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TECHNOLOGY OUTLOOK

Collateral Management: Strategic and operational implications

BANKING DIVISION
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Participants

This document is the result of a joint collaboration between CeTIF and operators from the banking world. The following are the names of the Institutions that have taken part in the focus groups that took place in the period between June and September 2012:

- Banca Akros
- Banca Carige
- Banca IMI
- Banca Monte dei Paschi di Siena
- Banca Popolare di Sondrio
- Banco Popolare
- CREDEM Banca
- DEXIA Crediop
- Intesa Sanpaolo
- Ubi Pramerica
- Unicredit

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The meetings were organised and managed by the CeTIF Working Group in the persons of:

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- Alberto Palazzesi

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1. Introduction¹

Collateralisation is a risk mitigation technique that consists of supporting a contract which is subject to a risk of defaulting with a right to recoup losses on highly liquid or liquid assets

The use of collateral has strongly increased in recent years due to the increased perception of credit risk by operators and the development in trading activities on derivatives markets. Compared to other risk mitigation techniques, collateral has a number of advantages in terms of transferability, liquidity and price availability.

Although cash and government securities still represent the most prevalent forms of collateral, as they allow you to maximise the benefits listed above, increased demand for collateral has necessitated an expansion in the range of assets used as a means of security. This results in a more significant role for risk management in collateral management. Risk exposure estimates of a certain position are more complex when one also needs to consider the volatility and liquidity risk associated with non-standard assets which may be accepted as collateral

In prospective terms, collateral management is made all the more relevant by contextual factors, be they regulatory or economic.

As regards the regulatory factors, the European banks are currently facing an unprecedented number of regulatory reforms, originating largely from the De Larosière report of 2009 and from The Third Basel Accord on bank capital (also known as Basel III). Within this context, the fourth European Capital Requirements Directive, (CRD4) and the attached Capital Requirements Regulation, (CRR) will create an integrated and pervasive regulatory framework relating to all the main aspects of banking management. The regulation of liquidity risk, which is based on two new ratios, the Liquidity Coverage Ratio and the Net Stable Funding Ratio, has been adapted by rightly taking into account both active and passive collateralisation. Furthermore, and still from a regulatory perspective, EMIR (The European Market Infrastructure Regulation) introduces, in addition to appropriate reporting obligations for OTC derivatives, liquidation requirements drawn

¹ The following section is edited by Professor Petrella

from OTC derivatives and negotiation requirements on trading platforms of standardized, exchange traded derivatives. "On exchange" negotiation will make the derivatives quotas associated with collateralisation requirements even more relevant. These requirements are now widespread in OTC transactions and are supported by Credit Support Agreements.

As regards the economic factors, the acquisition of liquidity, a critical element for the survival of a broker, is facilitated by the use of collateral. More generally, optimising liquidity management is based on efficient passive collateral management, which is a valuable resource both in terms of access to credit and in terms of optimising funding costs. At the same time, active collateral management enables both management of counterparty risk and, where possible, availability of receipt of a loan operation (re-use). The overall picture that forms the backdrop to the heightened importance of collateral may therefore be considered to be the result of two factors: 1) management of counterparty risk and 2) liquidity optimisation.

Collateral does not affect the likelihood of the counterparty defaulting, but intervenes in order to mitigate the effects of the default. Up until only a few years ago, collateral was not widely utilized in transactions between banks, but today it has become widespread. The assumption that a banking counterparty was exempt from the risk of defaulting has been completely abandoned. From a pricing perspective, it is nowadays best practice to distinguish the fair value from the credit charge of a position. It is believed that, even when the current stressful phase on the markets has passed, collateral will continue to play an important role as a tool to mitigate counterparty risk.

From a long-term perspective, the systemic response based on the heightened importance of the markets for exchange traded (ET) derivatives trading, as well as managing to reduce counterparty risk and increase liquidity, has an important sub-product: namely the acquisition of information (open interest and volume of it) on financial instruments which in the past have been characterised by the openness of trading and by significant systemic effects.

A complex element is the presence of ET derivatives transactions, centrally cleared OTC derivatives (cleared) and non-centrally cleared OTC derivatives (uncleared). It is believed however that the complexities faced by the banks in this area are not only sources of additional costs, but also of processes that will continue to be applied even during less turbulent periods on the market.

Risk management and liquidity management are key operation areas for each financial intermediary. Collateral influences both areas of activity, operating as a tool for mitigating credit risk in credit relations and facilitating the supply of liquidity in treasury management.

In conclusion, collateral management is a very important subject both currently and in the future for the many reasons outlined above. Other than the exceptional responses owing to the crisis, the new regulations make the issue even more relevant in the long-term. They remain important issues which will be subject to future investigation on the basis of the activities

that may be deployed by way of collateral, from measuring potential exposure in the presence of non-standard collateral, to an increase in the number of proponents of structured collateral management activities, and to integrating collateral management activities with other corporate functions and, above all, with risk management.

1.1 Research Methodology²

This document illustrates the ideas and reflections of two focus groups brought together along with protagonists of the world of finance, of the treasury and collateral managers in conjunction with the results of a qualitative-quantitative study addressed to the same parties.

Two focus group meetings were held in June-September 2012. These meetings were held in accordance with a university debate format, where participants took part with active, critical and highly specific participation. The difference in the makeup of the panel of participants contributed positively to the study and to the Collateral Management analyses with many different points of view.

The two debates were structured differently in accordance with the subject matter:

- University lecturers and experts with specific expertise took part in the matters of discussion
- There were also some highly-analytical focus groups

The qualitative-quantitative study consisted of a questionnaire comprising 54 structured questions including both multiple-choice and written answers. The subject areas that made up the questionnaire are as follows:

- Section I: Collateral Management
- Section II: Collateral Management and derivatives
- Section III: Collateral Management and liquidity
- Section IV: IT applications

CeTIF coordinated all of the research activities and the responses, overseeing the aspects of scientific method, and developing the contents of the meetings and the information gathered from the participants.

Tasgroup contributed to the research activities by providing its distinctive expertise, conveying the project experiences gained by its own customers and taking part in the meetings by entering into the spirit of the discussion.

² The following section is edited by CeTIF

2. Collateral Management in OTC market operations

2.1 Developments and use of Collateral Management in OTC market operations

The use of collateral by creditors in order to provide security against potential defaults has, for hundreds of years³, been a widespread practice in the economic world.

Nowadays, in the context of the modern banking industry, securities (in our case *collateral*) can be used as bilateral "insurance" for over the counter (OTC) market transactions. Indeed collateral, in the form of cash or financial instruments, is intended to provide financial institutions (banks, insurance companies, funds, etc.) with security in relation to its market counterparties with a view to a successful completion of existing or future transactions.

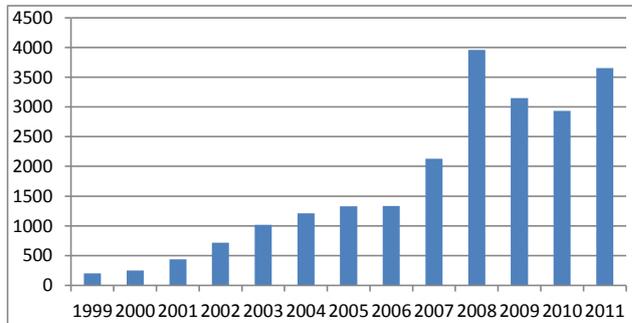
If in the 1980s collateral was a rather limited instrument which was mainly used by the big banks for smaller and/or riskier counterparties (hedge funds or niche brokers), in the last twenty years collateral has become more widespread thanks to innovation in technologies, to increased competitiveness in the financial sector and, of course, thanks to the increased use of derivatives.

To gain a better idea of how substantial the amounts connected to this instrument are, recent publications⁴ of the International Swaps and Derivatives Association (hereinafter ISDA) show the value of collateral in circulation on the OTC derivatives market in December 2011 to be equal to 3.6 trillion dollars, (a 25% increase on the previous year) registering consistent growth in the last 12 years and close to a compound annual rate of 24%.

Figure 2.1: Value of collateral in the global financial market in US dollars (billions)

³ One need only think of the institutional pawnbroker *the Mount of Piety* which dates back to the 15th century. This institution guaranteed loans on a limited scale in exchange for a collateral that was worth one third more than the value of the requested funding.

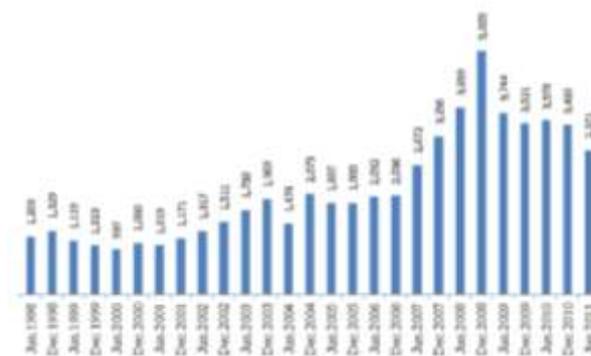
⁴ ISDA Margin Survey 2012



Source: CeTIF 2012 reworking of ISDA 2012 data

While the value of the collateral continues to increase (25% in the last year), on the other hand the total value of Credit Exposure continues to decrease (-15%)⁵. Interestingly, at the end of 2008 (a few months after the collapse of Lehman Brothers), counterparty exposure amounted to around 5 trillion dollars, representing the highest value of the last 14 years.

Figure 2.2 Value of exposures on OTC derivatives, in US Dollars (billions)



Source: BIS 2012

For collateralised operations, the *mark to market* is constantly covered by the provision of assets such as cash, government bonds, corporate bonds and asset-backed securities, that the creditor may retain or sell on the market in the case of insolvency.

The latest ISDA studies show that cash is the most widely used form of collateral (79% of the total securities), followed by government bonds with a value close to 12%. The predominant use of cash as collateral is due to the fact that it is a very simple tool: it is easy to value, to transfer and to manage. From experiences of the focus groups it emerged that the use of different

⁵ Bank for International Settlements

collaterals to cash, for covering risks on OTC transactions, is in Italy even less prevalent than shown by the ISDA study and very close to zero. The participants highlighted how the almost absolute use of cash is mainly linked to operational aspects and less to aspects of a contractual nature.

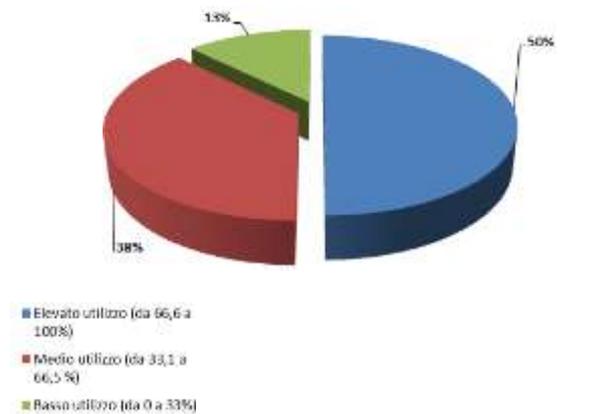
Moreover, in evaluating the *mark to market*, the working group recognised critical issues relating to the fact that these estimations were made mainly on single trade operations and not counterparty operations.

The following section presents the main findings from the qualitative-quantitative survey relating to strategic operations and compiled by 11 brokers operating in Italy.

2.2 Survey Findings

In the case of Italy, the use of collateral for mitigating counterparty risk in OTC transactions represents the norm rather than the exception. Of the 11 brokers that took part in the survey, all of them stated that they use Collateral Management. The use of this instrument is quite significant in number. Indeed, as shown by Figure 2.3, more than 80% of samples employs a medium-high use of Collateral Management (from 33% to 100% on the number of total transactions).

Figure 2.3: Use of Collateral Management in total OTC transactions



(High use from 66.6 to 100% - medium use from 33.1 to 66.5% - low use from 0 to 33%)

Source: CeTIF 2012

Comparing the data from Figures 2.1 and 2.2 with data from Figure 2.3, it would appear that there is a further increase in adopting collateral in order to align with international practice.

Collateralisation has several strategic advantages. The most widely recognised benefit is that it allows financial operators to mitigate credit risk (almost 80% of respondents attribute high importance to this factor). This is followed, on the one hand by the possibility of increasing efficiency between counterparties (as transactions and payments become "easier", providing the option of balancing profits and losses in a more standardised and reproducible manner) and on the other hand the opportunity to access riskier trading as, by mitigating credit risk, the parties can access riskier and therefore potentially profitable transactions.

Figure 2.4. Benefits of using Collateral Management for OTC transactions



(Reducing credit risk - increasing efficiency between counterparties - possibility of accessing riskier trading - increasing speed of completing the transaction - increasing market liquidity)

- Scarsa importanza
- Media importanza
- Alta importanza

(Low importance - medium importance - high importance)

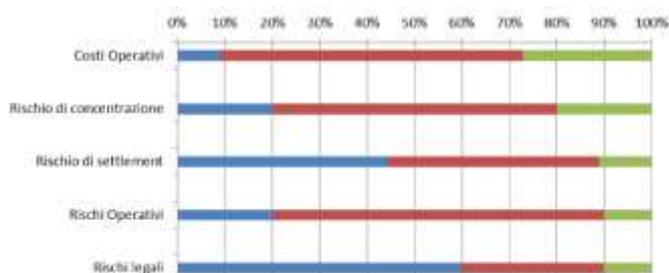
Source: CeTIF 2012

However, collateralising may also present disadvantages in terms of operating costs, concentration risk, settlement risk, operational and legal risks. From Figure 2.5 it can be seen that the participants considered the operating costs as the most important element (around 30% of the sample attributes high importance to this aspect). Following this is concentration risk - that is, risk relating to the possibility that the lender's portfolio value may, following a market crisis, collapse as it is not sufficiently diversified⁶. Finally, of lesser importance are the operational risks, legal risks and settlement risks.

In reference to the latter, the use of a secure and efficient payment system based on globally-recognised standards and/or the option of a Tri-Party agreement (which we will examine in further detail in section 4.3) represent the two most viable solutions.

⁶ One of the suggested solutions would be to use concentration limits in order to reduce over-exposure of a single type of asset.

Figure 2.5: Disadvantages of using Collateral Management in OTC transactions.



(Operational costs - concentration risk - settlement risk - operational risks - legal risks)

■ Scarsa importanza

■ Media importanza

■ Alta importanza

(low importance - medium importance - high importance)

Source: CeTIF 2012

In addition to these possible risks which we have just highlighted, implementing Collateral Management can, in terms of organisation, present a few difficulties. As can be seen from Figure 2.6, these problems can be connected to poor standardisation of processes, to the lack of integrated and efficient information systems, and to a lack of uniform and high-quality specialized skills within the different structures.

Figure 2.6: Organisational difficulties in implementing Collateral Management for OTC transactions



(poorly standardised processes - lack of integrated and efficient information systems - need for specific skills/expertise - developed monitoring and control system - lack of a uniform organisational responsibility)

Source: CeTIF 2012

In addition to the manual nature that differentiates most of the processes, the focus group also highlighted a further critical issue: the burden of normalization processes and daily reconciliation of the flows / portfolios of the counterparties (eg. manual checks and use of spreadsheets).

In terms of specific skills, Figure 2.7 shows how they are rather widespread within the different structures of intermediaries. The areas which they tend to focus on the most are: the middle-back office, Risk Management, finance and legal affairs.

From the Figure it emerges quite clearly that specialist collateral skills are rather low in the fields of marketing and sales.

It should however be noted that while management skills may be quite limited, basic administrative abilities in the use of collateral are also marked. Indeed the last few years have been characterized by initiatives designed to provide these structures with basic skill sets in order to carry out sales and marketing activities. This issue will continue to be more pressing in the next few years given the ever increasing need for offices to exchanges information for *time to market* purposes, and for information processes between operatives and businesses to be strengthened quickly and in a more structured manner.

Figure 2.7: Competences and skills in the various structures for use of Collateral Management in OTC transactions



(Middle-Back office - Finance - Risk Management - Legal - Compliance - IT - Treasury - Marketing and Product Development - Sales)

(low specialisation - medium specialisation - high specialisation)

Source: CeTIF 2012

3. Collateral in banking liquidity management

3.1 Developments and use of Collateral Management in liquidity management

In light of the recent financial crisis and of the credit rationing that financial operators are experiencing, proper liquidity management is a crucial issue for the entire banking industry. This period of difficulty for the Eurozone has been marked by an increased use of credit operations by the BCE and by an increase in demand for securities in exchange for inter-bank funds for all maturities.

The high use of credit by the Central Bank is due to tensions in raising funds on the inter-bank market, the need to refinance the large amount of maturing bonds and in order to limit the contraction in credit supply resulting in economic deterioration.

In particular, during the period between December 2011 and February 2012, the Eurosystem conducted two refinancing operations lasting three years (Long Term Refinancing Operations, abbreviated below to LTRO) for a value of around 1,000 billion Euros, of which 255 billion were directed to banks based in Italy on the sale of underlying collateral.

For these operations, the National Central Banks (under article 18.1 of the ESCB Statute) are responsible for managing the collateral that banks must pay. In Italy, the Bank of Italy acquires reports from its counterparties relating to the securities that the banks want to provide, verifies their suitability and determines their value according to established criteria. Moreover, it carries out daily checks that the value of the securities is adequate for the given sum, adopting adjustments where necessary.

During the asset evaluation phase, the Bank of Italy takes into account the market value of the assets, decreased by a certain percentage named a *haircut*. The *haircut* depends on the credit quality and on the liquidity category to which each asset is designated (see the appendix table for the *haircut* arrangement).

In particular, the ECB identifies the following five asset classes:

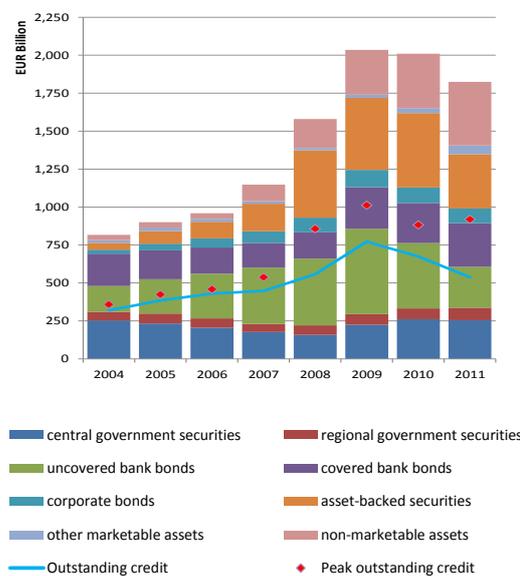
- I. Debt instruments issued by central governments

- II. Debt instruments issued by regional governments
- III. Debt instruments issued by non-financial companies and bonds
- IV. Unsecured debt instruments issued by credit institutions and Financial Corporations other than credit institutions
- V. Asset-Backed Securities (ABS).

In reference to this last category, it should be recalled that on 8 December 2011, the ECB decided to extend the eligibility criteria in order to support banks in providing credit to European small-medium enterprises. Those measures include, among others, accepting ABS with a minimum A rating (in June 2012 it was then downgraded to BBB) provided, however, that certain conditions are met.

To get an idea about the total amount, at the end of the second quarter of 2012, the ECB held assets as collateral for a total value of € 2,456 billion⁷, a figure higher than the Italian GDP. By way of analysing the make-up of this Figure, Figure 3.1 shows how, at the end of 2011, the most prevalent form of asset held as collateral were ABS, followed by covered bank bonds and government bonds.

Figure 3.1: Assets used by ECB



Source: ECB 2012

⁷ This value refers to the net value of the *haircuts*, Source ECB 2012

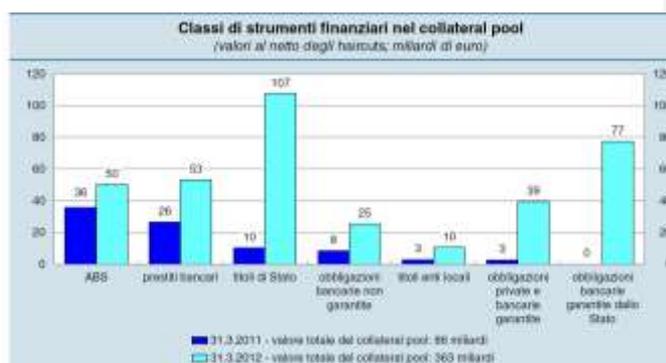
In reference to Italy, the value of the assets placed in the Bank of Italy *pool* were, in March 2012, equal to 363⁸ billion Euros, more than four times the value recorded in March of the previous year. In particular, from 2011 the amount of eligible assets by Italian counterparties increased following two measures issued by the Italian Government and by the ECB.

The first ⁹ gave the Ministry of Economy and Finance the opportunity to grant state guarantees on newly issued liabilities against commission payments.

The second, meanwhile, gave the Bank of Italy the opportunity to include within the *collateral pool* bank loans with a defaulting probability of no more than 1%, compared to the usual figure of 0.4%.

In March 2012, the Bank of Italy *pool* mainly comprised government bonds (30%), government-guaranteed bank bonds (21%), bank loans (14%) and ABS (13%).

Figure 3.2 Make up of Bank of Italy pool account



(net value of the *haircuts*, in Euros [billions])
 (ABS - bank loans - government bonds - uncovered back bonds - regional bonds - private and covered back bonds - government-guaranteed back bonds)

Source: Bank of Italy 2012

In addition to the above reasons which prompted the banks to refinance through European Central Bank operations, a further element is characterizing the European banking landscape: intra-day liquidity risk. This will be further explained in the case study which is presented below. It should be stressed that, unlike the US, Switzerland and Japan, to date within the euro zone there is still no market dedicated exclusively to intra-day liquidity. The absence of this market is rather disadvantageous for banks, which may for several hours a day find themselves unsecured for several millions of Euros. In terms of future developments, the participants at the working group do not foresee in the short-medium term that a market will be designated to this kind of need.

⁸ Financial Stability Report 2012
⁹ Legislative Decree 6 December 2011, n. 201.

Case study on Intra-day Liquidity Management

(by Dr. Renati di Intesa Sanpaolo)

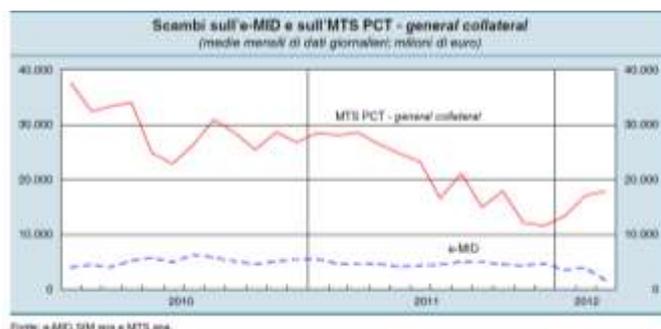
In the last few years, the risk of intra-day liquidity has assumed increasing importance for regulators around the world. Seen as a "micro-declension" of the broader liquidity risk, it may be defined as the risk of not having sufficient funds to meet payment obligations on time, during the working day, and within the various regulatory systems. The development of these systems into increasingly complex and hybrid (gross and net) forms, has profoundly changed cash flow management in Treasuries and drives liquidity to be properly available at the right time and under the right system. The concept of "time sensitive" payments therefore originates from this.

Intra-day liquidity management comes in then, in the 'New prudential supervisory instructions for banks' by the Bank of Italy and has also become the subject of attention by the Basel Committee on Banking Supervision that last September launched a Europe-wide consultative document entitled 'Monitoring indicators for intraday liquidity management'. The objective is to create a series of real time indicators that keep intra-day liquidity of banks under control.

In this time of market crisis, we can therefore say that liquidity has become a key issue for the banking system.

Despite the massive refinancing operations, liquidity conditions of the inter-bank market do not seem to have improved compared to 2010. In 2011 in fact, the amount exchanged on the inter-bank market of unsecured money deposits and the MID market decreased, amounting to a daily average of 4.7 billion Euros: an 8% decrease on the previous year and an 86% decrease compared to 2006.

Figure 3.3: Amounts exchanged on the electronic Interbank Deposit Market (EMID) and MTS Repurchase Agreements



(monthly averages of day-to-day dates; Euros [millions])

Source: Bank of Italy 2012

In particular, in March 2012, following the two Eurosystem operations, trades were further weakened falling to an average value of 1.7 billion Euros. Exchanges were also reduced on the MTS market for the repurchase sector of around 30% in 2010. Unlike what was observed on the non-collateralised market, exchanges in 2012 grew again as a result of the lowering of margins decided by central counterparties.

While the number of unsecured transactions continues to decline, secured/collateralised operations - where money is exchanged against securities held as collateral - are increasing.

The increase of these operations and an ever increasing dependency of Italian intermediaries on ECB refinancing operations put Collateral Management at the centre of banking strategy in the Eurosystem.

The following sections presents the main findings from the qualitative-quantitative survey relating to strategic operations, as compiled by the research participants.

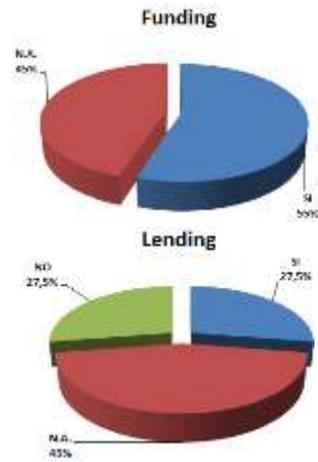
3.2 Survey Findings

It should firstly be considered that, while all those intermediaries who were interviewed use Collateral Management in OTC operations, on the other hand only one part of the sample that took part in the research uses it for liquidity management purposes (Figure 3.4). The reason for this finding is probably attributable to the fact that Collateral Management was initially conceived in the world of derivatives and only in recent years has it branched into the world of liquidity.

Furthermore, as shown by Figure 3.4, just 27.5% of the sample uses collateral in lending transactions in order to reduce the credit risk, while borrowing activities are prevalent (55%).

In fact the role of collateral is increasingly connected to both instances, particularly through re-use practices.

Figure 3.4: Use of Collateral Management in liquidity management



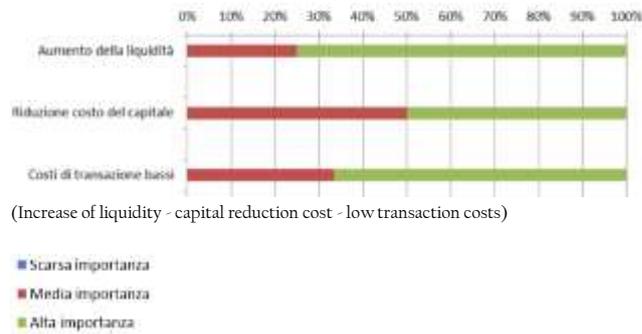
Source: CeTIF 2012

Strategically, collateral has several advantages. In particular, it allows broker to amass liquidity against a rather low cost of funding. From Figure 3.5 it can be seen that the main advantage of collateralisation is, in fact, an increase in liquidity, considered by almost 80% of the sample as a highly-important aspect. This is directly followed by low transaction costs and finally the reduction in the cost of capital.

To get an idea on the funding cost, the refinancing rate - the rate that the ECB applies to financing operations - now amounts to 0.75% (compared to 1% of the last two operations).

It is interesting to note that the evidence emerging from EMID transactions show an immediate cost advantage in funding *secured* transactions, especially by medium and small banks (insert figure from slide 13 of EMIDs)

Figure 3.5: Benefits of using Collateral Management in liquidity management

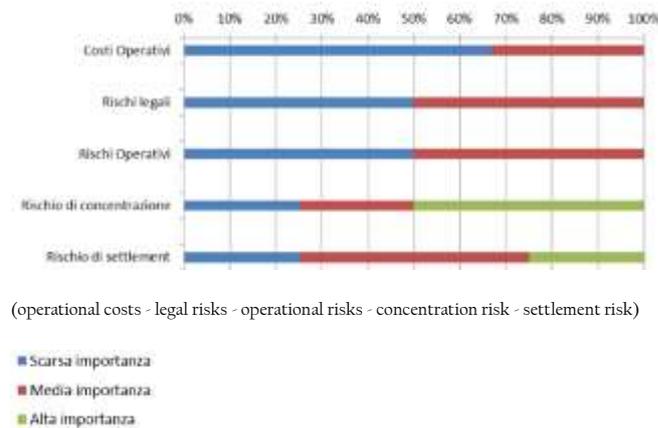


(Increase of liquidity - capital reduction cost - low transaction costs)

Source: CeTIF 2012

However, collateralising may also present risks: operational, legal, regulatory, and concentration risks. From Figure 3.6 it emerges that the main disadvantage is connected to concentration risk - the risk associated with over-exposure to a single counterparty (shown by 40% of the sample as a risk of high importance). Directly following this is settlement risk - the risk that one party does not receive funds or the financial instruments from its counterparties in due time (shown by 20% of the sample as a risk of high importance).

Figure 3.6: Benefits of using Collateral Management in liquidity management



(operational costs - legal risks - operational risks - concentration risk - settlement risk)

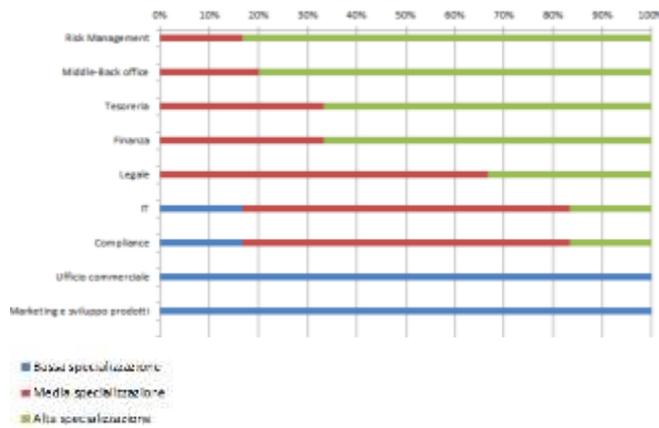
Source: CeTIF 2012

Beyond settlement and concentration risks, no other risk is considered by the participants to be of high importance. It would seem, therefore, that the advantages of using collateral outweigh the risks and thus this positive

trade-off has contributed to Collateral Management also becoming widespread in the world of liquidity management.

From a purely organisational perspective, specialist collateral skills are gradually extending to all banking structures. The areas where these skills are mostly concentrated are the middle-back office, Risk Management, and the treasury and finance area (Fig 3.7). Once again, at the base of the skills 'pyramid' are the sales and marketing departments. However, just as is the case with Collateral Management for OTC transactions, this does not mean that there are not skills within these two structures. Indeed in the last few years, initiatives have been promoted in order to give these structures the base administrative skills in order to perform promotional and sales activities in order to better coordinate credit policies with sales and marketing policies.

Figure 3.7: Competences and skills in the various structures for the use of Collateral Management in liquidity management



Source: CeTIF 2012

One case that emerged from the focus group is particularly interesting. That was the option of promoting re-financeable credit ('terminable' loans) from the Central Banks pool on specific commercial conditions. This example assumes the extension of certain skills relating to Collateral Management to commercial areas.

4. Collateral Management Prospects

4.1 Introduction

As shown in previous chapters, Collateral is becoming widespread in the world of finance and increasingly establishing itself in the field of OTC derivatives and lately extending into liquidity management. This study has in fact shown that 100% of the research participants use Collateral Management in OTC transactions, 88% in Repurchase (Repo) Agreements, 62% in inter-bank liquidity management and 36% in other operations, for example Total Return Swaps, Stock Lending etc.

With respect to liquidity management, brokers have the perception that transactions between banks will always be collateralised. Collateral, which is nowadays mainly used in refinancing operations with the ECB, in the next few years could in fact become standard practice on the inter-bank market by representing the solution to a systemic problem.

In light of what has just been stated, developments envisaged for EMID in the next few years will be discussed in the following section.

Commentato [RB1]: Here it may be worth putting the regulatory environment into some context (EMIR and Basel 3)

Future prospects in the world of liquidity

(by Dr. Burratti of EMID)

The issue of Collateral Management is increasingly at the centre of banking activities and looks set to develop in the next few years. ECB operations and new instruments for liquidity management give prominence to the concept of a 'guaranteed market'.

In anticipation of a scenario of greater stability and with the return of non-conventional operations of the ECB, markets should perform their duty: circulate liquidity and, therefore, provide funds to businesses and the real economy. The Central Bank cannot, indeed, represent a source of permanent funding.

The allocation of collateral available to the banks is considerable, bearing in mind the continuous enlargement of eligibility criteria. It is conceivable,

however, that this situation may change due also to strong resistance of expert countries, which will make it increasingly difficult to maintain exceptional operations by the Eurosystem over time. The various instruments available to operators: Repo, New MIC and Tri-party Repo will focus operations on an optimised management of collateral represented either by government bonds or by other financial instruments of lesser standing. However, also in this case, the "better" collateral will be rewarded, the collateral that will fulfil the requirements imposed by Basel III and other regulations.

For efficient and total management of liquidity flows the banks will necessarily continue to use the unsecured deposits market (EMID), which will especially fulfil a role for the very short period of the curve (overnight) and represent an opportunity for intra-day activity.

To make the system more efficient and protected, trade should be centred on electronic platforms: systems based on the principles of transparency and efficiency, concepts which may no longer be circumvented in the process of upgrading and regulating financial markets on the international scene.

The centrality of collateral is therefore leading the European banks to rethink the Collateral Manager's organisational role as a supporting function that handles reconciliations and margin requirements, as a centralised function with the possibility of becoming a real area of generating revenue.

This function is therefore configured with a single interface between the banking structures and the different counterparties, with respect to all the products (repurchase agreements, securities lending, OTC derivatives) and different types of collateral.

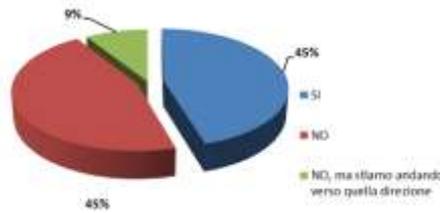
So this is therefore not a centralized decision-making process, but rather a 'coordinated' one.

The following section presents the findings of the survey with respect to the level of integration between the various functions, forms of participation and application of technology in support of collateral operations.

4.2 Level of Collateral Management integration

To date, as shown by Figure 4.1, as far as Collateral Management is concerned there is no total integration between the financial area (designated among other things to OTC derivatives) and the Treasury (designated for liquidity management). In fact, only 45% of the respondents confirm the existence of integration between the two areas while another 45% instead argues the opposite. However around 10% of the respondents deploys a process of this type.

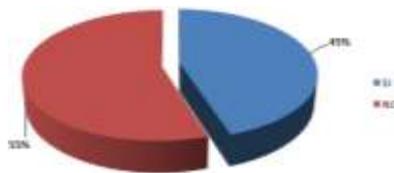
Figure 4.1: Integration between finance and Treasury in the use of Collateral Management



Source: CeTIF 2012

Non-integration between these two areas is reflected in the presence or absence of a single person being responsible for Collateral Management. This is shown by Figure 4.2. Indeed, 45% of the sample declares that within their operations they do not have a single person responsible for collateral, while 55% state that they do have a figure appointed for this role.

Figure 4.2 Presence of a single person responsible for Collateral Management



Source: CeTIF 2012

Analysing the role of Risk Management in this particular context, Figure 4.3 shows us that in 36% of cases there is no integration between the dynamics of the use of collateral and such a function by the bank. However, in relation to collateral use, the role of this function is gradually becoming more important. In some cases highlighted by the working group, the collateral offices (where active) work closely with Risk Management, which defines the guidelines and takes the final decisions thereby taking on a role of 'head and tail' of the whole process.

Figure 4.3: Level of integration between Risk Management policy and use of Collateral

Commentato [RB2]: We understood this differently: I would omit this. It's already clear that Risk Management is needed to reduce 'risks' (assets concentration, counterparty risk...)



- (No integration, 36%. Risk Management policies always precede collateral use strategies, even influencing operational decisions, 27%. Risk Management policies are increasingly influenced by the strategic dynamics of collateral use, 45%)

Source: CeTIF 2012

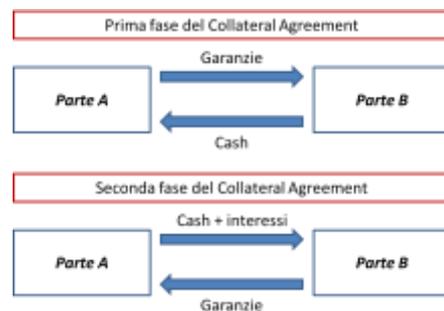
4.3 Forms of participation

Collateral Management starts off as a bilateral agreement, where two parties come together and represent the so-called 'Collateral Agreement'.

At a bilateral level the agreement consists of two distinct phases:

- I. **The initiation phase:** Where the Borrower defines the value of cash/securities that they need and identifies the possible lender. The lender then evaluates the securities that the Borrower is willing to offer and, possibly completes the transaction. At the end of this phase, the funds are transferred to the Borrower who in turn accepts a delivery of securities.
- II. **The concluding phase:** depending on the terms of the contract the Borrower returns the cash at a specified rate of interest to the lender who in turn returns the underlying collateral. The contract is therefore concluded.

Figure 4.4: Bi-Party Collateral Agreement



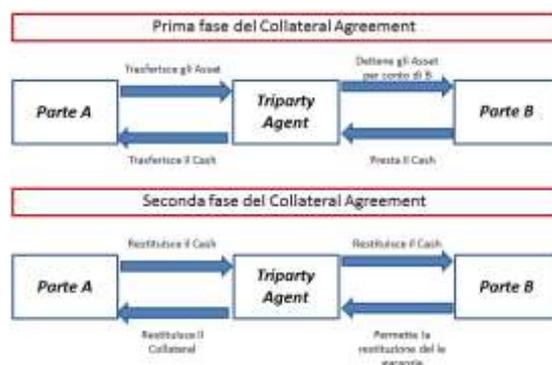
Source: CeTIF 2012

The bilateral contract can present some difficulties both for the Borrower and the Lender. The Borrower, for example, may not be able to provide further collateral if the market value of its securities should decrease. The Lender, meanwhile, may not be able to return the collateral within the pre-established contract time. Bilateral Collateral Management therefore forces the parties to be active and proactive in terms of choice, transfer and Collateral Management.

It is clear that this sort of activity can lean to excessive laboriousness and "efforts" at an administrative level.

An alternative to this type of contract is represented by Tri-Party Collateral Management. In this type of agreement the two sides are mediated by a third party named a *Tri-Party Agent*, who assists the two parties in implementing and fulfilling the contract. Figure 4.5 shows how a *Tri-Party* agreement works.

Figure 4.5: Tri-Party Collateral Agreement



Source: CeTIF 2012

During the transactions, the *Tri-Party* agent normally handles a series of activities including: (i) setting the terms and conditions of the collateral agreement, (ii) evaluating the assets for collateral, (iii) custody of the assets, (iv) selection of the assets for *pledging*, (v) custody of the collateral received as a surplus, (vi) reconciliations, (vii) resolving disputes between the counterparties, etc.

The *tri-party* scheme can be declared for different contractual forms (eg. *REPO*, *Securities Lending*, *Pledging*, Etc.).

As for the world of derivatives, in 2009 bilateral participation was essentially the only form used by brokers taking part in the research (90% of exclusively used this type of *Agreement*). In 2012 things do not seem to have especially changed: 70% of the brokers continues to use only the bilateral

agreement, 20% jointly uses the tri-party system and the bilateral agreement (17% and 83% respectively of the total transactions) while 10% of the intermediaries only used the *Tri-Party* system.

There is furthermore an almost totalitarian usage of cash as collateral even when contractual standards allow the use of other assets. During the meetings an interest for the use of cash emerged in this sense, at least for covering a part of the exposure.

In a prospective sense however, the bilateral form will gradually decrease compared to an increase in the use of the tri-party form and other forms of participation (see Centralised Counterparties): in 2015, in fact, the bilateral form will on average be used for 50% of the transactions.

In respect to liquidity management, in 2009 the only two forms of participation used by the intermediaries were the bilateral system (the most common form of participation), followed directly by Central Bank pooling. In 2012, with the recent refinancing operations, the pooling with the Central Bank was the most widely-used mode of participation (on average 50% followed by the bilateral form (40%) and finally by Clearing and Guarantee (50%).

In 2015, however, both the Bilateral Agreement and Central Bank pooling will tend to decrease whereas Tri-Party usage will increase. In 2015 Tri-Party should cover an average of 25% of total transactions.

Case Study on Tri-Party Collateral Management

(by Dr. Constantini di Monte Titoli)

The financial crisis has made the need for funding sources as alternatives to the ECB, and financial tools as collateral, even more pronounced.

This has led to a growth in the repurchase agreements markets, where faced with a sum of loaned cash, the counterparty receives the general collateral, or securities held within a basket that are assigned to the financing counterparty to secure the transaction. There are many advantages to this type of activity are on various levels and they are linked to a more detailed financing account, to a lower capital absorption and better management of counterparty risk. In general there is a return of trust by the operators towards their counterparties.

In managing these financing contracts one of the major difficulties is in Collateral Management: what securities should be chosen? What prices should the collateral be valued at? How do you manage the mark to market during the life-cycle of repurchase agreements? How do you manage corporate actions on collateral securities? All these aspects have until now been an obstacle to the full development of the market.

The Monte Titoli project aims to provide an answer to all these questions. X-COM, the new platform for Tri-Party collateral management, will be able to manage collateral optimally. A first XCOM module came out in September this year and the service will be fully operational in the second half of 2013.

4.4 Technological Applications

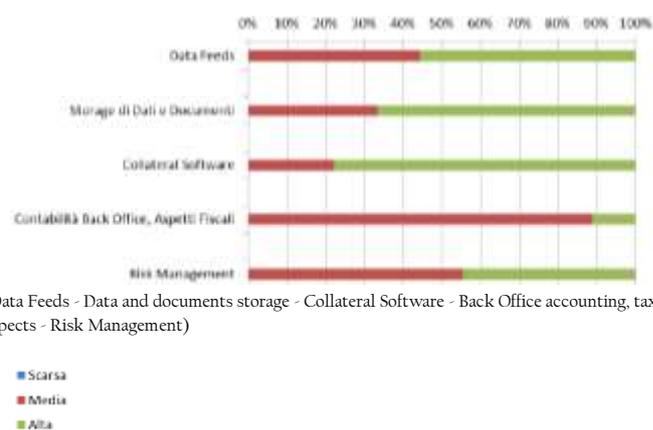
Previous comments show several areas where the efficiency of IT systems can generate value, in particular by:

- Reduction of costs and operational risks
- Reduction of costs and settlement risks
- Support in developing the current organisational processes through an integrated collateral management model among the functions of the intermediary.

These objectives can be achieved by implementing more integrated information systems, and with external tri-party systems, that reduce reliance on manual skills and provide an overview of all organisational activities involved according to their needs.

For the IT component, the results from the survey support these findings, confirming a certain uniformity of the results and expectations regardless of the type of business and the business model adopted by the single broker.

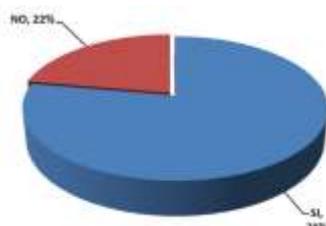
Figure 4.6: Coverage level of the software and systems for collateral management



Source: CeTIF 2012

As is shown in Figure 4.6, functional coverage offered by existing software proves to be more than satisfactory and 78% of the respondents state that they already use an information system which is completely dedicated to Collateral Management.

Figure 4.7: Use of an information system dedicated to Collateral Management



Source: CeTIF 2012

In summary the areas of greatest interest are as follows:

- Collateral Selection
- Collateral Allocation
- Real Time Processing
- STP and integration with internal systems
- Integration of External Systems (bilateral and trilateral)
- Mark to Market Evaluation
- Optimization and intra-day realignment of collateral accounts
- Forecasting
- Reporting

Some of these appear to be more guaranteed by existing solutions, while others, probably due to the strong developments in progress, are deemed to be areas of development in the near future, such as:

- STP and integration with internal systems
- Integration of External Systems (bilateral and trilateral)

The current fragmentation of the applied structures equates to a fragmentation of the securities with subsequent reduction of abilities to raise liquidity.

The creation of a centralised monitoring point would thus have the effect of creating greater integration and a resulting synergy between internal applications, achieving greater efficiency from the available potential, but which until now remains partly unachieved.

Appendix

Table 1: Haircuts applied by the ECB

Liquidity categories											
Category I		Category II		Category III		Category IV		Category V		Category VI	
fixed	Zero Coupon	fixed	Zero Coupon	fixed	Zero Coupon	fixed	Zero Coupon	fixed	Zero Coupon	fixed	Zero Coupon
0.5	0.5	1.0	1.0	1.5	1.5	1.5	1.5	6.5	6.5	6.5	6.5
1.5	1.5	2.5	2.5	3.0	3.0	3.0	3.0	8.5	8.5	8.5	8.5
2.5	3.0	3.5	4.0	5.0	5.5	5.5	5.5	11.0	11.0	11.0	11.0
3.0	3.5	4.5	5.0	6.5	7.5	7.5	7.5	12.5	12.5	12.5	12.5
4.0	4.5	5.5	6.5	8.5	9.5	9.5	9.5	14.0	14.0	14.0	14.0
5.5	6.5	7.5	12.0	11.0	16.5	17.0	17.0	17.0	17.0	17.0	17.0
5.5	5.5	6.0	6.0	8.0	8.0	8.0	8.0	15.0	15.0	15.0	15.0
6.5	6.5	10.5	11.5	18.0	19.5	19.5	19.5	27.5	27.5	27.5	27.5
7.5	8.0	15.5	17.0	25.5	28.0	28.0	28.0	36.5	36.5	36.5	36.5
8.0	8.5	18.0	20.5	28.0	31.5	31.5	31.5	38.5	38.5	38.5	38.5
9.0	9.5	19.5	22.5	29.0	33.5	33.5	33.5	39.0	39.0	39.0	39.0
10.5	13.5	20.0	29.0	29.5	38.0	38.0	38.0	39.5	39.5	39.5	39.5

Source: ECB 2012

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