cost would be the most appropriate valuation approach if the purpose of accounting were a mere exhibition of figures easily verifiable with a high degree of objectivity. Even so, this objectivity is in itself controversial since it violates an essential component of any theory of economic value that purports to be considered appropriate: that the value of any asset must inevitably be linked to the circumstances at a particular the moment of measurement. Moreover, the estimation of a

specific value is point in time, and therefore an unstable figure. Awarding continuity to the accounting valuation as at a given moment in time represents a very strong restriction and could only be justified when no indication to the contrary was in place, or better information was not available.

Thus, the historical cost-based information is, at best, historical, and, at worst, irrelevant. At reporting date, the historical cost is simply a problem of history. The price of a building, a bond or a stock ten years ago, has the same relevance today as the hypothetical price within twenty years from now. Since the price of an asset can change over time with the purchasing power of money remaining unchanged, and vice versa, it is not possible to infer the historical price from its current value. For each asset, its estimate of value, for the purpose of evaluating its possibilities (*v.g.* buy, sell, hold), is a “point in time” assessment, under the circumstances prevailing at that point in time, even when the process of estimation itself requires some time. Therefore, the measure of a bank’s equity on the basis of historical cost cannot provide a meaningful indication of its solvency. Neither does it represent a good measure of its performance since it makes the bank’s results depend on documentary and legal bases (critical events such as purchases or sales), leaving aside results from management decisions on the allocation of assets that are managed.

In general, the biggest concern regarding fair value is its reliability when prices of assets and liabilities are not readily available in an active market. These concerns are in most cases generic and do not differ from those that can arise from estimates based on historical cost, such as estimates of asset impairment, estimates of liabilities for pension plans, etc. In the case of financial instruments (the most important elements on the balance sheets of banks), advances in financial valuation techniques over the last forty years, the same that banks actively use in trading and risk management, allow one to obtain reasonable estimates of fair value that would be close to the price of the asset in arm’s length transactions once market conditions are incorporated. In any case, the fair values of financial instruments can be better relied upon than valuations for tangible or intangible assets conducted by appraisers or valuation professionals. The level of standardization and normalization of financial products compared, for instance, with the heterogeneity of real estate products, makes it relatively easy to reach a consensus regarding their valuation. On the contrary, the huge real estate boom experienced in recent years was largely possible because all the money necessary to finance investment in these assets could be obtained from banks by means of real estate appraisals. A lack of financial soundness, and of the most basic common sense, enabled this kind of assessments to be conducted on liberal bases of valuation rather than on construction costs. At the same time, the scarce discrimination by banks on the basis of borrower risk made it easy for developers to keep on building without bearing any risk.

Historical cost can neither reflect the real situation of a bank with respect to other banks. Such problem of comparison is relevant for banking regulators and investors alike. Fair value provides consistency and comparability between assets acquired in the past and those more recently acquired by the same bank, and also between the assets of two different banks. It could be argued that fair value is not a perfect measure, but it is the way in which real business takes place. The business decision-making process is essentially based on the current value of assets and liabilities, and the financial statements of a bank must be consistent with that behavior. Accounting is a real phenomenon or, in other words, accounting information must be evidenced by the way in which assets and liabilities are managed by banks, away from theoretical assumptions, beliefs or personal convictions, if it is to be consistent and useful. In this regard, information not based on the fair value of

assets and liabilities alone is less useful than information based on a mix of historical cost and fair value.

## 8 Conclusions

The aim of this paper is to contribute to a reflection on the accounting theoretical approach adopted by regulation to evaluate bank solvency. More specifically, the paper proposes an alternative approach to solvency analysis that breaks with the view of consolidation of financial statements as a totipotent methodology to analyze banking groups, by proposing a measure of bank solvency directly linked to the information, including market prices, that is used by capital market participants.

The publication of consolidated financial statements was the result of a long process of compromise at a time when mergers and acquisitions were new phenomena in the business scene. In that environment, the preparation of financial statements gravitated around the historical cost. The idea of *risk* at that time was nothing more than a dialectical concept, found in any investment, but there was not a number that identified it. The evolution of financial theory during the latter part of the 20th century created a formal structure for financial assessment that provides banks and other firms with a platform from which to manage and hedge their financial risks without relying on intuition.<sup>19</sup> This same formal conceptual structure serves as the foundation to estimate the fair value of financial assets and liabilities on the balance sheets of banks. The use of derivatives in the 90's caused the crisis of historical cost and, with unusual regulatory consensus, the need for "fair value" as a criterion of accounting valuation, due to its greater utility, consistency and relevance with regard to financial instruments. No doubt it may seem challenging, but today the effects of corporate concentration are coupled with progress in valuation techniques that were not available for the first large conglomerates of the early 20th century.

Consolidation is a highly artificial accounting exercise that creates a false illusion regarding the legality of the picture portrayed. The adding of assets and liabilities of entities belonging to the same banking group can be accepted as a way of presenting information, but this does not imply it is of real help since consolidated financial statements hide as much as they purport to show. Furthermore, to infer economic and financial conclusions based on the figures of the consolidated statements as if it were a legal entity is clearly inappropriate. In order to fully understand the situation of each entity within a banking group, the financial information of each separate entity must be examined separately. Of course, when faced with this analysis, the restrictions are not only those having to do with limited liability, but also those related to the group's reputational risk.

Consolidated statements have been accepted by the financial community for nearly 100 years, despite the fact that their justification requires, without doubt, an exercise of abstraction from very important legal and economic facts. It may not be easy to accept the suggestion to replace consolidation statements by individual statements with assets and liabilities measured at fair value. Neither is it easy to estimate regulatory capital requirements on the basis of measuring all assets and liabilities of banks at fair value, especially when this criterion, despite the lack of evidence, is pointed to by uninformed sources as one of the drivers of the current financial crisis.<sup>20</sup>

19 Based on the seminal work of Bachelier (1900), pp. 21-86; relevant authors in this field from this period include: Samuelson (1955); Markowitz (1959); Samuelson (1965), pp. 13-39; Black and Scholes (1973), pp. 637-654, and Merton (1973), pp. 141-183.

20 In October 2008, the SEC was commissioned to study the impact of fair value on the banking crisis in US. The study showed that fair value did not play any relevant role in bank collapses. At the same time, it evidences the support of investors for fair value as a more useful, relevant, and reliable measurement criterion that facilitates their financial decisions and the proper price formation. United States Securities and Exchange Commission (2008).

An implicit problem in the agreement around “Capital” is that by not requiring all financial assets to be measured at fair value for estimating capital needs, these are based preferably on static past events (historical cost) therefore ignoring what the market thinks about the relative risks of the different assets of banks. In addition, introducing different weightings to the various types of assets leads to artificially favoring some financial assets with respect to others. In this way, the regulation of capital, by not requiring fair value for all assets of banks, unintentionally stimulates and encourages some assets with respect to others, with maybe an unintended result of global over-investment. The effect of all this is an increase in the vulnerability of individual banks, of the banking sector and of the economy as a whole.

Since the first Capital Agreement was published in 1988, all look back to the past when assigning risk weightings into the future. It is difficult for this to work. Capital regulation should be a source of strength for the unexpected, not a way of trying to guess the future. This is what characterizes the capital of any entity, whether a bank or any other firm. What is unexpected is uncertainty surrounding any business, and uncertainty, as opposed to risk, is not measurable. Risk is linked to situations where it is possible to assign probabilities within a random reality; in that context gains cannot exist. Uncertainty, on the contrary, is the essence of the entrepreneurial spirit under real competition, and, thus, forms the basis of one of the theories about economic profit.<sup>21</sup> Even the Bank for International Settlements warned in 2007 on what could be expected of models and mathematical predictions in finance and economy:

“Economics is not a science, at least not in the sense that repeated experiments always produce the same results. Thus, economic forecasts are often widely off the mark, particularly at cyclical turning points, with inadequate data, deficient models and random shocks often conspiring to produce unsatisfactory outcomes. Even trickier is the task of assigning probabilities to the risks surrounding forecasts. Indeed, this is so difficult that it is scarcely an exaggeration to say that we face a fundamentally uncertain world – one in which probabilities cannot be calculated – rather than simply a risky one”.<sup>22</sup>

To provide an example, in 2006 there was substantial agreement among banks and authorities that banks were well capitalized and had developed robust risk management practices which they allegedly used in their day-to-day management of risks, and could therefore be used to estimate regulatory capital, such as mathematical models for the measurement of credit risk. The result was that investors judged their investments in banks as at low risk of default, and banks benefited from low financing costs. As was later shown, this general belief led to a wrong perception on how banking activity was actually being developed in many countries. Perhaps the high degree of agreement was indicative of a low uncertainty state that influenced everyone’s behaviour. Therefore, regulation should perhaps abandon its concern for finding optimal rules and try to concentrate on common sense rules, which are easy to implement, easy to review by supervisors, easy to understand by investors, and most importantly, directly linked to reality.

Supervisors could choose another way to judge the appropriateness of a bank’s capital. First of all, abandoning the consolidation requirement and instead, asking for individual financial statements. Secondly, by demanding that all financial assets and liabilities (the greater part of a bank’s balance sheet) be measured at fair value as at the date in which

21 An interpretation of the distinction between risk (measurable) and uncertainty (not measurable) as used in economics can be found in Knight (1921), Keynes (1920), and Keynes (1936).

22 Bank for International Settlements, *Annual Report 2007*.



capital needs are estimated. Finally, by using a solvency ratio that takes accounting net worth (assets less liabilities) as numerator, and total assets as denominator, possibly after deducting certain tax assets and intangible assets.

Almost 25 years ago a regulatory framework for banks took off within an economic and financial environment characterized by low interest rates and a low perception of risk. Regulatory capital requirements allowed banks to expand their business without their accounting equity base growing proportionately, which facilitated huge growth of their balance sheets. Perhaps it is time to review some of the banking regulatory practices particularly thinking of their link to financial stability. The crisis has shown that regulatory capital is not in itself a guarantee for financial stability and that financial excesses are best prevented with a solid base of accounting capital.

Of course, neither accounting nor capital regulation are exact sciences, and, like human invention, they are imperfect. Often the financial world wants to believe the illusion that it deals with “precision”, which really does not exist in the sense that ordinary people use this term; but not even an alternative exists. Accounting is essentially a process of measurement and any measurement is a process of approximation; wondering about the degree of approximation, or conversely, the degree of error, is therefore very relevant. The obligation of banking supervisors is to regulate entities that are essential for the proper functioning of the economy, and thus it is crucial that they choose the best practices in order to contribute to financial stability.

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